Community Experience Distilled

Science Teaching with Moodle 2.0

Create interactive activities in Moodle to enhance your students' understanding and enjoyment of science

Foreword by Mary Cooch, Moodle Trainer and Consultant

Vincent Lee Stocker

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Science Teaching with Moodle 2.0

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Foreword

Science Teaching with Moodle 2.0 is a first both for Vincent Stocker and myself; it is Vincent's first Moodle book and it is the first time I have been asked to write a foreword. Beyond that though, Vincent definitely has the edge on me. While I have experience of Moodle and have written about Moodle, Vincent both knows about Moodle, has written about Moodle and is also very competent in Science Teaching. As a schoolgirl, I veered strongly towards Arts and Humanities subjects and have always had an admiration for those who can get their heads around the complexities of nature and the Universe (not to mention equations and formulae!)

I have learned from this book and so will you. Vincent has done a sound job in explaining ways to use Moodle 2.0 to make the most of your Science teaching. Starting from the basics of layout and file upload, he moves quickly to Moodle's favored interactive, collaborative modules. In times where student feedback, assessment for learning, and progress monitoring are increasingly embedded into our teaching, Vincent shows us the Moodle way to achieve all these, and as the icing on the cake, the final chapter brings in a comprehensive list of added extras—contributed modules which should soon be 2.0 compliant and the best of the Open Web. Scientists—and those of you of a scientific or mathematical persuasion: Enjoy!

Mary Cooch
Moodle Trainer and Consultant

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About the Author

Vincent Lee Stocker, a compulsive technology explorer, is e-Learning Leader at Garden International School, Kuala Lumpur, where he leads/pioneers developments in Moodle, SIMs, and other key areas. He has piloted innovative ICT use in a wide range of educational context including Hampshire, Kent, Bangkok, and Istanbul, as well as developing a popular, internationally renowned Moodle-based website. Vincent is also a secondary school Chemistry specialist, subject leader, and pastoral manager with 15 years of teaching experience.

His curiosity in using ICT to enhance his classroom practice started with setting up websites for his students to revise from in the early days of the Internet, and exploded with the realization of the power of tools such as Moodle. Vincent began using Moodle in 2004 with the release of version 1.3 and has gone on to train in excess of 200 teachers how to use various versions of the software.

His other interests include wakesurfing, music production, local exploration, cookery and home-brewing … anything that gives Vincent the excuse to tinker with technology and flex his secret geek side.

Vincent is married to Rhiannon Stocker. They recently celebrated the birth of their first child, Seren.

Science Teaching with Moodle 2.0 is his first published work.

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Acknowledgement

I'd like to thank a number of people who have contributed to this book.

The people at Packt Publishing who have guided me every step of the way. In particular, my editors Hyacintha D'Souza and Sarah Cullington, thank you for your advice and assistance; and Michelle Quadros for keeping me on track with timely deadline reminders.

With nearly 50,000 Moodle sites in 210 different countries, the software I have written about would not be here if it wasn't for the Moodle development team, and in particular Martin Dougiamas who continues to lead the project. You guys and the thousands of other people that have contributed to the Moodle project are doing a brilliant job.

Lastly, I would like to thank all the people that have helped with the book. In particular the Technical reviewers Julian Ridden and Ian Wild for their valuable insights and Mary Cooch for writing such a lovely foreword. My thanks also go to Jonathan Fernandes, Nicola Mason, and Joe Curtis for looking over my work and giving me some great feedback for improvement. I hope you all found it a fulfilling and worthwhile process. Moodle on.

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About the Reviewers

Daniel Grycman has worked for the German Department of Ruhr-University Bochum as a technical assistant. He has over five years of experience of Moodle in educational environments.

Julian (Moodleman) Ridden has more than 12 years of experience in education (specifically in online e-learning) with a wide range of both corporate clients and educational institutions as well as experience in project management, systems implementation, networking, support, and training. He currently works with the Australian Moodle partner Pukunui Technology (`www.moodle.com.au`). He is known globally as a go-to man for all things Moodle and Mahara.

Julian is an experienced IT manager within the scholastic sector as well as a proven ICT Integrator in both boys and girls secondary education. He also has worked for many years in adult education with experience in both the corporate and VET sectors. This knowledge of the IT world both behind the server door and at the education coalface (the classroom) has provided him with a diverse skills base from which to pull when consulting and training clients.

Julian regularly speaks at Moodle and education conferences both locally and abroad. He is known as a passionate, well informed and entertaining speaker who provides insightful and thought provoking presentations.

Ian Wild is a recognized authority on learning platforms and instructional design, especially Moodle. Fifteen years spent in private industry— primarily as a communications technology researcher— saw Ian ultimately specializing in the design and development of access and learning aids for blind, visually impaired, dyslexic, and dyscalculic computer users; whilst also working part time as a math and science tutor. Teaching only part time meant not spending as much time with his students as he would have wished. This, coupled with his background in communication technologies, seeded his long-time interest in virtual learning environments.

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Ian is one of the founding partners of Heavy Horse Limited (`http://www.heavy-horse.co.uk`), a technology company that regularly advises clients throughout England and Wales on e-Learning platform development and deployment.

Ian is the author of *Moodle 1.9 Math and Moodle Course Conversion: Beginner's Guide*, also from Packt. He was also technical reviewer for *Moodle 1.9 Multimedia*.

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This book is dedicated to my wife Rhiannon, who has given her wholehearted support, her love and her confidence in me.

It is also dedicated to my daughter Seren who was born some time whilst I was writing Chapter 6. To both my stars, you are my world and my life.

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Preface

Moodle is becoming increasingly popular in schools worldwide due to its ease of use and flexibility. Science is the perfect subject to benefit from the features of Moodle as students will find it the easiest to learn with the help of interactive content, rather than reading textbooks. This book will teach you how to create quizzes, start forum discussions, embed videos, and much more, all while keeping the students' performance in mind, which is easily monitored using the 'gradebook' function. Packed with lots of practical examples, each chapter takes you through a different aspect of teaching using Moodle. All examples are based around a sample science course, which you can see growing throughout the book

What this book covers

Chapter 1, *Getting Started*, offers a look at how to upload resources to a course for our users to look at. We will also change a few of the settings so our users will be automatically put into groups when they begin to use it.

Chapter 2, *Making it Look Great*, shows you that an excellent Moodle course has to look good as well as contain engaging activities. Here, you will find out how to make your course look exciting for your users.

Chapter 3, *Learning through Discussion: Forums, Chat, and Messaging*, tells you more about discussion and communication being at the heart of sharing ideas and constructing learning. It brings this together by showing you how to set up and use forums, chats, and messaging.

Chapter 4, *Assessing your Learners' Understanding of Science*, examines how you can provide feedback to your learners on their understanding. To do this you will find out how to use Forums effectively, set Assignments and construct Quizzes.

Chapter 5, *Monitoring your Students' Progress*, shows that built into Moodle are lots of ways to track your students' progress. It shows you how to track completion of activities and dives deeper into some of the activities you are now familiar with.

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Chapter 6, *Tools for Collaborative Learning*, takes you through three important activities used for collaborative learning, namely wikis, glossaries, and workshops.

Chapter 7, *Using Mathematical Equations, Animated Molecules, and Creating 'Live' Graphs*, talks about the ways to incorporate science-specific tools to help your students understand complex ideas. This includes embedding graphs and molecular models, and displaying mathematical formulae.

Chapter 8, *Learners' Self-Assessment, Reflection, and Personalized Learning*, shows you how to find ways to achieve students' self assessment and reflection, using Moodle as this is gaining increasing importance in schools.

Chapter 9, *Using Student Voice to Improve your Course*, teaches you how to use feedback from your students to make your course even better. This chapter also shows you how you can get your pupils making content for you.

Chapter 10, *Housekeeping for the New School Year*, the penultimate chapter, shows you the steps to go through at the end of the academic year in preparation for your new students.

Chapter 11, *Making Moodle Magic*, covers some of the most popular non-standard modules, and content from other websites that you can use in your course, as Moodle is designed to be flexible and customizable.

What you need for this book

You will need a Moodle 2.0 course, with you given the role of 'Teacher'. Your Moodle Administrator will be able to set this up for you. If you don't have a Moodle course to use, there are some sites on the internet that offer them for free, or you can download the software and install it on a local computer. See *Chapter 1*, *Getting Started*, for details.

You will also need a web browser and connection to the Internet.

Who this book is for

This book is for science teachers who would like to enhance their lessons, the homework they set, and their pupils' out-of-lesson learning, by using Moodle. It doesn't matter if you haven't used Moodle before; as long as someone has set up a course for you, you can get started with the exercises in the book straightaway.

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Conventions

In this book, you will find a number of styles of text that distinguish between different kinds of information.

New terms and **important words** are shown in bold. Words that you see on the screen, in menus or dialog boxes for example, appear in the text like this: "On the main course page in the block on the left-hand side labeled **Settings**, click on the link **Edit settings**".

Warnings or important notes appear in a box like this.

Tips and tricks appear like this.

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1
Getting Started

> "*Technology is just a tool. In terms of getting the kids working together and motivating them, the teacher is the most important.*"
> *- Bill Gates*

In this first chapter, we will look at the basics of Moodle course design. You will learn how to upload resources, create web pages, how to set up groups, and we will also look at a little bit of administration for your course. We'll go through the different blocks and layout options; we'll add news events, calendar dates, and most importantly, find out how to make a backup of your hard work.

By the end of this chapter, you will be able to perform the following tasks:

- Upload resources to your course
- Change the course settings
- Create groups of your users
- Build web pages in Moodle
- Back up your courses
- Use some of the standard blocks

Before you start

Before starting to edit your course, spend a while having a play with the software. Click on a few of the buttons to see what they do, click on some of the menu items, and generally get familiar with the look and feel of the courses. If you are fairly new to Moodle, the range of settings and options can be a little daunting; however, with time and practice anyone can learn how to use this software effectively and make a real difference to the learners studying your course.

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Assumptions and prior knowledge

The majority of people reading this will be high school science teachers using Moodle in an educational institution.We are assuming that you have a course setup to use that you may be new to the software, and could need a little help getting started. Any mention of the Moodle software throughout the book refers to Moodle version 2.0.

Why use Moodle to help teach science?

Moodle is one of the most popular learning management systems available and it is free! There is a huge community developing, improving, creating science-based resources, and supporting the software that is used all over the world. There are many reasons to use a VLE such as Moodle to enhance your teaching. These include the following:

- Being able to give your students access to course materials 24/7 in a controlled environment, so learning can take place anywhere
- Monitor the progress and keep records of your students learning
- Extending the classroom by providing online discussion, testing, activities, and, most importantly, allowing collaboration and communication for learning
- Make use of exciting multimedia, 3D interactive molecules, and web-based content, allowing pupils with different learning styles to access the curriculum
- Helping science teachers collaborate, share, and store teaching resources, releasing them to students at your own pace

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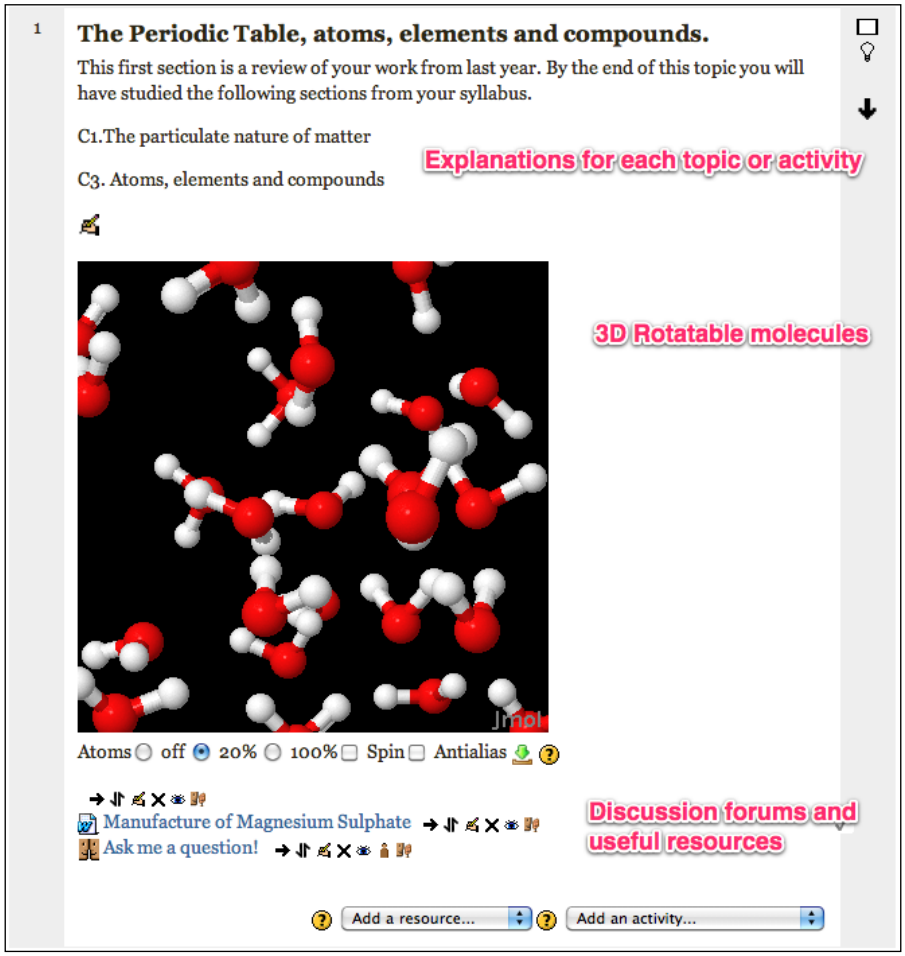
What does a great science course look like?

Moodle courses are very individual. They should do the following:

- Make full use of the activities built into Moodle
- Look interesting
- Be built on sound pedagogic principals

The following are examples that show parts of courses. The first one is the demo course created through the book.



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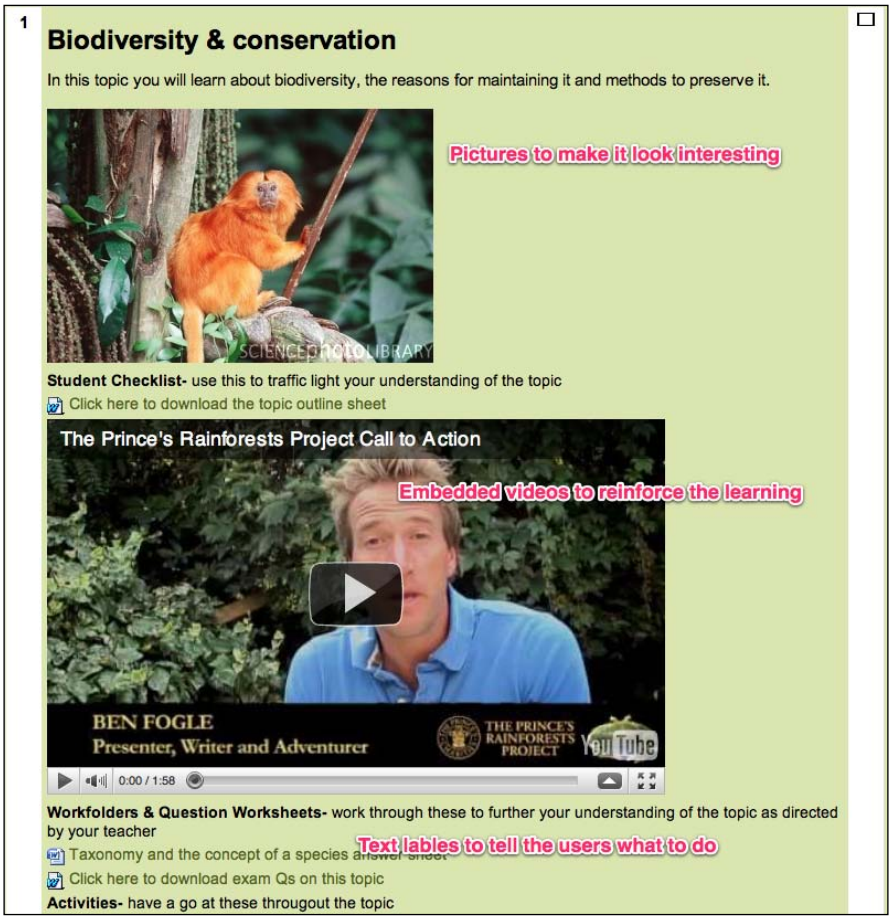
This is an example created by other teachers in my faculty, showing the first topic of a biology course.



Setting up a Moodle course

Setting up a course is beyond the scope of this book; however, if you do need to set up a course, the instructions can be found at `http://docs.moodle.org/en/Create_your_own_course`.

A little bit about roles

If you are unable to perform the tasks mentioned in this chapter, you may not have been assigned the correct role by your administrator. On a Moodle site, different permission is given to different users. To fully utilize your course, you should be given the Teacher role by whomever looks after your Moodle courses.

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Role	What they can do
Administrator	Pretty much anything on the site.
Manager	Usually have full control over courses, including deleting them. They would usually not participate in a course.
Course creator	Course creators can create courses and teach in them, although teachers should be assigned the Teacher role.
Teacher	Teachers can edit their courses; add activities, resources and grade students.
Non-editing teacher	The same as the Teacher role, but they cannot change the activities.
Student	Students can carry out the activities and view resources.
Guest	Not much at all! They can view your course if you have enabled it in the course settings.

Planning in advance

After having a play with the software, think about your course and plan it first on paper. Consider the following:

- The number of science topics (you could take them straight from the text book or syllabus)
- Types of activities and materials you want to display
- Whether you are going to group together similar things in each topic, for example, homework, web links, quizzes, and so on.

It can save you hours in the long run. It's worth finding out from your users what ideas they have or would like to see on a science Moodle course. This is especially true (and easy to elicit) if you meet your users face to face.

Orientation around a Moodle course

All Moodle courses follow similar layouts. **Blocks** around the side, **Resources and Activities** down the middle. Different themes can be applied to your course to change the way it looks, which can affect where you find the **Blocks** and alternative layouts can change the content in the middle.

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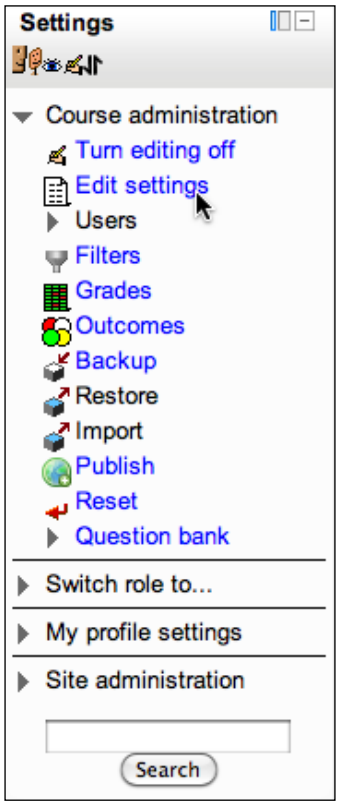
Course settings

There are a few layout options that can be applied to your course.

To change these settings, follow the **Edit settings** link in the settings block on the left-hand side of your course page:



There are four standard course formats available within Moodle, which determine the layout on the course front page:

- SCORM format
- Social format
- Topics format
- Weekly format

The **Topics format** is the most useful for teaching science. This is because we normally teach science in discrete units or topics, and so this arranges your course into a number of sections (which you can also set here) for you to add content into.

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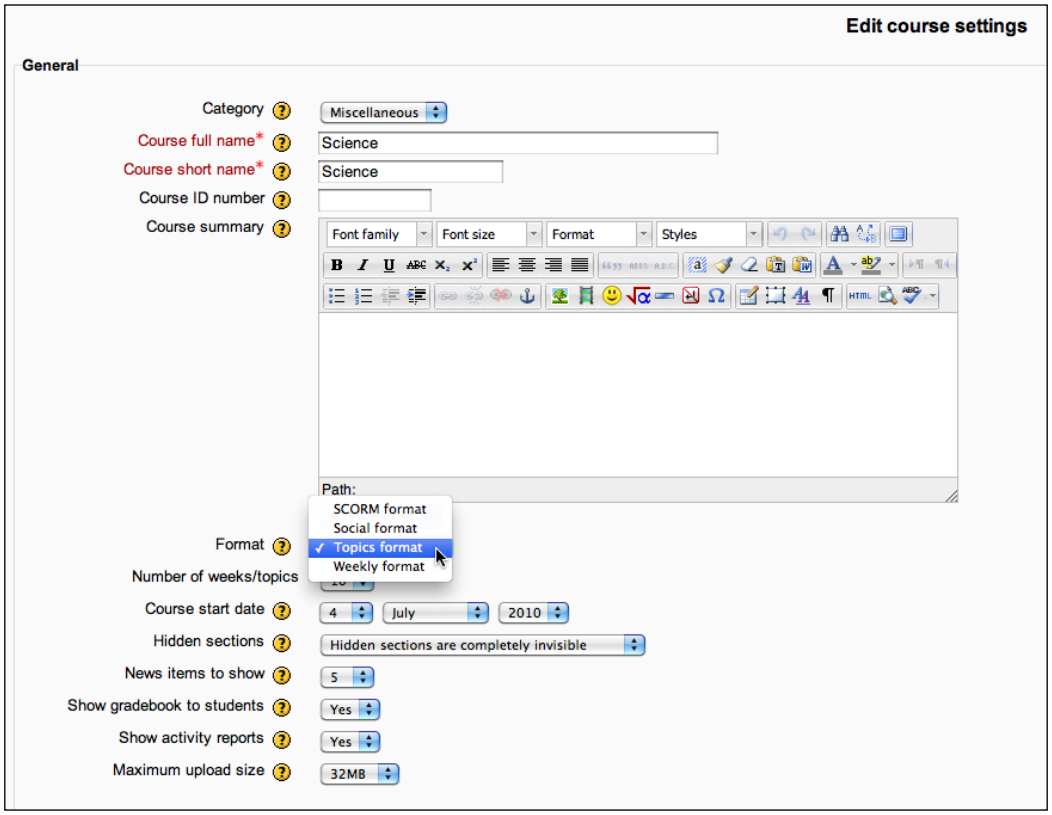
If you have a very clear, calendared structure of what you want your learners to achieve, you may wish to have a look at the **Weekly format**. This is a little restricting though, as it is important that learners should be able to see the big picture of the course and have an overview and progression for topics. The **Social format** allows you to have one big discussion forum running down the centre of the course page, which could be useful for projects and activities such as Science clubs. **SCORM format** is used to add SCORM compliant course content, which will be covered in the last chapter of the book. You can read about SCORM here: `http://www.scorm.com/scorm-explained/`.



Keeping students out until you are ready for them to join your course

If you are not ready for students to access your course, then change the date range when students can enroll on your course. You can find this option a little further down in the course settings.

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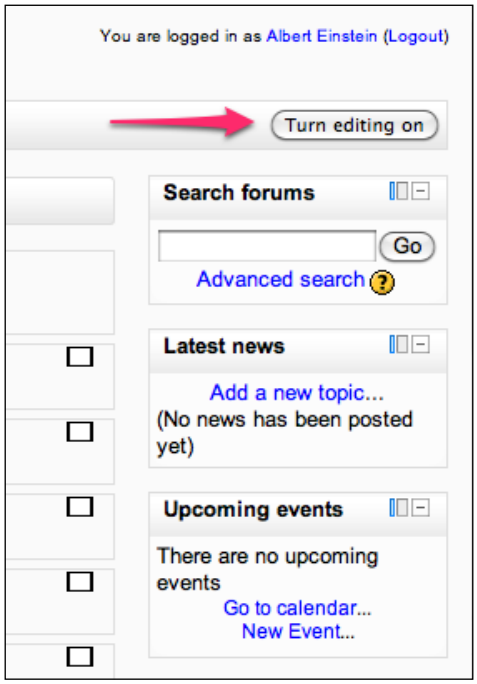
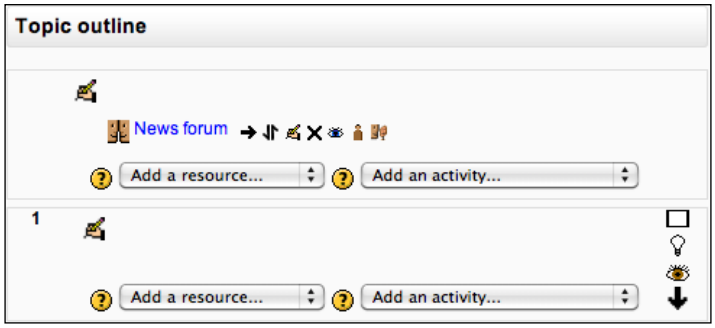
Editing your course

To begin any editing in your Moodle course, click the button to the top right-hand side, labeled **Turn editing on**:



Your course will look slightly different now and you'll notice that a number of different icons appear as well as drop-down lists. In the following example, we will set up the course using topics.



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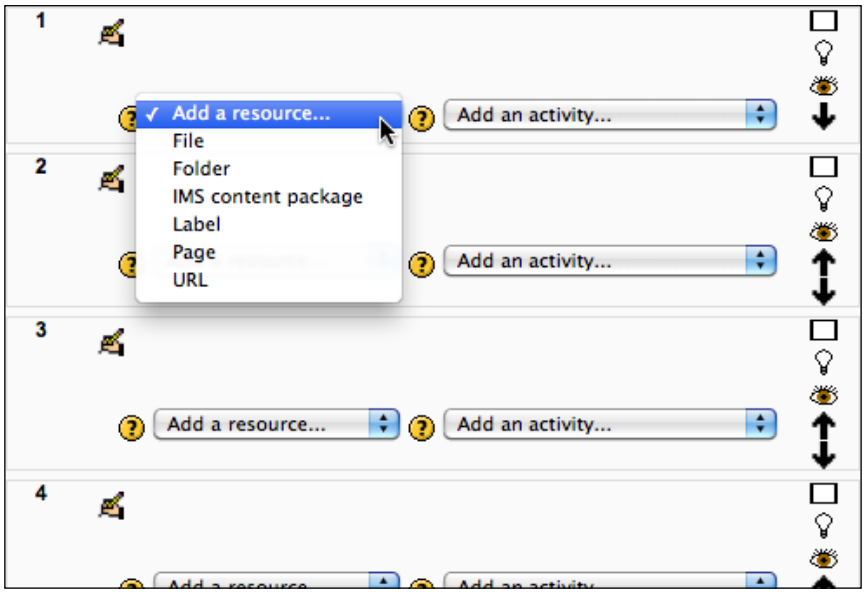
Resources and activities

The content you can add to the topics in Moodle are called either resources or activities. **Resources** are things that you expect students to look at, for example the files you upload, links on the Internet, videos, and so on. **Activities** are all the really great things you can set up in Moodle for your students to do.

Adding files

One of the easiest things to get you Moodling is to upload your teaching notes, resources, slide shows, lesson plans, and so on. So, we're going to look at how to add a file to your course. Here, the example is a Word document "The Manufacture of Magnesium Sulphate", which contains notes that have been used in class.

1. Once you have turned the editing on, choose the section you would like your resource to appear in and click on the drop-down box labeled **Add a resource**.
2. You will see that there are a number of different options to choose from. We're going to select **File**.



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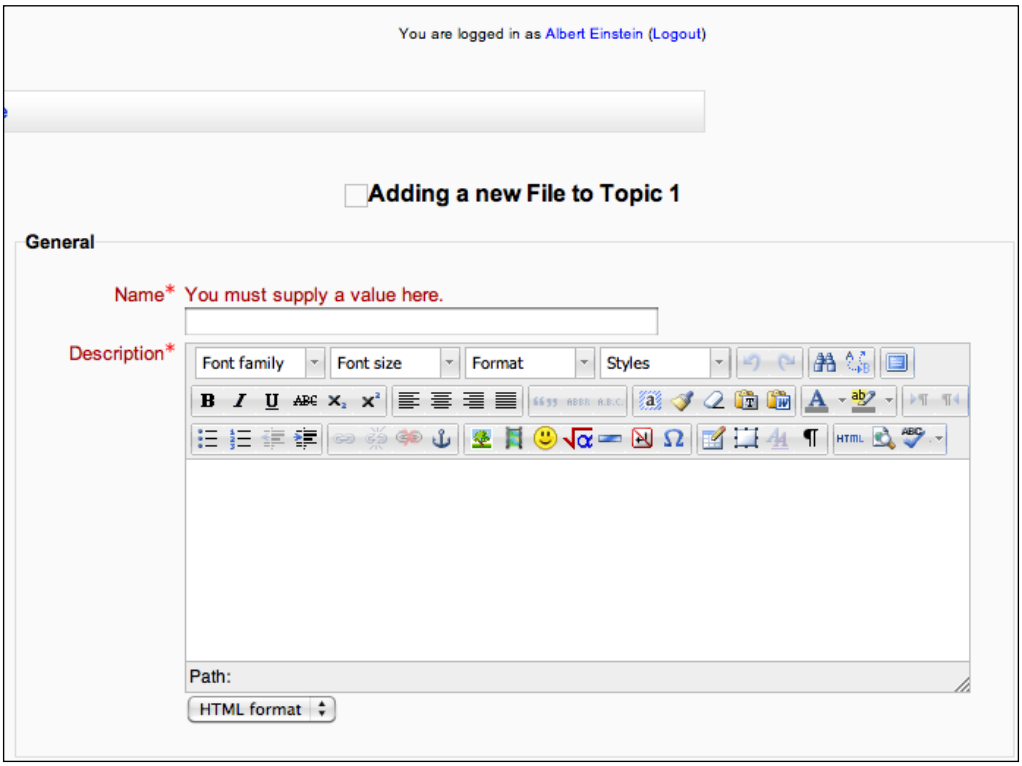
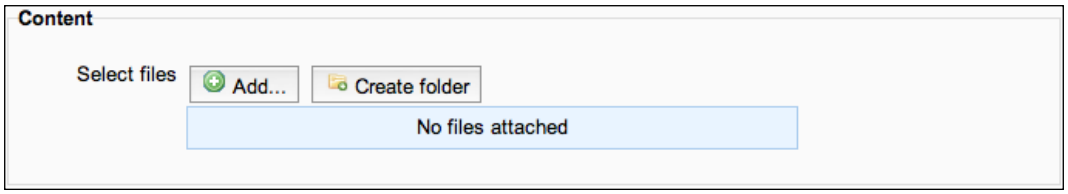
3. Next, give it a name and description.



4. Then, click on **Add** to choose your file.



Uploaded files can be anything you would want your learners to use. It could be a document, picture, MP3 file, and so on. Your users will need to have the software on the computer they are using to open the file.

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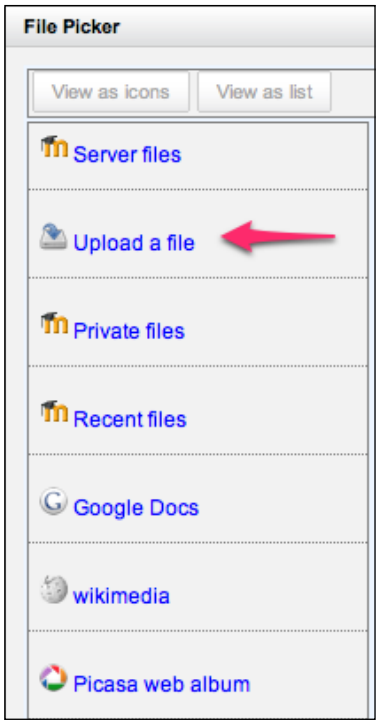
5. A pop-up will appear giving you choices of where to get the file from. Choose **Upload a file**. As shown here, there is also the option to pull files from other sources such as Wikimedia, Google Docs, Picasa Web album, and many more, depending on how your Moodle is set up.



6. Click on **Choose File** and find the file to be uploaded.

   There are a number of different options you can choose to attach a copyright license to your file:

   - **Public domain**: No copyright restrictions.
   - **Creative Commons**: Use it, share it, and change it.
   - **Creative Commons - NoDerivs**: Same as **Creative Commons**, but you cannot make, use, or display derivatives of the work.
   - **Creative Commons - No Commercial**: You may copy, distribute, display, and make derivative works based on it, only for non-commercial reasons.

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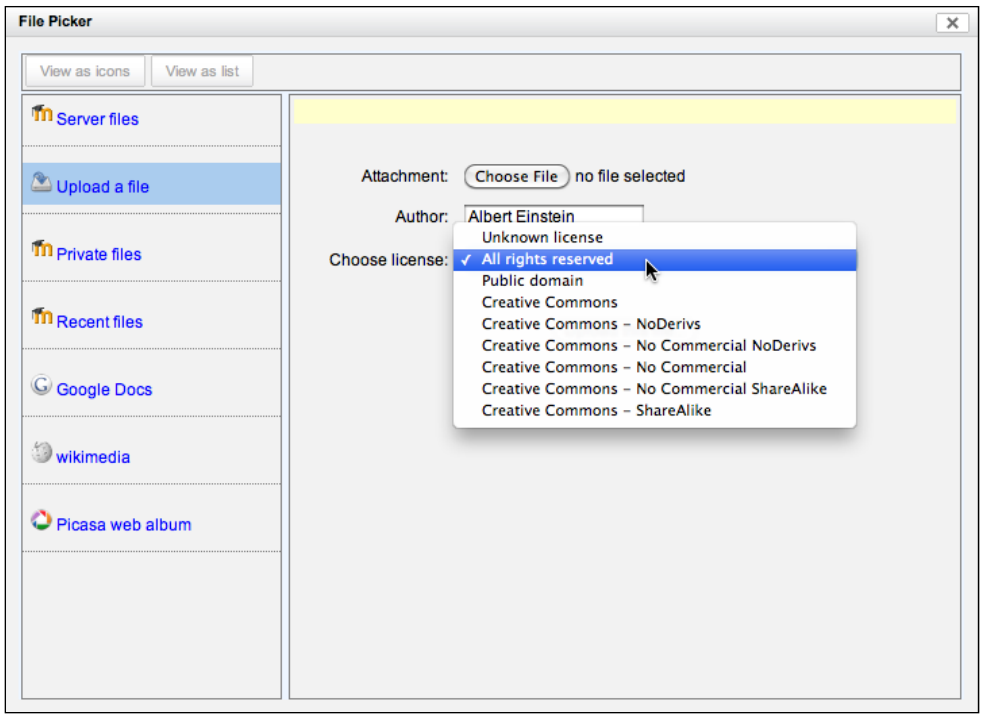
You can read about them here: `http://en.wikipedia.org/wiki/Creative_Commons_licenses`.

If it were something that you had created, you could use **No Commercial ShareAlike**, which loosely means that others can use your resources and change them, as long as they are not doing it for profit and reference your work as the original. It also means that they should give their new version the same license. If you want to retain full control over your work, choose **All rights reserved**. This means that people should not use your work without permission.



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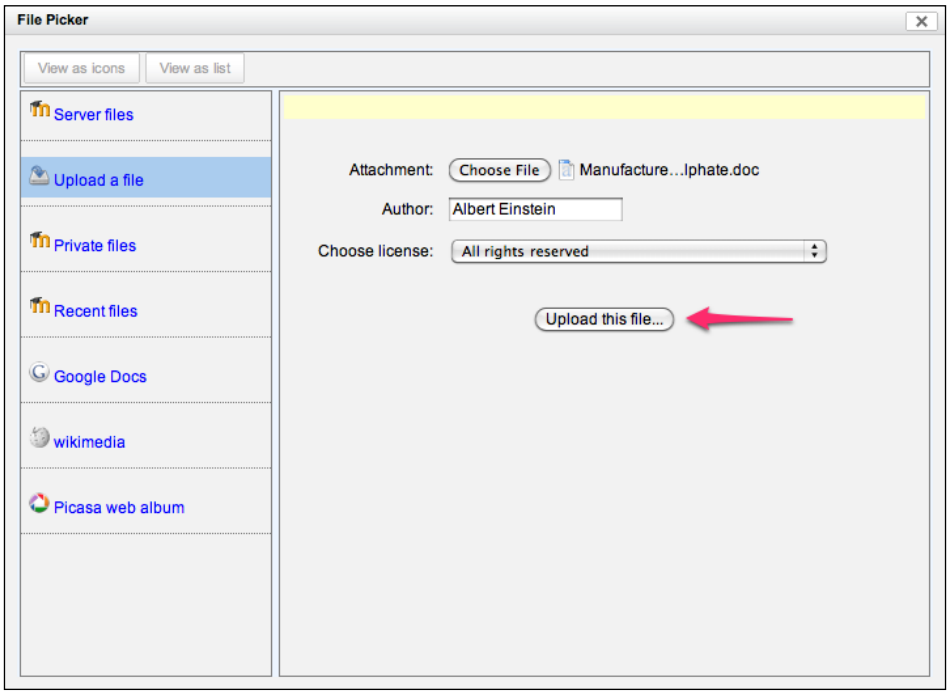
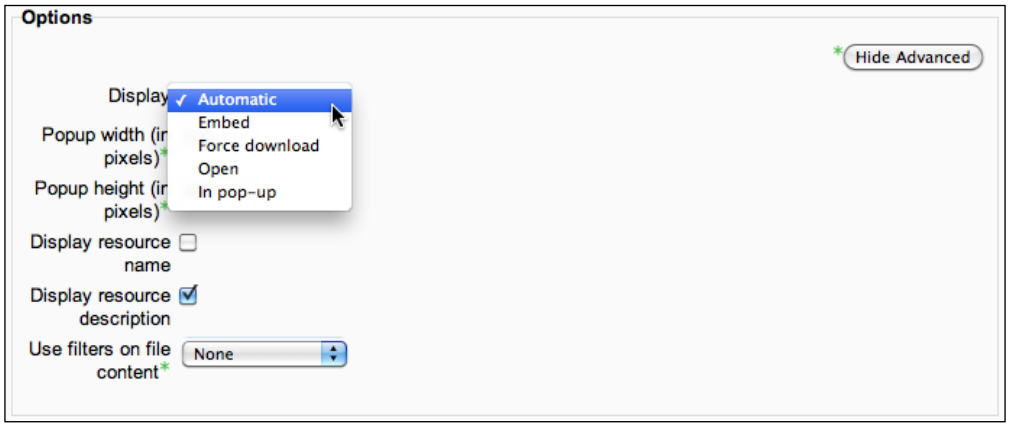
7. Once you are happy with the settings, click on the **Upload this file** button.



This will take you back to your first screen where there are a few more options to choose from. Some browsers block pop-ups so be careful about choosing that option. You might want to choose force download to prevent certain files, for example PDFs and Office files from opening in a browser.



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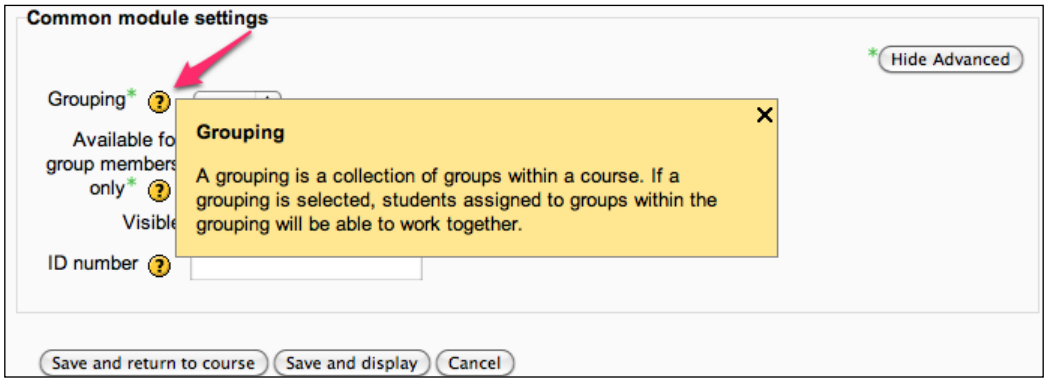
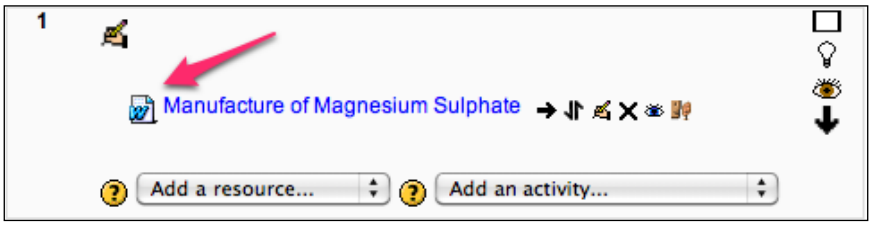
If you are unsure of a setting, click on the question mark in the orange circle for a description. If in doubt, let the values be the default.



You will then be taken back to your course page, where a link to the file you uploaded will be displayed.



Any file can be uploaded, but bear it in mind that whether your course participants will have the software to view them or not. If you have some uncommon files that you want to share, first convert them to images or PDFs.

If you teach face to face, it's good to try to get into the habit of uploading your handouts and worksheets regularly. You could upload them before the lesson you teach and message your learners through Moodle (which will be covered later) to look at them before the lesson. This means that your learners can prepare for your lessons and get more out of them.

File sizes

Internet connection varies massively, from snail speed dial up to lightning fast broadband. It can be annoying for the students if they have been asked to read and review a PowerPoint on Rocks that they have to wait an hour for it to download.

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Why is there a maximum file size that can be uploaded?

To encourage sensible file sizes you will find that's there is a limit to the file size that you can upload. This is to reduce page-loading times, and download waiting times. It can vary from school to school, usally from 8Mb to 64Mb being the average. This can be reduced in the course settings but is limited by the site settings. It is good practice to reduce your file sizes wherever possible. For instance most office type applications have an option to reduce the file size of pictures and images for display on the Web.

Reccomended file sizes depends on your (and your users') Internet connection speed.There is a good calculator at `http://www.calculatorcat.com/free_calculators/download_speed_calculator.phtml`to give you an idea of the time it would take to download files over different connections.

Try to think about what your users will be doing with the resources. There is little use having a 6MB photo of an experiment on your course when the same picture can be compressed to a fraction of the size (around 0.1MB is fine) without losing much of the quality. Most photo-editing software should be able to do this. Also, here are two websites that can do it for you:

- `http://www.imageoptimizer.net`
- `http://www.picnik.com/`

Linking to an external website

The process to link to an external website is very similar to adding a file. From the **Add a resource** drop-down menu, choose a **URL**, and follow the steps.

Composing a page

Apart from uploading the resources, you can use Moodle to create web pages directly on your course. These can be useful for sharing information, adding images, and media for your students. So let's have a look how to add a page.

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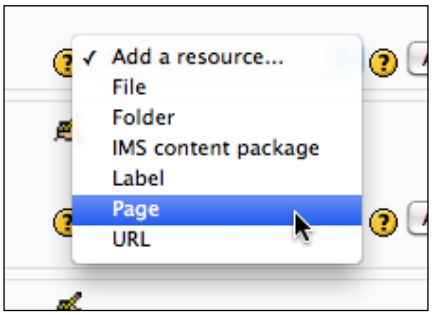
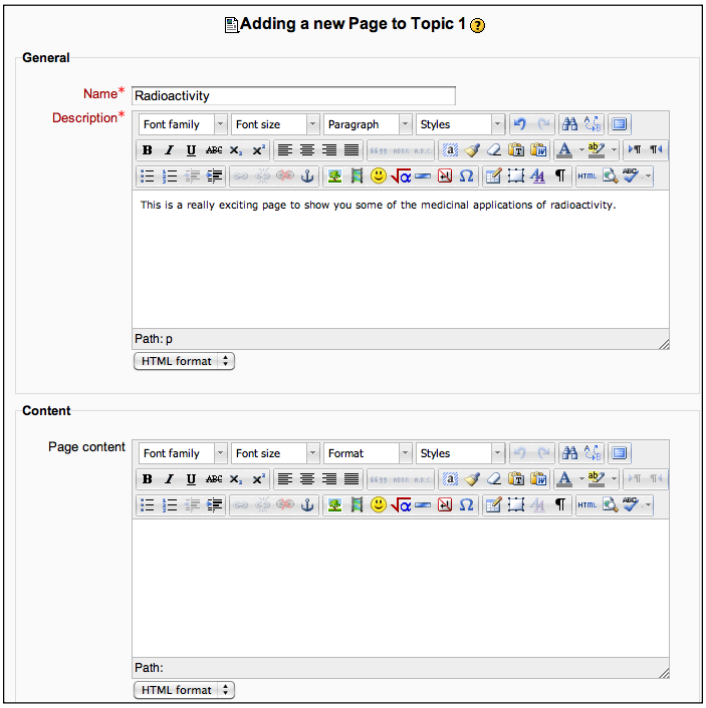
1. After turning editing on, from the resources drop-down box choose **Page**.



If you are not sure what the buttons do, hover over them for a bit.

If you are using an older version, you might get a few issues using any browser except Firefox or Internet Explorer. To avoid problems, ask your site administrator to update to the latest version. This is something they must do regularly because of security fixes.

2. Give your page a name and a description.



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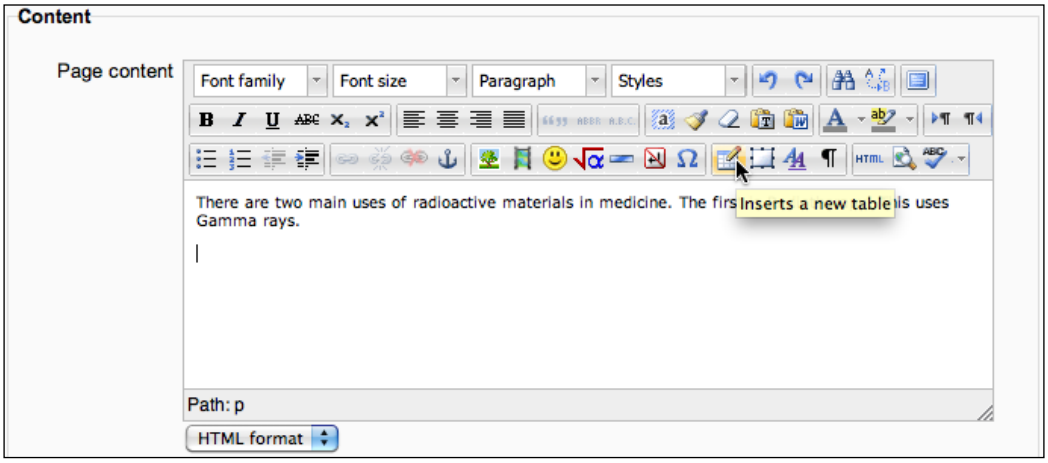
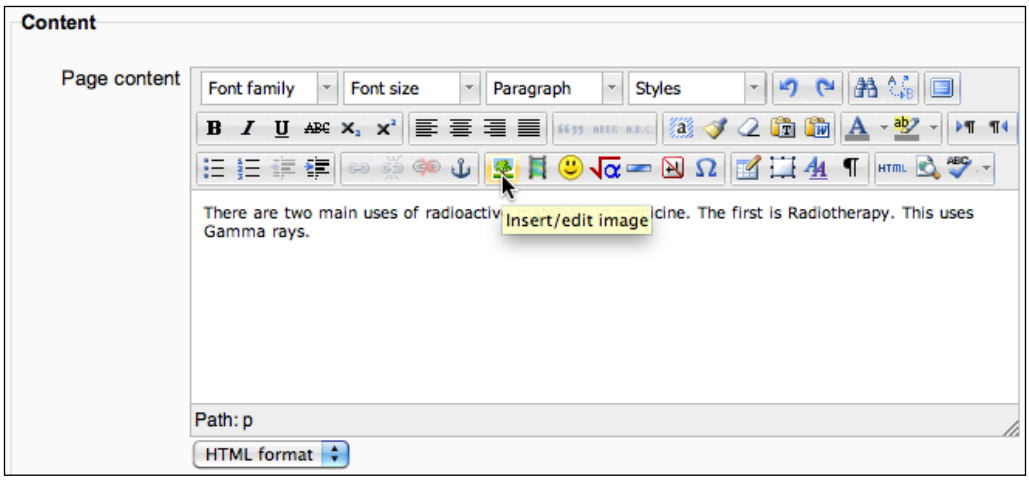
3. After this, start creating your content. To add a table (useful for arranging blocks of text and pictures), click on the button (where the tooltip is seen) shown in the next screenshot:



4. Clicking on the button with the picture of a tree will allow you to add an image.



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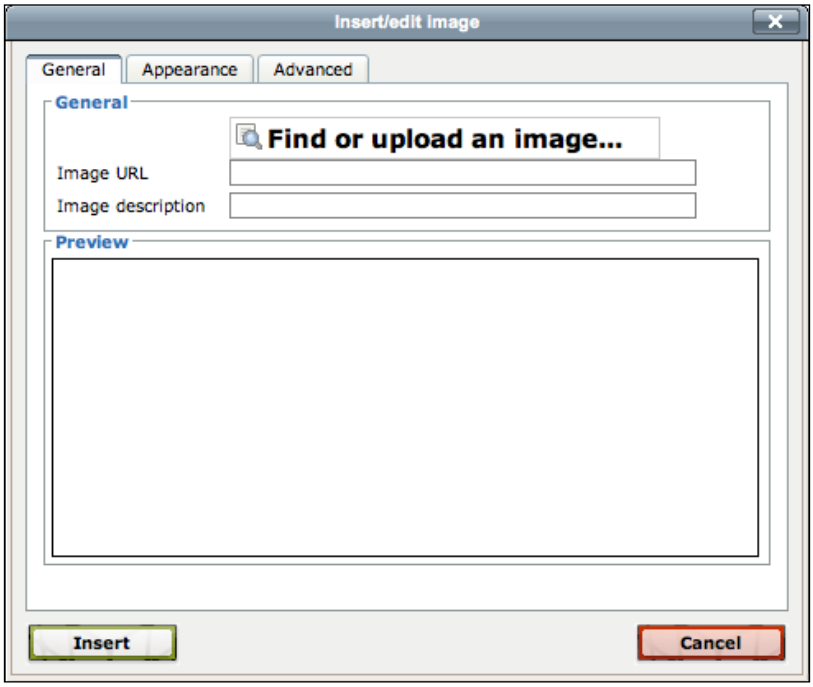
4. This will take you to a popup where you can type the URL of an image on the Internet or upload your own. When linking to external sites, remember if that image or site gets moved or deleted, you link will not work.



Ideas for resources

Have a go at uploading a few of the following or link to what you can find on the Internet:

- An MP3 file of the Elements song by Tom Leher—a must for every Science course
- Videos taken of you demonstrating an experiment
- All of your homework sheets (although hopefully these will be redundant by the time you have finished this book!)
- Pictures of your student's work to show good practice
- Examples of Exemplar work
- Class/revision notes (if these are from an interactive whiteboard, save them in a format you know your students can access)
- Lists of key words or concept definitions

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- The syllabus for your course
- Learning outcomes for each topic
- Interactive periodic tables
- Fun science activities you use such as word searches and so on
- Writing frames for experiments
- Science news websites
- The website for your examination board
- Past exam papers that they can download and use to practice
- Topic evaluation, self review sheets, or targeting sheets
- Ideas for science fair projects
- Pod casts downloaded from the Internet or created by students
- YouTube videos

Blocks

Around the outside of your course are a number of **blocks**, all of which have different functions. If you are working with a standard theme, the default blocks are **Search forums**, **Latest news**, **Upcoming events**, and **Recent activity** on the right-hand side and **Navigation and Settings** on the left-hand side. With the course editing off, the blocks can be collapsed and expanded, and also be turned into tabs on the side of your browser.

With the editing on, they can be hidden, configured, deleted, or moved. Hover over the icons to see a description of their function.

The **Latest News** block is for communicating with the users of your course. It is basically a way to post messages and information. Your course participants are forced to be subscribed to this and anything you post will be mailed out to them as well as appearing on your course page.

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The **Upcoming Events** block allows you to create events for your course and will also show any deadlines for the individual activities that you set up. To manually create an event, click the **New Event** link then fill out the form. These events also get added to the calendar. There are four types of event—**User**, **Course**, **Group**, and **Global**. You will be able to set three of these. **User** (just for you), **Course** (everyone on your course), and **Group**, where you can choose and set up different events for each group on your course. The fourth type, **Global**, is where events for the whole site can be set up; but to do this, you would need different permissions from your administrator. You will also notice a drop-down list, where you can add other blocks to your course.

Administration

In this last section, some of the admin tasks will be covered. These are worth going through before you start using the course with your users.

Grouping your learners

Groups are brilliant. In Moodle, you can easily arrange your users into distinct groups. This allows you to get them working collaboratively and makes your job of organizing, reviewing, and marking their work easier, especially if there are lots of users on your course.

Enabling groups

To use groups on your course, it has to be enabled in the course settings first. You will find this setting further down the page on the course settings page. You will see three different choices. This is what any activity that allows groups will have as its default value. **No groups** allows all learners to access the activity as one big community. They can see each other if the activity allows it, that is forums and chats. **Separate groups** creates different views of that activity for each group. Learners can't see each other if they are in different groups nor can they see each other's work in the case of wikis and forums, for example. The last group setting is **Visible groups**. Here, pupils can see what is happening in the activity for the other group, but cannot edit or contribute to it.

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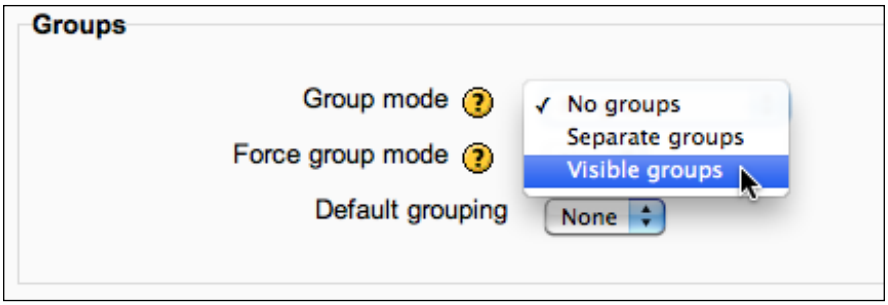

If you select **Visible groups**, students can see what other groups are doing, but cannot interact with them. Have a play and see what works for you. Set **Force group mode** to **No** so you can over-ride this setting if you need to for individual activities. As with everything Moodle, click the question mark icon for a description of what the options and settings are.

Groupings are 'groups of groups'. You can choose to have only certain activities available for some groupings. This is an advanced feature and may not be enabled on your site.

Choose **Yes** from the drop-down box labeled **Use group enrolment keys**. Save the changes and back on your main course page you should see a link in the **Settings block**called **Groups**. Follow it and you will be able to set up your groups.

Creating groups manually

The easiest way to set up and enrol students into groups is to have Moodle do it for you automatically. You would use this for different science classes using the same course.

To manually set up a group, click the create group button, give it a name, description, and an enrolment key (password) if you wish. The clever thing to do is to create your groups before your students first use your course. If you set up the groups with enrolment keys when the students first go to use the course, they are asked for the enrolment key, and are automatically put into that group. This can save you hours of finding and selecting names from your participants and adding them into groups. If you are manually adding students to groups they must be enrolled on your course first.

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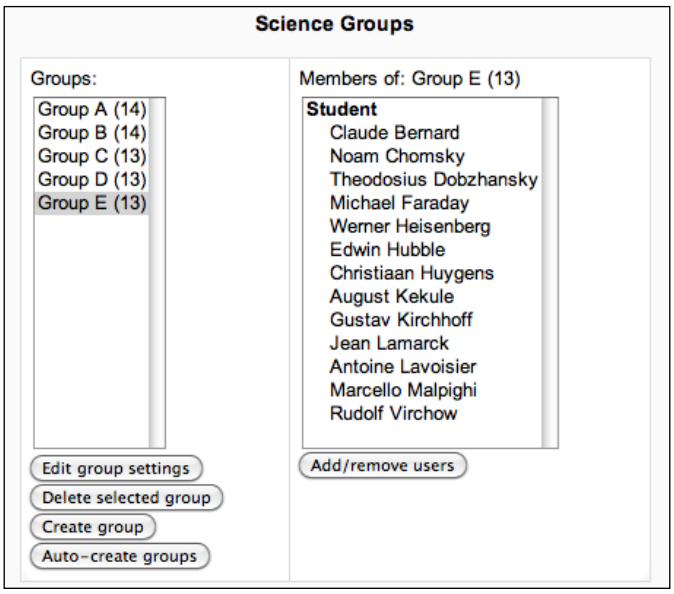
Creating groups automatically

The 'auto create groups' feature is very cool. You can specify the number of students in a group and Moodle will do the rest. You might want to do this to put users into smaller groups—working groups, study buddies, and so on. This is shown in the next screenshot for users on my course:



Whichever you choose, make sure that you add yourself to the groups as well! Say for instance, you have five teachers on your course, each of which is responsible for two groups. If you don't add the teachers to the groups Moodle does not know which teachers to e-mail out forum contributions to or assignment submissions to, so everyone will be sent everything! This is also why you need to be set up with the Teacher role rather than as a Course Creator.

Backing up your courses

It goes without saying how important it is to back up your courses. Your whole Moodle site is probably (hopefully?) backed up already; however, nothing is 100% fool proof. It is useful to back-up your course separately.

On the left-hand side of your course page, you should see a block called **Settings**.

1. To back up your course, click on the link **Backup**. You then have a number of options from the drop-down boxes. Some of these you may not be able to edit, as your site administrator sets them.

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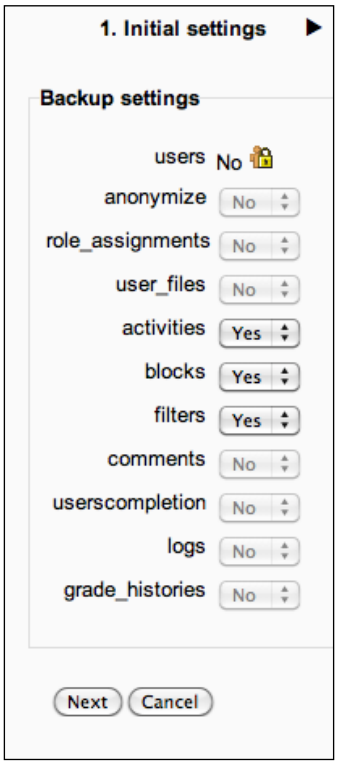
2. Make sure the ones you want to back up are set to **Yes** and then hit **Next**.



3. Choose the detail from each section to back up, hit the **Next** button and you will be taken to a new screen to check your choices.
4. Hit the **Perform backup** button, and it will begin to back up the course.
5. Once it has finished it should say, **Backup completed successfully**, then hit **Continue** for one last time.
6. You should then be taken to the file section for your course, where you will see a ZIP file. Click on this and you will be able to download it to our local computer for safekeeping.

This is also a neat way to copy courses form one site to another. If you ever need to restore your course, you can click the **Restore** button alongside the ZIP file to restore your course.

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Working offline

You can download and install Moodle to run on your home PC or Mac. This allows you to create your courses offline, which you can restore at a later date to your live course. This is really easy to do. If you are a Windows user, go to `http://download.moodle.org/windows/`and for Mac OS X visit `http://download.moodle.org/macosx/`.

On both of these pages, there are links for you to download the latest Moodle distribution for your computer. Make sure that you download Moodle for Windows or Moodle for Mac OS X, as the standard Moodle downloads are designed for installation on a server. On both of these pages, there are step-by-step installation guides for either PC or Mac. Another advantage of having the software installed locally on your machine is that you can also have a look at the administration side of Moodle, should you be interested. There are also lots of help documents available and forums at `moodle.org`, if you get stuck.

Summary

So far we've looked at changing some of the course settings to suit you and your learners best, and organizing your learners into groups. You should be able to upload resources for your users, create web pages, and use some of the standard blocks. By now, your course should have some basic content for your users to look at. Practice these techniques—uploading resources and linking to other useful websites—and in no time you will have a great structure to build on. At the moment, these are all fairly static resources. They are not likely to change that often and your learners are passively involved in your course. In the next chapter, we'll have a look at how we can make a Moodle course look inviting, so that our students want to come back to it again and again.

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2
Making It Look Great

> "*Experiences that are multisensory, dramatic, unusual, or emotionally strong are remembered far longer and in more detail than ordinary routine experiences*" - *Paul Ginnis (from The Teacher's Toolkit)*

In this chapter, we will be looking at how to improve the visual impact of your course to make it look great.

By the end of this chapter, you will be able to:

- Include section names and summaries
- Switch to a different theme
- Create labels containing text and pictures
- Embed video and simulations
- Set up the **HTML Block** to get rich content around the side of your course
- Show current news using **RSS feeds**
- Display a directory of resources

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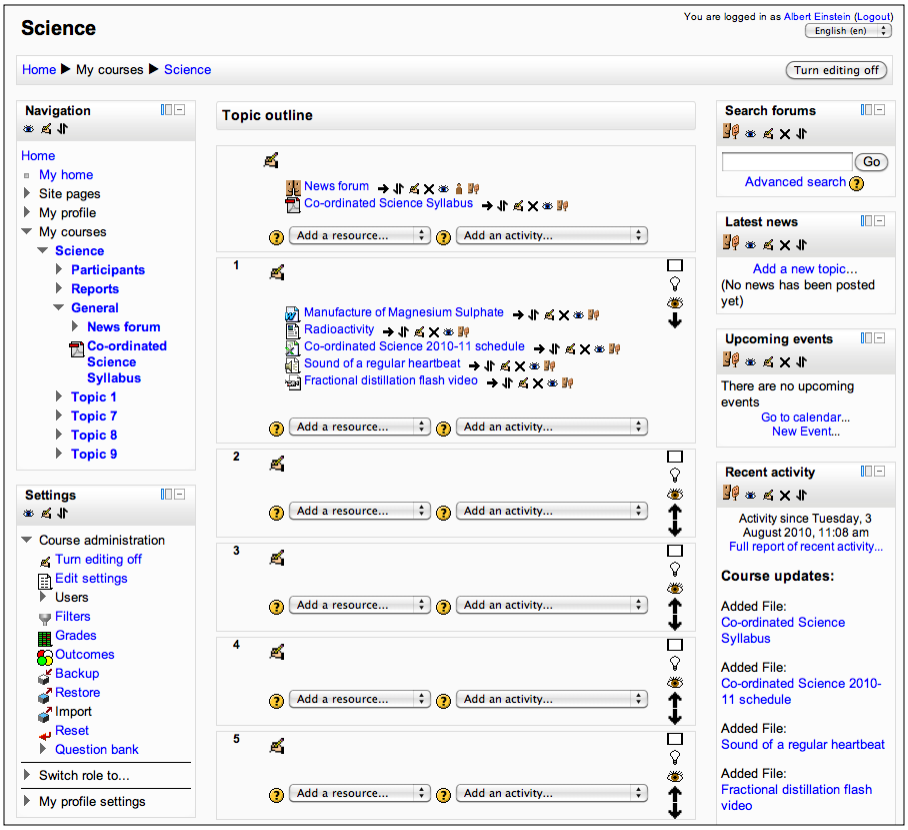
Now you've begun to upload lots of resources and add website links, your course might be looking like a long list of links to documents and websites. A little like this:



This can be a big turn off for your learners. It is important to address this early on, so we'll look at a few clever ways to make your course look nicer and more appealing. This is especially important for younger students who are used to the rich content available on the Internet.

Changing the theme

So far my examples have all been from a standard Moodle course using the default theme. In this section, we will look at how to use a different theme for your course. The theme sets the color of the background, position of the blocks, icons displayed, format of the font, and images in the space at the top of your course page.

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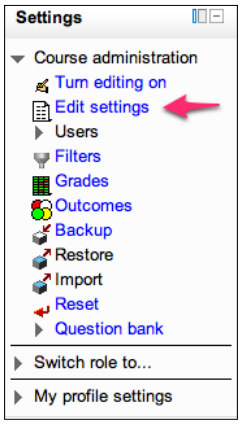
There are quite a few themes that are included in the Moodle software that you could apply to your course to make it look more interesting.

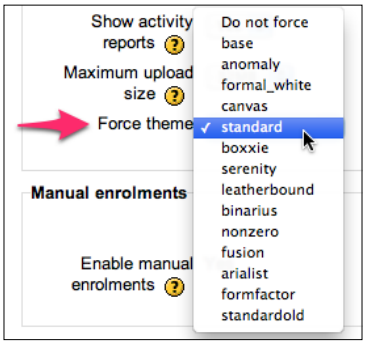
Switching to a different theme

To switch to a different theme, your site administrator will need to allow themes to be set for individual courses. So if you find you're not able to follow the instructions to change the theme of your course, you will need to speak to your site administrator.

Let's have a look at how to change the theme for your Moodle course. On the main course page in the block on the left-hand side labeled **Settings**, click the link **Edit settings**. This takes you through to the course settings page. You should be familiar with this from the work you did setting up groups.



At the bottom of the first box (general) there is a dropdown menu with text next to it labeled **Force theme**. Choose one from the dropdown list, then scroll down to the bottom and hit **Save changes**.



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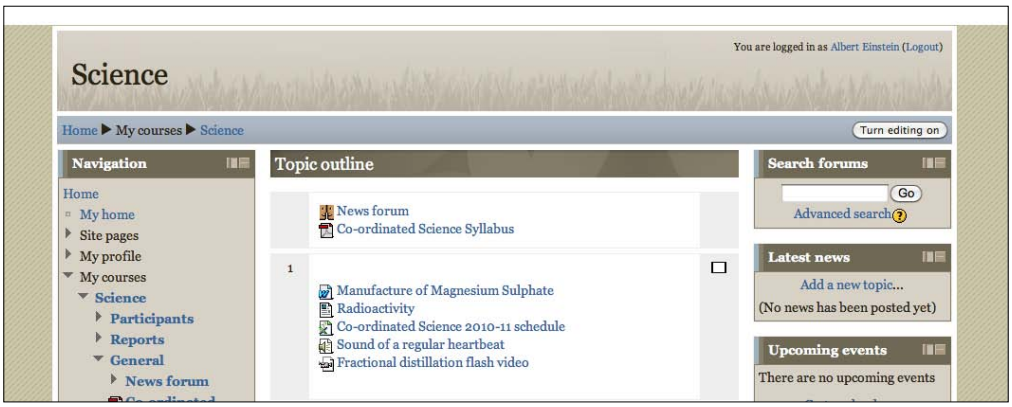
You may find that the new theme looks very different from the standard theme, even hiding, or moving blocks so that it doesn't resemble a 'typical' Moodle course any more. At any point you can return to the standard theme by following the same instructions.

Try to think how useful it will be for your learners. Do they really want to be looking at a fluorescent green page with a wooden style border?! Go for very simple plain themes with large font. This is especially useful if you use your course face to face with learners. They will be able to see it clearly across the classroom. Here, we have selected a theme called serenity (shown below) as it looks more appealing for a science site:



Using other themes

Your Moodle administrator can also install other themes for you to use. They can be downloaded from:

- `http://moodle.org/mod/data/view.php?id=6552`
- `http://www.themegurus.com/moodle_gallery.php`
- `http://newschoollearning.com/theme/`
- `http://www.99template.com/main/moodle_templates.htm`

Or if you want to, follow new themes on Twitter `http://twitter.com/moodlethemes`.

Improving the layout of the course content

There are a number of ways we can improve the layout and feel of the content you use in your course. In this next part of this chapter we will have a look at these.

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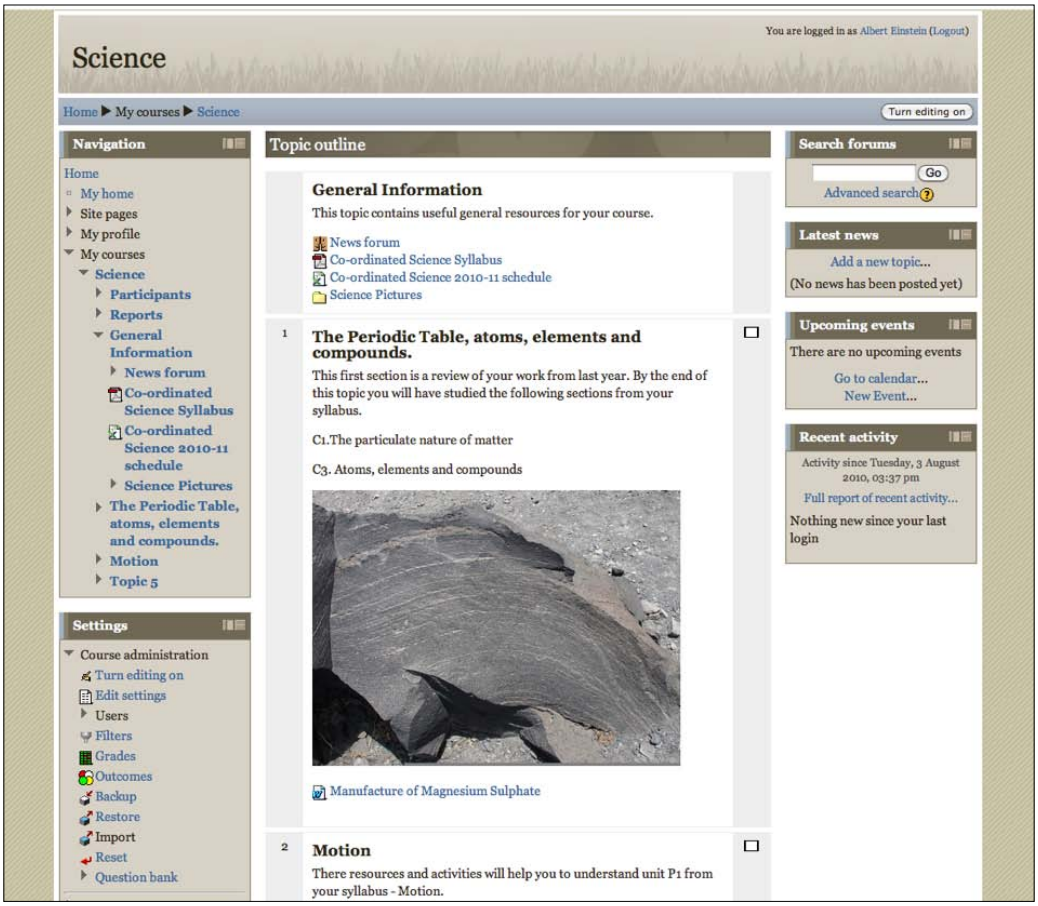
Section titles

It is good practice to give each section a name and summary. This summary information appears on the course page.

Adding a section title

To add a section title, click on the editing icon (usually the hand holding a pen, depending on the theme) next to the section number. If you have been given the role of a teacher you will not be able to edit the name of the section, just the summary, so you will need your site administrator to make you a course creator or manager if you need to change the section names.

In the following example, some instructions for each topic have been added, so that our users know what will be covered. You could also add learning outcomes for your users such as 'By the end of this topic you will……'.



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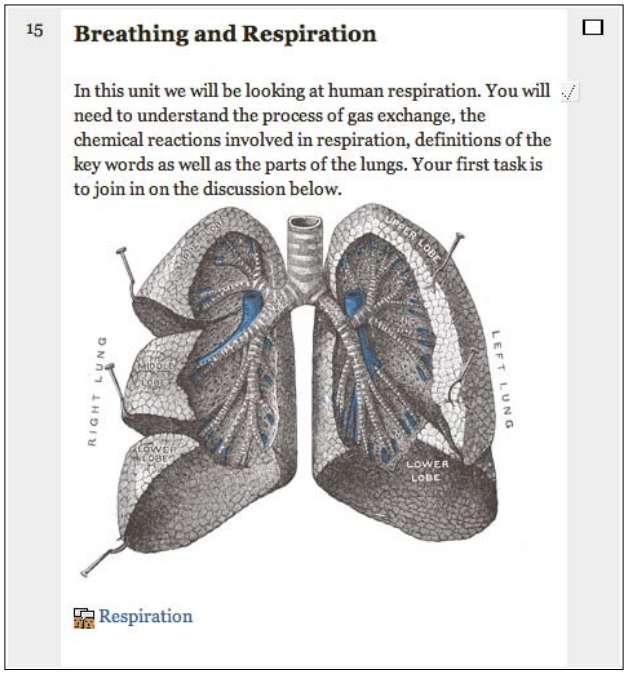
Adding labels

Labels are a really useful way to add descriptions to your course front page. The text and image in the following screenshot is an example of content added using a label:



You can use them to explain to your learners exactly what you would like them to do with the resource either above or below the label. You can also use them to create more interesting layouts in a particular topic, by adding tables pictures or even embedding video and animations to your course front-page. If you are adding or embedding pictures and animations in your course front-page bear in mind that will affect the time it takes for the page to load.

Adding a picture in a label

To begin with, go to your course and click **Turn editing on** and from the **Add a resource** drop-down menu select **Label**.

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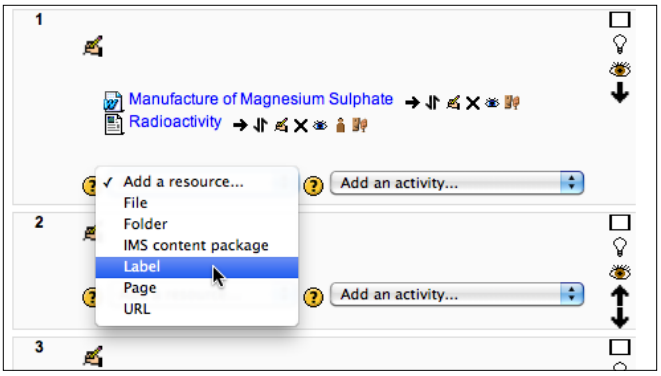
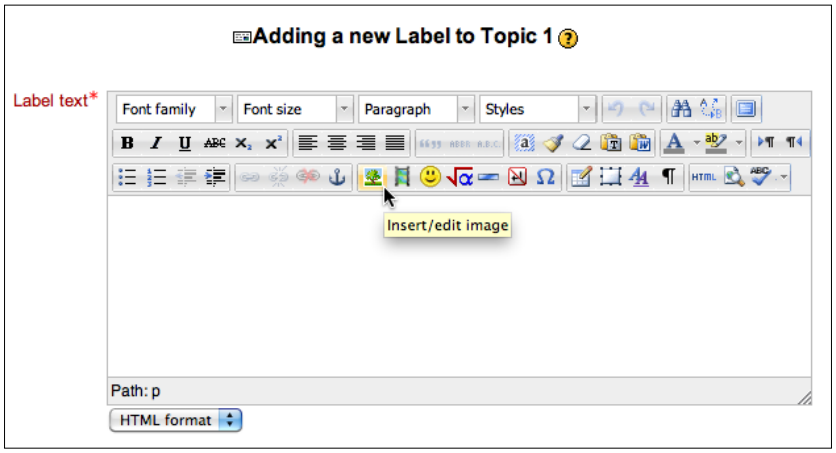


You will see the new **Adding a new Label**. Again, click on the question mark in the orange circle if you want to read more about this. So, say, we'd like to insert some pictures of igneous rocks to the course. Click on the icon in the HTML editor that is a picture of a tree.

You can add an image anywhere, if you have access to the HTML editor.



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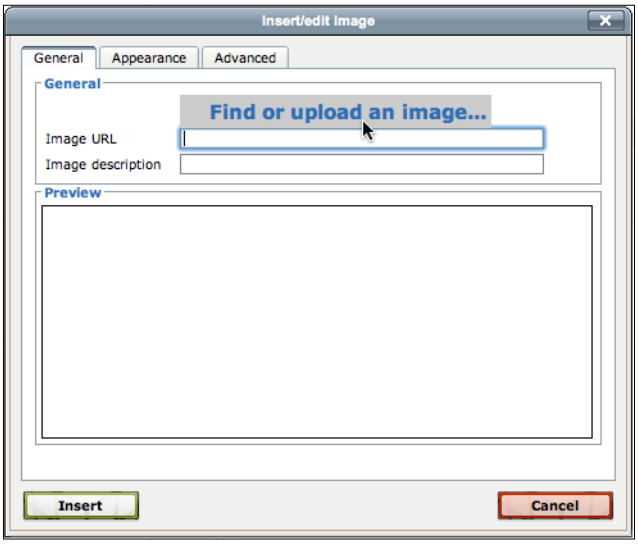
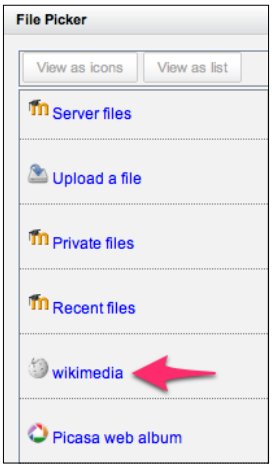
This brings up the insert a picture dialog box, where you can either find or upload an image, which is one that will be stored on your local computer or it may be a file that you have already uploaded to Moodle. Let's have a look at using a picture from one of our repositories. So now click on **Find or upload an image**.



This will give us the file picker dialog box and we will choose Wikimedia. The administrator dictates the repositories available.



If you don't have a link for Wikimedia ask your site administrator to enable this repository in the administration options. Once you click on **wikimedia**, a text box will appear.

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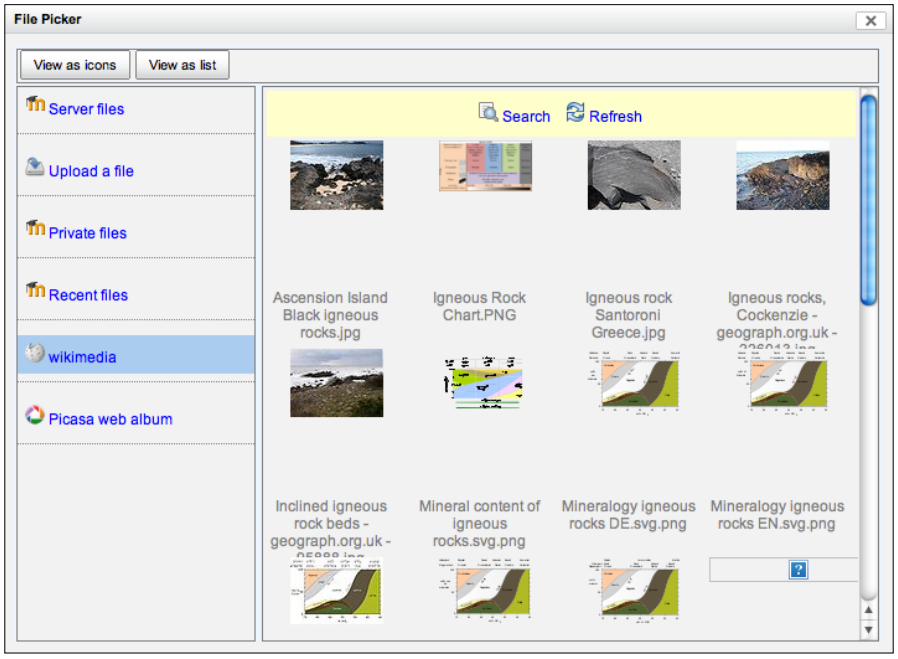
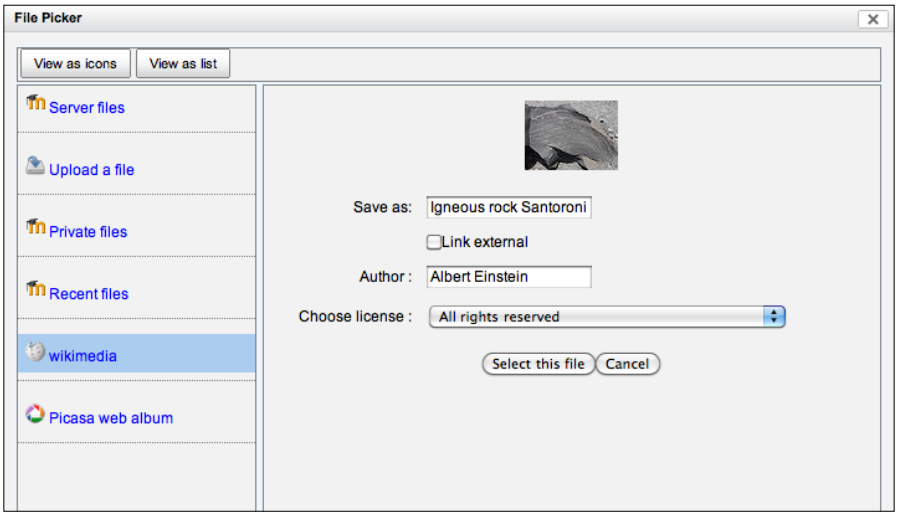
Let's search for pictures of igneous rocks to add to the course front page. My search has returned some really nice photos so simply choose the one you like the look of by clicking on it.



The **Save As** dialog box will be automatically filled in with the name of the file then you have a choice of checkbox labeled **Link external**.



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If you check this it will create a link to the original image on Wikimedia. If you don't check this a copy of the image will be placed into your course. There are pros and cons whichever you choose. The main advantage of linking to a file is that your course will be smaller in terms of size in MB. This could be an issue if you are using a Moodle site on a school or college server with limited space. It also means that you can give access to files of any size to your users as normally your site administrator limits file size. The big disadvantage is that if the original file is edited, deleted or replaced with something else, your course will be affected.

The content on Wikimedia commons is free, which means you can use any of the images as long as it complies with the license the individual creator has given to that image. For more information, have a look at the following link:

`http://commons.wikimedia.org/wiki/Commons:Reusing_content_outside_Wikimedia`

Most images on Wikimedia are covered by the Creative Commons license which you can read about here: `http://commons.wikimedia.org/wiki/Commons:Reusing_content_outside_Wikimedia#Creative_Commons`

If you are in any doubt about the copyright license on an image you intend to use for your course go to the Wikimedia commons site, search for the same image, and read the copyright information about it.

The best place to search for Creative Commons content is `http://search.creativecommons.org/`.

Once you are happy with the settings, select this file and you will be taken back to the insert/ edit image dialog box. Click the **Appearance** tab and you can change the size, and layout if you wish. A sensible width would be between 350 and 450 pixels (px). Then hit the update button to add it to your course.

This will take you back to the **Adding a new Label** page where you should see your image appear in the text editor box. Here you can add text above below picture. If you find that the text editor is not big enough for what you are working on, there is an icon to the top right of a computer screen which you can click to make the text editing box go full screen. This is shown below.

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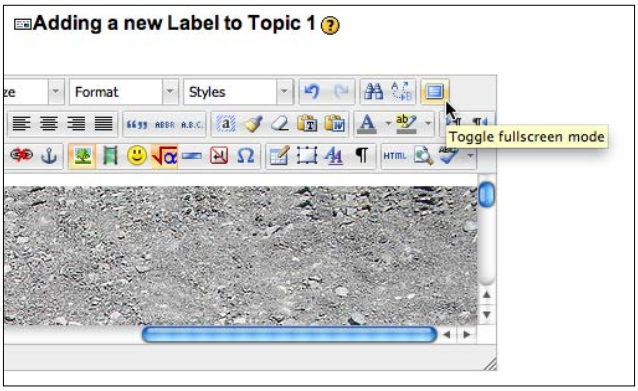
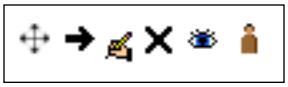


Click on **Save and return to course**. You should see your picture with the text appear in the section that you chose. If you find that you chose the wrong topic, then below your picture there is a half arrow pointing down and a half arrow pointing up (which looks like paired electrons in a sub orbital for any Chemists reading this). You can use this to move it into a different section. The arrow pointing to the right can be used to indent the picture, the hand holding a pen can be used to edit the picture, the cross to delete it, and the eyeball can be clicked to hide the image from your users. The picture of the face can be used to change the roles assigned, which you can use to change the permissions given to users for certain resources and activities.

If your site is Ajax-enabled, the tools will look like this. The cross with the arrows can be used to drag and drop content to rearrange it.



So by now, your course has a new theme, some resources for your learners to use, and some pictures to make it more interesting.

Adding a video in a label

If you want to add a video so that it displays on your main course page, you can follow the same steps that you did for inserting a picture. However, this time click on the icon of a filmstrip (next to the icon of a tree). If this has been enabled on your site administrator, you should see a link to YouTube. One drawback of this is that at the moment you cannot preview the videos using this method.

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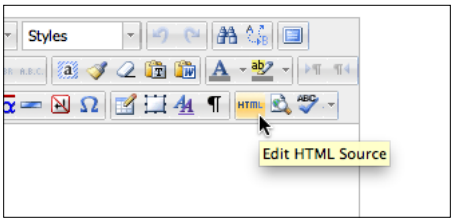
Embedding a YouTube video

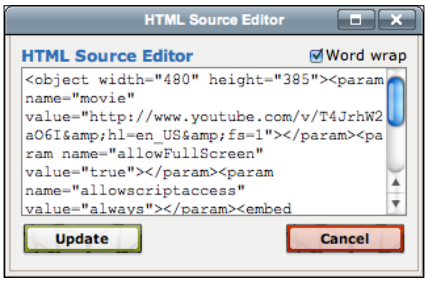
Another way to get YouTube video content into a label is to copy the HTML embed code.

Just look for a link or tab that says either 'get code' or 'embed code'. Normally in double arrows (which look like <>).To embed a YouTube video, follow these steps:

1. Highlight all of the embed code and copy to your clipboard.
2. Once you have the embed code, go to your course and add a label resource.
3. On the HTML editor, click on the icon labeled **HTML**.



4. This will take you through to the raw HTML editor; paste the embed code and hit **Update**. It will look a little like the following screenshot. Don't panic! The HTML code looks a little daunting, but all you need to be able to do is copy and paste. You don't need to understand any of it.



5. You will return to the **Add a new label** page, where you can scroll down to the bottom, save, and return to the course. Back on your course page, you will see your embedded video. Mine is shown in the following screeshot. The zero gravity water sphere experiment.

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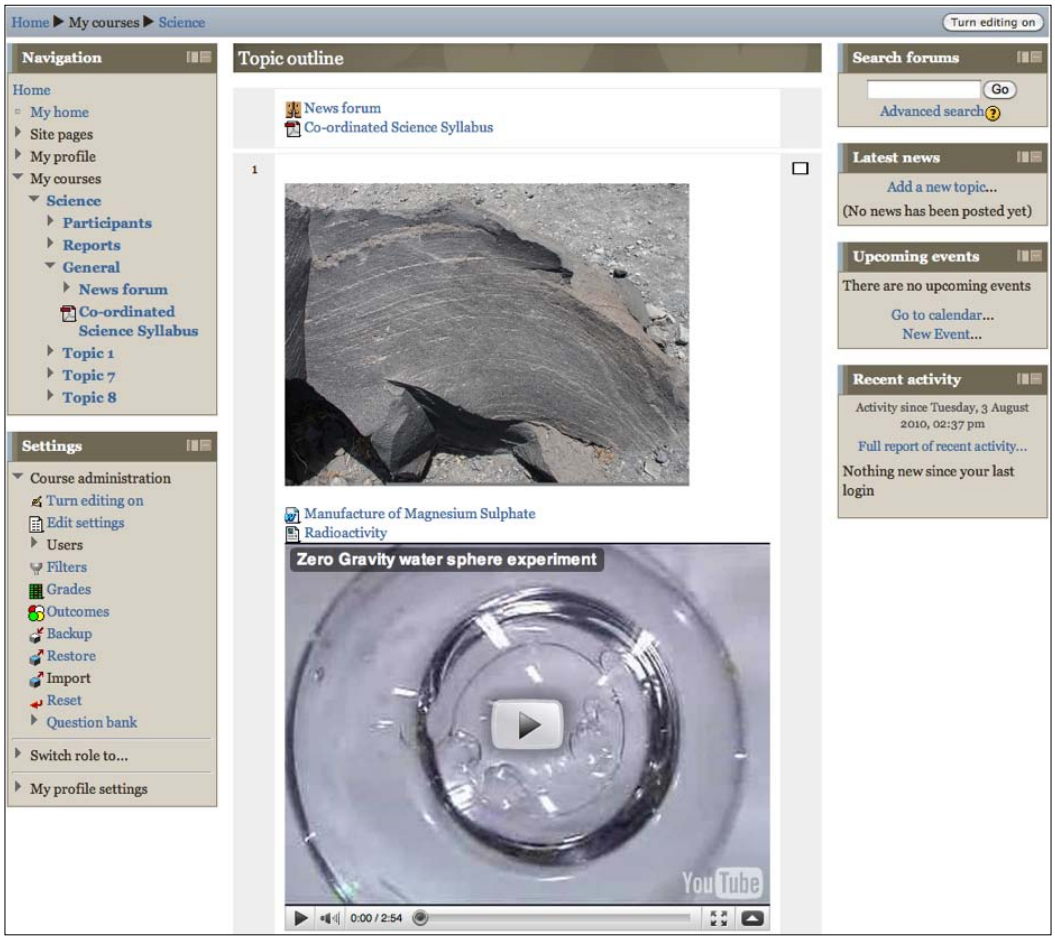

Using other video sites

Here is a selection of video sites you could use, though by default YouTube is the only video you can embed using the earlier method:

- `http://teachertube.com/`
- `http://www.dailymotion.com/`
- `http://www.flurl.com/`
- `http://www.schooltube.com/`

Or this great site that has videos from other share sites categorized:

`http://www.watchknow.org/`

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Adding your own multimedia

Moodle has built-in media plugins to recognize and be able to play the most common content. It's worth pointing out that if your school or college block sites such as YouTube, it will not appear in your course if you are accessing it from within your institution. Your learners would still be able to access it through their home Internet connection if they have one. The other alternative it to download the video using a site such as Zamzar (`http://www.zamzar.com/`) and add it to your course as a resource (see *Chapter 1*, *Getting Started*).

Other ways you could use this technique include the following:

- Force and motion simulations
- Ions and electrolysis videos and explanations
- Some really cool videos from NASA on YouTube
- Animations of particles in motion
- Diet and videos of the digestive system
- Diet Coke and Mentos MythBusters – good for scientific method, `http://www.youtube.com/watch?v=zGMxEr2AxHM` and I can't mention Mentos and Diet Coke without sharing a link to these guys `http://www.youtube.com/user/eepybird?blend=1&ob=4#p/u/32/h_2osOb2SMU` who take it to the extreme!
- And as I've said before, no science site is complete without the periodic table song by Tom Lehrer `http://www.youtube.com/watch?v=YJjJBs2OFkg`

Just have a hunt around and see what you can find on the Internet, or why not upload some of your own videos. You could get your students to film you doing an experiment using their cell phones and upload that to your course for others to watch.

Add a little multimedia content in labels to make your course look good. If you want to add lots create a **Page** resource.

Multimedia plugins

The multimedia plugin looks for web addresses of media that you have used in your course and prepares it for display in the browser by loading an appropriate player for the file. It knows which player to use by looking at the extension of the file.

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Which media formats are supported?

The following are all supported:

- `.mp3`: Audio
- `.ogg`: Audio
- `.ram`: Audio (RealMedia)
- `.swf`: Flash (Adobe)
- `.flv`: Flash video (Macromedia)
- `.rpm`: Plug-in file (RealMedia)
- `.rm`: Streaming video (RealMedia)
- `.mp4`: Video
- `.mpg`: Video
- `.ogv`: Video
- `.mov`: Video (Apple)
- `.m4v`: Video (Apple)
- `.avi`: : Video (Audio Video Interleave)
- `.wmv`: Video (Microsoft)

The only one, which is not supported by default, is the `.swf` (Flash) filter. This is because Flash files can cause security problems on your site.

Flash video (`.flv`) is the recommended format for videos to use in your course.

The software to play these files is a plugin for your browser. If your students don't have the correct plugin installed, they will be presented with a link to download it.

Using animated GIFs in labels

A very easy way to get some animations onto your course page is to use animated GIFs. A GIF file is a particular type of image file that can contain a number of frames; hence, it can be used for simple animations.

Lets use a nice animation of Newton's Cradle from Wikimedia.

The Physics animations can be found here: `http://commons.wikimedia.org/wiki/Category:Animation_for_physics`

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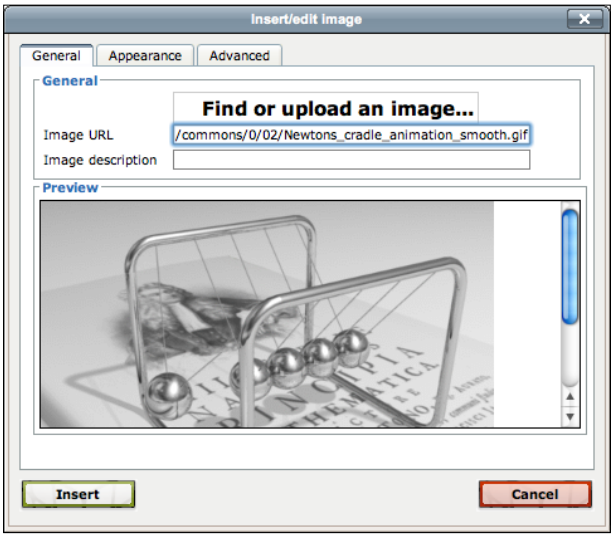
Particularly, use the animated GIF from the following link:

```
http://upload.wikimedia.org/wikipedia/commons/0/02/Newtons_cradle_
animation_smooth.gif
```

Add a new label in the text editor, insert an image, paste the URL, and save it all as before. It's worth adding a description in the **Image description** field, so that users who have to use a screen reader can get an idea of what the image shows.



You will see it appear on your course page, which now looks much cooler!

Another source you could try is Google image search. Built in to Google's image search is the choice to search by license type.

You can read more about it here:

```
http://www.google.com/support/websearch/bin/answer.py?answer=29508
```

Go to Google image search and choose the advanced search option:

```
http://www.google.com.my/advanced_image_search?hl=en
```

So have a look for some animations that you can embed in to a course. On the advance image search page, type some keywords for what you are looking for. The file types will be GIF, as you're hoping to find some nice animations and the usage rights set to labeled for reuse (or as appropriate for your site). Don't forget to check or acknowledge the creator if necessary.

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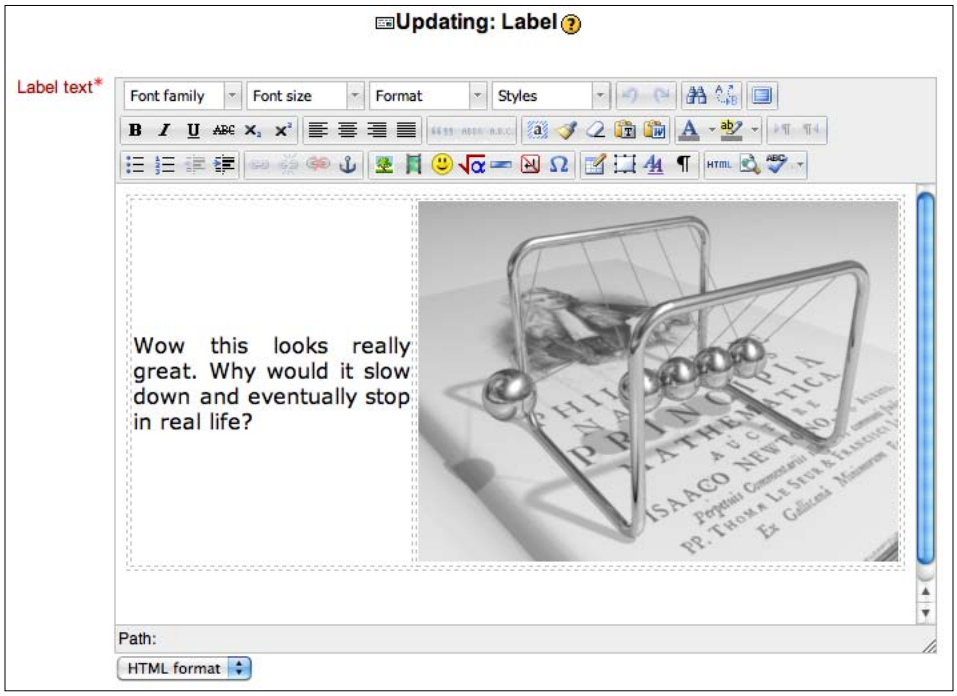
Arranging the label content in a table

Labels are also a great way to get any information on to your course page, for example, introductions, topic outlines, syllabus information, and links. To do this, add a label in the relevant section and add your content in the text editor. Just type away and it will appear on your course page. If you want to make it look even better, try inserting a table in the label and you can have it displaying text with pictures next to it. Something like the following screenshot:



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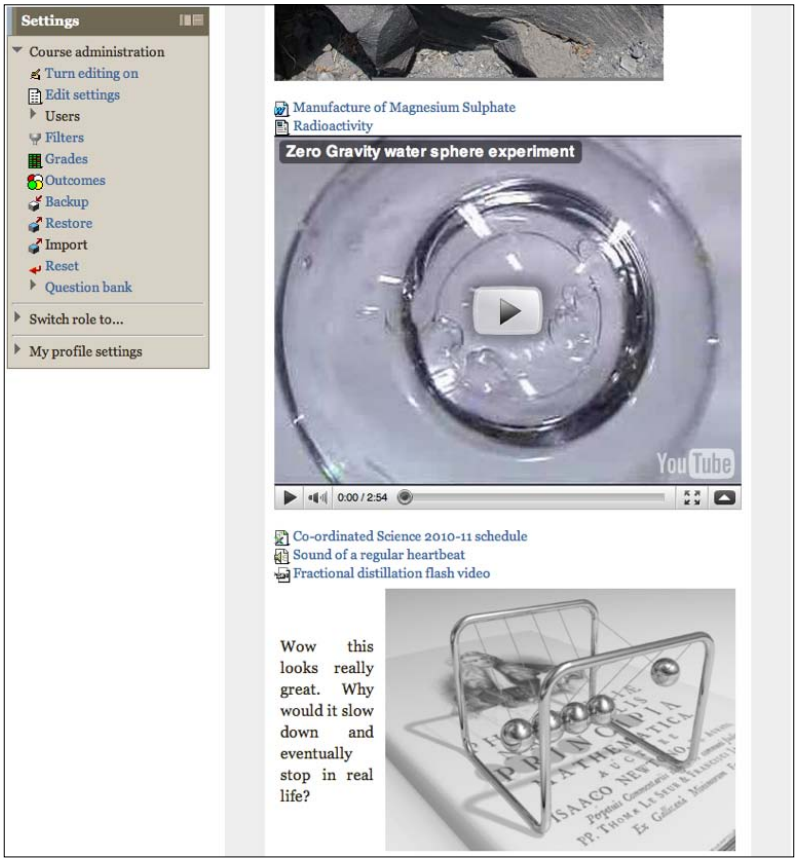
Once you have saved the changes, it will display on your course main page. Try to have one image, video, or animation for every topic. This breaks up the content and makes it look interesting. By now, your course should look a little like the one that follows. The next step would be to add more text between the resources to let the users know what to do with them.



Displaying a directory

Say you have lots of past exams papers that you would like to make available for your learners. First, check with the examination board if you are allowed to make them available on your Moodle site. If you upload them and display them as individual resources, it can take up a lot of space on your course page. A neat way to get around this is to display a directory containing them.

On your course page, turn editing on from the resources drop-down menu and choose to add a folder by clicking on **Folder**, as shown in the following screenshot:

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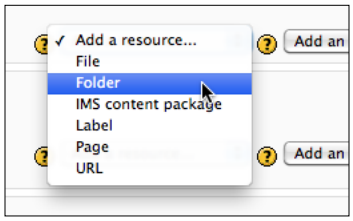
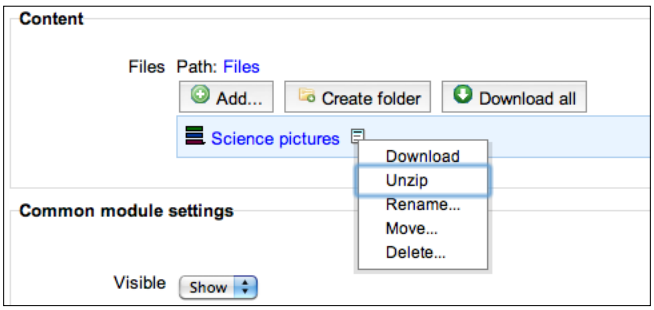


Give it a name and description and then you can begin to add files to display. To save time, if you put all your files on your local computer into a folder then zip it, you can upload this in one go. A ZIP file compresses all of the files (makes their size smaller) and produces a single file called a `.zip` file as the product. Most computers now-a-days come with this software installed as standard. It might be referred to as compress or zip, depending on your computer. When you add this compressed file you can unzip it in Moodle to display a folder containing all of the files.



Choose the common module settings and whether to restrict it at all, then hit **Save** and display. You will see a list of the files that can be clicked on to view them.

An alternative to this would be to upload the files in the same way then create a **Page** (in the resources drop-down menu). You can then add links to these files in a similar manner, as you added them as **labels**. There is no right or wrong way, just whichever works the best for you.

Adding content around the side of your course

The HTML block and the RSS feeds block around the side of your course can be customized to add content relevant to your learners or used for the "extra bits" to create more interest.

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HTML block

The HTML block provides you with an empty block; that is you can add any content to it. Once you add one, and go to configure it, you are presented with the standard text editor you have used to add labels. The HTML block allows you to add pictures, diagrams, links, or any other information that you would like to appear around the side of your course page. It is like a label but put into a block. You can also use it to link to another page or activity that you have set up for your course.

Adding widgets to the HTML block

In this section, we will look at how to use the **HTML block** to add widgets to your course.

The HTML block really comes into its own when we use code to do some great stuff. There are many sites on the Internet that offer widgets for people to add to their web pages. These use some simple scripts that link the content to your site.

To embed content into a HTML block, your administrator would need to allow `Embed` and `Object` tags. This can be done in the site settings, but comes with security risks.

Let's have a look at how to add a widget to your page:

1. To begin with, go to your course page and turn editing on.
2. On the right-hand side, towards the bottom, you should see a block labeled **Add a block** with a drop-down tab that says **Add**.
3. Click on that and scroll down until you see **HTML**. If you click on this, it will take you to add a new HTML block. Your block should now appear at the bottom, on the right-hand side.

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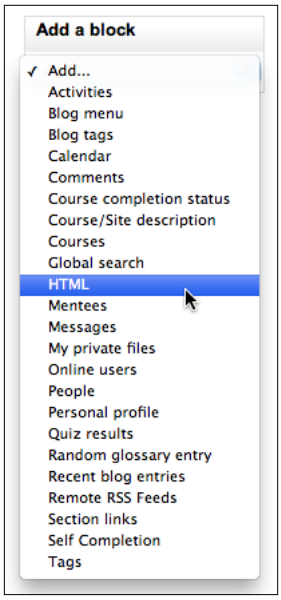
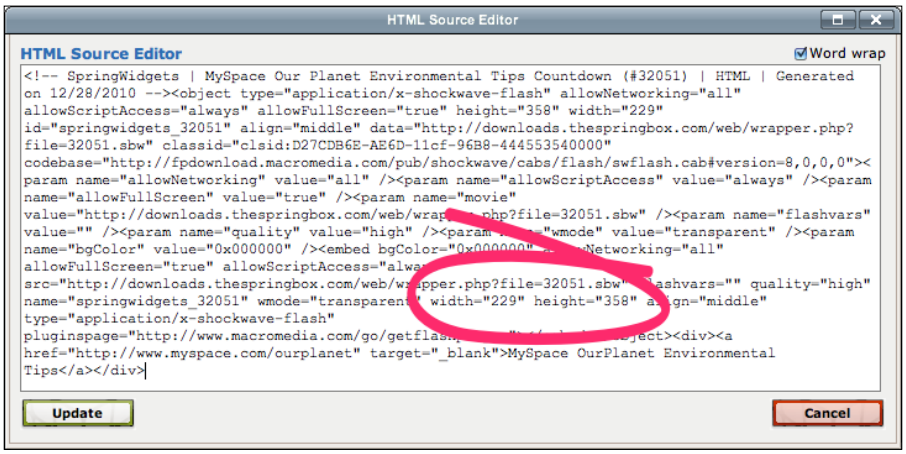


4. Click on the picture of a hand holding a pen to configure your new block.
5. Give it a title, and open up a new browser window to find a widget to add to the course. Here is a nice example of an Environmental widget you could use `http://www.springwidgets.com/widgets/view/32051`.
6. I'm going to hit the button **Click here to get the code**, which gives me some code to embed. Copy the lot, go back to configure the new HTML block in your course, click the HTML icon to send the editor into HTML mode and paste the copied code into the box, and click on **Update**. This is very similar to how you embedded a YouTube video.



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7. Work through the other settings then and click on **Save changes**. The only setting that is not immediately obvious is the default weight. This helps to decide what position the new block appears. A larger and more positive number sets this nearer the bottom of your course front page, a larger negative number sets it nearer the top.
8. If the size doesn't look quite right, hunt for it in the code and change it. I've highlighted this in the preceding screenshot. A width of 200 usually looks good for a block.

If your widget does not appear, it may be that JavaScript has been disabled by your site administrator so check with them.

This is what my final widget looks like:

Only use widgets from trusted sites. Bad widgets can actually spread viruses and steal private information.

The following are useful widget websites:

- Education Atlas is a simple dictionary and thesaurus widget: `http://www.educationatlas.com/dict/free-online-dictionary.html`.
- Google Gadgets: `http://www.google.com/webmasters/gadgets/`.

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- With Science Score, your students can win prizes. Every day they post a new question: `http://www.sciencescore.com/widget/home_widget.php`.
- Shelfari displays a bookcase with books on it that you specify. Useful to share reading lists with your users: `http://www.shelfari.com/widget`.
- Spring Widgets: The user comments are quite helpful on this widget site. `http://www.springwidgets.com/`.
- Widgetbox: `http://www.widgetbox.com/tag/science`.
- Widgipedia: Lots of widgets, most of which you can embed: `http://www.widgipedia.com/`.

  Try adding an encyclopedia to your course: `http://www.widgipedia.com/desktop-.widgets/details/Gimp/Encyclopedia_1841.html`.
- Wolfram Alpha contains very simple, yet powerful text-based widgets. There is a great one for balancing chemical equations: `http://developer.wolframalpha.com/widgets/`.

Linking to another activity in the HTML block

Because Moodle is Web-based and you access it through a browser, every new page, resource, or activity has its own web address. So to provide your users with a shortcut, simply copy the address from your browser and paste it into the HTML block.

Adding other content to the HTML block

In the last chapter of the book, we run through lots of websites that can be used to create content for your course. All of these could be used with the HTML block. A particular favorite is to create a talking avatar—a cartoon version of you that can sit in a block at the side of your course.

RSS feeds

An RSS feed contains information published by its source. News sites and blogs often put out RSS feeds so people can read the content or summary of the content without having to visit that site or page. Your home computer or cell phone might have an RSS reader for keeping up-to-date with the latest news. RSS feeds are an easy way to add content to your course. Because they provide updated content for your users to see it adds more interest to the course. Here, is a selection of some of my favorites:

Teachers.tv: `http://www.teachers.tv/subjects/secondary/science` click on the RSS link on the right-hand side to get the feed information, which should be something like this: `feed://www.teachers.tv/videos/feed/rss/1021,811/rss.xml`

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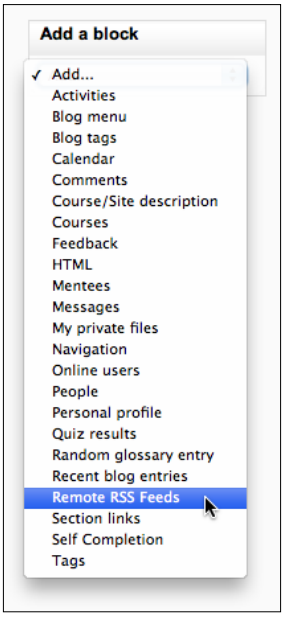
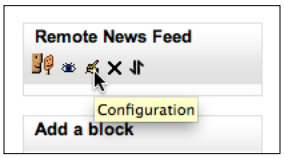
- `http://www.scientificamerican.com/page.cfm?section=rss`
- `http://www.sciencedaily.com/newsfeeds.htm`
- `http://www.onlinedegreeprograms.com/blog/2010/100-best-rss-feeds-to-follow-science-news/`

We're going to add an RSS feed from the BBC science pages (`http://www.bbc.co.uk/sn/rss/index.shtml`).

1. On your course page, turn editing on, then from **Add a new block**, choose **Remote RSS Feeds**:



2. For you to be able to add remote newsfeeds to your course, they first have to be enabled by your Moodle administrator. To get started, click on the edit icon to display and add RSS feeds.



3. Choose whether to display each link's description and the maximum number of entries per block then click **Add/Edit Feeds**. Click the button labeled **Add a new feed**.

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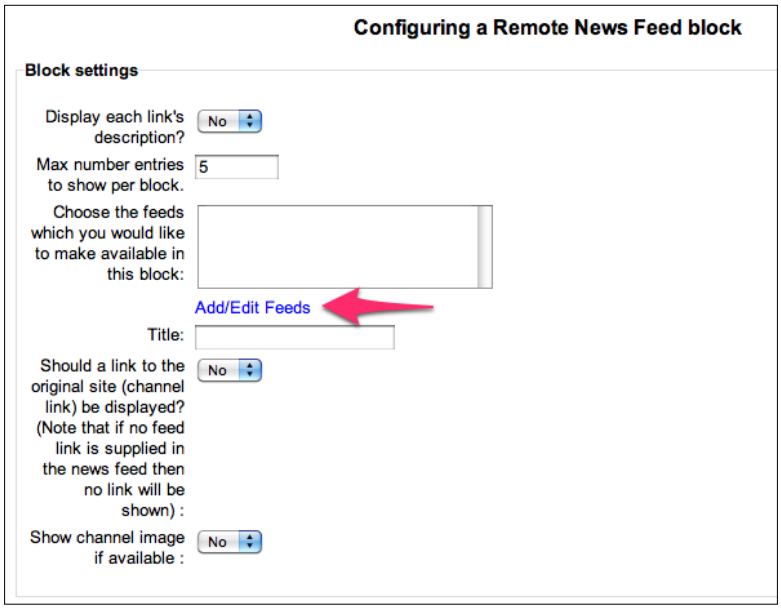

4. Next, click the button **Add a new feed**.
5. Open a new browser window and find the feed URL.

   `http://newsrss.bbc.co.uk/rss/newsonline_uk_edition/sci/tech/rss.xml`
6. Paste this link into the field labeled **Feed URL** and give it a custom name if you wish.

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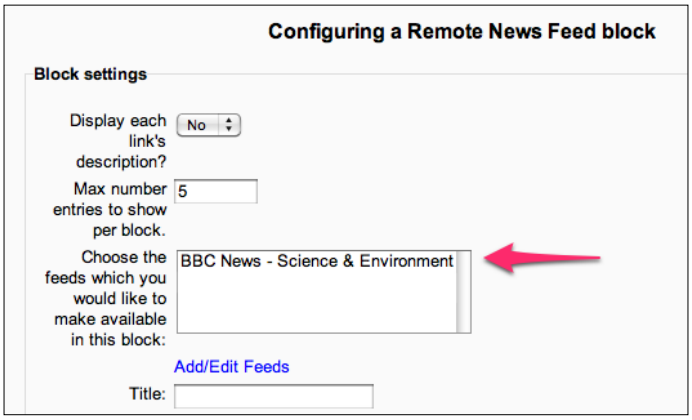
Click the **Show Advanced** button to display the **Enable auto-discovery of feeds** check box. This lets you just add the web page address in the **Feed URL** field rather than hunting around for the address of the RSS feed. It will find them for you on the page.

7. Save the added feed by clicking on the button **Add a new feed**, and you will be taken to a page to check/manage your RSS feed. At the time of writing, there is no navigation to take you back to the block you were editing, so anytime you get lost follow the links with your course name (the breadcrumb) along the top of the page (as in Hansel and Gretel) to find your way home.

8. Once back on your course page, find the RSS block you were editing and click again on the hand holding a pen to configure it. Choose your feed, which should now appear in the **Block settings**.



9. Check that you are happy with the other settings for the block and then hit **Save changes** to display your news feed on your course.

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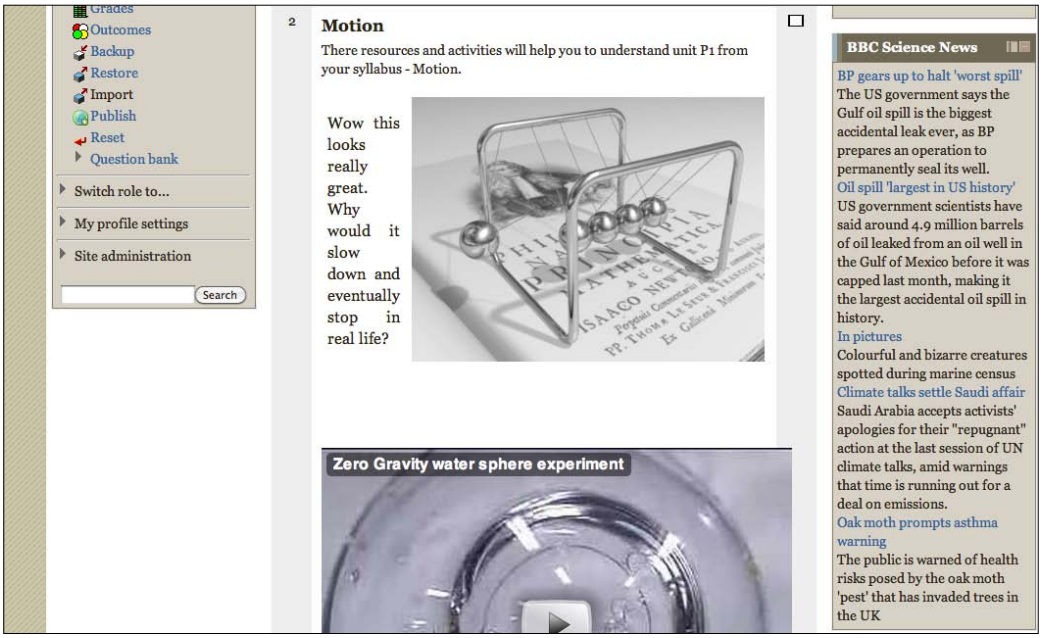

If you have any problems with the feed displaying properly, it could be due to a number of things. For instance, we found that in our school the web filter was blocking RSS feeds (stopping courses from loading), it could be the admin settings, or other security on the server so check with your Moodle administrator.

Summary

By now, you will have a good-looking and engaging course. You've begun to organize your resources into topics and directories within them, making them look interesting so as to engage your learners. You have included relevant videos they can watch or embedded animations and slide shows. Titles and section summaries have been added and you will have regularly updated news feeds so that there is always new content displayed on your site that your learners can read. This is only scratching the surface of what Moodle can do for you. The good stuff is still to come. So far we have created a fairly static course, where the users are passive.

In the next chapter, we will look at getting the learners on your course interacting with each other. This is the start of exploring some of the really useful features, which will have a massive impact on your learners.

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3

Learning through Discussion: Forums, Chat, and Messaging

I never teach my pupils; I only attempt to provide the conditions in which they can learn.

- Albert Einstein

Discussion plays a vital role in developing understanding, helping to clarify thinking, and causing learners to develop their ideas when they have to justify their knowledge. In this chapter, we will look at two Moodle activities that lend themselves to the discussion of scientific ideas. These are the forum and chat activities. We will also have a look at how you can send messages to users or groups of users.

By the end of this chapter, you will be able to do the following:

- Construct forums and chat activities for your users
- Explain the differences between forums and chats, and evaluate which would be better for a particular educational scenario
- Send users messages in Moodle

Forums

Forums are one of the most useful and educationally important reasons for using Moodle. People usually begin using Moodle for its ability to set online quizzes for students, but soon realize how great forums are as a learning tool. For instance, you can carry on a class discussion on global warming outside of the classroom and use forums to set discussions for homework.

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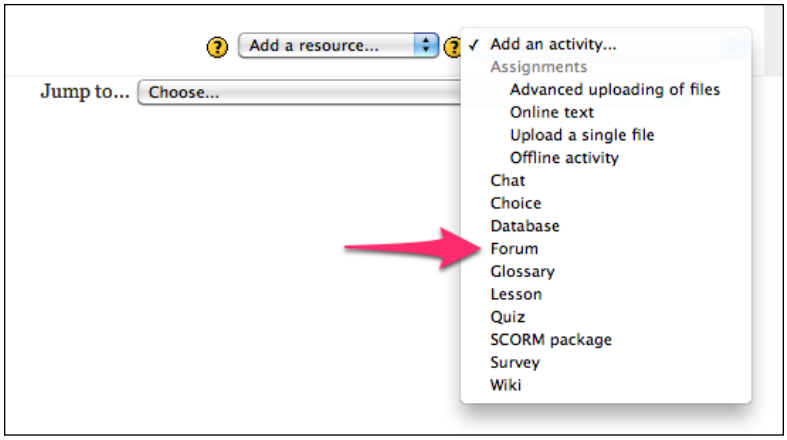
In a subject such as science, it is so important that learners are communicating with each other, talking to each other, and, above all, learning from each other. This is where forums come in useful.

Forums are an **activity** in Moodle. In the first two chapters, we were looking at **resources**, which all promote passive learning. The activities encourage interaction between learners and will be the focus for the majority of the rest of this book.

Setting up a forum

On your main course page, turn editing on. In the section that you would like the forum to appear, use the **Add an activity** drop-down menu and choose **Forum**.



This takes you to a new page where you can set up your new forum. To begin with, we will set up a standard forum for general use. Give the forum a name. This will appear on your course page for the students to click on and it can be anything. For this topic, let's have a forum where pupils can ask for revision help if they don't understand something while studying for an exam. So for the forum name, we will have '**Ask me a question!**'.

There are five different types of forums to choose from. You can see these in the following screenshot. Click on the question mark in the orange circle for a brief description of the different types.

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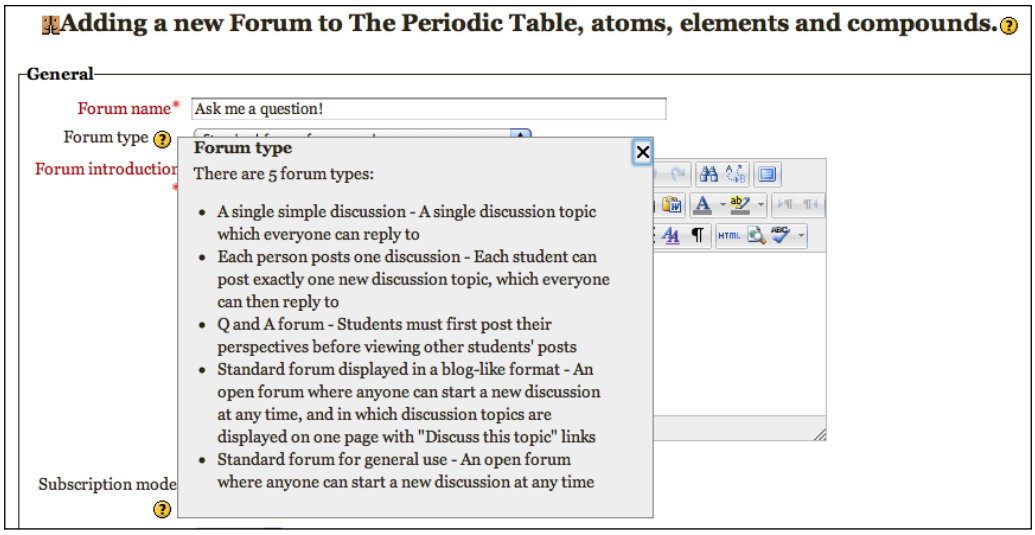

The forum types are:

- **Single simple discussion**: This type is useful for keeping your learners to the point. This can be very useful when you would like them to discuss or answer a specific question.
- **Each person posts one discussion**: This can be great for encouraging creativity and individual thoughts. For instance, this could be used as a way for pupils to generate questions for each other to answer.
- The **Q and A forum**: This is particularly good to use as a discussion carousel. The forum forces users to make at least one post before they can view any replies to other posts. You could use this for exam revision, where pupils have to post a question before they can see the answers to other questions posted.
- The **Standard forum displayed in a blog-like format**: This type of forum is very similar to the regular standard forum. The only difference is the layout. All of the posts are displayed on the front page and when you click on **Discuss this topic**, you'll be taken to a new page to post your comments.

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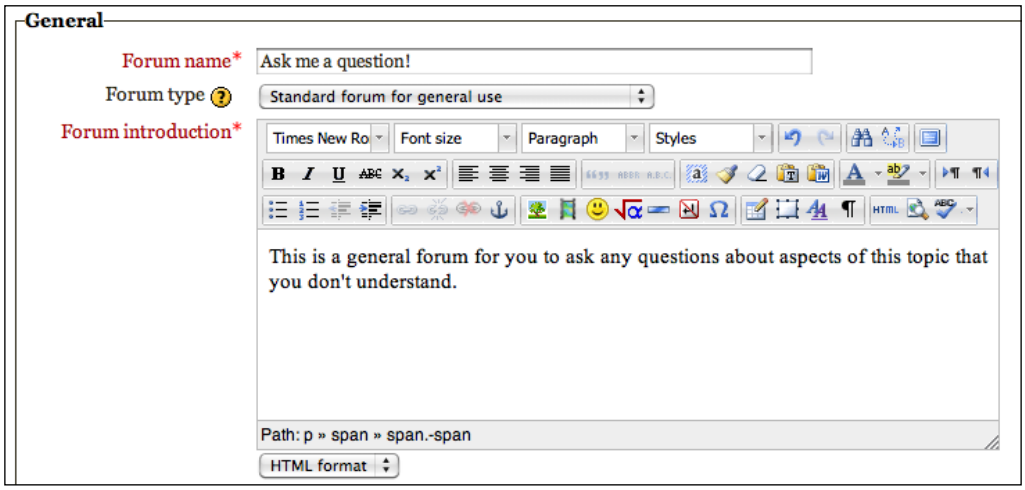
For this first example, we just want a **Standard forum for general use**.



Subscription mode

There are four options for how users are subscribed to forums. These subscriptions control whether users receive e-mails when users post to the forum. They are described as follows:

- **Optional**: Users have the choice whether to subscribe or not. They will have to visit the forum first. This may be useful if the forum is informal and as a teacher, you would not be worried if some of your learners were not participating.
- **Forced**: Users will always receive e-mail notification of posts. If you use this for your forums, you can give your learners ratings for their posts and use the grade book in Moodle to track the quality of their contributions. However, in some countries, this is illegal where all mailing lists must retain the option to unsubscribe!
- **Auto subscription**: Here, users can unsubscribe after initially being subscribed to the forum.
- **Subscription disabled**: This stops users from subscribing to the forum. One use of this setting would be if you wanted to use the forum to post information to your course.

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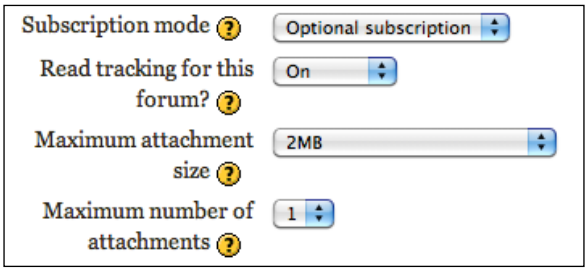
Read tracking and attachments

Read tracking is a useful way to let learners see which posts they have and haven't read. So you would usually set this to **On**. The attachment size should be set to a sensible number. 5 MB is plenty if you are asking them to attach documents or presentations. If a student attaches an image, it actually displays in the post. You may want to increase this limit if you are asking your users to attach video. The maximum number of attachments can also be set.

These are the settings for this example:

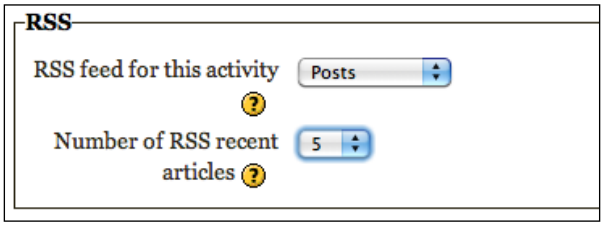


RSS feed for this activity

RSS feeds need to be enabled by your site administrator first and allow users to add the forum to their RSS reader on their local computer or smart phone, so that they can have the new forum posts pushed to their device or you could have posts appear in an RSS feed block, as explained in the previous chapter.

Warning! Using RSS feeds publishes the forum posts and does not require a username or password to view. This puts student names and potentially identifying information on the Web.

For the example, turn this on, so set it to **Posts**.



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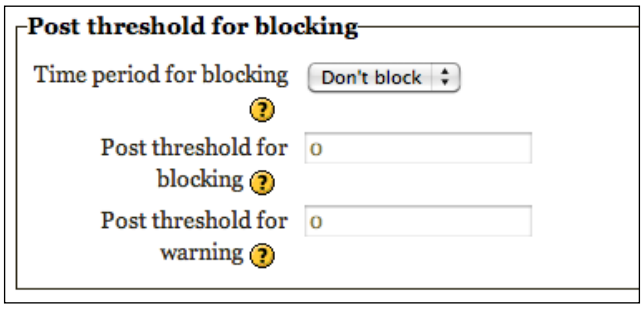
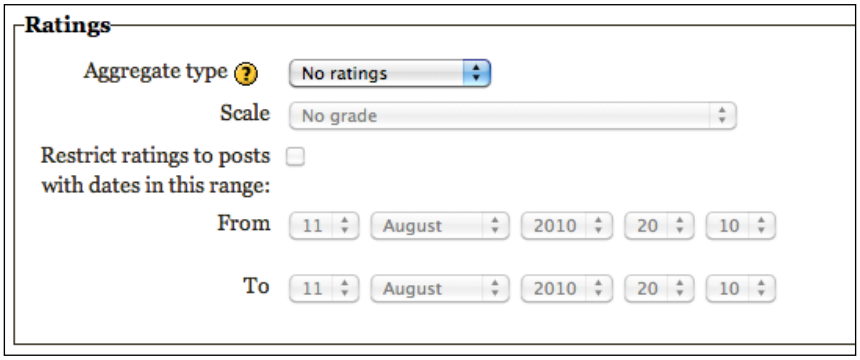
Post threshold for blocking

These settings are designed to make students think about what they are posting. If the time period was set to one day and post threshold to two, this would mean that each pupil is only allowed to make two posts every day. This stops forums turning into a conversation between users. However, it can obviously restrict users so have a think before using it. For this forum, leave it on the default settings.



Ratings

Ratings have many brilliant uses. Ratings will be covered in detail in the next chapter (so look ahead, if you can't wait!) For now, as this is a help forum you probably don't want to keep a record or score of the quality of the users posts, so leave it as **No ratings**.



Common module settings

As the name suggests, **Common module settings** appear on a number of resources and activities in Moodle. The settings allow you to set the activity for different groups of users. Click on the button **Show Advanced** so that you can see the advanced settings. To let your users see each other's questions posted on this forum, choose **No groups**.

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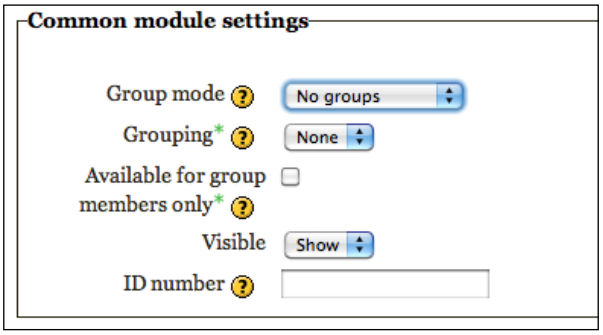
Assuming you have set up groups of learners, the following shows you how the group setting affects the forum:

No groups gives you one forum that all users can contribute to.

Separate groups gives you separate forums for each group (students can not see the forum for the other groups).

Visible groups again give you separate forums for each group; however, students can see the forum for the other group, but not contribute.



Restrict availability

This is only relevant if your administrator has switched on **conditional activities**. You may not see this option. As this is a forum where pupils can ask for help on certain topics they are studying, you don't want to restrict the availability, either by time, or by grade conditions. However, if it was a forum for them to contribute to after going on a field trip or another time-sensitive task, you may want to restrict the date of the availability of the topic. Similarly, you can restrict a forum from users until they have over (or under) a certain percentage in a quiz activity by changing the Grade condition settings.

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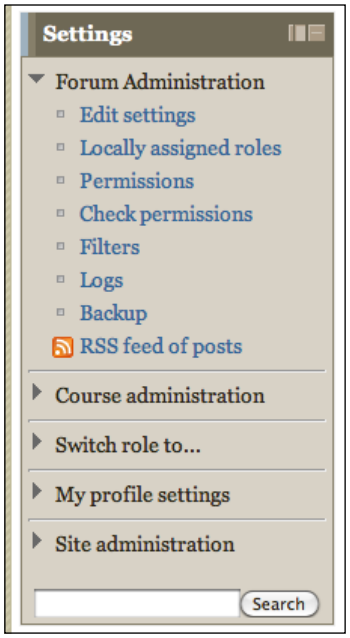
Click on **Save and display**. If you need to edit any of the settings, you can do so under the **Settings** menu, which is in the middle on the right-hand side (as shown next), but it will depend on your theme.



It is nice to use a help forum for each unit of study, to post photos of white boards used in class, and to follow up problems and extend lessons taught face-to-face.

Other creative ways you can use forums

Let's have a look at how to use forms for a discussion carousel. We're going to set up a forum where users are going to answer the most recent question and then post one of their own. The topic for this example is 'Movement in and out of cells'. For this topic, the students need an understanding of diffusion and osmosis.

For this to work, let's make the instructions clear in the forum introduction. Explain to your users what you want them to do. We'll ask every user to post a question for the next person and then reply to the most recent unanswered question.

You will need to ask the first question to start off the carousel and also reply to the very last question. For the forum type, choose **Q and A forum** because you want a new discussion question from each user. Also, use visible groups so they can see the questions and answers from each other.

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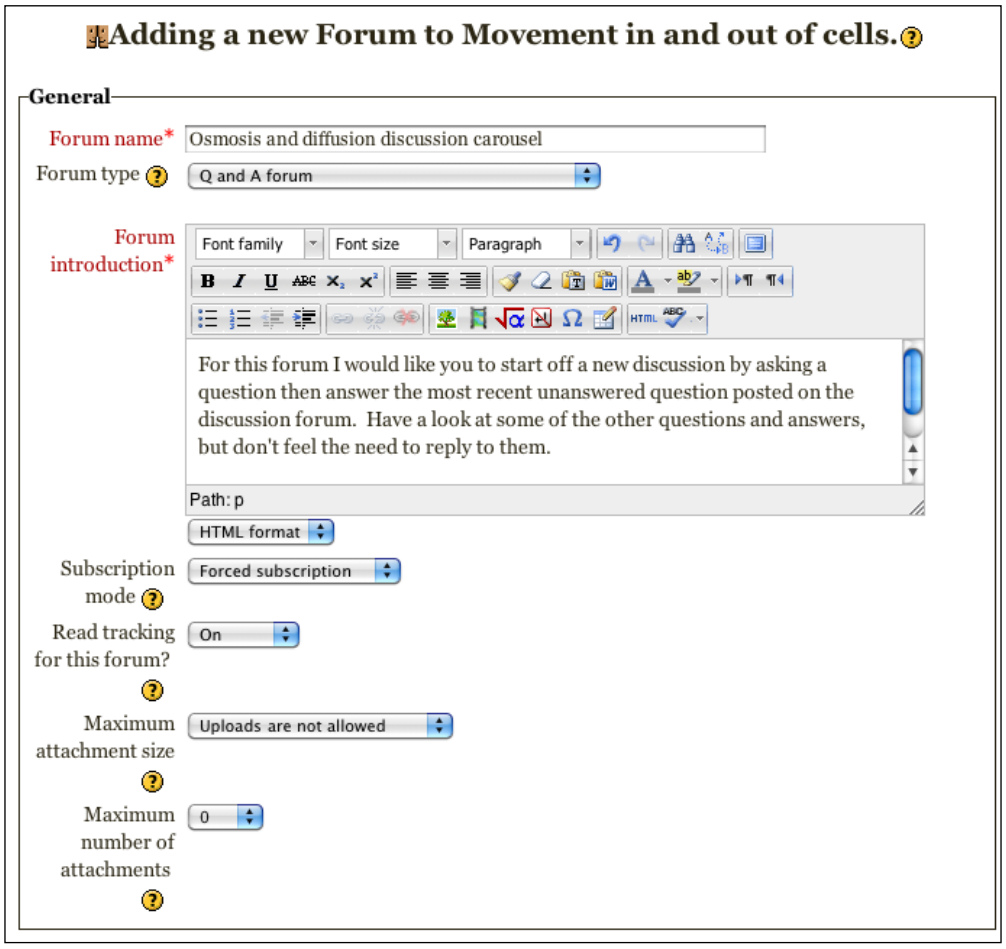
The **General** settings are shown in the following screenshot:



Similarly, in the introduction, you could post a past exam question and ask your users to post an answer to it.

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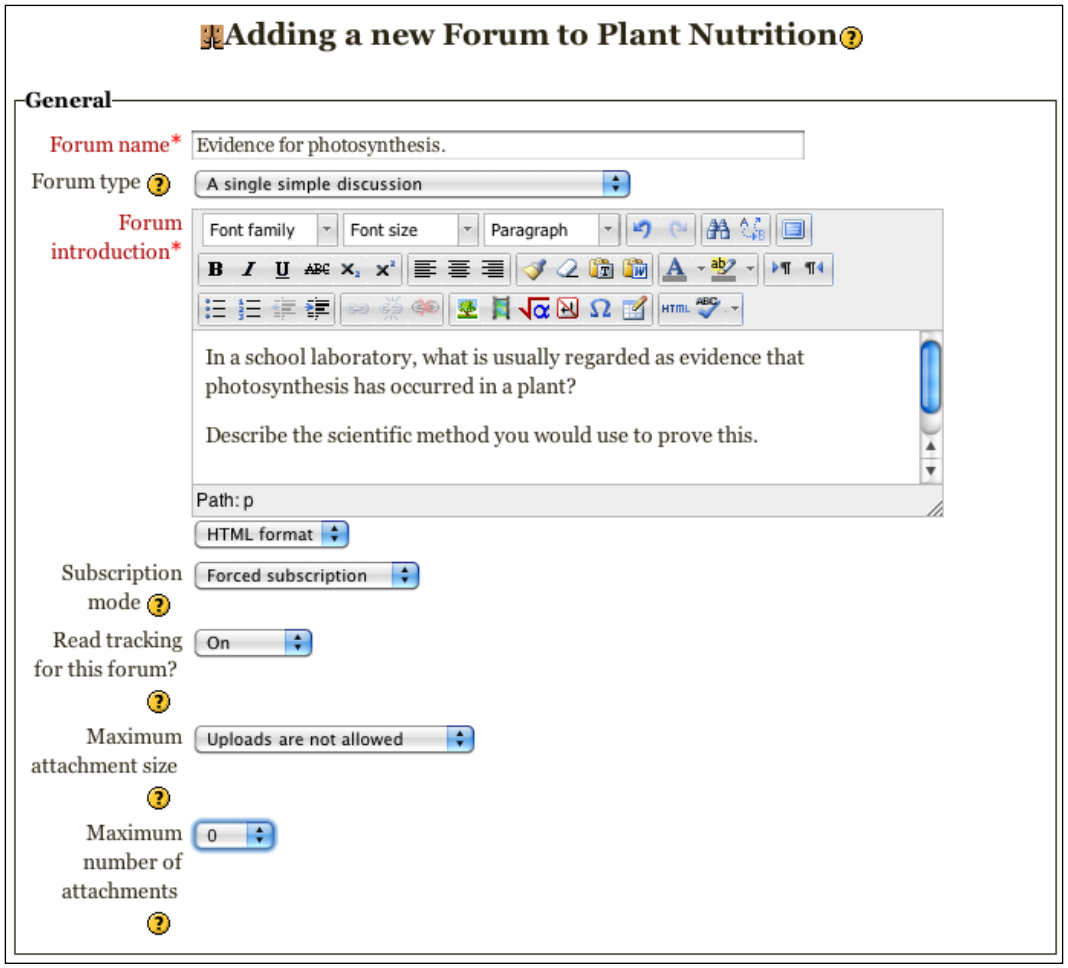
The following example is a forum you could use to get pupils practicing scientific method:



You could also experiment here by allowing users to give ratings to the forum posts (have a look at the next chapter for more information about ratings and aggregate types).

There is no reason why you can't add pictures and video to forum posts. One great use for this could be getting users to upload videos of their own explanations or experiments, taking pictures of weathered rocks or, as in the following example, finding examples of energy transfers around their homes.

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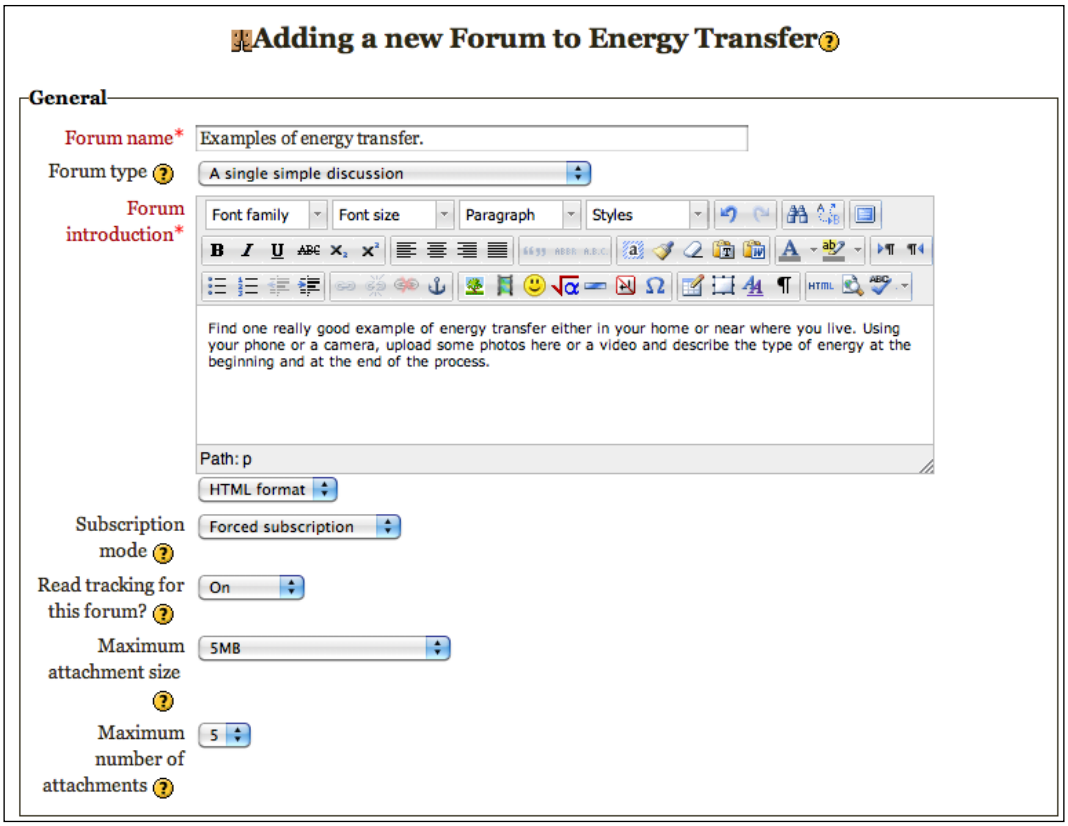

Moderating forums

Here are a few ideas to help your forums run smoothly:

- Introduce your forum, including rules, if any.
- Begin the conversation and ask your learners to respond.
- Take part in the discussion. Try to keep the flow of conversation and keep people on topic.
- You can delete posts (the link is on the right-hand side, underneath the post), but it might be better to acknowledge the post as off topic or inappropriate. It can be really annoying to a participant if their post is deleted, especially if they have taken a lot of time over it.

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- You can move the thread (the initial post and any replies) to a more appropriate forum, if there is one, by using the "**move this discussion to...**" drop-down menu at the top-right-hand side of the page displaying the forum thread. To move a reply, use the '**split**' link (along side the **delete** link) first to turn it into a new thread then you can move it.
- If the discussion begins to slow down, try to extend the discussion or involve users that have not posted for a while by asking their opinions and replying to their posts.

As you can see, there are many different ways you can use forums to enhance learning and provide interesting and stimulating work outside of lessons. Forums are really good because users can think about the points, research, and then reply in their own time. If you want an activity that is a bit more "quick fire", requiring users to express opinions immediately and think on their feet, then **Chat** would be the one to use.

Chat

One great tool in Moodle is the chat activity. The big difference between chats and forums is that chats are synchronous while forums are asynchronous. Meaning that chats are taking place live and all the learners are involved at the same time. Forums are independent of time. A forum discussion could take place over days, weeks, or months.

Adding a chat

As always, on your course page, click on **Turn editing on**. Then in the section you would like it to appear, from the activities drop-down menu, choose **Chat**.

We're going to create a chat for a new topic on motion. The name of this chat room is going to be **What would a world without friction be like?** and, as you can see next, there are some guidelines added to the introduction. You can find the guidelines at the end of this section. This will be a one-off chat so choose **No repeats**, and to encourage thoughtfulness and politeness choose **Yes** to let everyone view past sessions. If you see your students face-to-face, it might be an idea to check to see when they are available.

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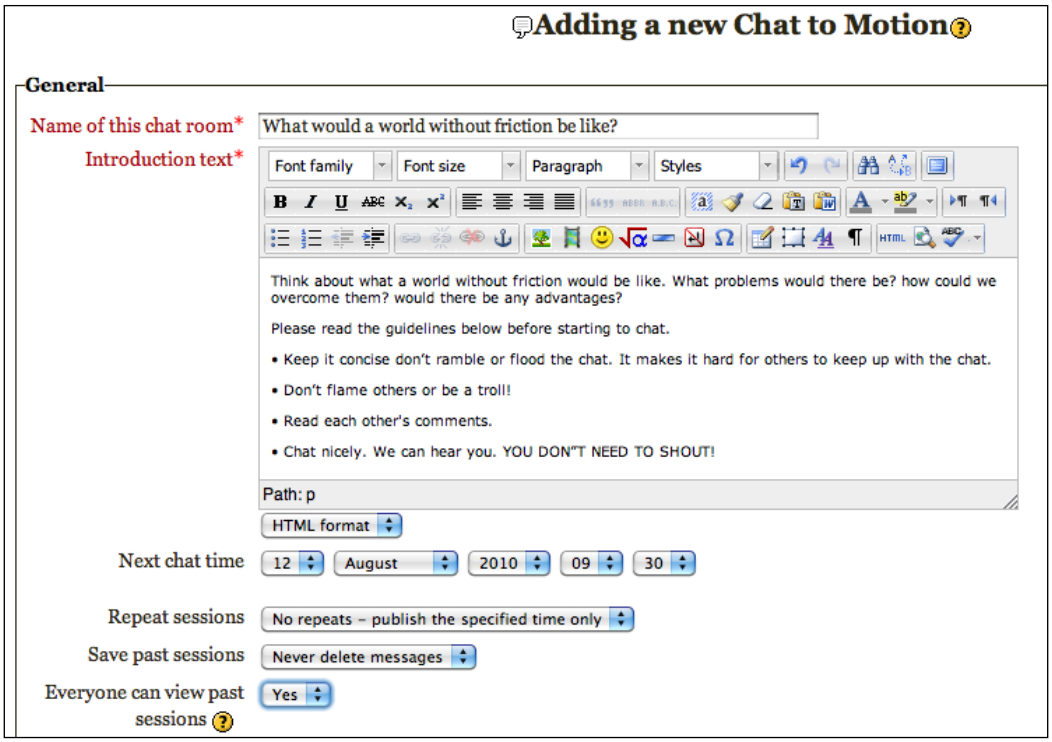
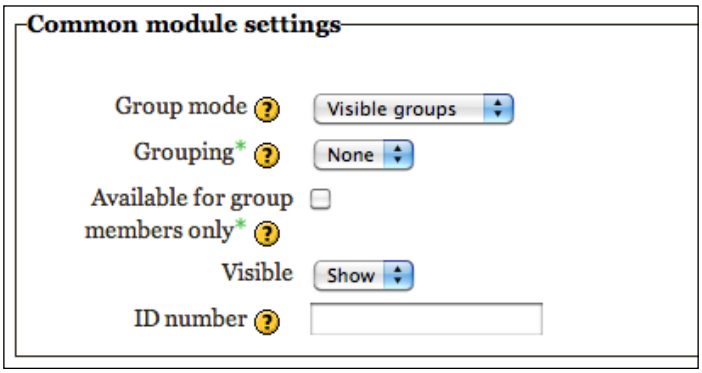


Group chat

For this chat, choose **Visible groups**. This means that each group will have a separate chat and can also see (but can not take part in) the chats for the other groups. This is to reduce the number of users in a chat room. Six is a good number. Much more than this and the type flows too quickly on the screen for users to keep up with it. Hit **Save and display** and you've created a chat room for your course.



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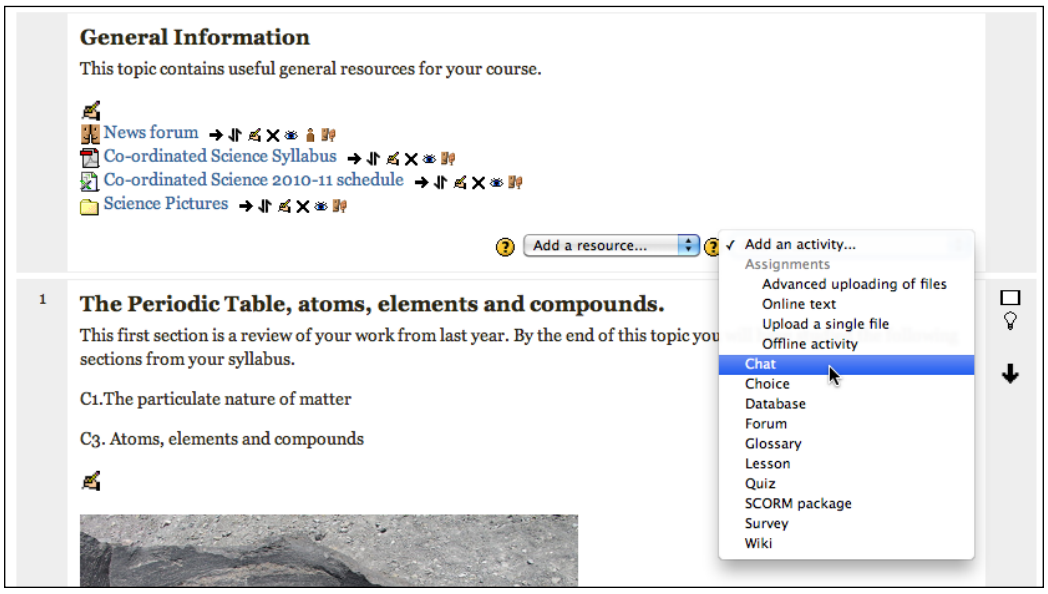
Let's have a look now at setting up a regularly repeating chat that you could use with your users once a week to review something you have taught them face-to-face. This could be to provide your learners with somewhere they could go to for help with their homework.

For this to work, you would need to advertise it well with your users so there are enough people in the chat room at one time. This type of chat would be useful in the **General Information** section at the top of your course.



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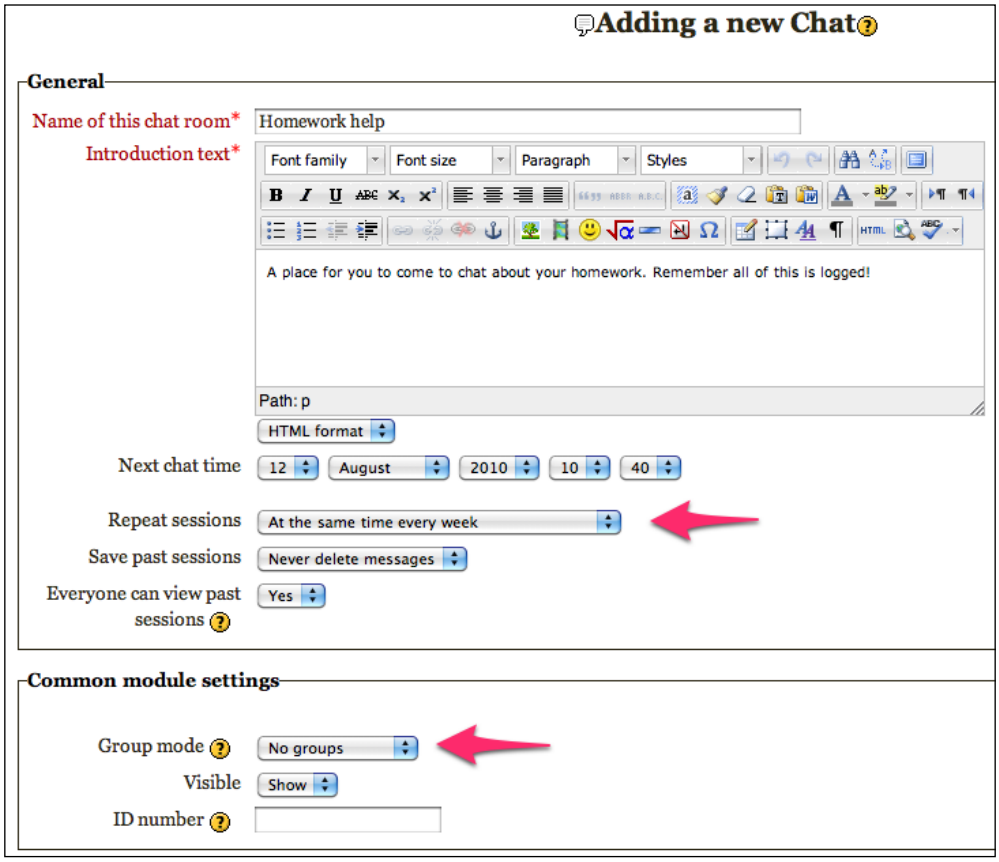
There are two differences to make to this chat. The first is to repeat every week and the second is not to use groups for this, as it is unlikely there will be lots of users at one time. Here are the settings:



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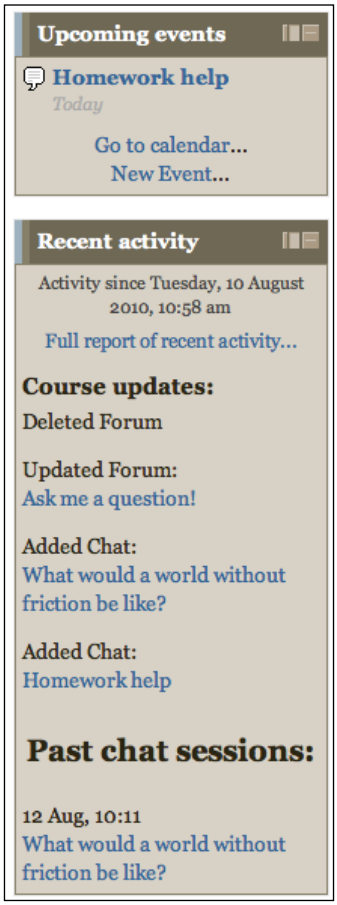
You may also notice that the chats you have set up are now appearing in the **Upcoming events** block **Recent activity** block and you will find them in the course calendar.



Other creative ways you can use chat

Another great way to use chat could be for an online debates. What a great piece of homework to give students! Let's have a go at adding this to a topic on 'Diet and Digestion'. The chat will ask learners to read about and debate the merits of two methods of weight loss. This may be a sensitive topic to some students so it would be good to meet them face-to-face first and set guidelines. If you don't see your users face-to-face, this could be set out in the introduction.

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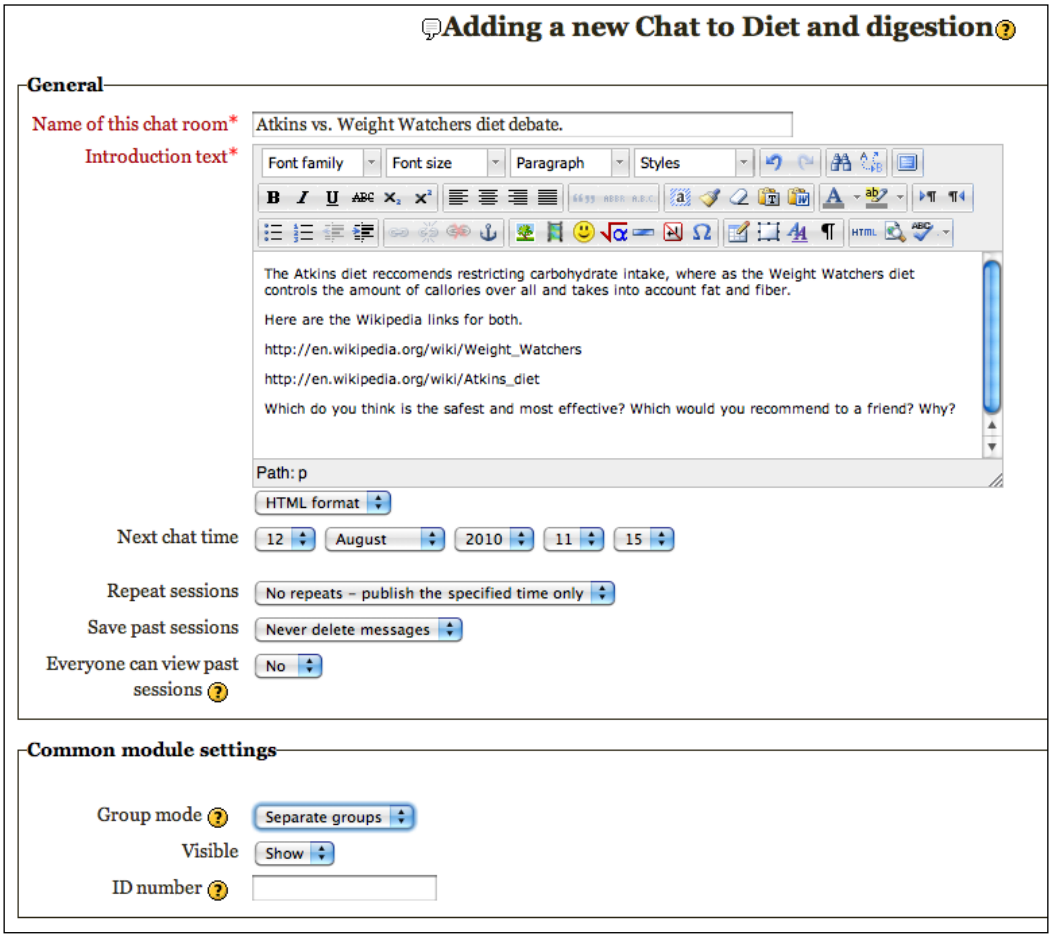
It would be useful to choose **Separate groups** to make the debating groups small and by choosing separate groups, they will not be influenced by the debates the other groups are having. You could also follow this activity up in class with your learners.



If you do meet your users face to face you could use the chat function live in class to gather opinions on a particular topic that are then displayed on an interactive white board. Some pupils may feel more confident communicating their ideas this way rather than speaking in front of their peers.

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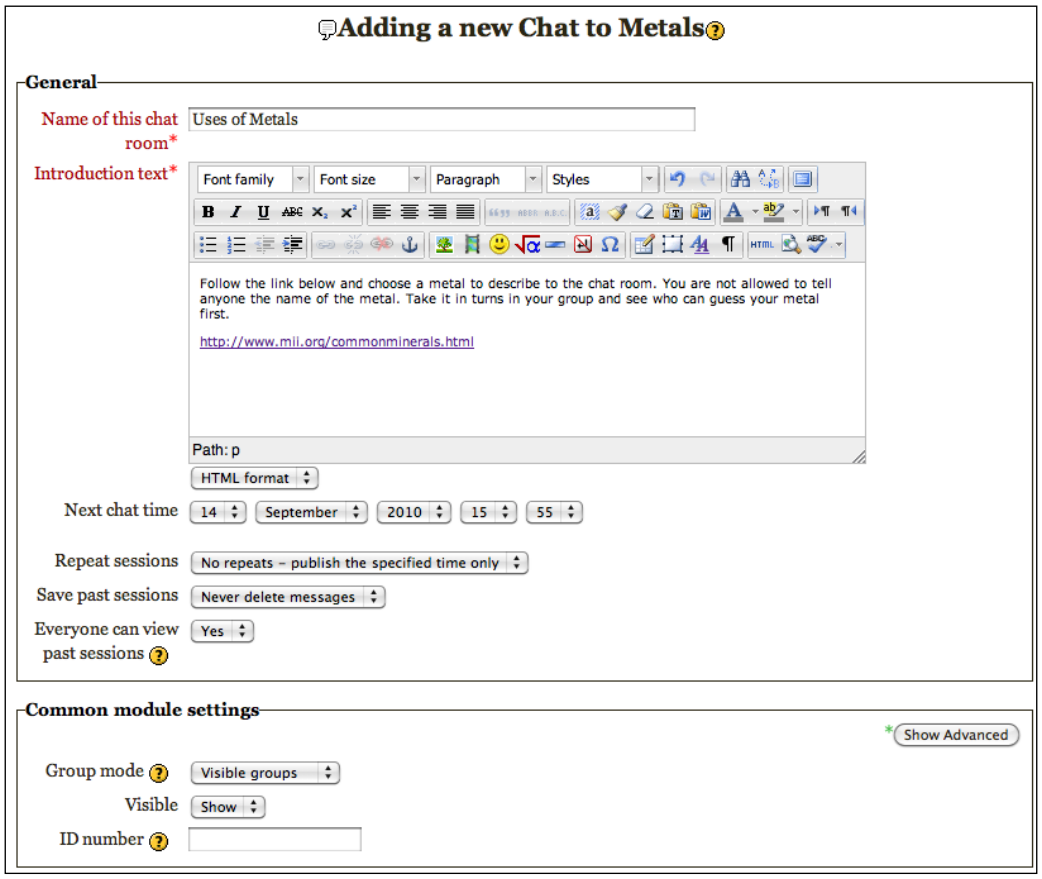
Here's an activity you could adapt for any topic. You could set this up when you see your pupils face-to-face, but there's no reason why you couldn't achieve the same result by e-mailing or messaging users with instructions if you don't use Moodle as a blended learning tool. Users will take it in turns to describe a metal to the chat room, based on its properties and uses. There's a link in the following example that they would follow. The other members in the chat room would then try to guess or work out that which metal is being described. An extension of this would be to just use pictures, perhaps of scientific processes, chemicals, or organs in the body and have users try to describe them to each other. All of this encourages higher-level thinking in pupils.



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Another activity that stimulates higher-level thinking is designating one particular user as an expert on a particular topic and then getting the other users to ask them questions. Use the same settings as the preceding **Metals** example; however, you will need to let the expert know in advance what they are doing. In Moodle, you can do this by sending this user a message.

Useful tips for using chats

Chats can be really useful, but have to be focused. Otherwise you may find your users spend more time off task rather than talking about what you want them to. Another problem you might face is getting all your students online at the same time.

Guidelines for students using chats

It's useful to establish rules or guidelines for your users to follow using chats. For example, these are some of the points to make explicit in the introduction:

- Keep it concise, don't ramble or flood the chat. It makes it hard for others to keep up with the chat.
- Don't **flame** (harass or be rude to) others or be a troll! (In Internet slang, a **troll** is someone who posts off the point comments or tries to annoy or provoke other users).
- Read each other's comments. It can be easy for users to just type away their own opinion without thinking and taking onboard other peoples' opinions.
- Chat nicely. We can hear you. YOU DON'T NEED TO SHOUT!

Messaging

Built into Moodle is a system for instant messaging. Your administrator can disable this for your site so you may have not noticed it. The messaging system in Moodle 2.0 has been revamped to bring together a more coherent system of communication. Users can choose how to receive messages in Moodle 2.0, including e-mail, XMPP, and pop ups. XMPP can be used to have messages sent to an **Instant Messenger** (**IM**) client. All e-mails sent by Moodle are now treated as messages.

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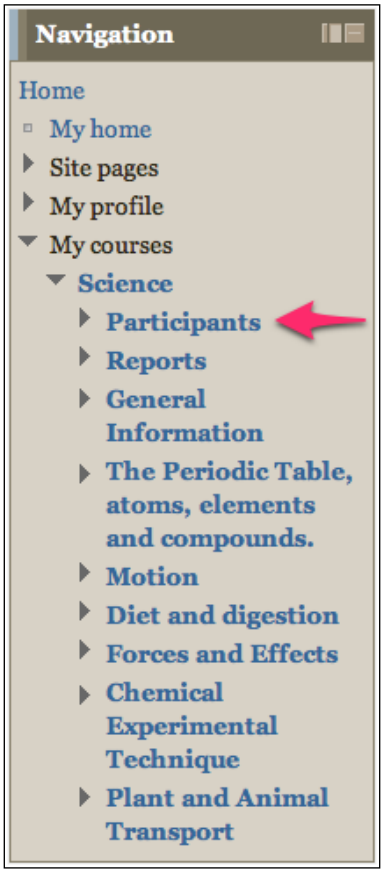
Sending a message

The option to message users is under **Participants** in the navigation block (top-left-hand side). If the **Participants** link is not obvious, click on the arrows next to **My courses** to expand the selection.



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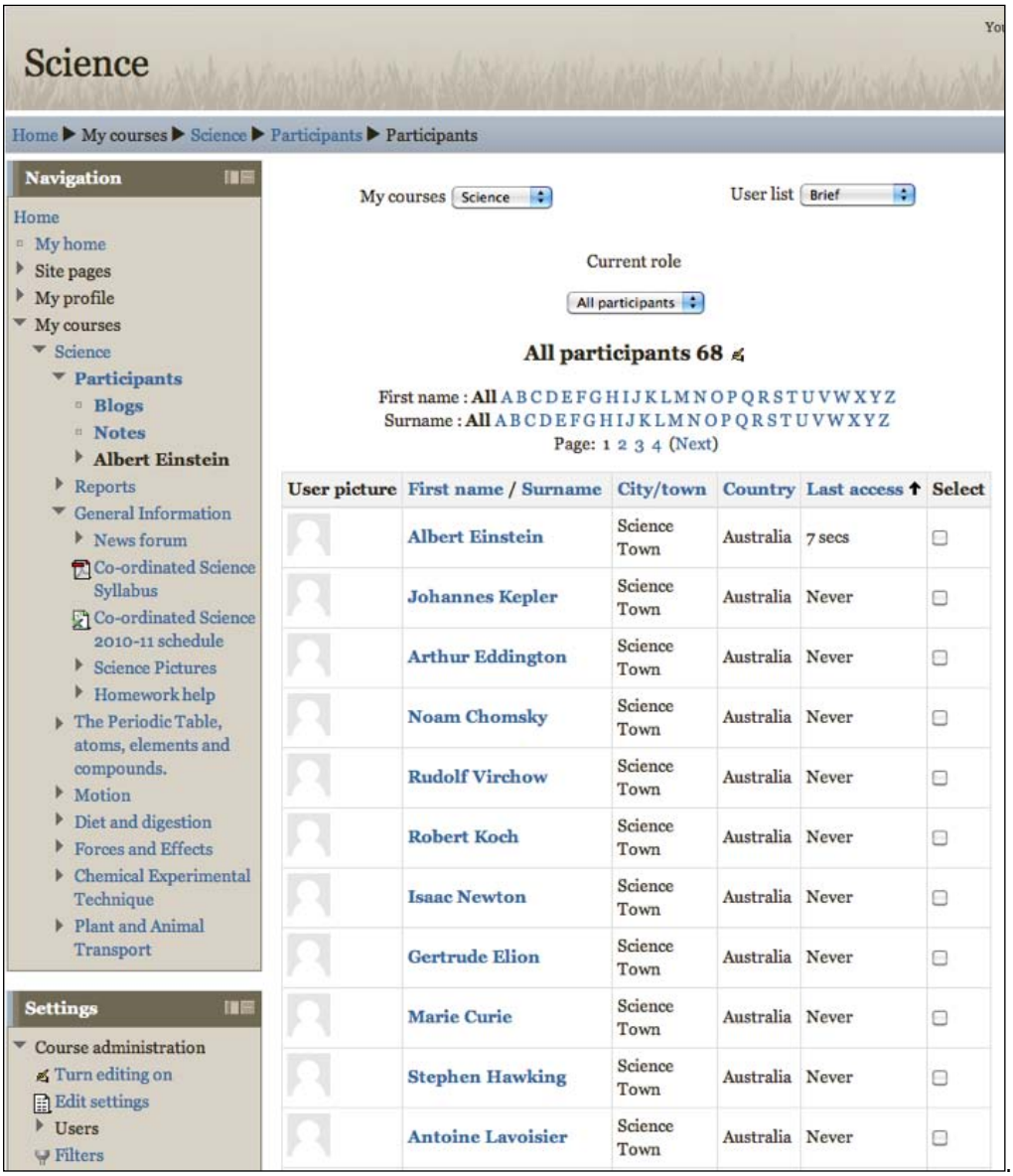
To message users, click on the **Participants** link for your course and you should see a complete list of all the users. Refer to the following screenshot:



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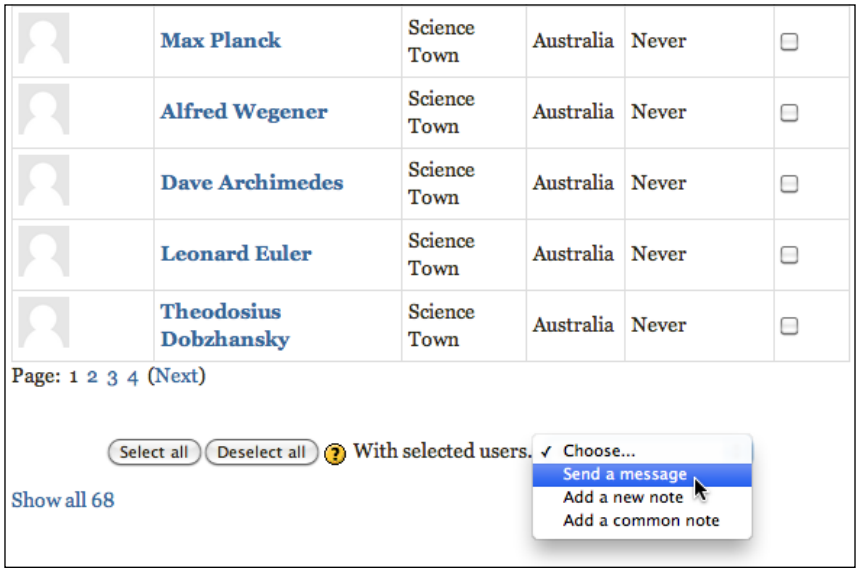
Using the drop-down lists near the top, you can filter for the users' role (you may wish to see a list of users with the Teacher role and message them) and you can also switch to a detailed user list.

Messaging a single user (or multiple users)

To send a message to users, follow these steps:

1. Check the box in the **Select** column for the user or users.
2. Scroll down to the bottom and from the drop-down list, **With selected users…** choose **Send a message**.
3. If you want to message all users on your course, click on the link **Show all 68** (or however many users you have enrolled on your course), then click on the button **Select all** and then choose to send them a message in the same way.



The use of Instant Messaging (IM) in schools is a topic that can be a bit controversial. Institutions might have experienced pupils abusing the system, which is a shame as it can be used enhance their learning. Or there could be issues with data protection and having children's details on servers that are outside of their country of residence. If you do have users that do not use the IM system in Moodle as you would like, you can always ban that pupil. This is where roles comes in handy.

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Blacklisting users from messaging using roles

This is a really useful application of roles, which will be covered later in the book. Setting up a new role will need to be done by someone who has site administration privileges. They will need to set up a new role and call it something like **Blacklisted from messaging**. Make sure the capability to **Send messages to any user moodle/site:sendmessage** does not have the 'permission allow' check box checked. This can then be applied to the offending pupil at a site-wide level. Only that user will be banned from sending messages in Moodle. They will, however, still be able to take part in forums and chats.

Summary

This chapter has shown you the first steps in making a truly interactive course. You now have users interacting with each other and with you; using forums, chat, and messaging. Being able to communicate ideas effectively is the foundation of a solid learning community; you may find that your users are beginning to support and help each other through the forums and messaging without your prompting.

In the next chapter, we will look at how the members of your course can use activities and assessments to get feedback on how they are doing and, most importantly, what they need to do to improve in their learning.

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4
Assessing your Learners' Understanding of Science

"An education isn't how much you have committed to memory, or even how much you know. It's being able to differentiate between what you know and what you don't." - Anatole France

The focus of this chapter is assessment. Specifically, how you can provide feedback to your science students and show them how they can improve. We will look at a variety of different activities all with the same focus: to provide evidence of understanding (and importantly misunderstanding) with a view to correcting these misunderstandings and developing your learners' ideas further.

By the end of this chapter, you will be able to do the following:

- Give effective feedback in forums to promote learning
- Develop your learners' understanding of science using assignments
- Construct many different types of questions and use them to create quizzes

One of the biggest things to come out of the UK in terms of modern education practice is **Assessment for Learning** (**AfL**). This is a phrase coined by Paul Black and Dylan Wiliam in the late 1990s. If this is the first time you have heard the phrase "assessment for learning" then refer to:

Inside the Black Box: Raising standards through classroom assessment King's College, London. Black, P.J. & Wiliam, D. (1998).

It's a great place to start and a reference you'll regularly go back to, again and again.

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Assessment for learning

Let's begin by looking at what good assessment is; then we'll go through how you can apply this to your Moodle course.

Assessment for learning informs you as to what your students have learned, gives an idea what topics, concepts, or areas they find hard and, most importantly, gives you and them an idea of how to improve.

Assessment can unfortunately have a negative effect on people. It can make a huge difference when students are involved in their own assessments, but serves very little purpose when it is used by pupils for comparisons or to boost ego. It is important for learners to understand the reasons behind assessment, whether it is to help them understand something, a summative test designed to award a level of competency, or just a quick review so they can see how they are doing.

It is vital, however, that all learners can 'do well' in assessments, which may sound contradictory. Progress is much faster for learners who are confident, secure, and happy with trying new ideas. Without that, little learning can happen. This may mean creating different levels of assessment for a particular task so that all pupils can access it.

Assessment comes in three main types—**teacher/tutor assessment**, **self assessment**, and **peer assessment**. The latter two will be covered in *Chapter 6* and *Chapter 8*. The focus of this chapter will be teacher assessment to provide feedback to students. In the next chapter, we will be drilling down deeper into the analysis of assessments to inform your teaching.

Feedback

The most important thing a teacher can provide is to let their students know how they are doing. Moodle is great for this. You could, for instance, create a multiple-choice quiz and give your learners detailed responses for every incorrect answer, even giving them a link to another resource or website that would help them learn from their mistakes.

The feedback cycle

The **feedback cycle** is something you could use when creating tasks designed to provide feedback to your students on their learning. The following image shows you the three phases of the feedback cycle:

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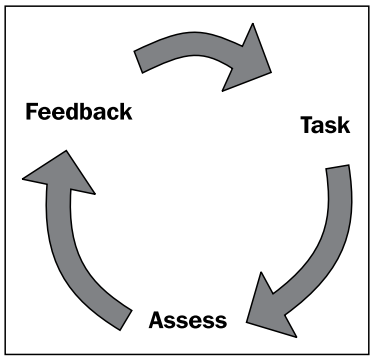

Learning is a continual process of attempting tasks, finding out if you can do them, and then working out what you need to do to get even better.

If you want to find out more about the current teaching methodologies in the UK, there are some great videos and good practice at `https://www.ssatrust.org.uk/Pages/home.aspx`.

Using ratings in forums

It is important that students get feedback on their work. Without it, they will never know how to improve. This feedback could be from the teacher, by reflection after comparing their work to some criteria, or from their peers. This last reason is why, more often than not, it is useful to include some sort of ratings in the forums you set up, along with comments for improvement.

Why use ratings?

It can be a good idea initially to force pupils to use the rating systems in forums. To do this, you could set some specific homework, asking them to post their replies to a discussion point. It should require them to read and reply to at least two other posts, providing ratings and written feedback. Interestingly, pupils tend to be very fair and will often do much more than the minimum. It's a good idea to be quite specific when using ratings. For instance, what does 5 out of 5 actually mean? Criterion-based judgments give the learner a much better idea of specifically what needs to be done to improve. These criteria could be agreed on beforehand and form part of your forum introduction. Again, for written comments, it is best to be specific. "Great post" doesn't really help the learner much, apart from a bit of an ego boost. Of course, there are times where you may wish to do this but there is lots of evidence that it doesn't help their understanding of scientific ideas, (see *Inside the Black Box: Black, P.J. & Wiliam, D. 1998*).

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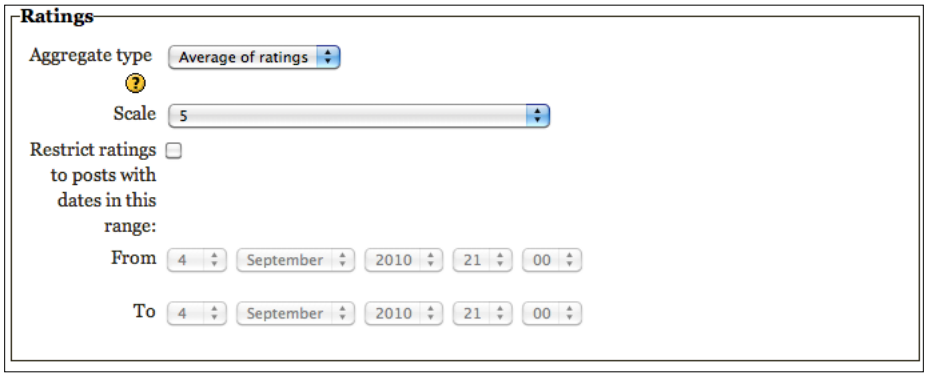
You could ask your learners to suggest two things that were really good about the post, and one thing that could be improved. They should phrase the feedback "perhaps next time you could…". A polite suggestion, rather than a criticism that doesn't make the student giving the advice sound bigheaded. It's also good practice to get the person receiving the feedback to say "thank you", as it will encourage the person giving the feedback to do it more often.

Aggregate of ratings

In forums, there are five ways in which ratings are totaled (or aggregated), described as follows. These can be set by clicking on the edit icon alongside the forum link on the main course page.

- Average: This is the mean of all the ratings.
- Count: This gives you the sum of the number of posts. There are not many examples where this might be useful, other than to check that users have contributed a certain number of times.
- Max: This is the highest rating given for a persons post. Useful when you wish to get your users to display certain levels of competency.
- Min: It is the lowest rating given for a persons post.
- Sum: This is all the ratings combined to give a total. It is useful when you want to encourage participation and quality responses.This is different than count, as the total cannot exceed the maximum rating for the forum.

Let's go back to a forum that was set up in *Chapter 2*, *Evidence for Photosynthesis*. Now, we will set the aggregate type and give the rating a scale.



The scale chosen here gives a maximum of 5 for each post. Before setting this forum take the time to go through the scale and share a rubric with your learners, which explains what a post must include to be given a 1, or a 2, and so on.

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It is usually good to show them examples of different posts so they get an idea of what makes a great post that is a 5. Another way you could use ratings is to use a scale to indicate how strongly the reader agrees or disagrees with the post. You could do this by creating a custom grade scale with words to represent the level of agreement. An example of this would be a scale that pupils can award the following values:

- Agree totally
- Agree somewhat
- Neither agree nor disagree
- Disagree with some points
- Disagree totally

Grade scales

There are two standard grade scales in Moodle. One is called **Separate and Connected ways of knowing**. It has the following choices that you could award for a discussion post:

- Mostly separate knowing
- Separate and connected
- Mostly connected knowing

A person who is in the 'mostly separate knowing' category has their opinions based on fact and is very objective.

A person who is in the 'mostly connected knowing' category is empathetic and tries to see the other person's point of view.

The other standard scale is called **Satisfactory** and allows users to choose from the following labels:

- Not satisfactory
- Satisfactory
- Outstanding

You can set up custom scales, which could be anything; grade letters, levels, or even colors could be awarded to posts to represent de Bono's Thinking Hats. Here is a link if you are not familiar with the concept: `http://en.wikipedia.org/wiki/Six_Thinking_Hats`.

To set up custom scales, click the **Grades** link in the settings block followed by **Scales**.

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Assignments

Assignment activities are a nice introduction to getting users submitting more traditional types of work on Moodle. They are very easy to set up and provide the added benefit of organizing all of the submitted work in one place.

There are a number of different assessment types that you can set up in Moodle. Some of these involve users submitting a file or files online, or even offline. There are:

- Online text
- Upload a single file
- Advanced uploading of files
- Offline

Think of an assignment in the same way you would have students hand in or e-mail you a piece of written work.

Online text

The online text assignment allows you to set up an assignment where your users are required to type or copy and paste their work directly into the browser. The really useful thing about online text assignments is that you can choose to be able to comment on their work inline. This means that you will be able to give them feedback that they can use to improve their work and resubmit it. However, if students are typing more than a paragraph of text there is the chance that the web page might timeout, so they would lose their work.

Like grading forums, you can also specify how many marks the assignment is worth, or specify a particular scale that the work will be judged against. A lot of the time a simple scale can be used to assess the piece of work, for instance unsatisfactory, satisfactory or outstanding. This would be paired with some detailed feedback for improvement.

The assignment that is going to be set up here will be for the third topic "movement in and out of cells". To add an online text activity, choose it from the **Add an activity** drop-down menu. This activity would be a lead up to an experiment investigating how osmosis acts on pieces of potato in sugar solutions. The aim here is to get your users to justify their predictions. You can follow these same steps to set up any activity in Moodle.

- As with all things in Moodle it needs a name and description.
- Set the activity available for one week although users will not be prevented from handing it in late.

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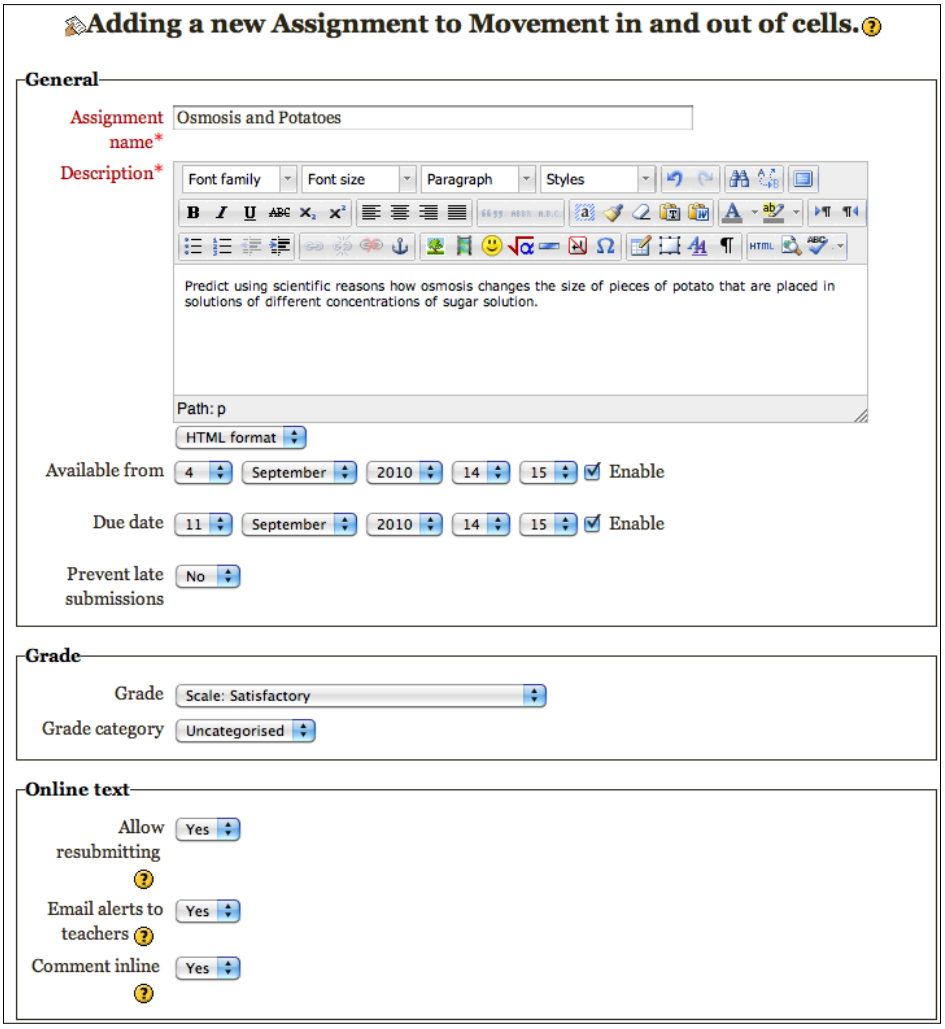
- Use the **Satisfactory** scale for grading and allow resubmitting with comments inline.
- It's also nice to set the e-mail alerts to teachers to `yes` so that you will get an e-mail when a new piece of work is submitted. For this to work properly, you must remember to add yourself to the course as a teacher and also add yourself to a group. Information on how to do this can be found in *Chapter 1*.

Here are the assignment settings. The other settings can be left as standard:



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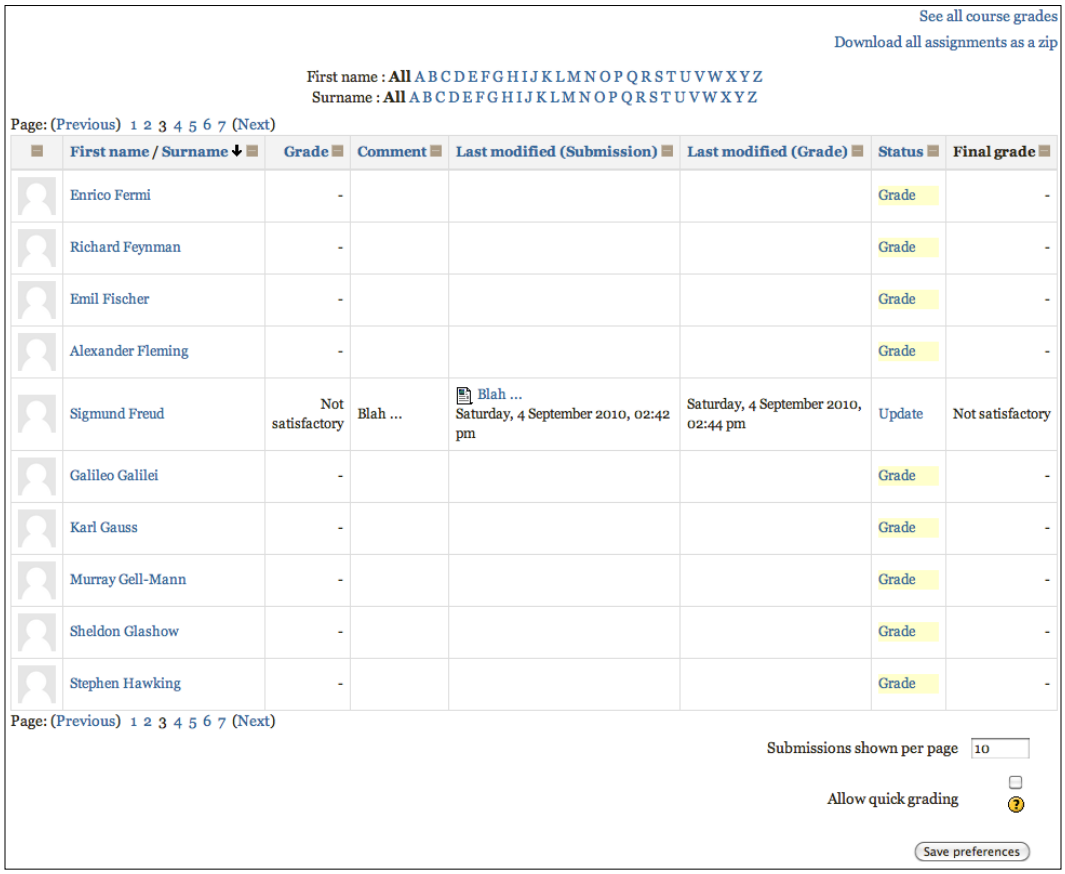
As a teacher, if you click the link **View submitted assignments** at the top-right-hand side of the activity, you'll be taken to the screen where you can grade and comment on the work. It should look a little like the following image. You can also download all assignments as a ZIP file.



See all course grades
Download all assignments as a zip

First name : **All** A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Surname : **All** A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Page: (Previous) 1 2 3 4 5 6 7 (Next)

	First name / Surname	Grade	Comment	Last modified (Submission)	Last modified (Grade)	Status	Final grade
	Enrico Fermi	-				Grade	-
	Richard Feynman	-				Grade	-
	Emil Fischer	-				Grade	-
	Alexander Fleming	-				Grade	-
	Sigmund Freud	Not satisfactory	Blah ...	Blah ... Saturday, 4 September 2010, 02:42 pm	Saturday, 4 September 2010, 02:44 pm	Update	Not satisfactory
	Galileo Galilei	-				Grade	-
	Karl Gauss	-				Grade	-
	Murray Gell-Mann	-				Grade	-
	Sheldon Glashow	-				Grade	-
	Stephen Hawking	-				Grade	-

Page: (Previous) 1 2 3 4 5 6 7 (Next)

Submissions shown per page 10

Allow quick grading

Save preferences

Upload a single file

The 'upload a single file' activity, as the name suggests, is an assignment where you require the user to upload a single file. This file can be nearly any format (as long as it doesn't pose a threat to the server). Let's take an example of how you can use this activity type in a very standard way. Later, you will learn to do this more creatively using the 'advanced uploading of files' activity.

Here are the settings that you could choose if you are asking your users to keep a food diary and submit it as an assignment. This is something that you would not give a grade for, just some written feedback. Again, the common module settings will be left on the default settings.

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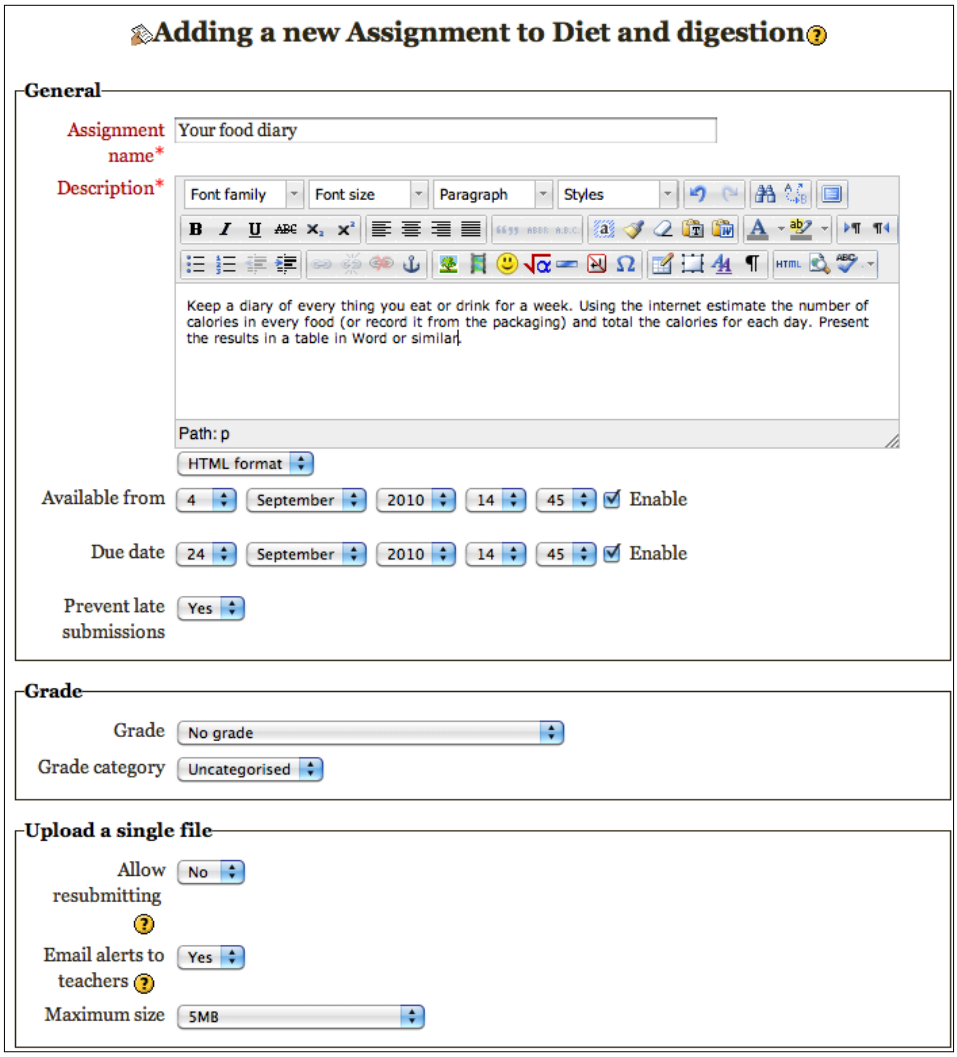

Advanced uploading of files

With this activity, you are able to specify a maximum number of upload files and there is a button labeled **Send for marking** that allows students to let you know when work is ready for marking. You can also set up draft and submission stages and it is the only assignment type where teachers can send back a file (for example, a Word document) as a response to the student.

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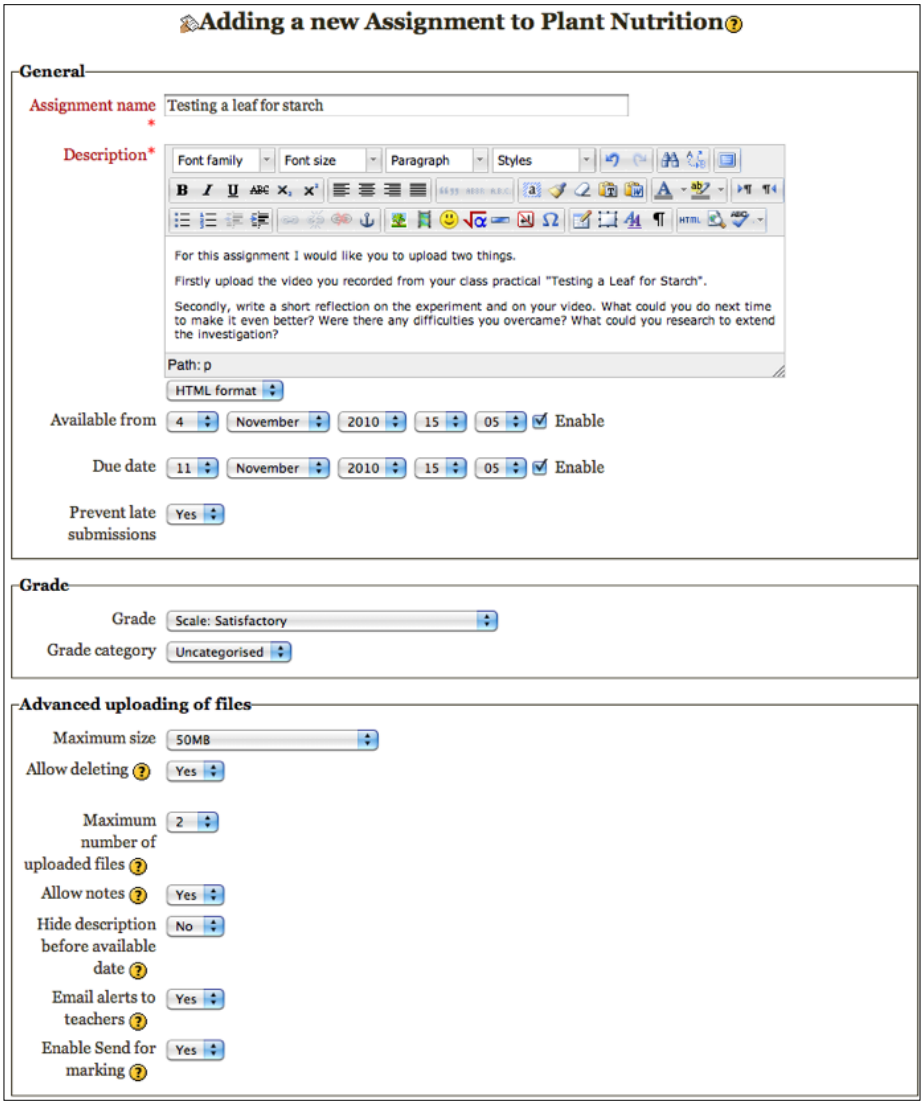
If you are a fan of getting pupils to use their cell phones in science lessons, you could get them to video their experiments or take photos to include in lab reports. Given next are the settings to use for a video assignment:



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Offline activity

The offline activity is really useful if you want to keep records of class work or assessments on Moodle. The set up is very similar to the other activity types, but allows you to input a series of grades using any of the different scales. So rather than keeping grades from bookwork or tests in a separate spreadsheet or mark book they can be stored in the gradebook in Moodle. This means that your students can refer to them at any time and like the other types of activity the users are notified by e-mail of any grade or comments that you give them.

For any assignment that you give, it is important to remember to let your students know what the marking criteria is that they are working towards. Students need to know what is good work, so you could even show exemplar work from last year as a resource that they would look at before attempting your assignment.

How to create quizzes

There are two parts to creating a quiz. The first part is to write the questions. Moodle keeps all of the questions separately from the quizzes. You are able to create a question bank and organize the questions into different categories. You can even share questions across multiple courses. The clever thing about this is that you are able to use the same questions in different quizzes. This saves you the trouble of rewriting questions.

If you wanted to, you could also upload the questions to the Moodle Exchange and share them with other people. You may even find questions on the Moodle Exchange that you can download and incorporate into the course. The web address for this fantastic resource is `http://moodle.org/course/view.php?id=15`.

Once you have created your questions, it is very straightforward to add them to a quiz activity. So let's have a look at the first part of creating a quiz, writing the questions.

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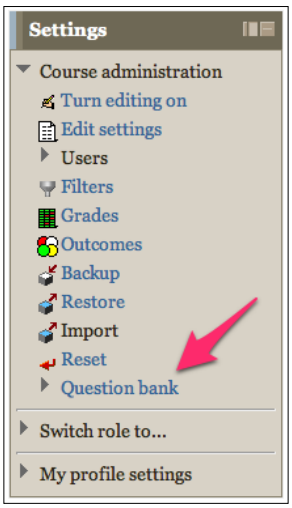
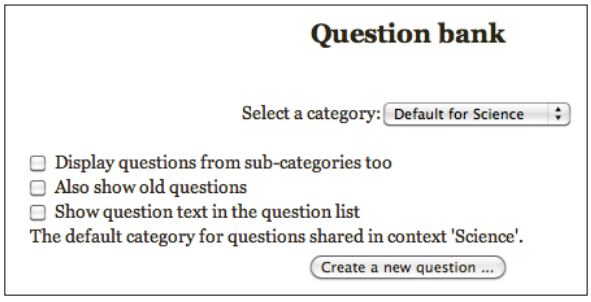
Question bank

The link to the question bank is in the settings block under course administration. Question banks can be at a course, category, or site level so questions can be shared around between different teachers and courses.



Once you click this, you will be taken through to create a question. If you click the expand arrow you will be able to see four other shortcuts. These can take you straight to your questions or categories, or will allow you to either import or export your questions. We're going to have a look at creating a question so click the link **Question bank**.

The page will change and you will see the following options:



Click on the button **Create a new question**. This gives you a pop up, as shown in the next screenshot:

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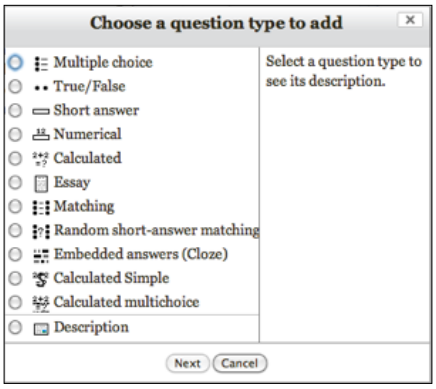
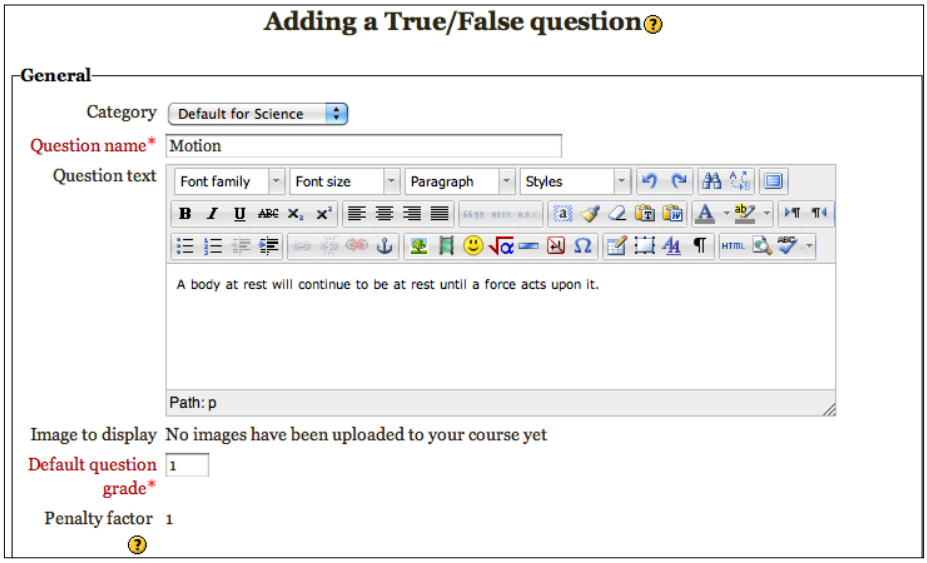


True or false questions

Let's start with a nice simple true or false question.

- Select the radio button next to **True/False** then hit **Next**. This takes you through to the adding a **True/False** question screen. At the moment you will only have one category to put the questions in. This is the default for the course.
- Give your question a name, and type the text of the question in the question text editor box. The name of the question is purely for your own organization. This won't be shared with your users.



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An image will not be added to this question and the default question grade will be left as one. The default question grade is the number of points a user will get if they answer the question correctly. The penalty factor for a true false question is set to one. This means that the user doesn't get any credit for getting the question right on their second attempt. The penalty factor determines the amount of points deducted for an incorrect answer when the quiz is using adaptive mode. If this value is set at one it means that the user has to get the answer correct on their first attempt. If the value is set to zero then a user can try the question until they get the answer correct and will still receive full marks.

If the purpose is to assess a student's understanding, have a penalty factor of one.

If the purpose is that the student will learn by taking the quiz, you may wish to have a penalty factor of zero.

There are three different types of feedback that you can give to the person after they have attempted the question:

- The first is general feedback and is shown regardless of whether the user got the answer right or wrong.
- The second is the feedback given if the person chooses **True**. Notice that this may not necessarily be the correct answer, just the answer that they give.
- Similarly the third is feedback if the user chooses **false**.

For this example, let's not use any general feedback as the answer to the question is true. We'll give some encouraging feedback and a link to some further reading if the user chooses **True**, and some positive feedback and a different link, if the user chooses **False**. This is shown in the following screenshot:

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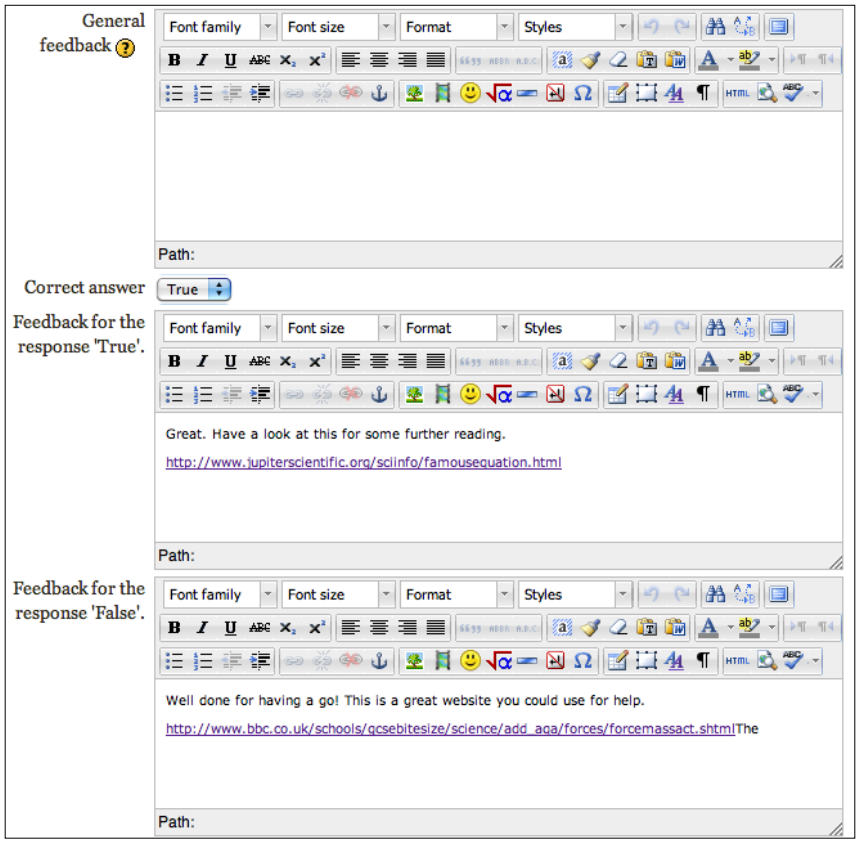

Other question types

You can also tag your question, which can help with the organization of your question bank. For this example, we won't use any tags, so just hit **Save changes**.

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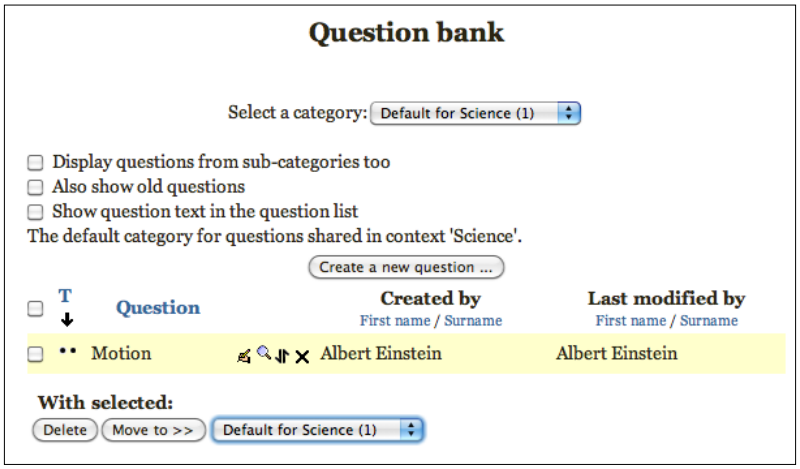
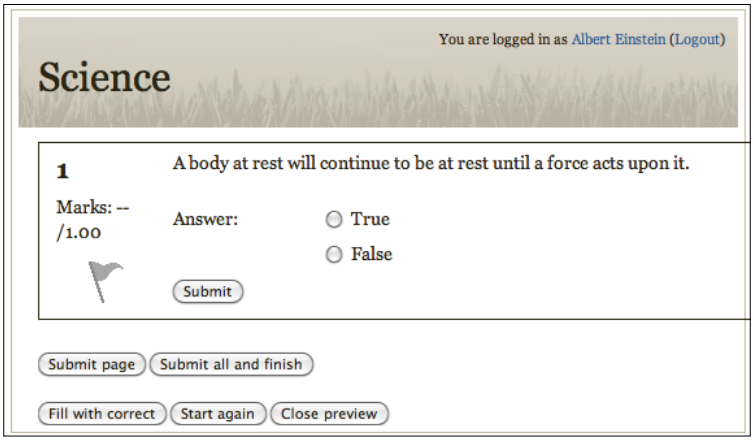
You will now return to the question bank and you'll notice your question has appeared as shown next:



If you need to edit this question, click on the icon of a hand holding a .pen (though this icon might look different depending on your theme). If you just wish to view it, use the magnifying glass. It is worth viewing your question just to make sure it works as you wish it to.

A handy hint—if you are writing lots of similar questions, edit your first question and at the bottom, you have the choice to save it as a new question.

This is how the finished question looks:



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This next section will take you through the other 10 question types available. These are as follows:

- Multiple choice
- Short answer
- Numerical
- Calculated
- Essay
- Matching
- Random short-answer matching
- Embedded answers (cloze)
- Calculated simple
- Calculated multichoice

There is also a question type at the bottom of the list called description. This isn't actually a question type. What it allows you to do is add other information to your quiz in the same way you use labels to add information to your course front page. This is so important. Using the text editor, you can put anything into a question. Images, audio, video, links, or even animations of 3D molecules (which are covered later in the book). This gives online quizzes a massive advantage over the paper-based versions.

Multiple choice

When you select the multiple choice question type you will see that the general section at the top is very similar to the one we looked at for a true/false question.

The only differences are the drop-down menus. So in the same way you question a name then fill in the questions text. Choose your default question grade, penalty factor and give some general feedback if you wish.

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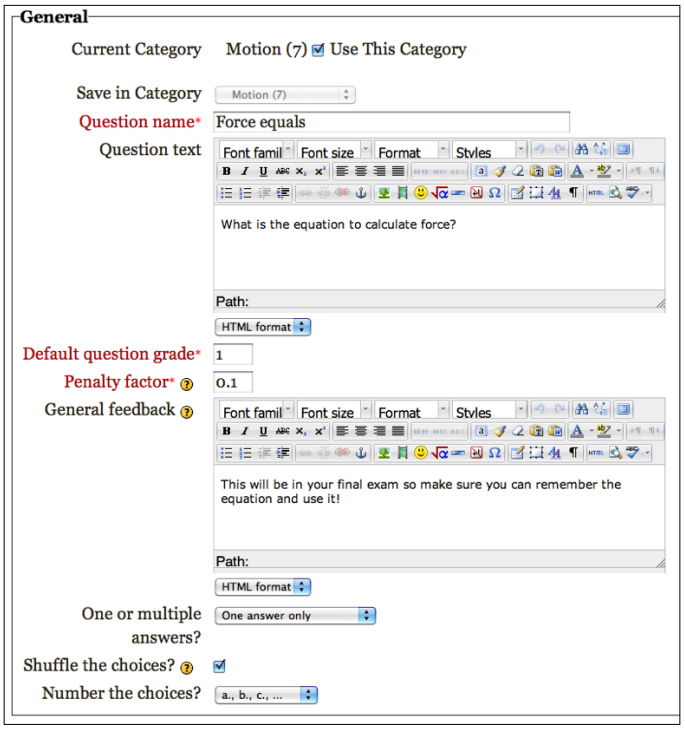
We are putting together a quiz on motion; shown next are the settings:



As you can see, **One answer only** has been chosen from the drop-down field at the bottom. This is because there is only one correct answer to the question. If you wanted to create a question that had a few correct answers, you could set the number of correct answers here. Let's shuffle the choices so that they appear in a different order every time the question appears and number the choices A, B, C, and so on.

The next section (shown as follows) is where you can set up the choices that will be displayed. When you do this, make sure that you award a total of 100% for your grade. This could be given for one correct choice or a combination of a few choices. You can also use the drop-down grade percentage to give a negative percentage for a particular answer.

For instance, you could set a particular wrong answer to take away a certain percentage of the question's grade. Most people would tend not to use this, as penalizing for incorrect answers has a negative effect on the learner and does not motivate them to improve. So leave incorrect answers with a grade of none. We're going to give slightly different feedback depending on whether the answer is correct or not. This is how your screen should look now:

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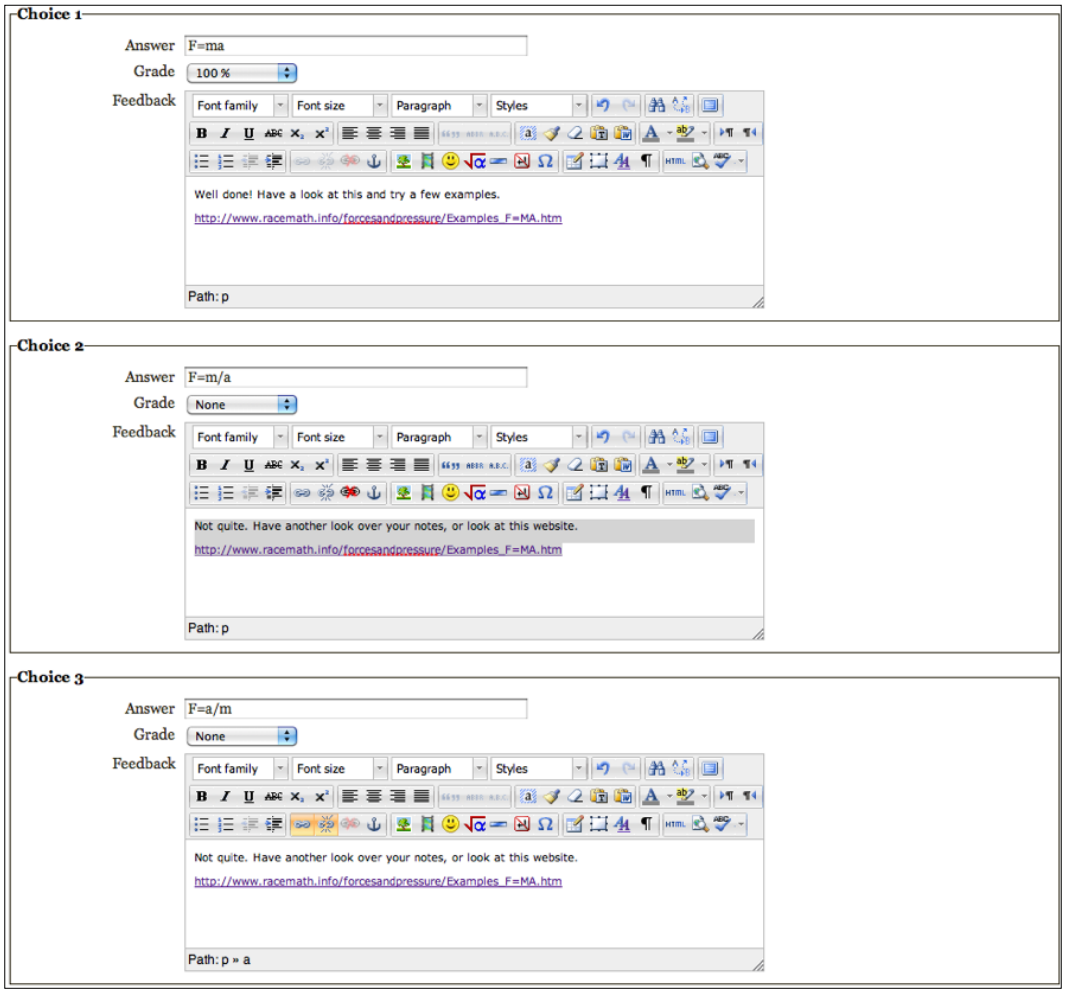

You can, if you want, just use the overall feedback boxes towards the bottom of your screen. You may find this is slightly quicker. Again, you can tag your question, which will help you to find it in the future. Once you're happy with the question, hit **Save changes**.

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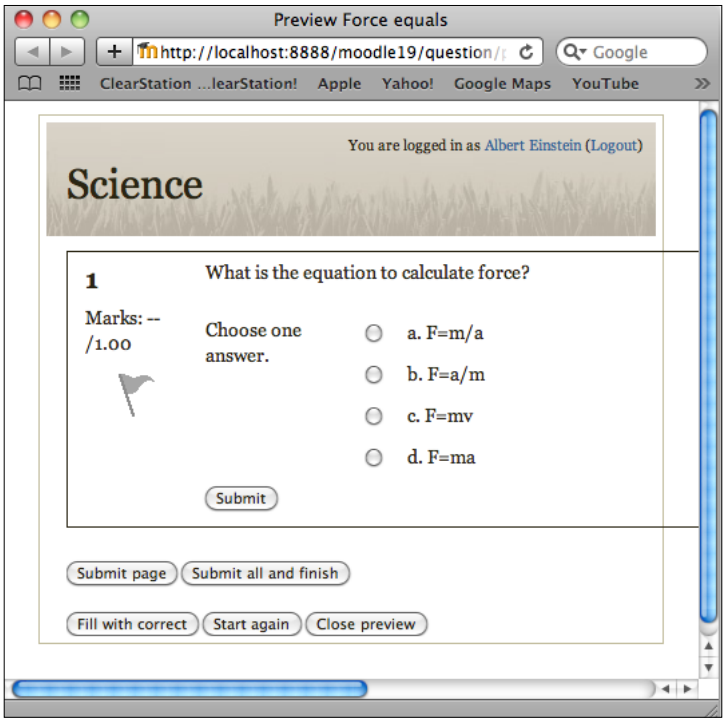
If you go to preview,your question will look like this:



Short answer

This question type allows students to write in words as answers. The tricky thing is to think from the point of view of people answering your question. There may be a number of similar answers that could be equally correct. There maybe different spellings of a correct answer or if the question is not phrased carefully you may have people using plurals. To a certain extent, you can use the asterisk symbol (*) to round up minor variations. The asterisk can be used to represent any letter.

In the following example, we will be specific with the question text. The other thing to note is that you can specify whether the case has to match as well. Because the answer to the question should begin with a capital letter, we have specified, **Yes, case must match**.

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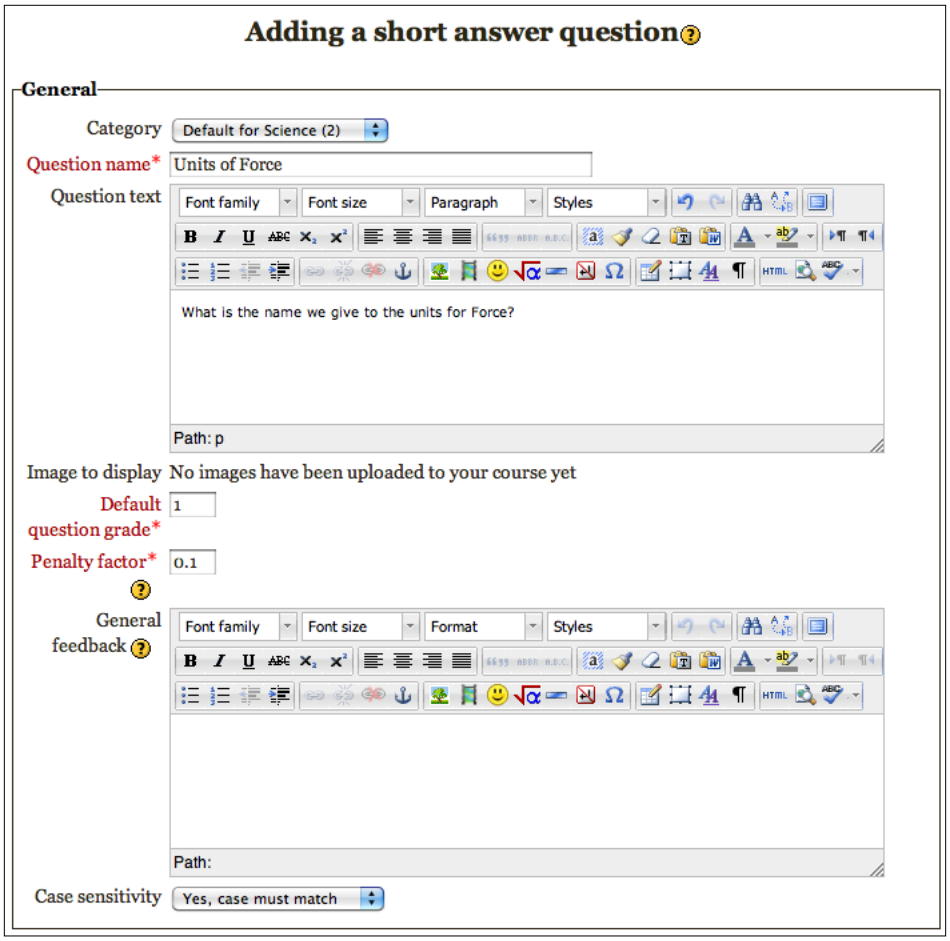

As there is only one completely correct answer let's give answer number one 100% of the grade. In the feedback for this answer give your user a positive, encouraging comment and another question just for them to think about. The only other answer to be given credit for here is if they have used the correct word but omitted the capital at the beginning.

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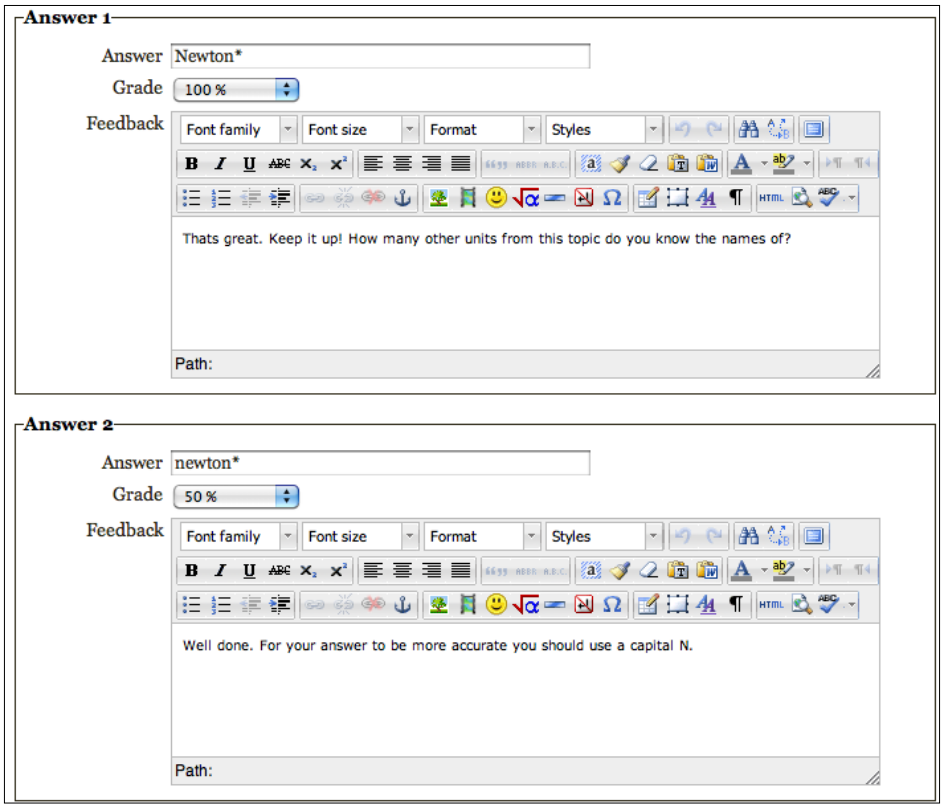
For this answer, you could award 50% of the grade, as shown in the next screenshot.



Again, once you have completed your question, answer, and feedback, save the changes and preview your question using the magnifying glass icon, just to make sure that it works properly.

Numerical questions

There are a few slight differences with numerical questions, which are worth pointing out. Let's set up a question **What is the acceleration of an object on Earth due to gravity?**

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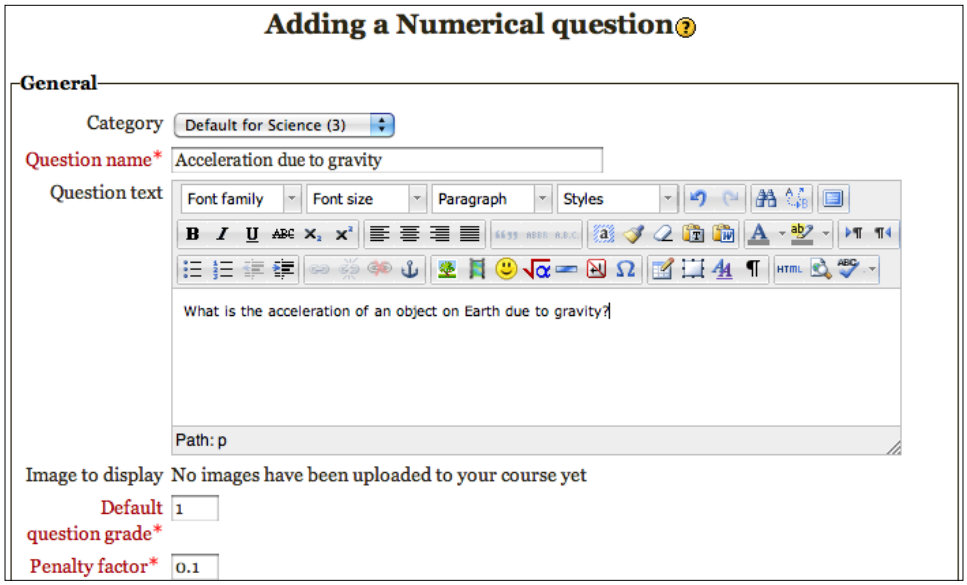
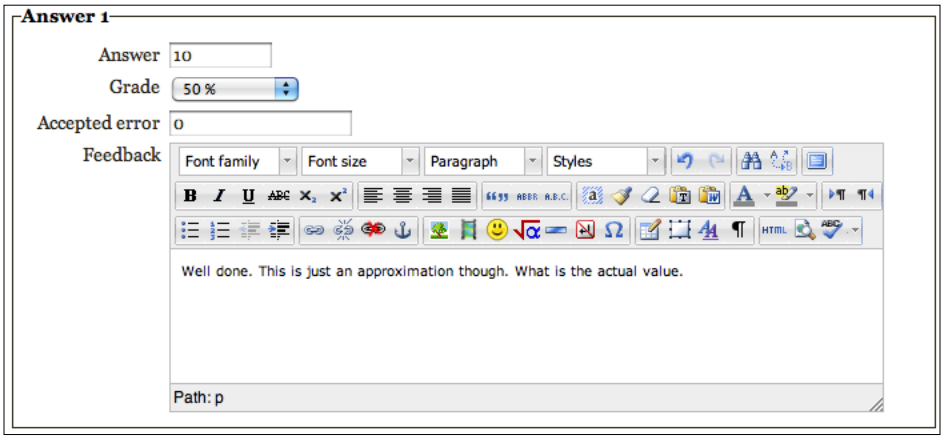


For the first answer (shown as follows), let's award 50% of the grade because a more accurate value for 'g' should be used. For numerical answers, you can specify accepted error here. Let's choose to have that as zero.



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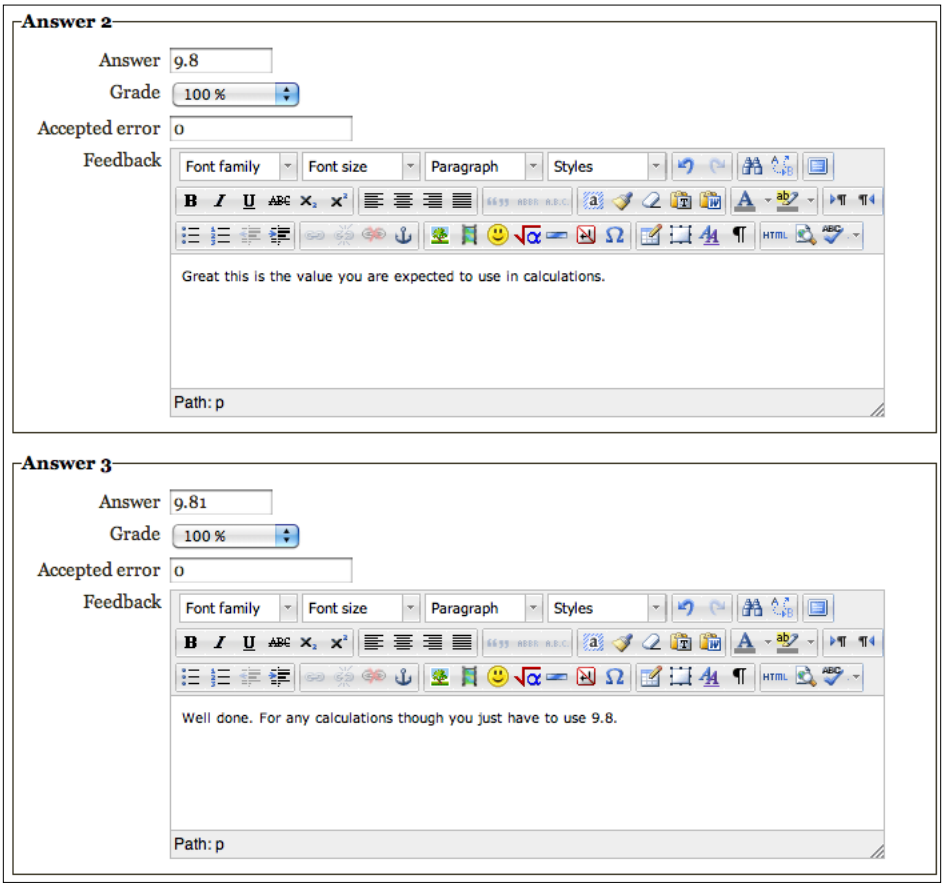
For answers two and three, we'll award 100% of the grade even though answer three is more accurate than your learners would require.



If you want your users to practice including units in the answers, so you should choose **Unit graded** from the units handling box shown next. There is also space for you to add instructions for your users.

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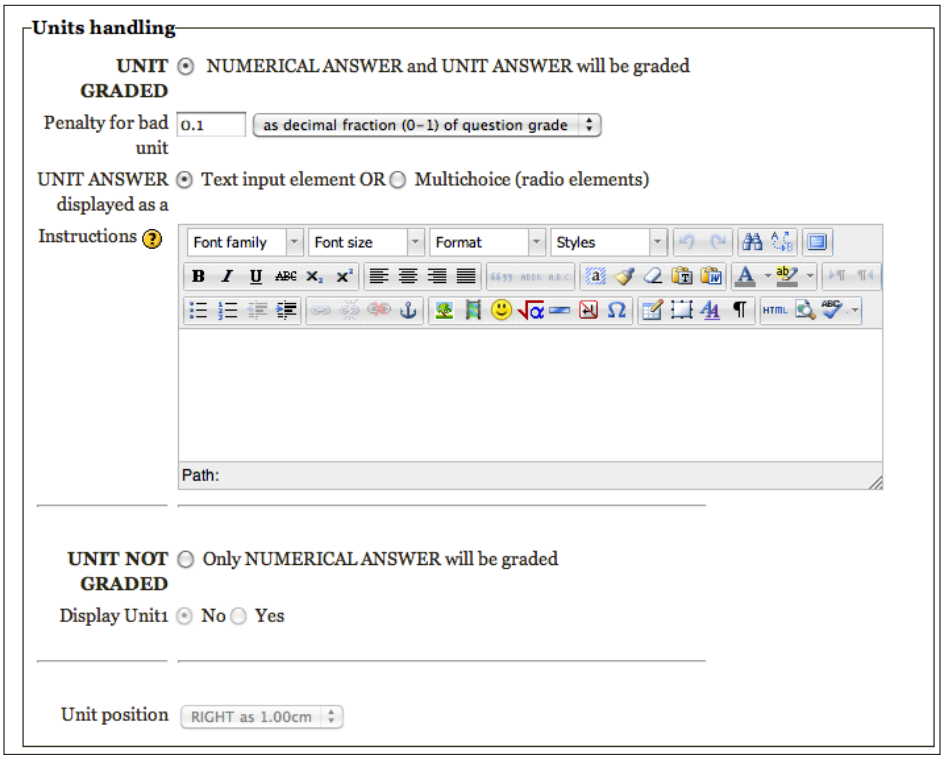
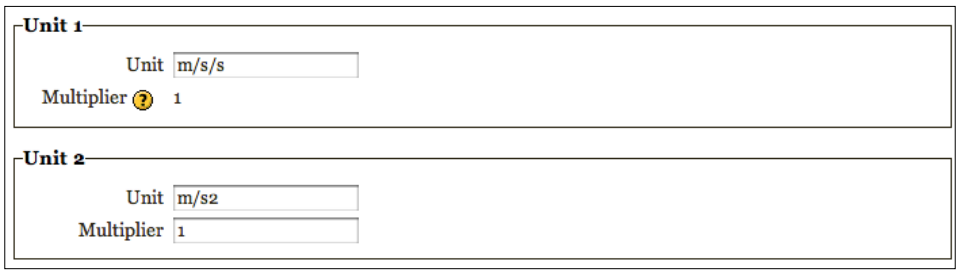


Some of the fields in questions in Moodle are unable to deal with superscripts or subscripts. We will allow two variations for the units for this question. You can specify a multiplier for your units for instance, if an answer to a different question could be expressed in centimeters, meters, or kilometers, you will use a multiplier to make the units match the given answer.



Again, save your changes.

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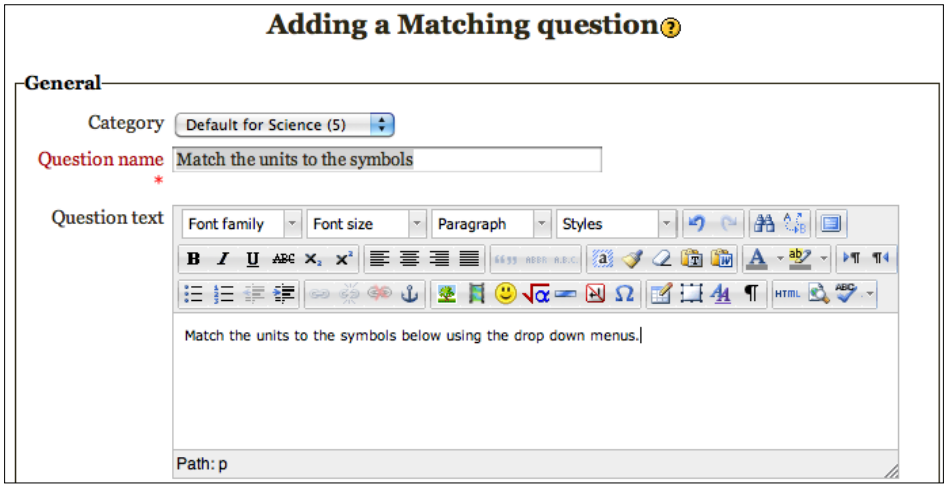
Adding an essay question

Essay questions are one of the easiest types of question to set up in Moodle. Give it a name, write out your question text, choose the default grade, and add any feedback. Unfortunately, the software is not clever enough (yet!) to mark essay questions. So these will need to be marked manually when you include them in a quiz. Once the essay questions are marked, the students will receive their quiz results.

Adding a matching question

This is a great question type—very easy to set up, and students really like them. As with any other question, give the question a name, input your question text, and fill in the other fields, as you would normally. Things you have to be aware of are phrasing the question text accurately. Your question's text may be something similar to the following "from the drop-down menus below, choose the correct answer for each question".



You don't necessarily have to use questions and answers. You could use the start of a sentence and the end of the sentence or you could ask your users to match up names, symbols, or anything really, as long as you can think of a 'pair'.

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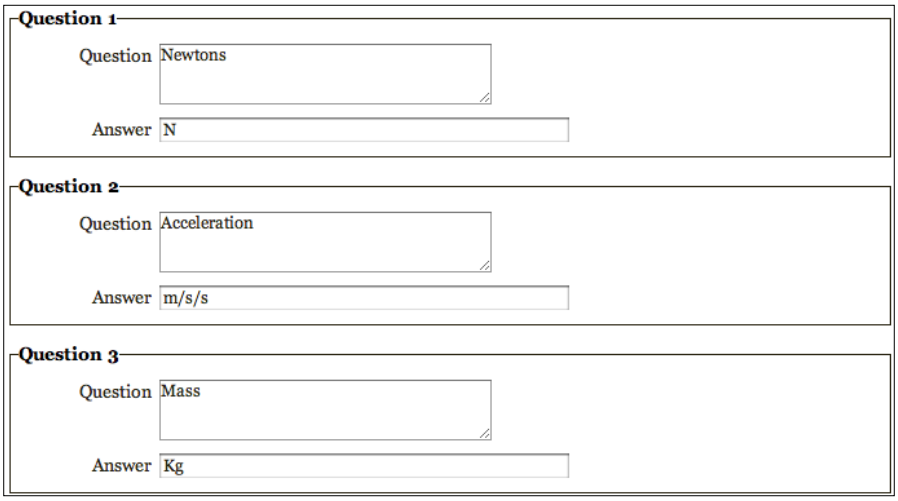

Adding a random short-answer matching question

This is a really useful type of question. What it does is to use short answer questions that you have already created and turn them into a matching type question with the answers used in the drop-down boxes. There really is very little to set up for this question type just make sure you have some short answer questions available and specify the number of these that you want the question to use.

Adding an embedded answer (cloze) question

This kind of question is a little tricky to set up. It involves you using a series of different symbols and wildcard characters that it will replace with drop-down boxes and spaces for users to insert text.

Full instructions and examples on how to use this question type can be found at `http://docs.moodle.org/en/question/type/multianswer`.

Adding a simple calculated question

This question type takes a little bit of time to get used to, but is well worth it. You can use it to randomly generate a series of calculations so that each user could be presented with different numbers to use. If you repeat a calculated question in a quiz say 10 times, you'll get 10 different calculated questions.

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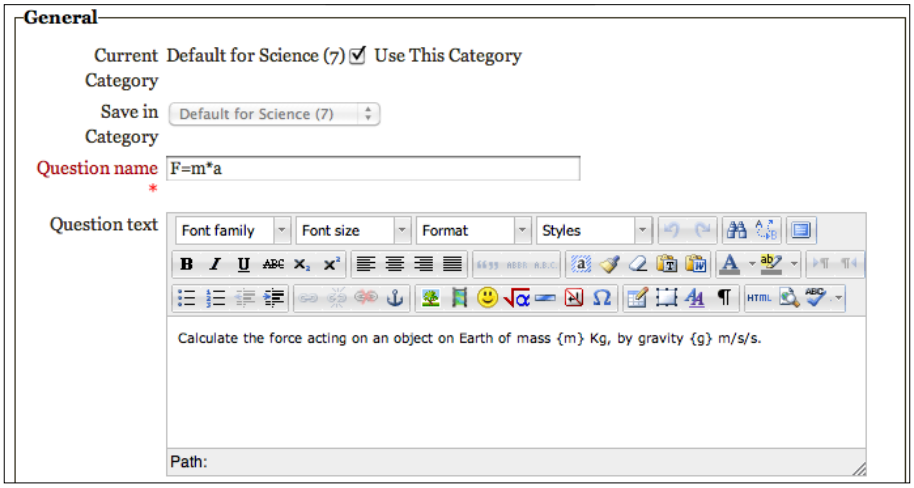
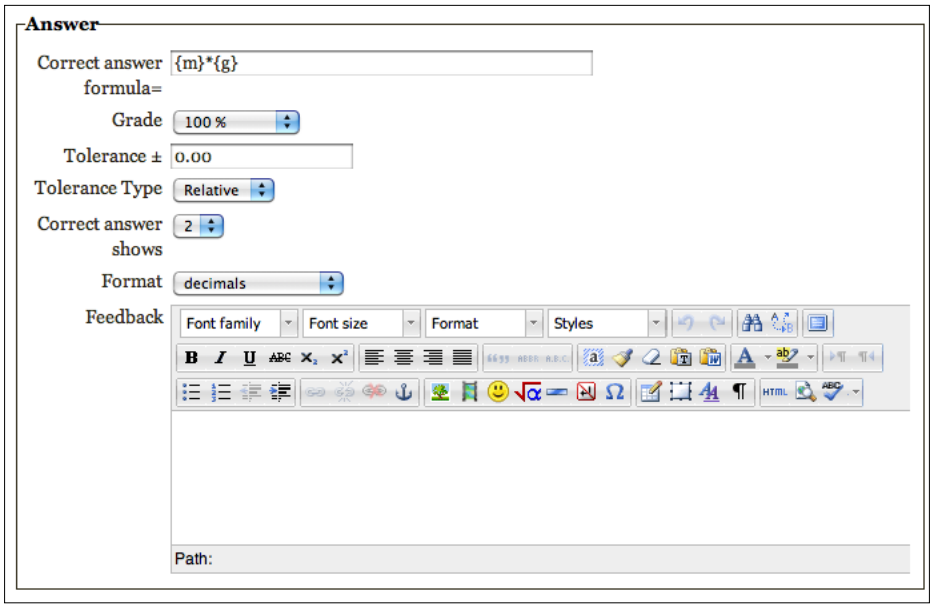
The general section is set up in the same way as other questions but in your question text add your wild cards in this format {m}, where 'm' is going to be replaced with a value that is generated. In the following example, use {m} for mass and {g} for gravity.



For the first field in the answer section you need to input the correct answer formula. In the example, this will be {m}*{g}. The tolerance allows for any rounding errors in calculation. The number next to '**Correct answer shows**' defines the number of decimal places or significant figures the answer is shown to.



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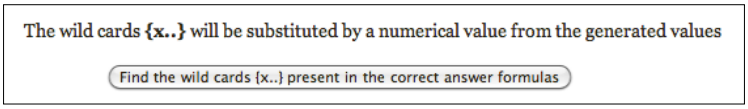
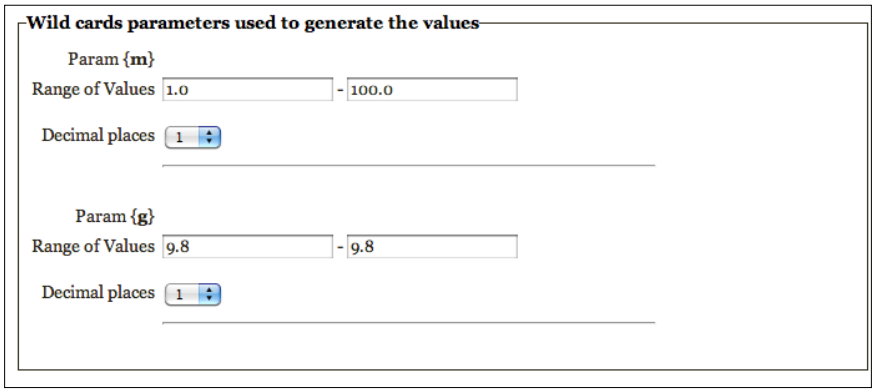
Set up the units as before in the next few fields.

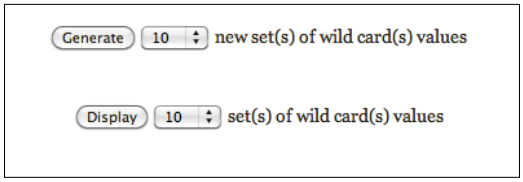
The next thing to do is to get the question to recognize your wildcards. To do this, you need to click on the button shown next:



After this, you will need two sets of parameters for your wildcards. Use a range from 1.0 to 100.0 for mass and 9.8 for gravity.



Once you've done that, get it to generate and display a sensible number of values. Choose 10 to give plenty of variation. You will need to click on either the **Generate** or **Display** button to update the values.



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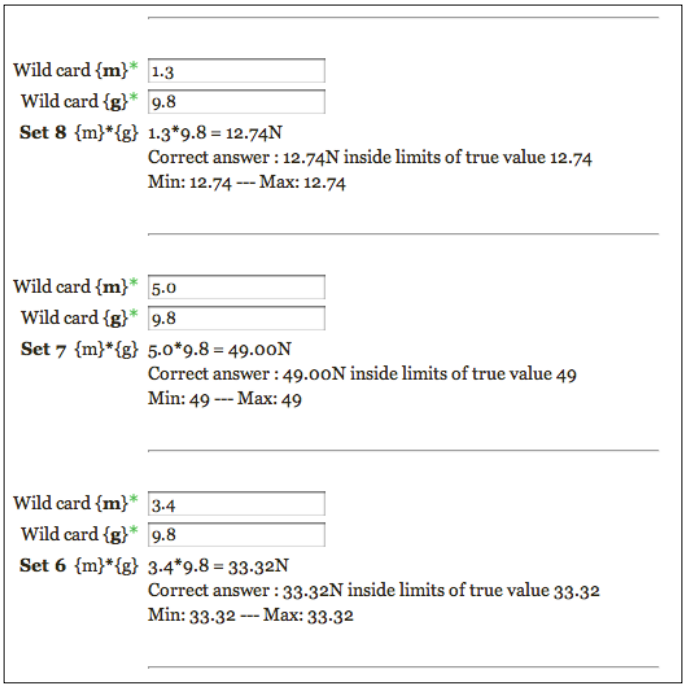
Here are some of the wildcard values it generated for the example. Notice that 'g' does not change. The Min and Max values will depend on your tolerance settings.



When this is shown to your users, there are instructions underneath the question letting the user know the number formats that are valid.

Calculated questions

Calculated questions are similar to the 'simple calculated question' but have some more features for advanced users. Similarly, the 'calculated multichoice question' is very similar to the calculated simple question type; the only difference is that you are able to provide multiple-choice answers for your user to choose from.

Organizing categories

Now that you have made some questions, it would be useful to set up a new category to move them into. Again, this will just help you in organizing your questions in your question bank and allowing them to be shared with other courses. To create a new category, click on the arrow next to the question bank link in the settings block, to reveal a link to **Categories**.

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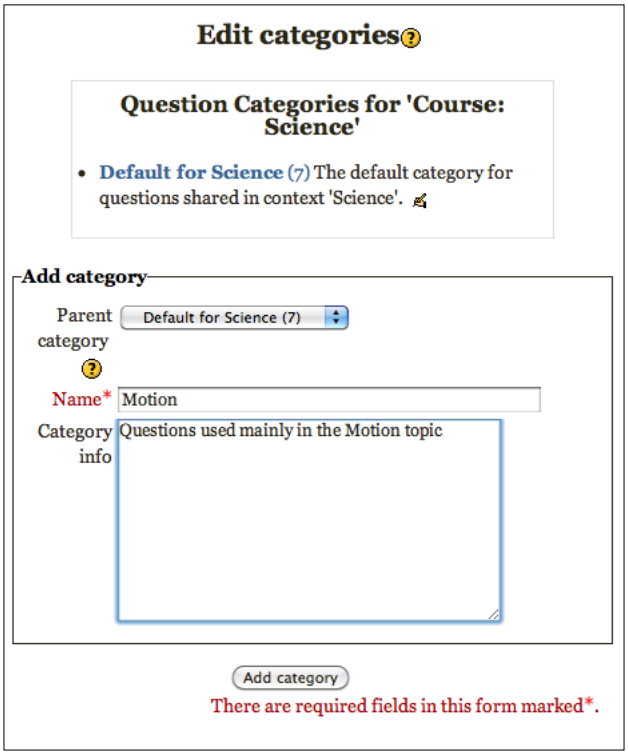
After you click this link, you will be taken through to a screen to set up a new category. Give it a name and information as shown next:



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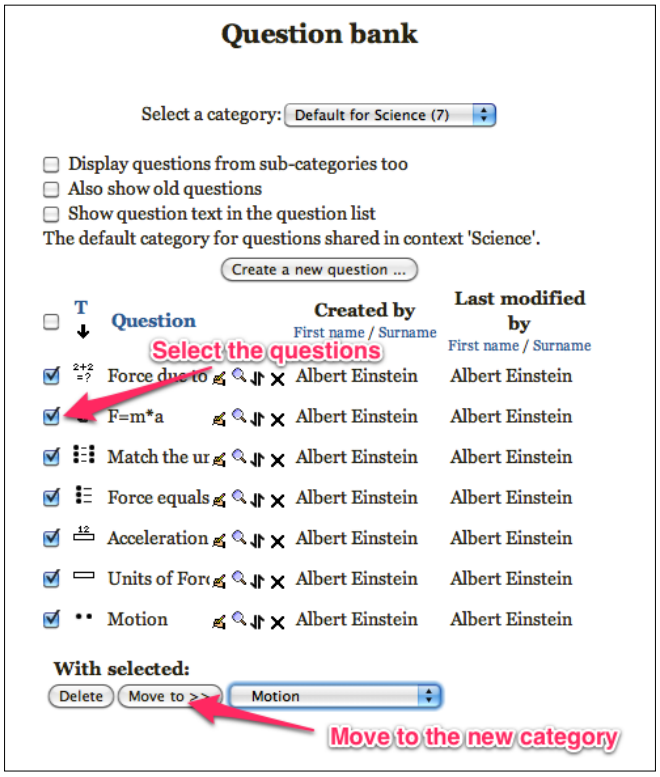
Now when you return to your question bank, you will be able to select all of your questions and use the **Move to** button to move all your new questions to the new **Motion** category, as shown in the following screenshot:



Creating the quiz

Now you have created your questions, the next step is to set up your quiz. So in the section where you want your quiz to appear from the **Add an activity** drop-down menu, choose **Quiz**. As with all things in Moodle, give it a name and a brief introduction to let your users know what you expect of them. If you wish, you can choose opening and closing dates and times for the quiz; you can set a time limit, decide the number of attempts you will allow your users to have, and set the grading method.

There are four different types of grading you can use for a quiz:

- Highest grade
- Average grade
- First attempt
- Last attempt

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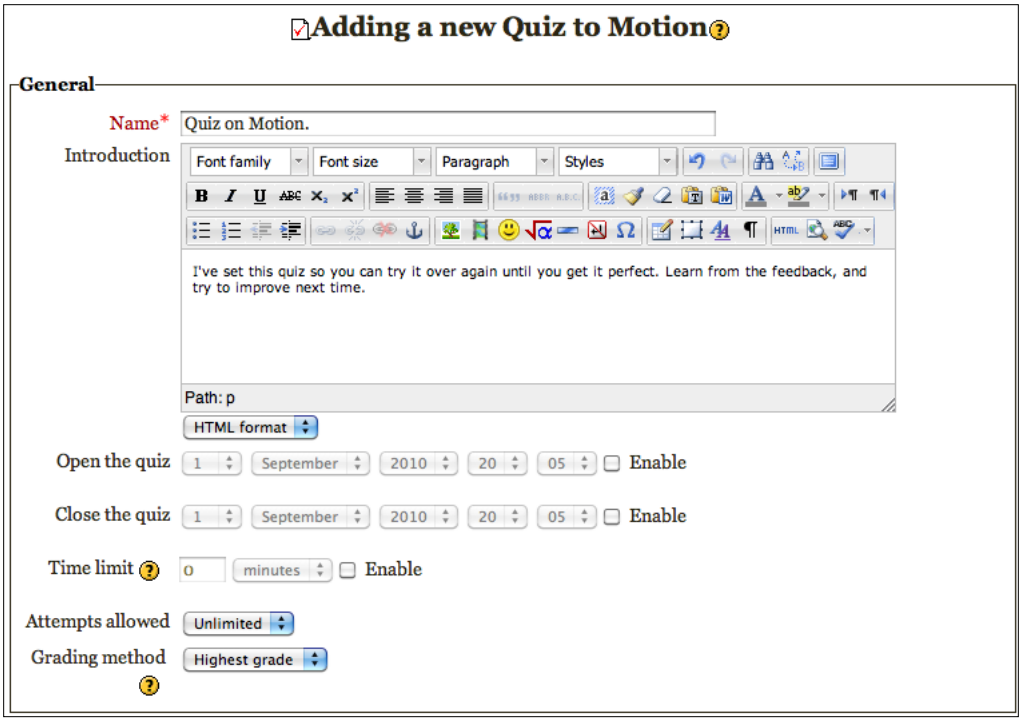
The highest grade setting is useful to encourage your users to try the quiz over and over again until they achieve full marks. As well as helping them to learn from incorrect answers, it also gives you an idea of their effort and perseverance.



For this quiz, let's have the questions randomized, as we don't want too many on the same page and we want our users to be able to learn from the errors and from the feedback.

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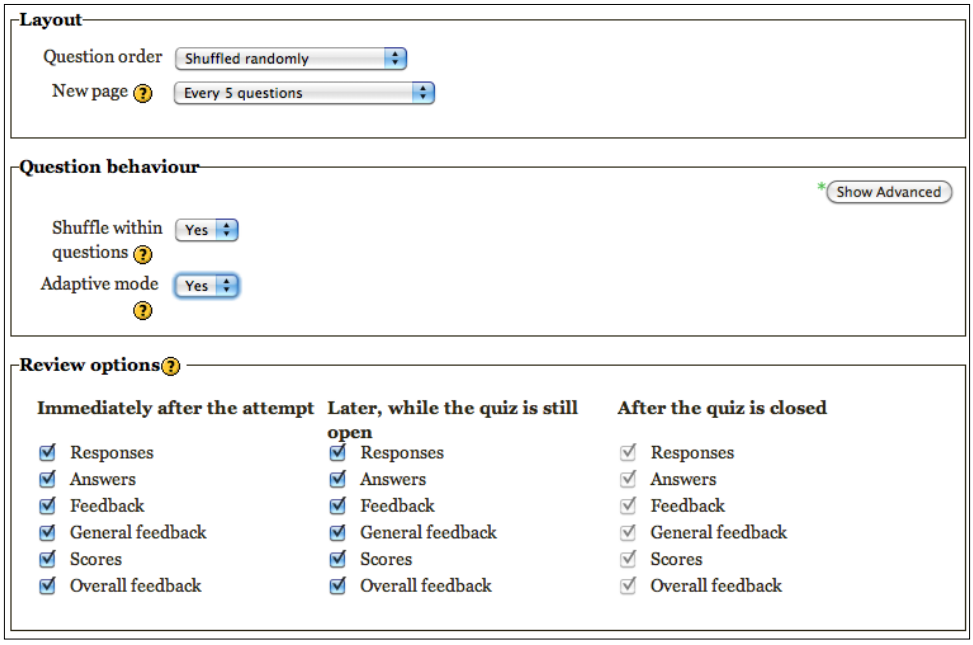
The settings to choose for the next three sections are shown in the next screenshot. For this quiz, let's set the adaptive mode to **Yes**. This means that pupils are allowed to try a question over and over again until they get it correct. This is great if you are using the test in a formative fashion, that is, for it to inform the student of their areas of weakness so that they can improve from it. If you wanted a summative test (to provide final grades at the end of a unit of study) you would set the adaptive mode to **No**.



The display, restrictions, and other settings will be left default. Choose not to give any grades for this quiz so your users think about how to improve their learning, not about the grade they got.

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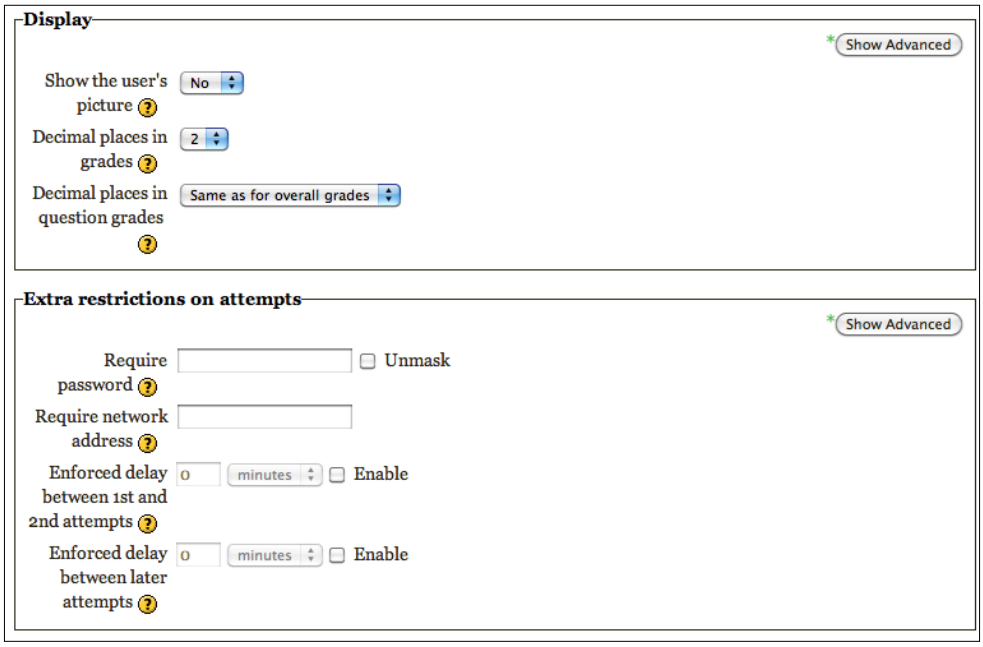
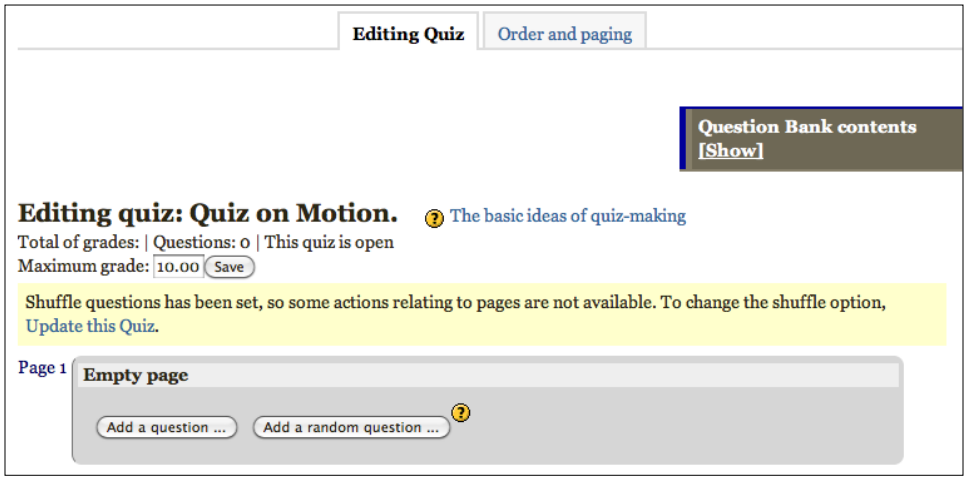


Hit **Save and display** to move on to the next step.

Adding questions to the quiz

Now that you have chosen the basic settings for your quiz, it's just a matter of choosing which questions you would like to include. The page in front of you should look a little like this:



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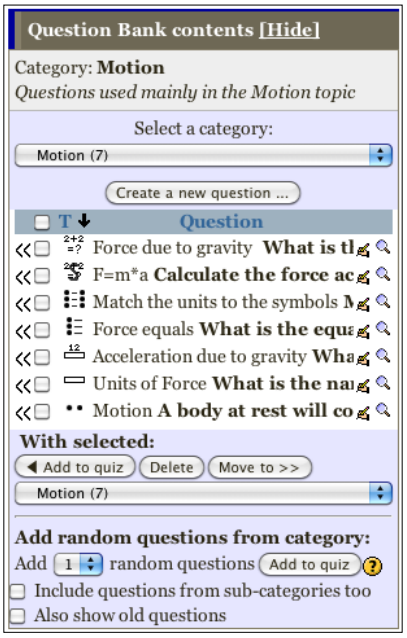
If you click on the link below question bank contents, **Show**, you will see a list of questions in your question bank, as shown in the following screenshot:



Check the boxes by the questions that you wish to add and use the **Add to quiz** button to add your questions to this quiz.

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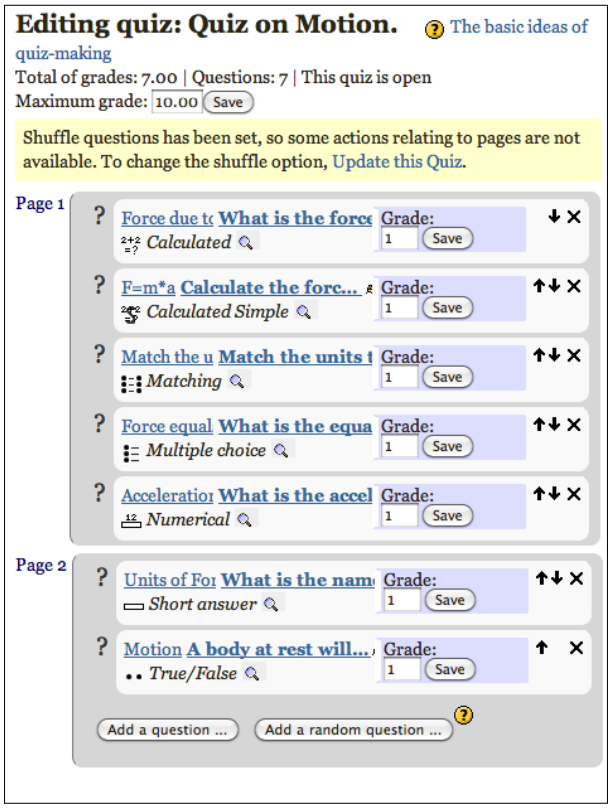

Hopefully, you can see how useful it is having a bank of questions that you can use over again in different quizzes. Once you've done this your quiz is ready to be used by your students.

Summary

The whole focus of this chapter has been on providing users with feedback on their learning. We've looked at how we can do this through forums, activities, and quizzes, all of which will help your learners improve their understanding in science. In the next chapter, we will have a look at how you can use the results from activities to identify misconceptions, problems in understanding, and find areas of the work that you could re-visit.

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5
Monitoring Your Students' Progress

"Any teacher that can be replaced by a computer, deserves to be."
-David Thornburg

This chapter is written to show you how you can use Moodle to monitor the progress of your learners' understanding of science. To do this, we will look at some of the activities we have set up in previous chapters:

- Magnesium Sulfate – resource
- Osmosis and diffusion discussion carousel – forum
- Motion - quiz
- Osmosis and potatoes - assignment

You will learn how to analyze the results from these activities and see how we can use the findings to improve our course and our teaching. With Moodle, you can specify what activities and attainment in these activities have to be met for users to complete your course. You are able to give your users the bigger picture explaining what they need to achieve to complete the course and give them goals to work towards.

By the end of this chapter, you will be able to do the following:

- Check that your learners are looking at the resources that you add to your course
- Track completion of activities
- Plan what your learners need to achieve for the completion of your course
- Evaluate the effectiveness of your quizzes by using result analysis
- Identify gaps in learner's understanding by using quiz grade analysis

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- Use assignment reports to identify learners who need extra help
- Gain a valuable overview of your learners' progress by effectively using the gradebook

Checking usage and completion of tasks

For you to be able to help your users learn, it goes without saying that they have to complete the tasks you set! Quite a common question is "how do I know if my users are looking at the content I make for them?" There are a variety of ways to monitor this, which vary depending on whether you are looking at a resource or an activity.

Tracking usage of course materials

Quite often you might set your students a task to go on to your Moodle course and read a resource that you have uploaded or follow a link to another website. While you can't know for sure that they have read the material, it is possible to check that they have displayed it on their screen.

To check if users had viewed a resource, we have **completion tracking**. To use this feature, your administrator must enable it for your whole site and you need to turn it on in the student progress section of the course settings.

This means that now you can easily see a list of users who have looked at the resource.

On the pupil view, there are boxes next to items that require completion. If a teacher has specified certain conditions that need to be met, the box will automatically fill with a tick once they have been met. Users can also use this to manually track their progress towards completion if there are no criteria set for a particular task by ticking a shaded box themselves. This is shown in the following screenshot:

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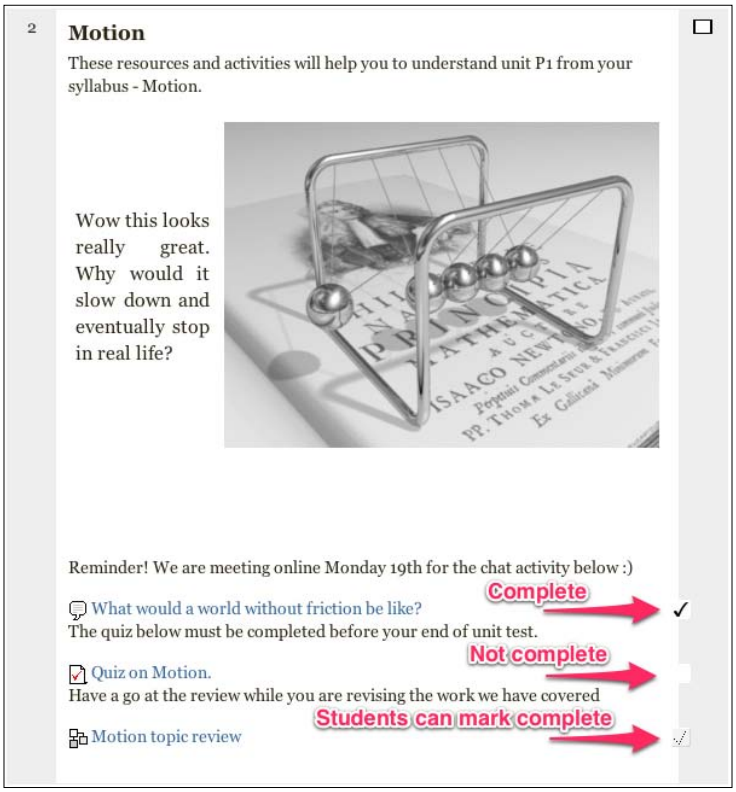

Preparation for course completion reports

The course completion report will show you which activities or resources your learners have used. To demonstrate this first you need to change some of the settings on your resources and activities, and ask your administrator to enable it in the site settings.

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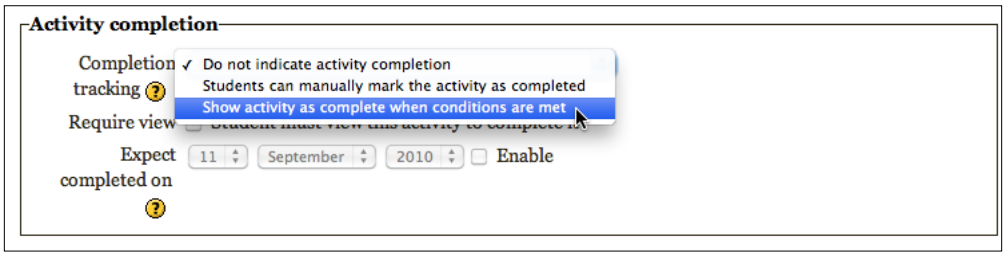
Completion settings for resources

Let's go back to a resource we uploaded in the first topic "Manufacture of magnesium sulfate" and edit it. Click on **Turn editing on**, which has the icon of the hand holding the pen. When the updating file dialog comes up, scroll right down to the bottom where it says **Activity completion**. Here you have a number of settings, as shown in the next screenshot:



We're going to use the setting **Show activity as complete when conditions are met**. If you're happy letting your users decide to declare when they have completed an activity, you can use the setting **Students can manually mark the activity as completed**. This would be useful for a self review, towards pupils building a portfolio, or just to get them to take more responsibility over their learning. Once you've done this choose the conditions that need to be met. As this is a resource check the box next to **Require view**. These conditions vary depending on the nature of the activity. If you want to you can set a date when you expect the activity to be completed. This is just to help organize your completion report and is not shared with the users.

Completion settings for activities

Different activities have their own settings that you can set to decide when an activity is completed by your users. We'll go through each of these below.

Forum activity completion settings

You can set up activity completion for forums. To try this, go back to a forum we set up in *Chapter 3, Osmosis and diffusion discussion carousel*.

In the introduction to this forum, our learners were asked to answer the most recent unanswered question and then post a question of their own. Let's use activity completion to make sure that they do this. In the same way, go to update the forum and scroll down to the activity completion settings at the bottom.

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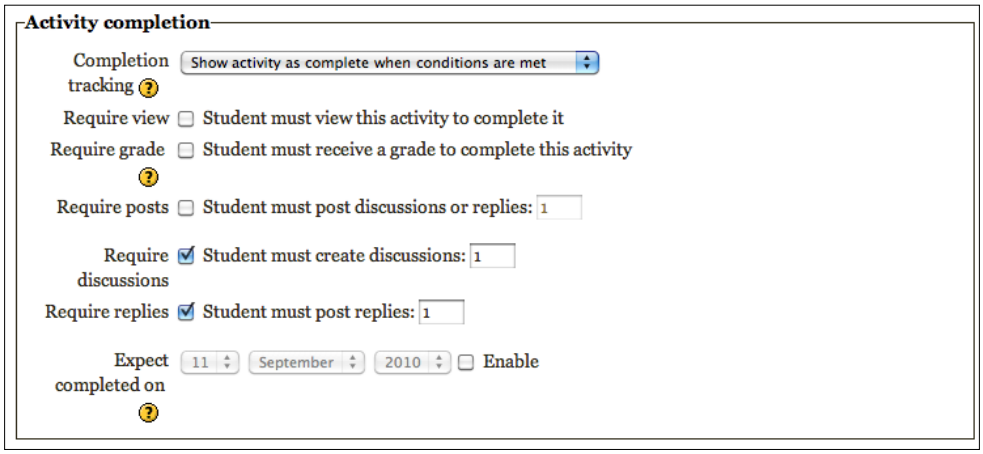
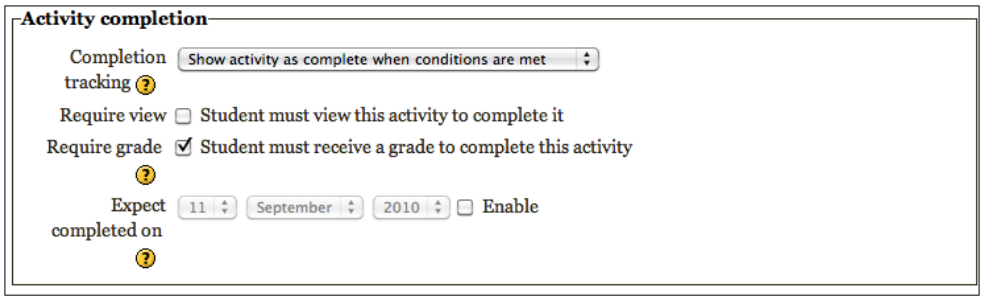
You'll notice that there are a lot more options than for a resource. The activity completion settings that we'll choose are **Required discussions** and **Require replies**. Both of these will be set to one. This means that your students will need to start at least one discussion and provide at least one reply. Don't forget to set the completion tracking setting in the top drop-down box. This is what the settings will look like:



Quiz activity completion

For quizzes (assignments and lessons), there are two options for activity completion. You can either require your users to view the quiz or require a grade. Let's go back to the motion quiz we set up and let that require students to receive a grade to complete this activity. Here are the settings:



Chat activity completion

For a chat activity, the only completion option is for users to manually check the boxes completed.

Once you've gone through and set the activity completion settings you will be able to see which of your activities your users have completed.

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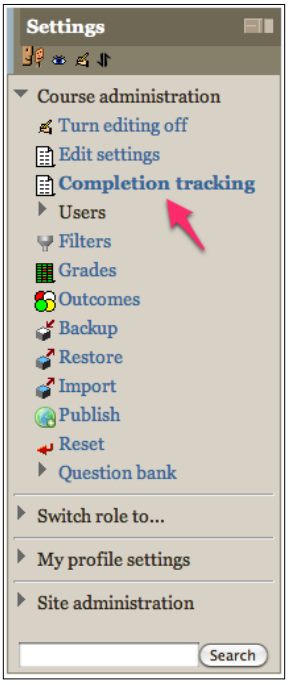
Completion tracking for your whole course

Now that you have set up your activities and resources to be tracked, you need to define at a course level, which activities need to be finished for course completion.

From the settings block on the left-hand side, click on the link **Completion tracking**.



This is where you decide on the criteria for course completion. We want our users to complete all of the activities chosen, so in the first box choose **All** for the aggregation method. If there are prerequisites for your course, you can set them here. In the activities completed box, check all of the activities you want your users to complete and specify the completion dates, if any, and passing grades. All the settings can be changed to a later date, if you wish.

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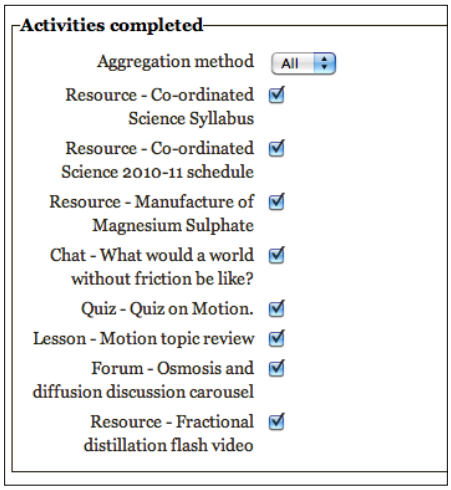
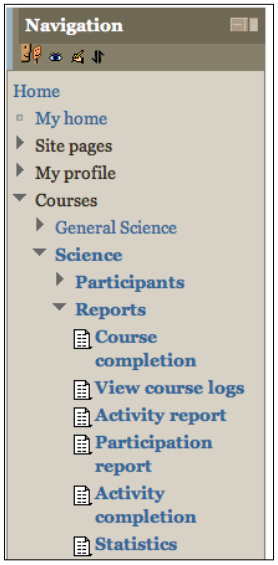


Course completion reports

You can now set up the course completion reports. The link can be found in the navigation block on the left-hand side:



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Once you click on the course completion reports link, you should see something like the following:

All participants: 67

First name: **All** A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Surname: **All** A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Page: 1 2 3 (Next)

Criteria group	Activities								Course
Aggregation method	All								All
Criteria	Co-ordinated Science Syllabus	Co-ordinated Science ...	Manufacture of Magnesium ...	What would a world without ...	Quiz on Motion.	Motion topic review	Osmosis and diffusion ...	Fractional distillation ...	Course Complete
First name / Surname									
Dave Archimedes									
John Bardeen									
Claude Bernard									
Hans Bethe									
Franz Boas			✓						
Neils Bohr			✓	✓				✓	
Ludwig Boltzmann			✓						
Tycho Brahe									
Noam Chomsky			✓						
Nicolaus Copernicus									
Francis Crick			✓						
Marie Curie	✓	✓	✓	✓	✓		✓	✓	
Charles Darwin			✓		✓				
Paul Dirac									

The grayed out boxes with ticks are for activities that users can manually choose completion for. So as you can see, it would be quite easy to identify which users haven't completed particular tasks. From here, you can click a user's name and send them a reminder via a message. You can also export this data if you wish.

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Course reports

There are three different types of course reports—**activity report**, **view course logs**, and **participation report**. You can use them to monitor your users in slightly different ways.

Activity report

For the activity report, you can see a simple overview of the number of views for each activity. This could be useful if you want to see if one activity is more popular than another or if an activity is not being viewed a lot.

View course logs

This report shows detailed usage across the whole course. Now that we are using completion reports, you would only need to use this type of log if you wanted to check when a particular user accessed a task.

Participation report

This report gives you a customizable overview for each activity listed by a user. You could use this type of report to see if the users have viewed or posted to an activity or resource and then send messages directly to multiple users.

Further analysis of activities

Apart from seeing if a student has completed a task, it's important to drill down further and to look at their grades and provide feedback and help, if needed.

Analysis of quiz results

Again, using the quiz on motion, we want to be able to see our users' grades to identify gaps in their understanding.

Quiz grades

After your users have completed a quiz, there is lots of analysis that you could do. However, when you access a quiz that your users have attempted, you won't be able to change any of the questions.

Click on the link **Attempts** to see the results. The first option you are presented with is to decide which attempts you'd like to see. Here, you can select **Participants who have not attempted the quiz** and then contact these participants if you need it to.

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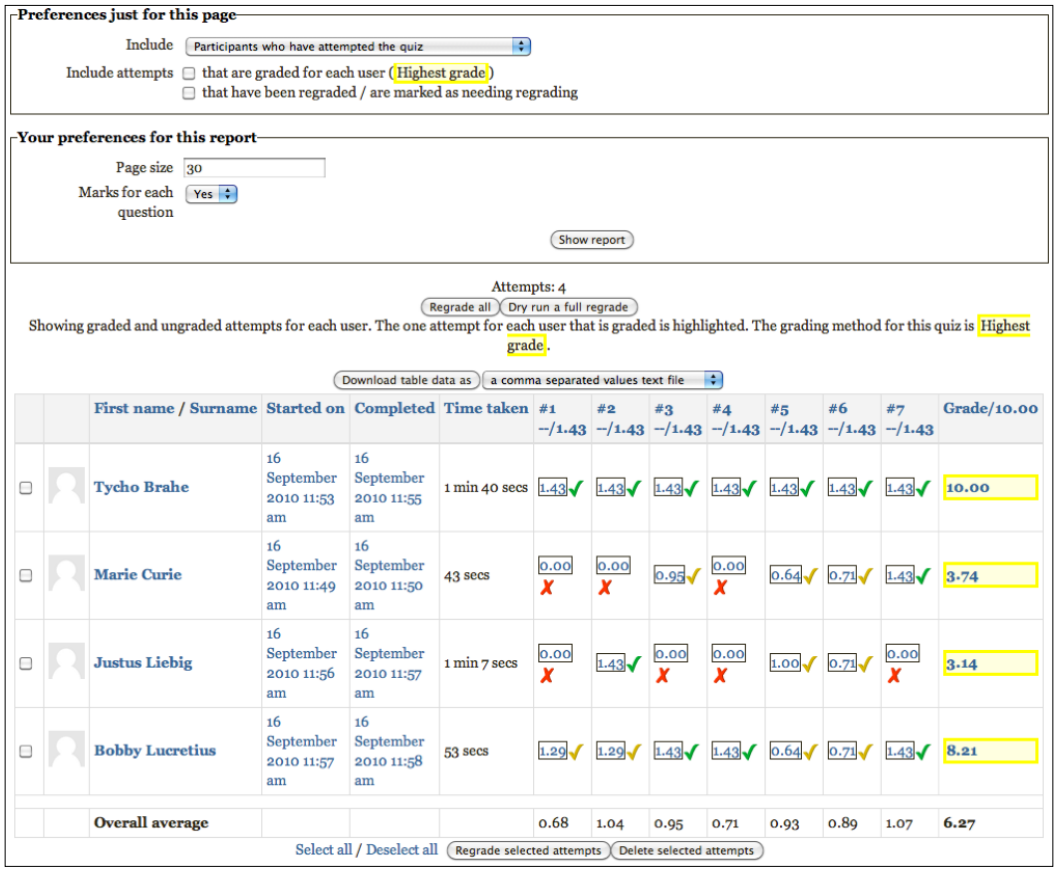
The following screenshot shows the participants who have attempted the quiz:



Preferences just for this page

Include: Participants who have attempted the quiz

Include attempts: that are graded for each user (Highest grade)
that have been regraded / are marked as needing regrading

Your preferences for this report

Page size: 30

Marks for each question: Yes

Show report

Attempts: 4

Regrade all | Dry run a full regrade

Showing graded and ungraded attempts for each user. The one attempt for each user that is graded is highlighted. The grading method for this quiz is Highest grade.

Download table data as: a comma separated values text file

		First name / Surname	Started on	Completed	Time taken	#1 --/1.43	#2 --/1.43	#3 --/1.43	#4 --/1.43	#5 --/1.43	#6 --/1.43	#7 --/1.43	Grade/10.00
☐		Tycho Brahe	16 September 2010 11:53 am	16 September 2010 11:55 am	1 min 40 secs	1.43 ✓	1.43 ✓	1.43 ✓	1.43 ✓	1.43 ✓	1.43 ✓	1.43 ✓	10.00
☐		Marie Curie	16 September 2010 11:49 am	16 September 2010 11:50 am	43 secs	0.00 ✗	0.00 ✗	0.95 ✓	0.00 ✗	0.64 ✓	0.71 ✓	1.43 ✓	3.74
☐		Justus Liebig	16 September 2010 11:56 am	16 September 2010 11:57 am	1 min 7 secs	0.00 ✗	1.43 ✓	0.00 ✗	0.00 ✗	1.00 ✓	0.71 ✓	0.00 ✗	3.14
☐		Bobby Lucretius	16 September 2010 11:57 am	16 September 2010 11:58 am	53 secs	1.29 ✓	1.29 ✓	1.43 ✓	1.43 ✓	0.64 ✓	0.71 ✓	1.43 ✓	8.21
		Overall average				0.68	1.04	0.95	0.71	0.93	0.89	1.07	6.27

Select all / Deselect all | Regrade selected attempts | Delete selected attempts

If you need to, you can download these results. It's quite interesting to look at the length of time taken for your quiz. Especially, if the user has rushed through it and scored a very low grade.

You can see question by question results, and at the bottom of each question column, you can see the average score for that question. This is particularly useful to identify questions that were overly difficult or easy. It could also suggest that your learners couldn't answer that question because of a lack of understanding or there may be an error in the question. You can then use all of this information to either improve your course or your delivery of the subject.

If you click either the started on date, completed date, or final grade you will be shown a more detailed analysis for that user. You will be able to see the answers and you can comment or override grades for particular questions. You can also do this by clicking the score for an individual question.

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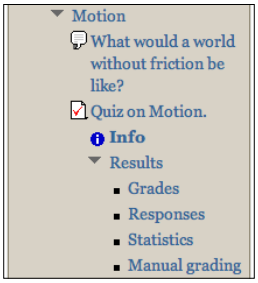
You can edit any of your questions after the users have taken the quiz. To do this, you will need to use the button **Regrade all** to re-check the answers.

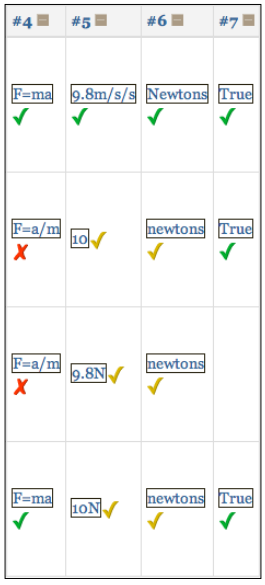
Responses

On the left-hand side in the navigation block, you'll see some more options below your quiz:



If you click on the **Responses** link, you'll be taken to a page similar to the grades analysis page. However, this time you can see the actual responses that your users made. You can use this to see if your users are making common mistakes.

With the example, you can see that the users are forgetting to use a capital N for 'Newtons' (the SI unit for force) and some are getting the equation wrong. Now that we've identified these common mistakes we can send our learners a message via Moodle to help them.



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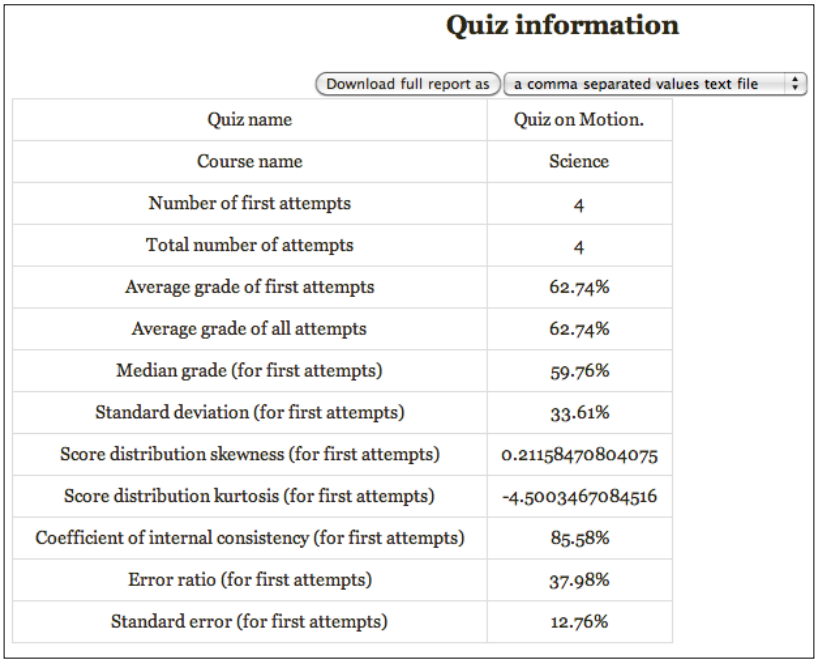
Statistics

Following the statistics link in the navigation block for your quiz shows you some very detailed statistics for your quiz. These are broken up into three sections—**quiz information**, **quiz structure analysis**, and **statistics for question positions**—and are explained next.

Quiz information

This first section shows you an overview for the whole quiz including some values for standard deviation and errors.



Quiz information

Download full report as | a comma separated values text file

Quiz name	Quiz on Motion.
Course name	Science
Number of first attempts	4
Total number of attempts	4
Average grade of first attempts	62.74%
Average grade of all attempts	62.74%
Median grade (for first attempts)	59.76%
Standard deviation (for first attempts)	33.61%
Score distribution skewness (for first attempts)	0.21158470804075
Score distribution kurtosis (for first attempts)	-4.5003467084516
Coefficient of internal consistency (for first attempts)	85.58%
Error ratio (for first attempts)	37.98%
Standard error (for first attempts)	12.76%

Quiz structure analysis

The second section contains some statistics for individual questions including the percentage chance of randomly guessing the correct answer for question. The **facility index** gives an idea of the overall difficulty of question. It is calculated by dividing the average score across all users by the marks available for that question. So the higher the facility index the easier the question.

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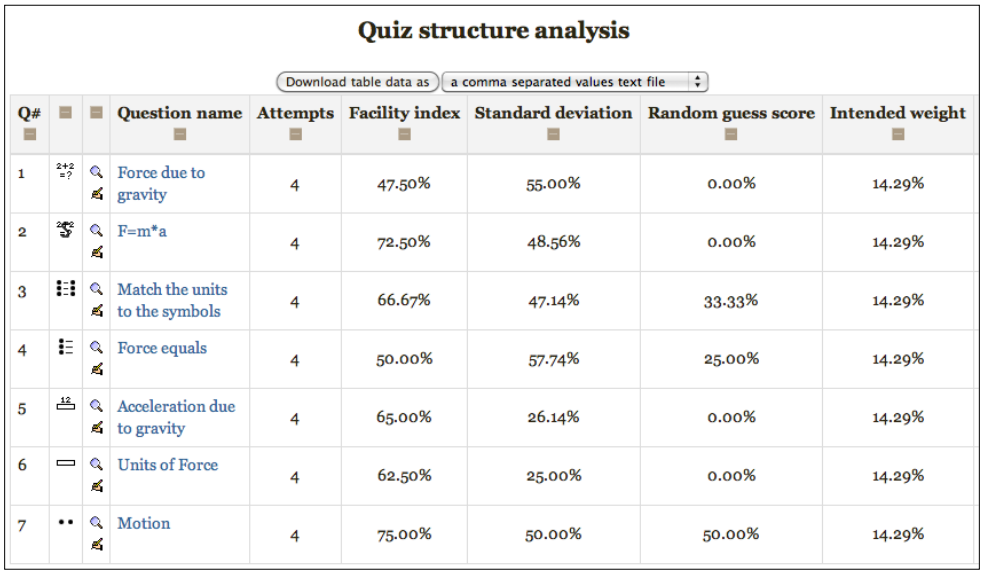

Quiz structure analysis

Download table data as | a comma separated values text file

Q#	Question name	Attempts	Facility index	Standard deviation	Random guess score	Intended weight
1	Force due to gravity	4	47.50%	55.00%	0.00%	14.29%
2	F=m*a	4	72.50%	48.56%	0.00%	14.29%
3	Match the units to the symbols	4	66.67%	47.14%	33.33%	14.29%
4	Force equals	4	50.00%	57.74%	25.00%	14.29%
5	Acceleration due to gravity	4	65.00%	26.14%	0.00%	14.29%
6	Units of Force	4	62.50%	25.00%	0.00%	14.29%
7	Motion	4	75.00%	50.00%	50.00%	14.29%

Statistics for question positions

The third section displays the facility index and discriminative efficiency graphically.

Discriminative efficiency is a measure of how well users who achieved high marks in the quiz did on a particular question. The higher the value, the better the question. A lower value indicates that learners who achieved the lowest overall grades in the quiz answered this question better, hence not a very good question.

So in the next graph, questions one, three, four, and six are all good questions because learners who scored highly in the quiz, also scored well on these questions. By comparing the discriminative efficiency with the facility index you can get the measure of how effective your quiz is.

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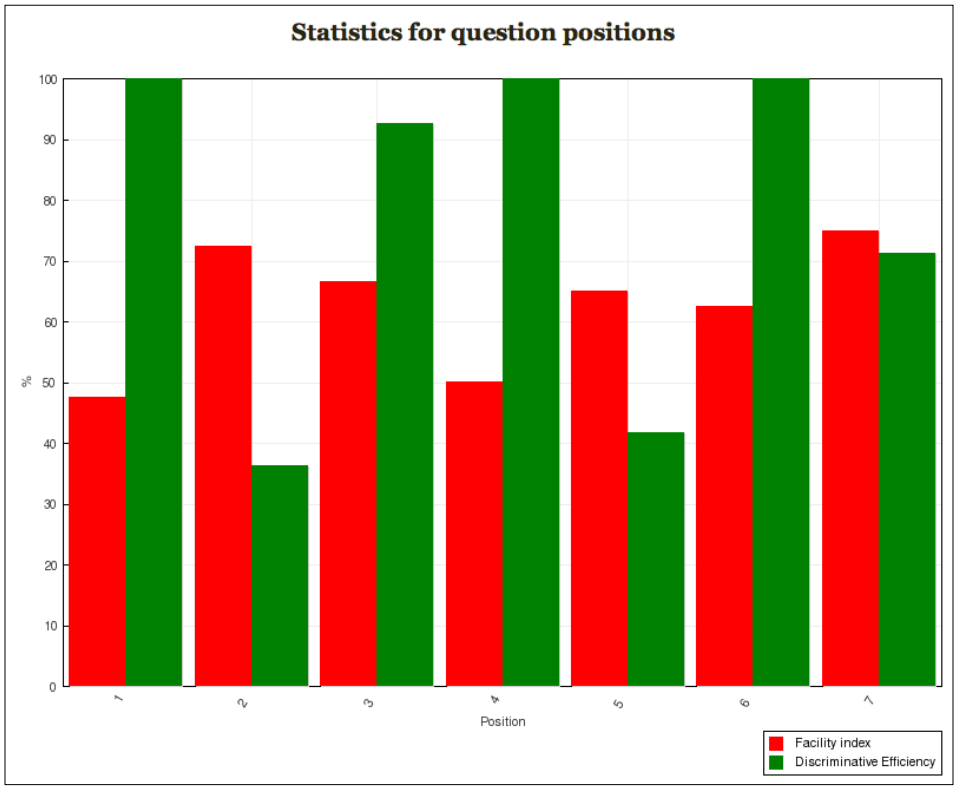
If the facility index were high (showing that it is an easy question) you would expect learners who scored well overall to get the answer correct. This is not the case for the question in position two below (as shown by a low discriminative efficiency) and highlights the need to possibly rewrite this question.



Manual grading

The manual grading link gives you a list of questions that can be manually graded. These are usually essay-type questions. It also allows you to override any scores given by Moodle, should you wish to.

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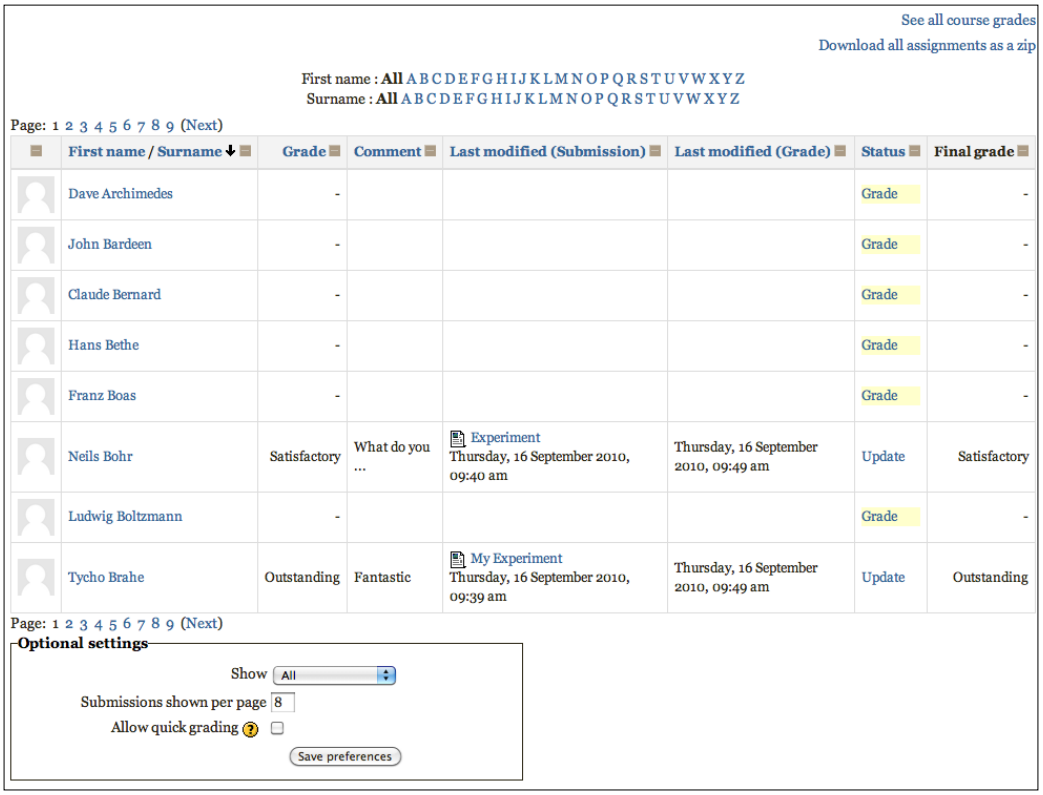
Marking and analysis of assignments

In the previous chapter, we looked at how to set up assignments for your users. Let's have a look now at some simple analysis of your users' work. For this example, we'll go back to the "Osmosis and potatoes" assignment. When you click **View submitted assignments** you will be presented with a page that looks like this:



See all course grades
Download all assignments as a zip

First name : **All** A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Surname : **All** A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Page: 1 2 3 4 5 6 7 8 9 (Next)

First name / Surname	Grade	Comment	Last modified (Submission)	Last modified (Grade)	Status	Final grade
Dave Archimedes	-				Grade	-
John Bardeen	-				Grade	-
Claude Bernard	-				Grade	-
Hans Bethe	-				Grade	-
Franz Boas	-				Grade	-
Neils Bohr	Satisfactory	What do you ...	Experiment Thursday, 16 September 2010, 09:40 am	Thursday, 16 September 2010, 09:49 am	Update	Satisfactory
Ludwig Boltzmann	-				Grade	-
Tycho Brahe	Outstanding	Fantastic	My Experiment Thursday, 16 September 2010, 09:39 am	Thursday, 16 September 2010, 09:49 am	Update	Outstanding

Page: 1 2 3 4 5 6 7 8 9 (Next)

Optional settings

Show All
Submissions shown per page 8
Allow quick grading
Save preferences

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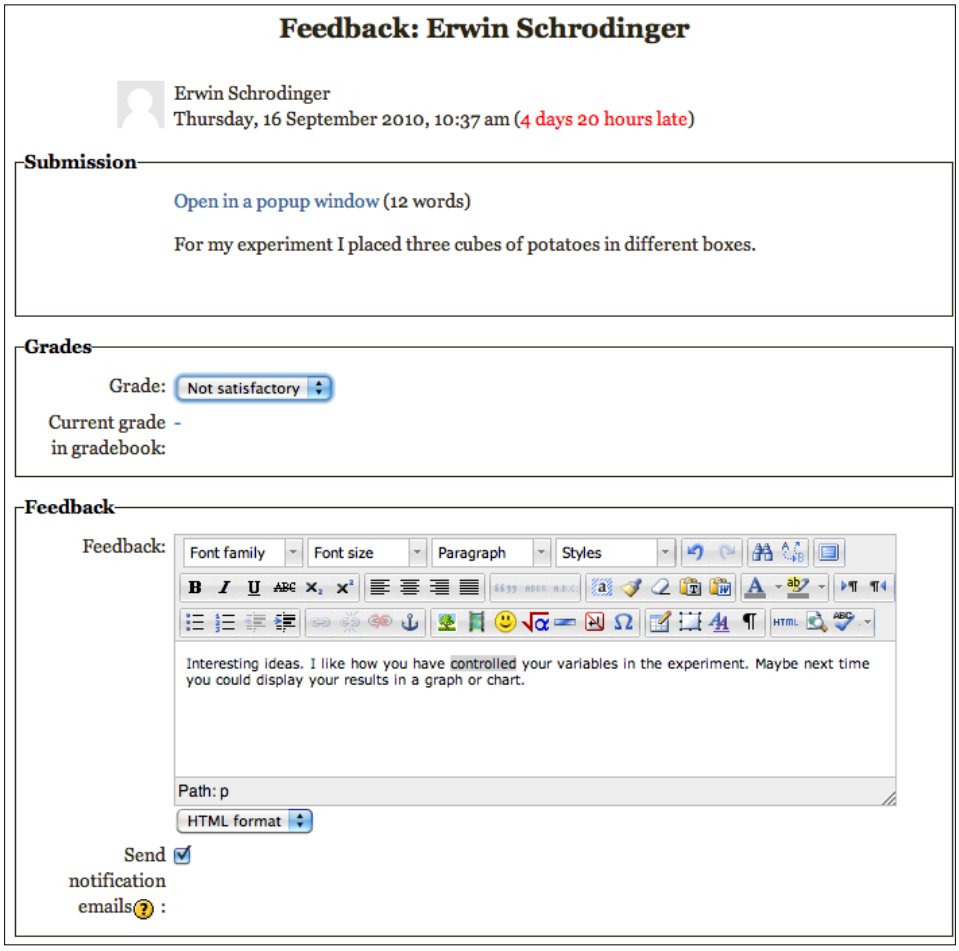
If there are any assignments that you need to assess click the highlighted grade button and you will be taken to a new screen to give feedback. Here you can read their submission, give it a grade and give them feedback. You can check the box **Send notification e-mails** so that your users get instant feedback on their work. The **Save and show next** button is really useful and does exactly what it says.



Once you have finished marking all of the assignments, you will be taken back to your submitted assignments page. You can click on the column headings to sort your submissions. If you click on the **Grade** title in the second column, you will be able to easily see a list of users with no submissions.

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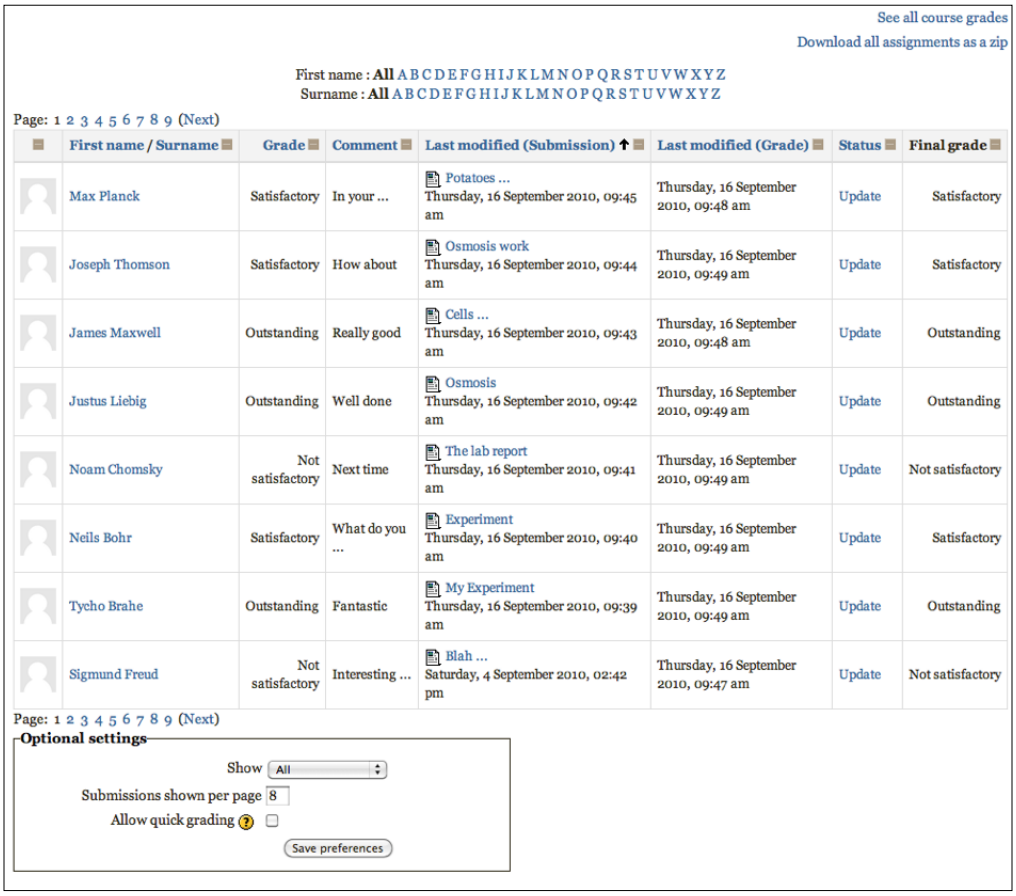

Similarly, you could identify which users have submitted assignments that are not satisfactory. You can then message these users to talk to them about their work. Again, all of these grades and comments are stored in gradebook. There is also an **Allow quick grading** setting that you could enable on this page.

Outcomes

This is another feature that you will need to ask your site administrator to enable in the site settings. It can be found in **Site Administration** | **Grades** | **General settings**. **Outcomes** allow you to be able to give multiple marks for an assignment covering different categories. For instance, if you had a lab report, you may wish to give separate marks for prediction, method, collecting and presenting data, analysis of results, conclusions, and evaluation.

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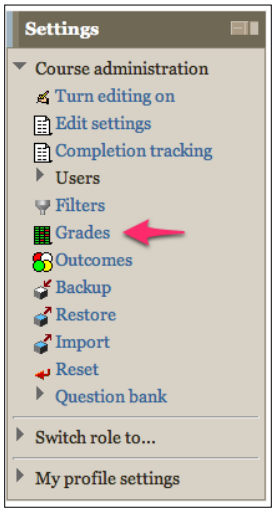
You would be able to set up each of these categories as outcomes and attach scales to them. When you go to mark the assignment, you will be able to give an overall grade, plus separate grades for each of the different outcomes. Don't forget you can customize the scales you use in Moodle, for example, you could create a pass/fail scale or met/not met, and attach them to different outcomes.

Using the gradebook

The **gradebook** gives you an overview of all of the scores recorded for activities on your course. We'll use it to help your learners improve their understanding of science.

Viewing grades

All the grades and associated settings are found by following the **Grades** link in the **Course administration** block.



Grader report

Once you click on this, you will probably see the **Grader report** for your users. If you scroll down to the settings block, you'll notice quite a few reports and settings under grade administration.

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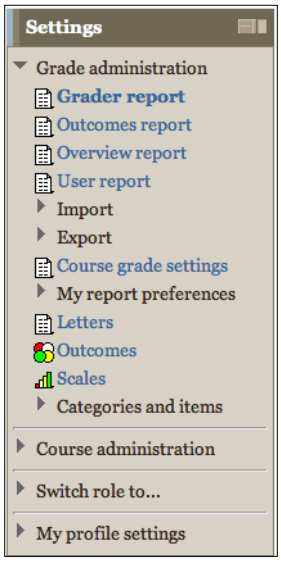
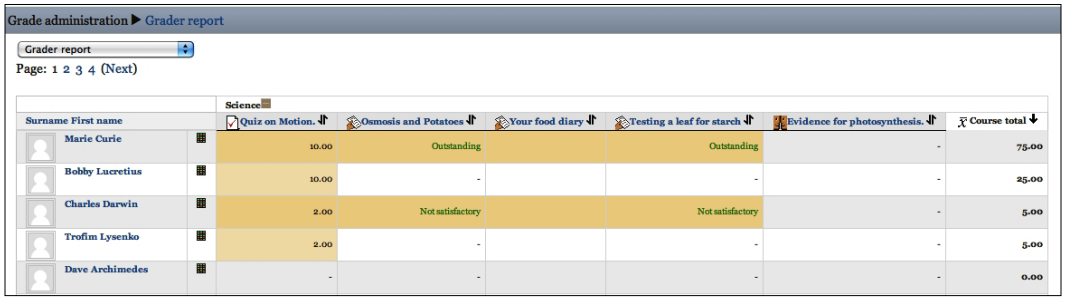


This gives you an overview of all of the grades that your users have achieved. The grader report looks like the following:



The up/down arrows for a particular activity mean that you can display the grades in either ascending or descending order. To go back to alphabetical, click on the surname link at the top of the first column.

If you scroll to the right you'll be able to see the course totals. The names of the activities are links that take you to detailed reports on each activity. By clicking on any of the cells you can manually change or add any of the grades. If you do so, these will be shown with an orange background.

The green and red checkered icon alongside the username takes you to an individual's user report, which is slightly more detailed than the grader report. You can change some of the display settings for the grader report by accessing **My report preferences** in the settings block.

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A great use of the gradebook is to identify students who need extra help then use messaging to send them links to resources and activities that they can use for improvement.

Outcomes report

The outcomes report gives an overview for particular outcomes. As I've mentioned earlier, outcomes can be used to collect data about certain aspects of an activity. For instance you can use them to give separate grades for specific criteria when you're marking assignments, for example planning, observing, displaying results and so on, so if you set up these different criteria and used them for a series of lab reports then by using the outcomes report you could get an idea of the average scores for all of your users combined for each of the criteria. This will allow you to see which areas your users on average are performing better or worse in.

Overview report

The overview report shows the user's overall grade for every course they are enrolled on.

User report

As mentioned earlier the user report provides a slightly more detailed report for an individual user. Along with their grades for different activities, it also shows the range available, turns the grade into a percentage, and also displays any feedback you have given.

Import and export of grades

Grades can be both imported and exported in Moodle. If you are importing grades into Moodle, it is handy to export a file first as this will give you the correct structure for your tables. All of the import and export functions are in the settings block. It is also handy if you want to keep a separate record of your students grades, an Excel mark book for example, or manipulate the data further.

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Course grade settings

There are a number of options that you can choose to determine how the gradebook appears for the course participants. Let's go through the reasons for each setting. In the general settings, **Aggregation position** changes how the course total is displayed. Its good to use a variety of different scales, criteria, and grades in you course however let your students see the actual (real) grade for each activity, rather than converting everything to a percentage.

There is lots of evidence to say that grade-based marking provides little value to students and that ranking students only has a negative effect towards learning. So think of the effect the **Show rank** setting would have on the pupils at the bottom of the ranking. The only exception to this is when you might want to add a block to a quiz to show the top five attempts.

Research experiments conducted by educational psychologist Ruth Butler found that feedback through comments has a positive effect on pupils' learning. In contrast, giving of marks or grades causes Students to perform less well, and they are less interested in the task. Butler, R. (1988) Enhancing and Undermining Intrinsic Motivation." British Journal of Educational Psychology 58

"Grades may encourage an emphasis on quantitative aspects of learning, depress creativity, foster fear of failure, and undermine interest"
Butler, R., and M. Nissan. (1986). "Effects of No Feedback, Task-Related Comments, and Grades on Intrinsic Motivation and Performance." Journal of' Educational Psychology 78.

Organizing your gradebook

With all of this information about your students, it's useful to know how to organize the data to make it more meaningful.

Categories and items, simple view

If you choose the **Simple view** for categories and items you will be presented with a table and some settings that you can adjust for your course. The first of these is the aggregation setting.

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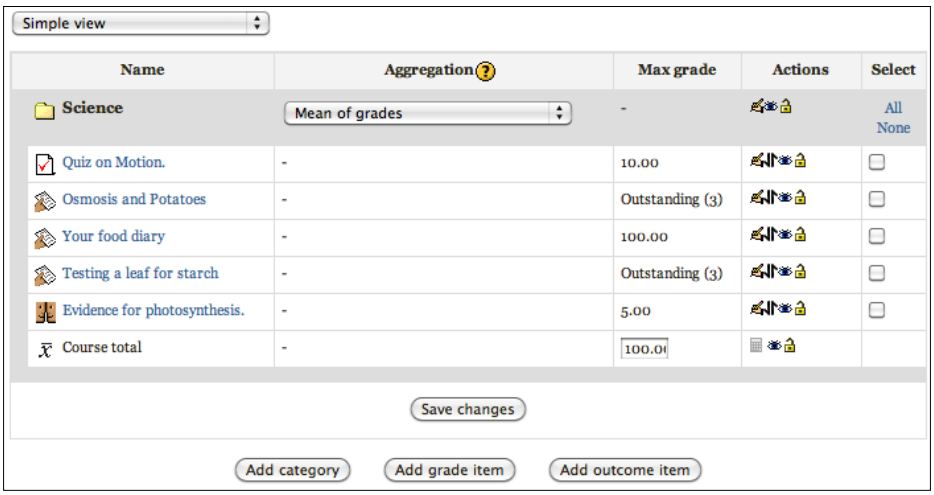
By default, the total grade for your course is set as the mean of the grades for individual activities. You can choose to change this to a number of different settings. These are:

- **Mean of grades**
- **Median of grades** (the middle grade when all of the grades are arranged in size order)
- **Lowest grade**
- **Highest grade**
- **Mode of grades** (the most frequently occurring grade)
- **Sum of grades** (all grades added together)



In the second column, you can set the maximum grade available for your course and using the icons in the actions column you can edit, move, hide or lock particular grade items. Using the buttons at the bottom, you can add categories to organize your grade items. If you click on **Add category**, you'll be taken through to a new screen where you can set up your new category. This is shown next:

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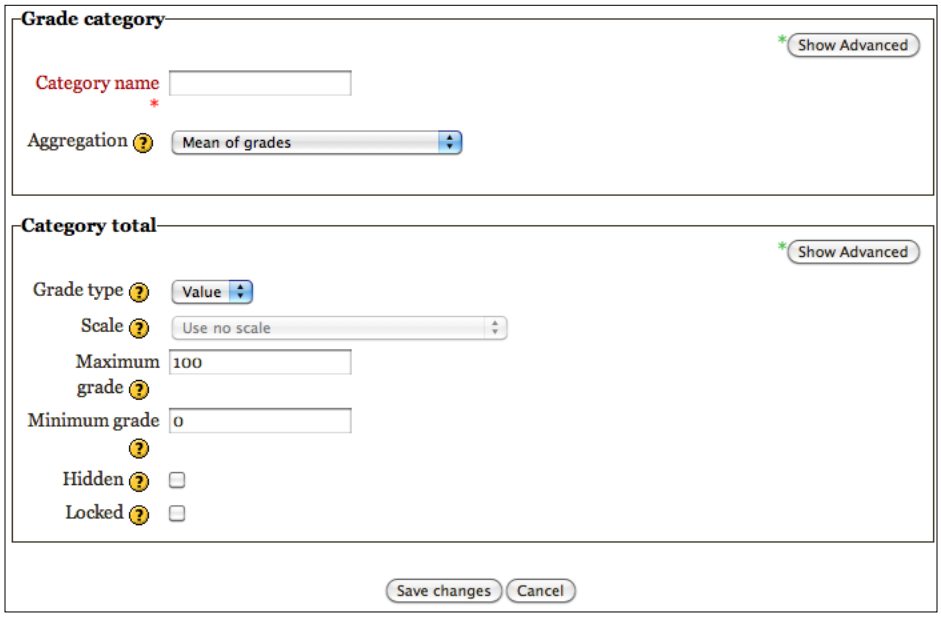

Similarly, you can set up a grade for the category based on an average of the graded items. If you click on **Show advanced**, you will be able to choose from more settings such as dropping the lowest grades from the average calculation, and setting a pass grade for the category, if you wish. Use this to group together different activities into topics, or you could group activities by difficulty, for example, pass, merit, and distinction.

The full view setting for categories and items contains all the same settings as the simple view but has a lot more of the advanced options laid out for you.

However, when you decide to organize your graded activities, try to set this up before your learners begin to use their course. This is because they see their course grades (assuming it is enabled) and it is important that they can see in advance what is expected of them and how the final grade for their course will be calculated. You can edit the way the gradebook calculates the final grade by clicking on the calculator icon.

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Summary

Hopefully, after working through this chapter, you have a better idea of how you can monitor the work that your science students submit to you via Moodle. You now know how to check that they are completing the work and how to analyze the data produced by Moodle to identify common misconceptions in understanding. Used in conjunction with the previous chapter on feedback, you will begin to see improvements in your learners' understanding of science and enthusiasm for their work.

In the next chapter, we will have a look at some of my favorite activities to get students working together and learning from each other—the wikis and workshops.

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6
Tools for Collaborative Learning

> *"Spending time looking at other students' work, rather than producing their own work, may seem like 'time off-task', but the evidence is that it is a considerable benefit, particularly for 'low-attainers'."*
> *- Dylan Wiliam*

In this chapter, we'll be looking at how learners can help each other as a community using the wiki, glossary, and workshop tools for peer assessment.

By the end of this chapter, you will be able to:

- Build wiki pages that your students can use to work together collaboratively
- Create glossaries that link concepts through your course
- Design workshops that your learners can use for peer assessment

Working together

Collaborative learning is based on the idea that knowledge and understanding can be created and shared by learners in a community. Each member brings with them different ideas that can be used to shape the views and mental models of others.

> *"Collaborative learning has as its main feature a structure that allows for student talk: students are supposed to talk with each other....and it is in this talking that much of the learning occurs." (Golub, 1988)*

In terms of Bloom's taxonomy, the activities mentioned in this chapter are right at the top. They are the most intellectually demanding and all involve aspects of high-level thinking on the part of your users. Bloom's revised taxonomy is shown next, in order of decreasing demand. High-level thinking is thought to advance learning and produce students with greater test scores.

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- Evaluation
- Synthesis
- Analysis
- Application
- Comprehension
- Knowledge

Being able to critically evaluate each other's work is becoming an important part of most modern curricula and using these tools is an easy way to achieve this.

Wikis

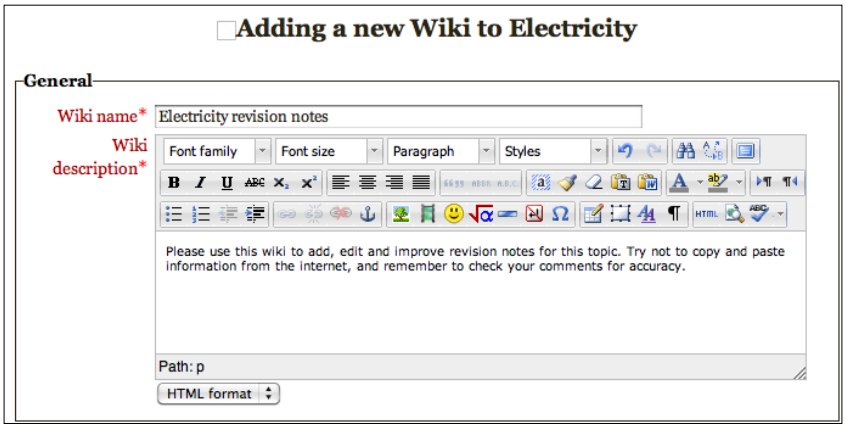
Wiki is a Hawaiian word meaning 'quick'. The use of the word for creating editable wiki pages is very apt as you and your learners can quickly, collaboratively create a lot of content for your course.

Adding a wiki

Again, to add any activity, turn editing on and in the section you would like it to appear, choose **Wiki** from the **Add an activity** drop-down menu. We'll make a wiki that students can use for collaborative writing of revision notes using an electricity topic. Revision wikis are something that would be really useful for your students in every topic.

In the **General** section at the top, give it a name and fill out the description.

It's useful in the description to let your students know how you would like them to use it.



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The **Wiki Mode** has two options, as described here:

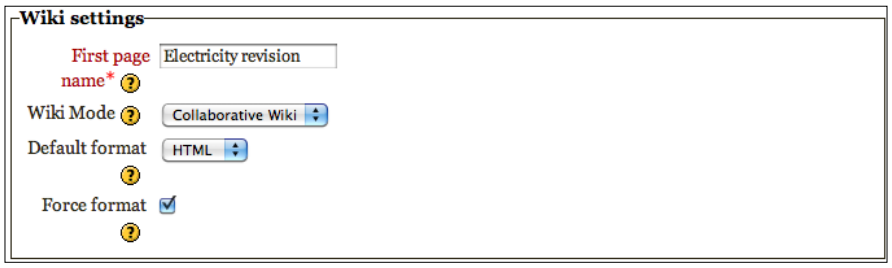
- **Collaborative Wiki**: Produces one wiki that everyone can edit
- **Individual Wiki**: Produces one wiki for every user that only they can edit

For this example we want our learners working together, to create something they can revise from before an end of topic test. So we will choose **Collaborative Wiki**.

There are three different formats for the wiki:

- HTML: Great for fancy formatting
- Creole: Common wiki language to allow content to be used across different types of wikis
- NWiki: Very similar to the type used for Wikipedia

These give slightly different styles of wiki. You would probably choose HTML most of the times, as it gives your users a lot of flexibility with layout. Creole and NWiki are both wiki markup languages that force the formatting of your wikis. While these types are great for layout and conformity, your users will need cheat sheets to refer to for formatting help and you may find younger students find the restrictiveness of the layout 'boring'.



Other wiki settings

By now, you should be familiar with the common module settings. As this is a revision wiki, we want the maximum exposure to our users and so we are going to choose **No groups** for the group settings (assuming you have grouped your learners). This means all users will be able to work on the same wiki.

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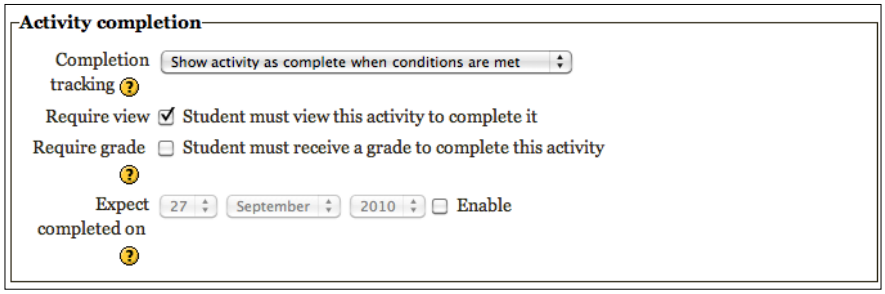
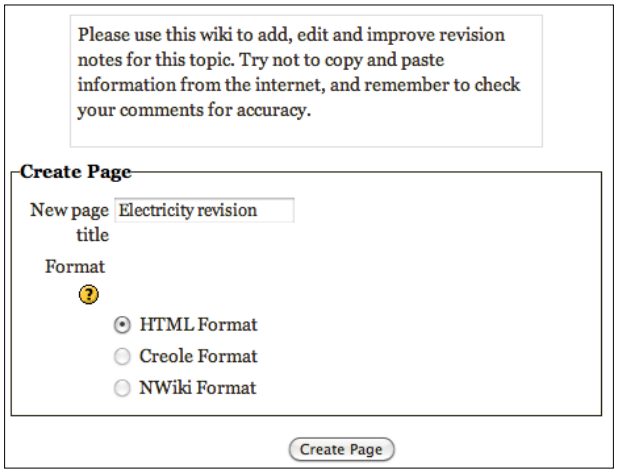
Again, the following assumes your administrator has enabled conditional activities. We don't want to restrict availability to any users and for the activity completion settings we are going to require students to view the activity to complete it. This will help you track whether they are using the wiki to revise before a test. You could then see if there is a pattern of users that have looked at the revision wiki and how well they have done on the test.



Hit the **Save and display** button and it's ready to be used.

Getting users started on the wiki

After you have saved the wiki, you will be presented with a page like this:



Use the **Create page** button to start off the wiki.

Add your revision notes to get the wiki started then ask your students (or set it as a homework) to read, edit, and improve what is there. You can use **tags** to help your users search the information, as shown in the bottom part of the following screenshot:

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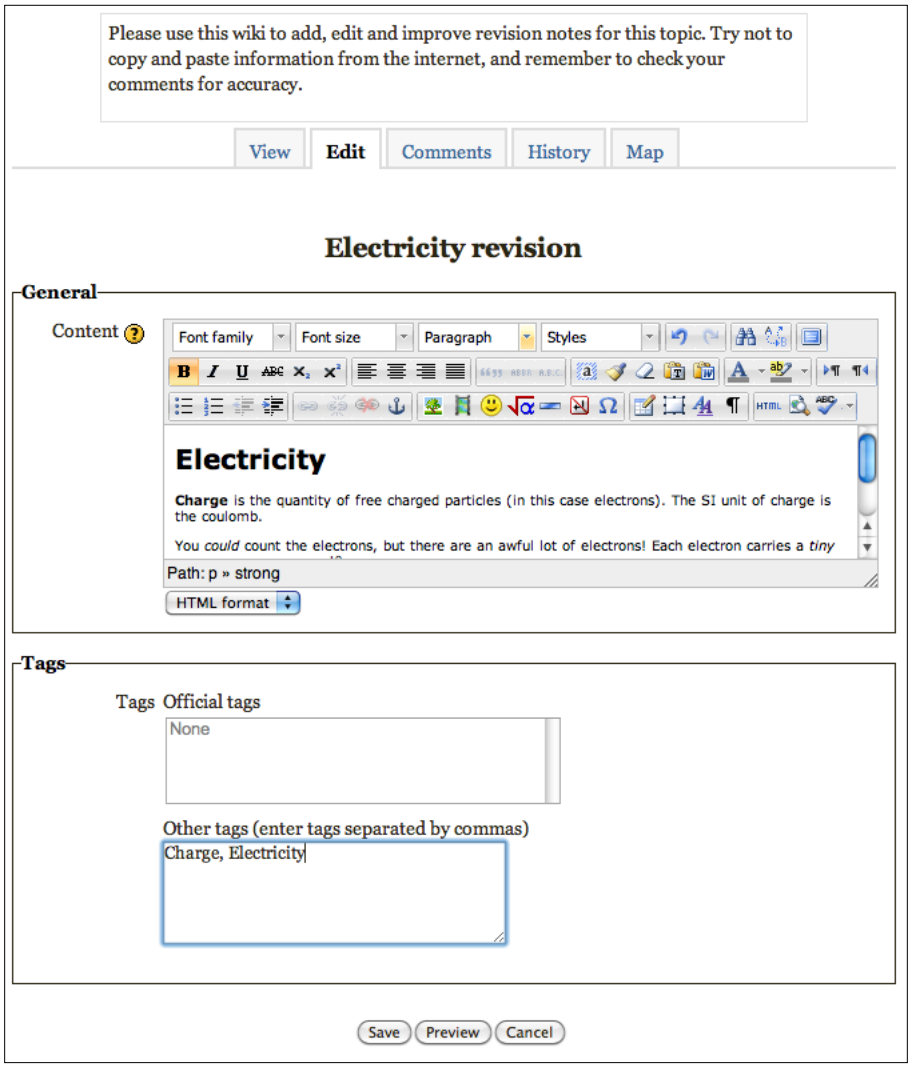

Adding a new page to a wiki

To add a new page in a wiki, simply type the name of the new page you want to create in the current page and enclose it in square brackets, like this [[Name of new page]]. This will show you a red link to your new page that you can click on and edit.

Comments in wikis

The **Comments** tab allows users to comment on the wiki. It works great to focus your students and help to steer the work.

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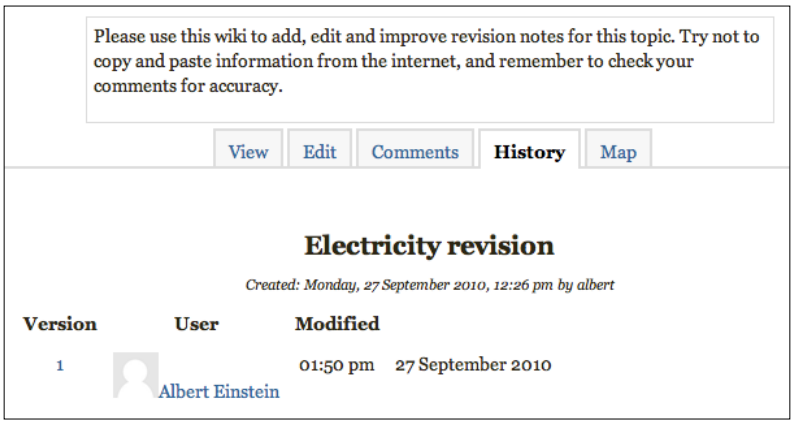
Using the History tab

What stops my students from adding inappropriate or incorrect content? The honest answer is nothing! If your users wanted to, they could type absolutely anything into a shared collaborative wiki, which would then be displayed for everyone to see. However, if you click on the **History** tab at the top of your wiki you will be able to see a complete list of changes so you can easily track what has been written and by whom. To see the detail of what they have changed click the version number. It's worth letting your students know this!



Map

The **map** is a feature that gives you a nice outline of your wiki, showing an index, list of links, and a list of contributions.

Ideas for how to use wikis

- Wiki activity sequencing jumbled up instructions for doing an experiment
- Mix-and-match information, for example, results of chemical reagents to reactions
- Correct the teacher's work
- Convert material in one format to another, for example pupils watch a video and convert the information into a wiki
- Musical sheets for wiki: Each group starts a wiki, then swap, say, every five minutes to edit each other's wikis
- Use individual wikis as a 'notepad' for taking notes on a particular topic
- Write a play to perform for the group about different organ systems in the body

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- Build a wiki page about flame tests including embedded video

One thing about wikis is that any change goes live immediately. What if you want to approve something before everyone can view it? This is where glossaries come in useful.

Glossary activity

The **glossary** activity is really cool. You can use it to create a list of definitions for different concepts. The clever thing is that the glossary will automatically link any entries that you make to other parts of your course where the word is used. So it is fundamental in pinning concepts together.

Adding a glossary

Here we're going to build a general glossary for your course then later look at other uses for glossaries.

On your main course page turn editing on and select **Glossary** from the **Activity** drop-down menu. To begin, give the glossary a name and description. Again, it's good to let your learners know the purpose of the glossary.

There are two types of glossary:

- Main glossary
- Secondary glossary

Entries from **secondary glossaries** automatically show up in the main glossary. It's quite useful to create these secondary glossaries, as you can set up specific ones such as learning activities and it keeps their content in one place. You can have unlimited secondary glossaries but only one main glossary, which only teachers can edit. Both teachers and students can edit secondary glossaries.

There are a lot of different settings in this first section, mostly self-explanatory; however there are a couple of settings that can be commented on.

As this is the main course glossary, we are setting up that we don't want to allow duplicate entries. This is so your users learn specific definitions, which are automatically linked throughout the course. The default settings are approved and are useful if you want to check what your learners are contributing to the glossary. If you set this to **No**, you will see every entry before it goes live and can approve it.

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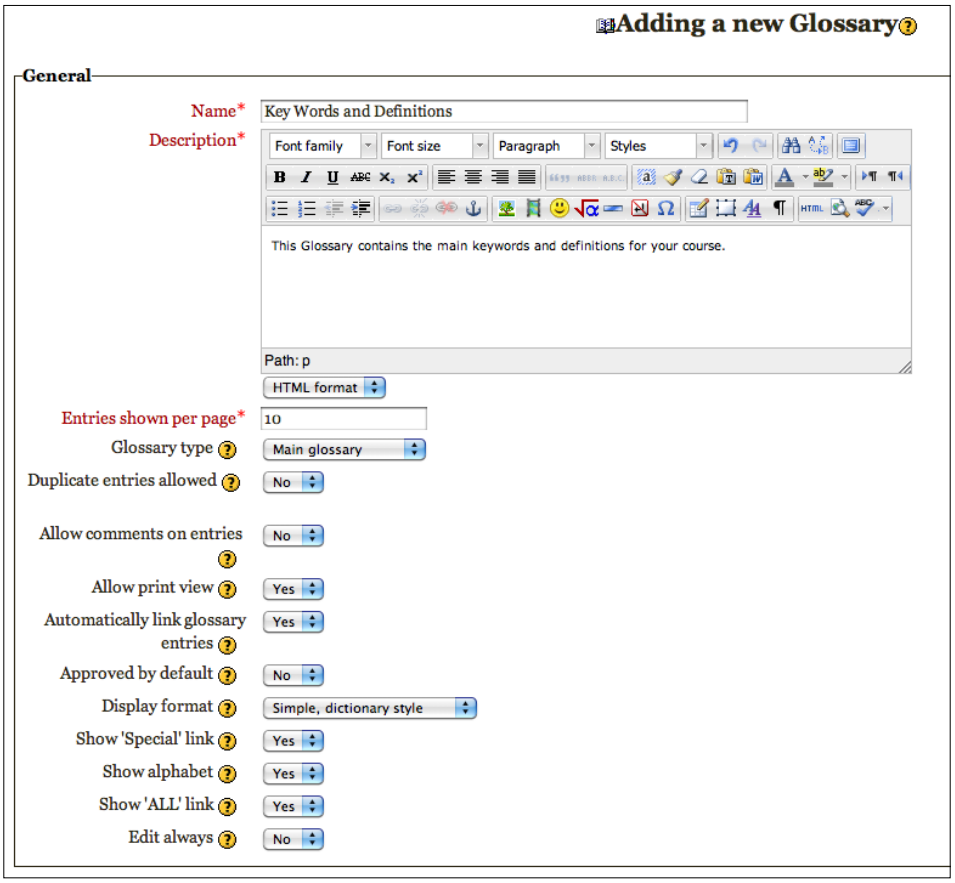
For this example, the display format is **Simple, dictionary style**.



Glossary RSS feed

Assuming your administrator has enabled RSS feeds at the site level, if you choose one of the settings here, you are able to generate an RSS feed for your glossary. You could go on to use this on another course, or display in any RSS reader.

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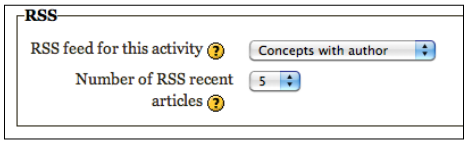
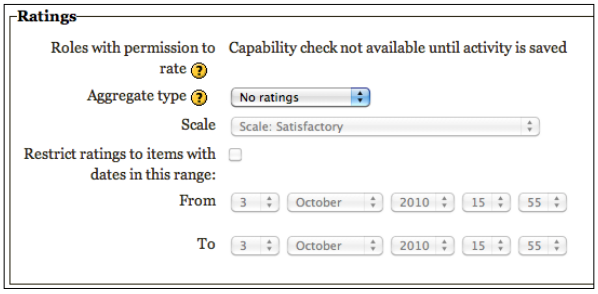


Glossary grade and ratings

The **Grade category** setting is to help organize your grade book and is only necessary if you are using ratings for the entries. You'll see later, an example where you can set the ratings so that learners can give each other grades for their entries.



Leave the other settings on their default values because you don't want to restrict availability of this activity. After this, hit **Save and display** and you are ready to begin to add entries.

Ideas for glossaries

Here are some ideas for

- Write definitions as they appear in exam mark schemes.
- Periodic table of elements give each pupil a different element to research.
- Definitions for ESL students or re-written for pupils of lower reading ages.
- Revision tips. You could display this glossary on the course page.
- Get your learners to find key words in a text and add to the glossary with definitions.
- Listings of favorite science websites with reviews of them.
- Showcase for exemplar work.
- Examples of different materials with descriptions.
- Pictures of common molecules or ions that the pupils need to learn.

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Workshops

Workshops provide huge educational benefits because they incorporate a variety of assessment and reflection techniques, peer assessment, self-assessment, and teacher assessment, which makes them a fantastic learning tool. The basic premise is to set up a rubric that the learners will use to grade each other's submitted work as a peer assessment. You can also set up a cycle of feedback, improvement, and agreement on the grades assigned by peers.

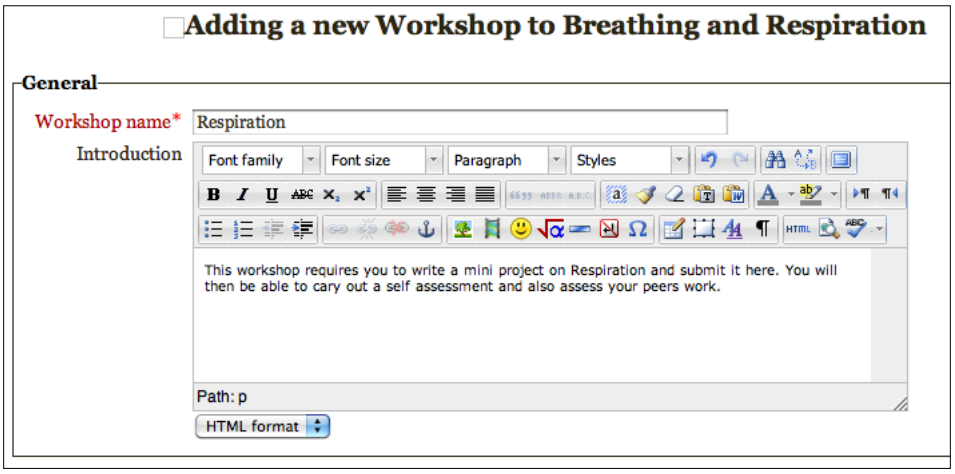
Workshops are the only activity type in Moodle that directly use rubrics.

Setting up a workshop

To begin with plan these on paper and have an idea for the task and rubric before you start. Get your learners involved in the process of creating the rubric and talking about what makes a good piece of Scientific writing.

General workshop settings

Give your workshop a name and introduction. Here we are making a workshop on 'Respiration'.



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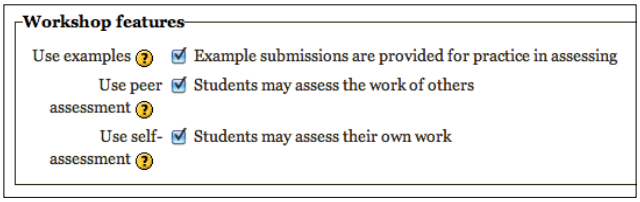
Workshop features

This is the good bit. You can choose to enable three settings:

- Use examples
- Use peer assessment
- Use Self assessment

We'll choose to use examples. This has two benefits. Your users will be able to look at the examples and see what constitutes good work. It also provides them with an opportunity to assess these examples, so they get practice using the rubric, and can see how close their grading of the example is to the grades you think it deserves. Let's also enable peer assessment (users will be given assignments of other users to assess via e-mail links) and set self-assessment so your users reflect on their work.



Grading

There are two aspects of grading for workshops:

- Grade for submission: The grade is the teacher's and peers' award to the work.
- Grade for assessment: The grade is generated automatically, for how good the learner is at assessing other people's submissions. This compares a student's ability at assessing the different criteria to the rest of the group.

Grading strategy

The grading strategy you choose governs the assessment form used. It also decides how the submissions are graded:

- Accumulative grading: Assignment is given both comments and a grade. The grade awarded is calculated by weighting the individual criteria. Comments are independent of the grade.
- Comments: No grades are given, just comments.
- Number of errors: Comments and a simple assessment of completion of certain aspects is given.
- Rubric: Assessment is given based on specified criteria.

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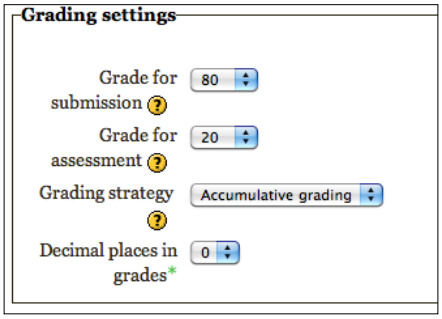
At the moment you cannot specify any custom scales. The scores obtained are each out of 100. To make the submission more important than the assessing phase, the settings we'll use are as follows:

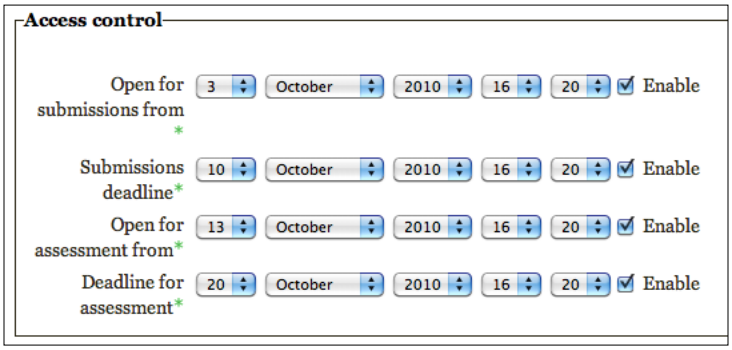


Submission and assessment settings

Give your learners here some instructions for their submission and assessment. You could introduce the rubric and outline the task.

Access control

Workshops usually have three phases to them. The first is where the users submit their work to your course. The second phase is when the assessment of the work can begin. We'll give our users a week for each of the first two phases, with a gap in between. The third phase is for grading and evaluation. To display the access controls, click on the **Advanced Settings** button.



After the initial settings, you will be taken to the workshop planner to set up the next phases of the task.

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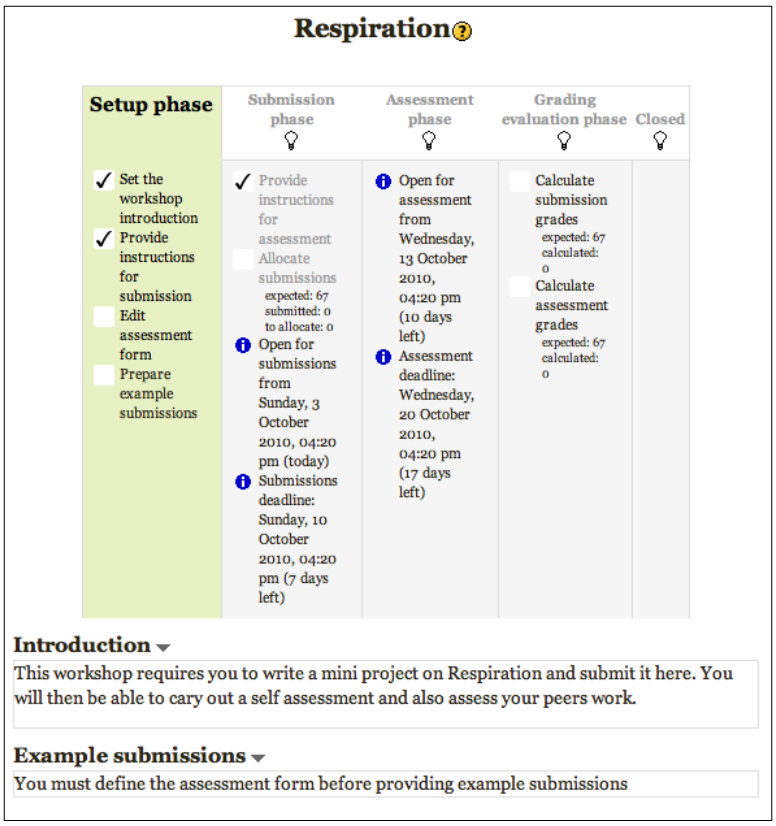
Workshop planner

The workshop planner shows you the different tasks you need to complete to set up your workshop. Let's have a look at the other settings. The items ticked are the parts you have set up. If you click the text by the empty boxes, you can set up that part of the workshop.



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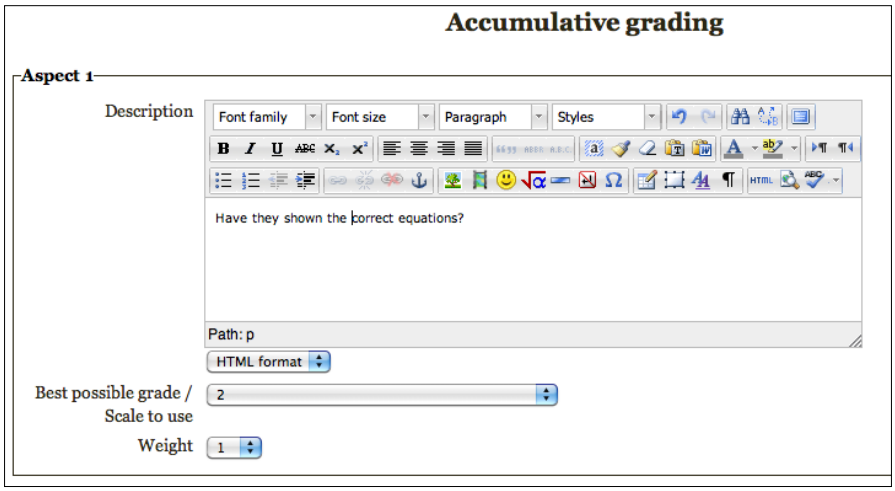
Edit assessment form

The link to edit the assessment form is the third item down in the **Setup phase** shown in green block in the previous screenshot. The assessment form is what will be shown to your learners. This is something you could design with your students to give them ownership of it. You could use a wiki to do this if you don't see your learners face to face. In the description field, you can give your learners a series of questions or prompts to guide the assessment of the work. You can also set the number of marks available and give more important items more weight towards the final grade.



The kinds of prompts to use for an assessment like this would be:

- Have they shown the correct equations?
- Have they included diagrams?
- Rate the quality of their writing. Is it original and interesting?
- Have they included all the key points?

After you have added your comments to the assessment form, you can preview it. This is what mine looks like:

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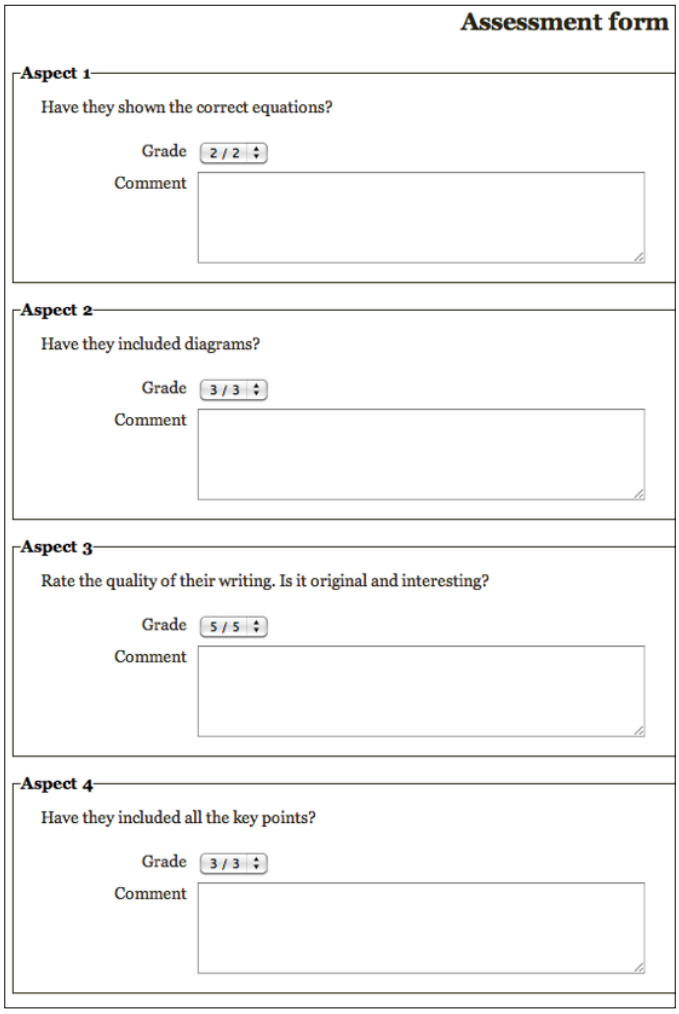

Adding a sample submission

The next thing to do is add your example submission.This is something you could create, or use an exemplar from a previous year.There is lots of evidence that pupils need to see what constitutes good work. It gives them something to aim for and demonstrates the standard required for a certain grade.

Use the **Add example submission** button to add your example for students to assess.

Once you have done this, you will be able to assess the work and use the comments to give your learners guidance on awarding marks.

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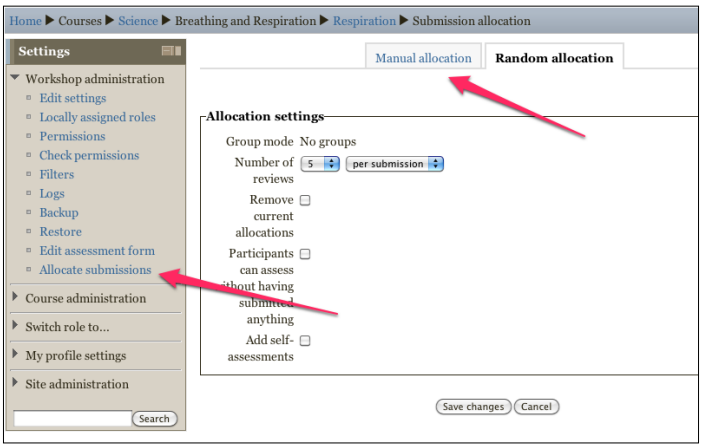
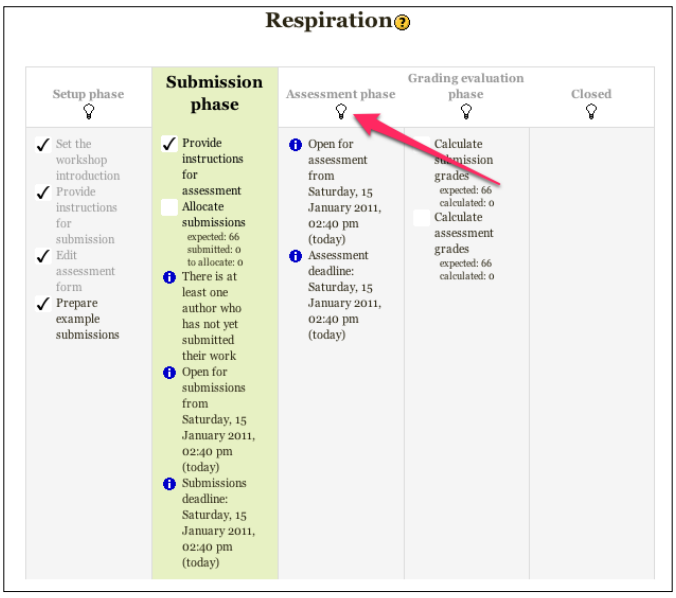
Allocating submissions

Once your users begin to give in their submissions, the last thing you need to do is allocate which students will assess each other. You can either do this manually or you can choose the random option, which will randomly allocate assessments to your users.



Controlling the stages of the workshop

While you can set the open and close dates for the workshop, the different stages are set by clicking on the lightbulbs, as shown next:



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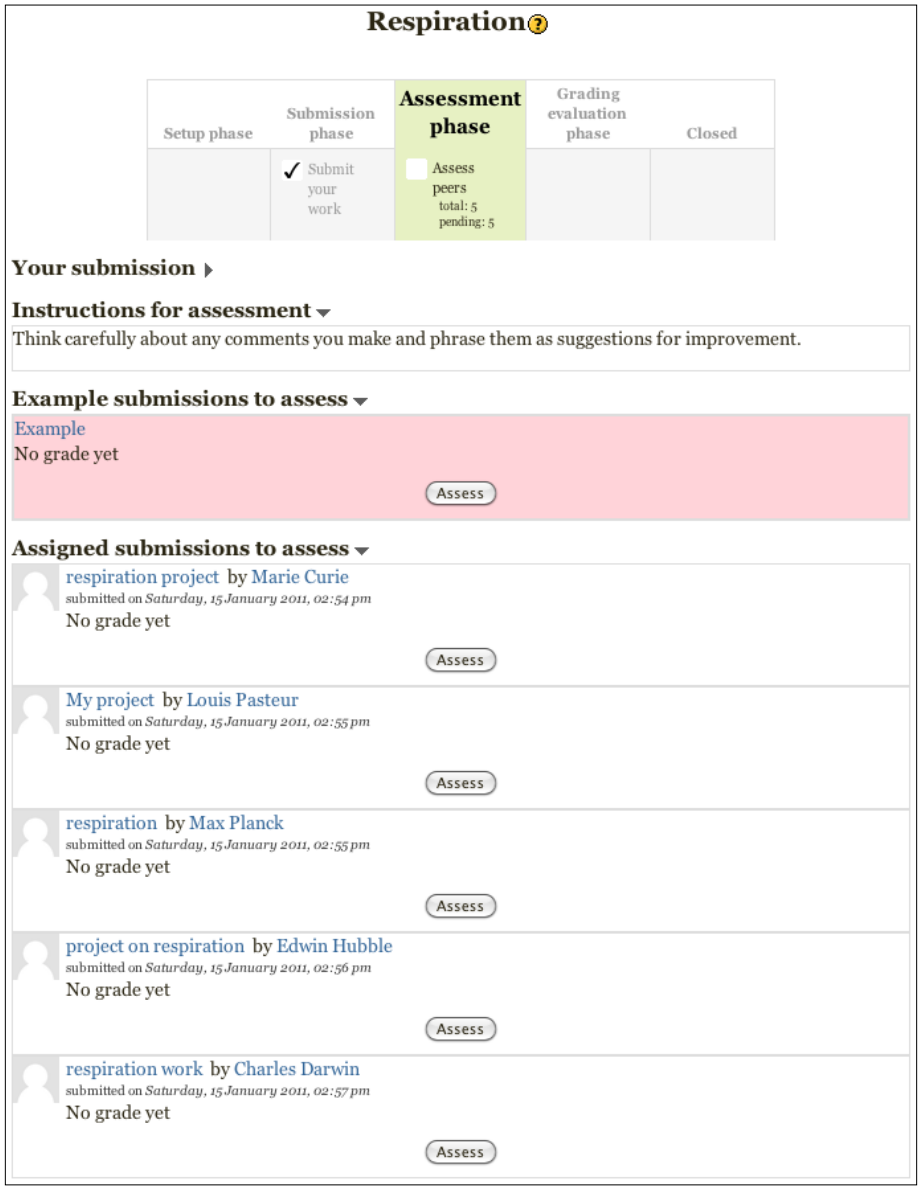
Viewing the workshop as a pupil

After you have assigned who will assess each other, the pupils will see a screen like the next screenshot. It shows them whose work they will be assessing.



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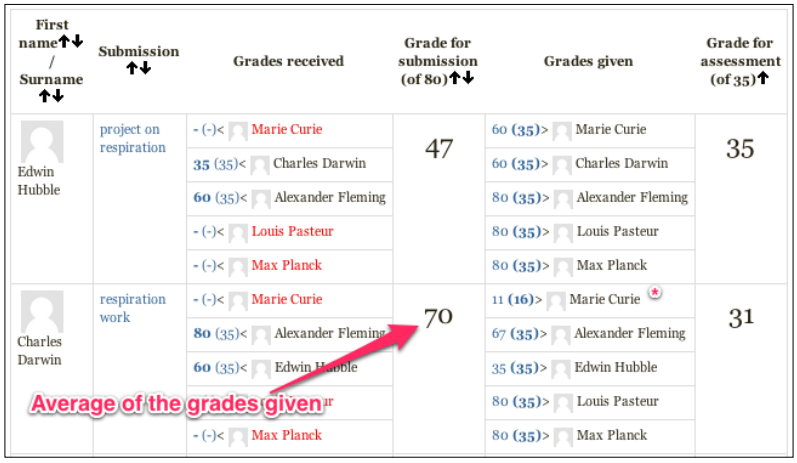
Grading the workshop

The final grading of the workshop looks like this:



Users in red have not completed their assessments. Marie's assessment of other user's work was much lower so she won't get a good grade for the assessment part of the workshop.

For details of how the calculations are worked out, have a look at `http://docs.moodle.org/en/Workshop_module`.

Other ideas for workshops

- Pupils could learn a certain aspect of the work, become an expert, and then submit an assignment to teach the scientific concepts to the pupils that are assigned to assess the work
- Any rubrics/scales or level ladders you currently use could easily be adapted to use as the assessment sheet for a workshop.

Summary

In this chapter, we looked at some great ways to get students learning from each other and learning with each other. People often use wikis, but hopefully, now you have some ideas how to use them more effectively. Glossaries are very under rated and workshops are so important in helping your students learn. Try them! So far we haven't yet looked at how to display scientific notation or mathematical functions on your course. We'll tackle that in the next chapter, along with adding 3D rotatable molecular models into your course.

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7
Using Mathematical Equations, Animated Molecules, and Creating 'Live' Graphs

> *"There is a great danger in the present day lest science teaching should degenerate into the accumulation of disconnected facts and unexplained formulae, which burden the memory without cultivating the understanding." - J. D. Everett ,1873.*

In the process of teaching science, there are a number of tools that we can use to help pupils understand the world around them. In this chapter, we will be looking at how we can make use of these tools in our Moodle course.

By the end of this chapter, you will be able to do the following:

- Embed 3D molecular structures using Jmol that your users can zoom in on and rotate
- Create a page of equations using TeX notation
- Build equations using the DragMath equation editor
- Display 'live' graphs that auto-update

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Jmol: an open-source Java viewer for chemical structures in 3D

The **Jmol filter** is a plugin for Moodle that allows you to display interactive chemical structures in 3D.

You can read more about the Jmol project here:

- `http://www.jmol.org/`
- `http://jmol.sourceforge.net/`

By uploading particular file types to your course, you can use links to display the 3D molecules anywhere in your course. For instance, you could have a quiz question based on a particular molecule, forum message, blog post, or glossary entry.

Using Jmol files

At the time of writing, there is a Jmol resource module for Moodle but it hasn't been optimized for Moodle 2.0. However, the Jmol filter works well and gives the animation functionality to compatible files you upload.

Setting up the Jmol filter

The Jmol filter should be set up by your Moodle system administrator. They will need to download the latest version from the following link:

`http://moodle.org/mod/data/view.php?d=13&rid=88&filter=1`

Using the Jmol filter in your course

Once the filter has been installed (and enabled), any link you post will embed the 3D molecule that it links to. The files need to be uploaded to your file area in your Moodle course and not just linked to files on the Internet. These files contain the 3D coordinates that the filter will use to render the animation.

Looking at examples of molecules

There are files for most molecules, atoms, crystals, and giant structures on the Internet, so begin by trying a generalized web search using Yahoo! or Google. The file formats will be either `*.pdb`, `*.mol`, or `*.xyz`.

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You can also make these files yourself using ChemDraw3D or ChemWeb. These allow you to make the molecule and export it as `.pdb` or `.mol` formats.

The following website displays the 3D molecules and you can use the **save file** link to save a copy of the file to use in your course:

`http://chemapps.stolaf.edu/jmol/docs/examples-12/simple.htm`

You can also use the following link to find a few examples of molecules:

`http://jmol.svn.sourceforge.net/viewvc/jmol/trunk/Jmol-datafiles/`

Depending on the file, there are different ways in which molecules can be displayed. The following two links give you an idea:

`http://jmol.sourceforge.net/screenshots/`

`http://jmol.sourceforge.net/demo/`

Embedding and displaying the files

We're going to use the **Moodle Media** function in the HTML editor to embed the Jmol file into our course.

Adding a 3D molecular model to the course page

Let's have a look at how to add a Jmol animation to our course page. We're going to replace the image displayed in the first section—the periodic table, atoms, elements, and compounds—with a Jmol animation of water molecules.

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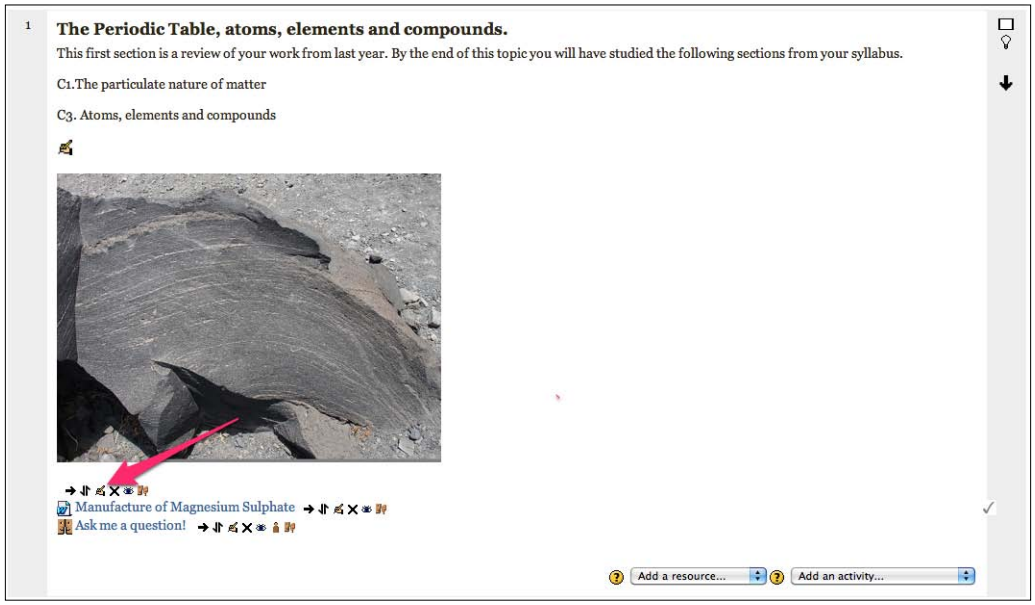
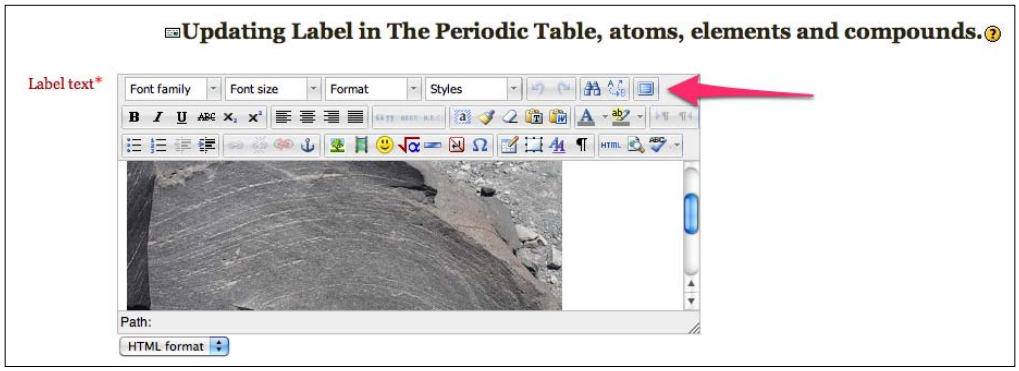
So, go back to your label and edit it. To do this, click on the pen icon, as shown in the next screenshot:



Once in the editing scene, we need a larger area to work in, so click on the full screen mode:



After deleting the igneous rock image, click on the **Moodle Media** icon:

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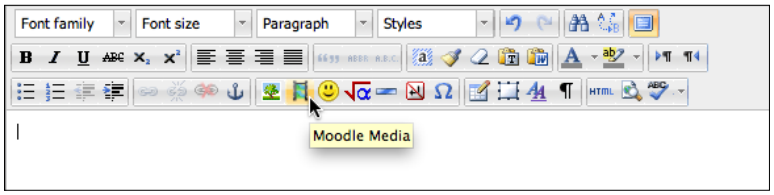
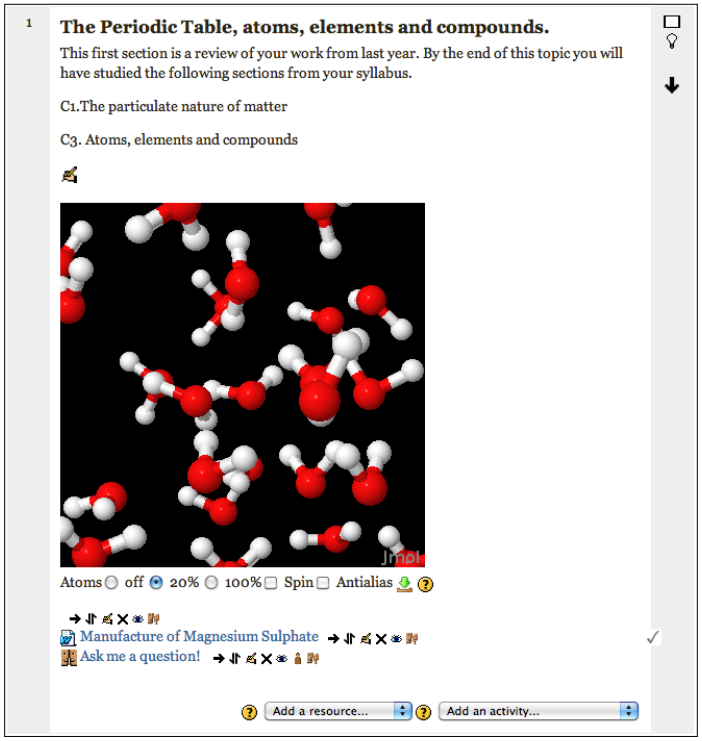


This brings up a dialog box where we can upload a file. The file to upload is `manywater.pdb`, which comes with the Jmol filter. You can download it directly from `http://cvs.moodle.org/contrib/plugins/filter/jmol/manywater.pdb?view=markup`.

Once you have the file click the button **Find or upload a sound, video or applet...** and follow the instructions to upload your Jmol file. After you have uploaded it click the **Insert** button. Note you will not see a preview of the file. You should see the file as a link in the editing box. Close the full screen editor, scroll to the bottom of the updating label page and click **Save and return to course**. The molecules now display on the course front page.



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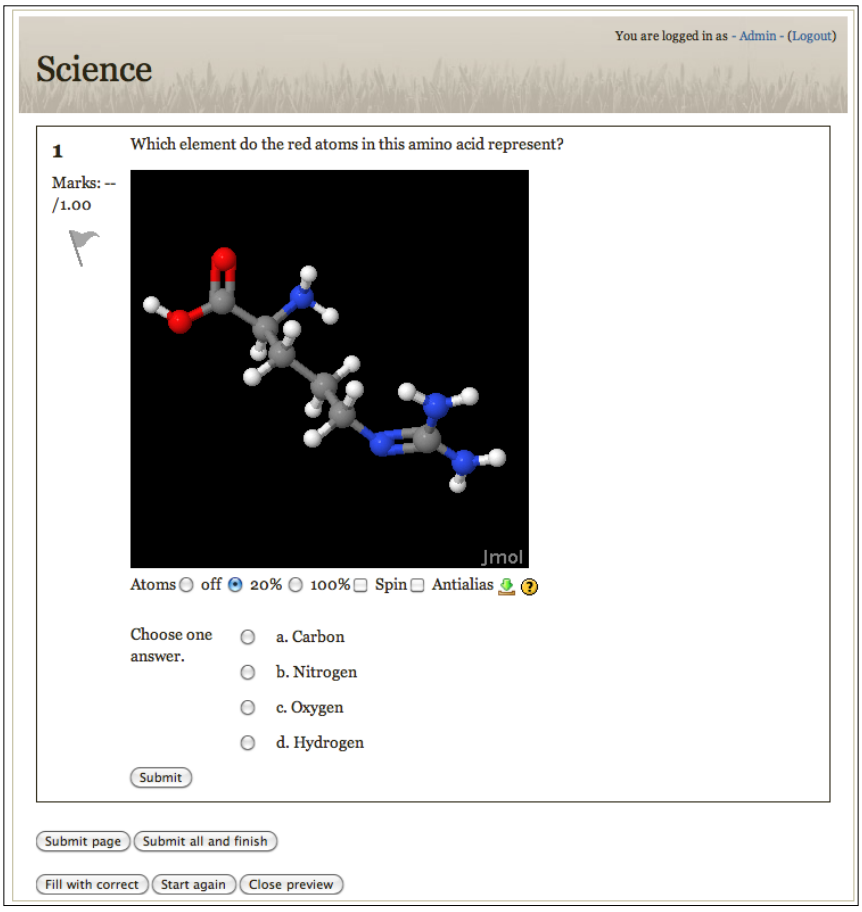
Embedding Jmol files into questions

The process is exactly the same wherever you want to display molecular images.

Let's have a look at how to use them in questions. Under **Course administration** in the **Settings** block, click on the **Question bank** link and then click on the **Create a new question** button. We're going to create a simple multiple choice question based on amino acid structure for the 'Diet and Digestion' topic. Download arginine ('arg' is the filename to search for) from here:

`http://chemapps.stolaf.edu/jmol/docs/examples-12/simple.htm`

After choosing the multiple choice question type, add the file in the same way as you did in the previous example. If you preview your question it looks like this, which looks pretty cool.



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TeX notation

TeX notation (and in particular **LaTeX**) is one of the most widely used systems for displaying mathematical symbols. Again, in Moodle, you will need your system admin to enable the **filters**. If they are not enabled, you won't see the button to edit equations, which we are going to look at next. With Moodle, there are two TeX filters—**TeX Notation** and **Algebra Notation**. Once they are set up, you can use simple code to display symbols, Greek letters, binary operators, and logic notation. A full list of these can be found at the following link:

`http://en.wikibooks.org/wiki/LaTeX/Mathematics`

By default, the part of the software Moodle uses to display the equations is MimeTex. This works really well and is fine for most schools. As an alternative, your administrator could install a full version of LaTeX system on the server that is more extensive and will produce equations with smoother edges of the symbols. Direct your Moodle administrator to `http://docs.moodle.org/en/TeX_filter`.

Using LaTeX notation

As the TeX plug in for Moodle is a filter, when you type LaTeX code into the HTML editor the filter will look at the code and render the symbols. If you have never used any computer code before, don't worry—it is really easy and there is an editor that generates the code for you.

DragMath equation editor

If you want to create your own equations built in to the HTML, a browser is a handy editor you can use to create the TeX notation. This saves you the need to learn the TeX notation. We will have a quick look at some of the notations so that you are familiar with them, and then find out how to use the DragMath equation editor to generate the code for us.

TeX code examples

The TeX code can be used anywhere in your course, by either generating the code, or typing it in yourself into the HTML editor. For instance it can be used in quiz questions, blog posts, forums, and so on. To get the filter to recognize the code, you need to use double dollar signs ($$). For example:

```
$$ \sqrt{a + b} $$
```


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That code would look like this:

$$\sqrt{a+b}$$

And:

```
$$ a= \frac {v-u}{t} $$
```

This code would give the following:

$$a = \frac{u-u}{t}$$

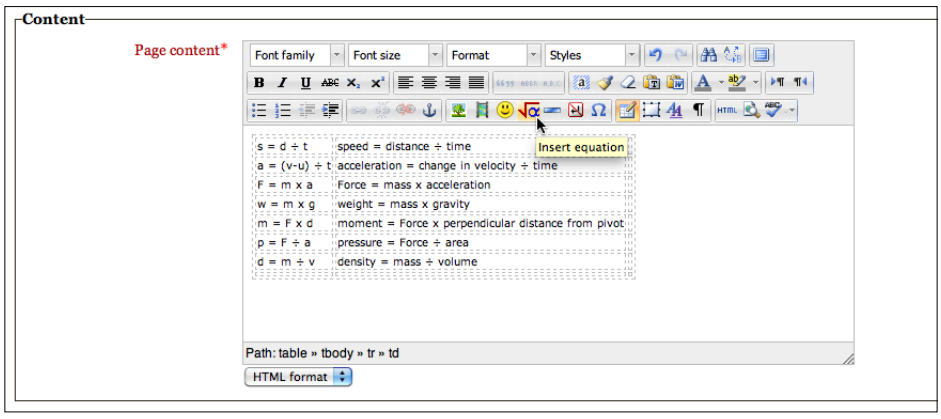
So let's have a look at some simple examples and build them into our course .

Using the DragMath equation editor to create a page with embedded equations

The equation editor is found in the HTML editor. Let's make a page with some equations and add it to the 'Forces and Effects' topic. Turn editing on and then choose **Page** from the **Add a resource** drop-down menu.

You can also save a copy of the DragMath file to your local machine.

In the content section, create a table with the equations to use, as shown in the next screenshot. Click on the **Insert equation** icon to bring up the DragMath equation editor.



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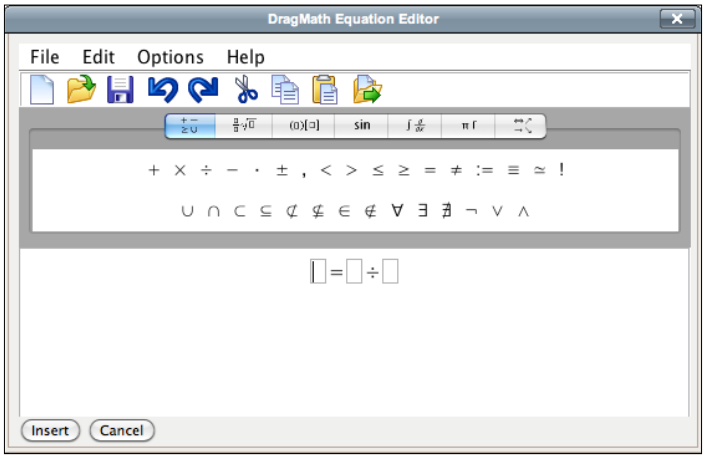
Once the editor pops up you can drag and drop the symbols to build your equation and then add the letters to represent the quantities.



Hit the **Insert** button and it will automatically add the TeX code to your page.

In the example, these are the codes generated for the other equations:

Equation	Explanation	Generated code
s = d ÷ t	speed = distance ÷ time	`$$s=d \div t$$`
a = (v-u) ÷ t	acceleration = change in velocity ÷ time	`$$a= \frac{\left(v-u\ right)}{t} $$`
F = m x a	Force = mass x acceleration	`$$F=m \times a$$`
w = m x g	weight = mass x gravity	`$$w=m \times g$$`
m = F x d	moment = Force x perpendicular distance from pivot	`$$m=F \times d$$`
p = F ÷ a	pressure = Force ÷ area	`$$p=F \div a$$`
d = m ÷ v	density = mass ÷ volume	`$$d=m \div v$$`

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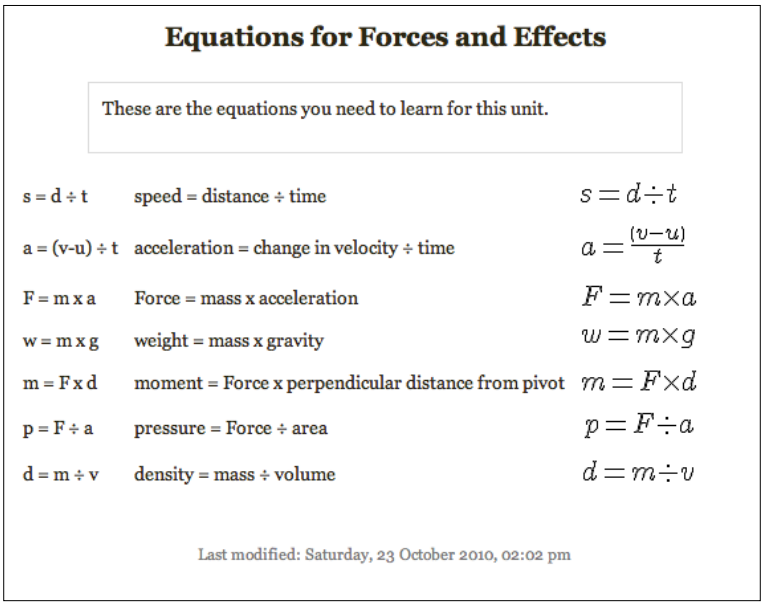
After that, hit **Save and display** and your page will look like this:



Equations for Forces and Effects

These are the equations you need to learn for this unit.

s = d ÷ t	speed = distance ÷ time	$s = d \div t$
a = (v-u) ÷ t	acceleration = change in velocity ÷ time	$a = \frac{(v-u)}{t}$
F = m x a	Force = mass x acceleration	$F = m \times a$
w = m x g	weight = mass x gravity	$w = m \times g$
m = F x d	moment = Force x perpendicular distance from pivot	$m = F \times d$
p = F ÷ a	pressure = Force ÷ area	$p = F \div a$
d = m ÷ v	density = mass ÷ volume	$d = m \div v$

Last modified: Saturday, 23 October 2010, 02:02 pm

Adding equations to quiz questions

Let's have a look now at using some equations in quiz questions. We're going to create a question asking users to calculate acceleration. In the **Settings** block under **Course administration**, click on the **Question bank** link and then click on the **Create a new question** button. Choose a **Numerical** question. This is what you will use for the text of your question:

"Use the following equation `$$a= \frac{\left(v-u\right)}{t} $$` to calculate the acceleration from rest of a snail that takes 2s to reach a speed 0.01m/s. assume the acceleration is linear."

The following screenshot offers a preview of the question showing the equation for acceleration in place of the TeX code:

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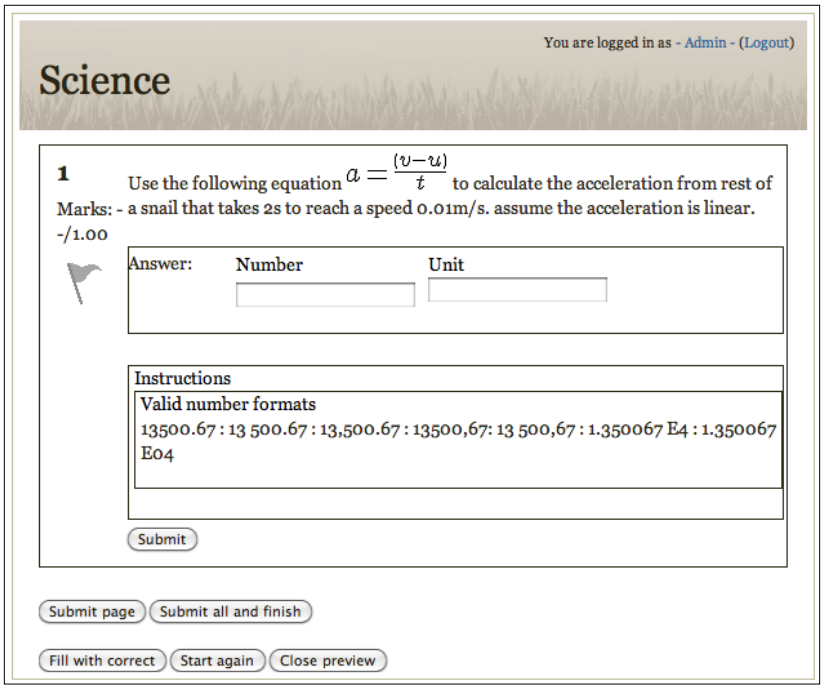

You can also use the TeX Notation for multiple choice question answers. Just paste or write the code into the answers.

TeX for teaching science

In this excellent website (link given as follows), there is a list of the most common equations you might need to use in your course. Follow the links to find the equation you are looking for then click on the image of the equation to get the LaTeX code. Don't forget to add the '$$' to use it in Moodle.

`http://www.equationsheet.com/`

Finding a particular symbol

One thing that can be slightly frustrating about using LaTeX is finding the symbol you want out of a list of hundreds. In the website given next, you are able to draw the symbol you are looking for and it returns the code for that symbol:

`http://detexify.kirelabs.org/classify.html`

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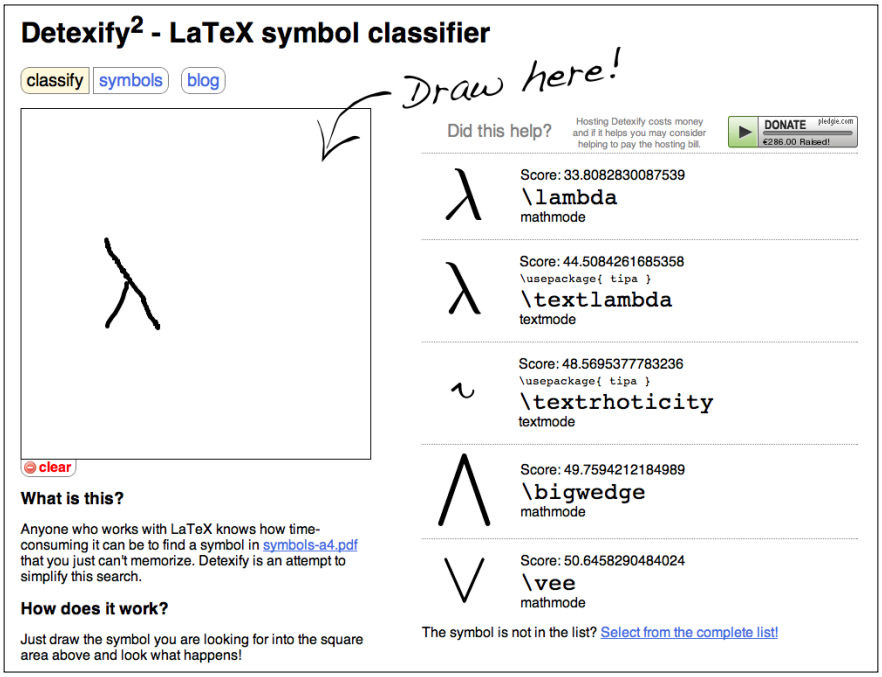
In the next example shown, the search was for the Greek letter 'Lambda' to represent wavelength in an equation:



So from the list generated on the right, you can see the code needed is **\lambda** (which we should have guessed really!).

TeX Notation glossary

On the `moodle.org` website you can download a Moodle-based TeX Notation glossary that you can add to your course for your users to reference. You can refer to the following link:

```
http://moodle.org/pluginfile.php/855/mod_glossary/attachment/6031/
texfilter_glossary_en.xml
```

For further detailed discussion on displaying formula, have a look at the mathematics section in the Moodle documentation:

```
http://docs.moodle.org/en/Mathematics
```

Also, there is a great section on TeX Notation showing very advanced usages:

```
http://docs.moodle.org/en/Using_MimeTeX
```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Creating graphs in Moodle

There are a few different ways to use graphs in Moodle. One of the easiest ways to display graphs in Moodle is to embed them using Google docs. The clever thing about this is that any changes you make in the Google docs file will automatically be reflected in the graph on your course.

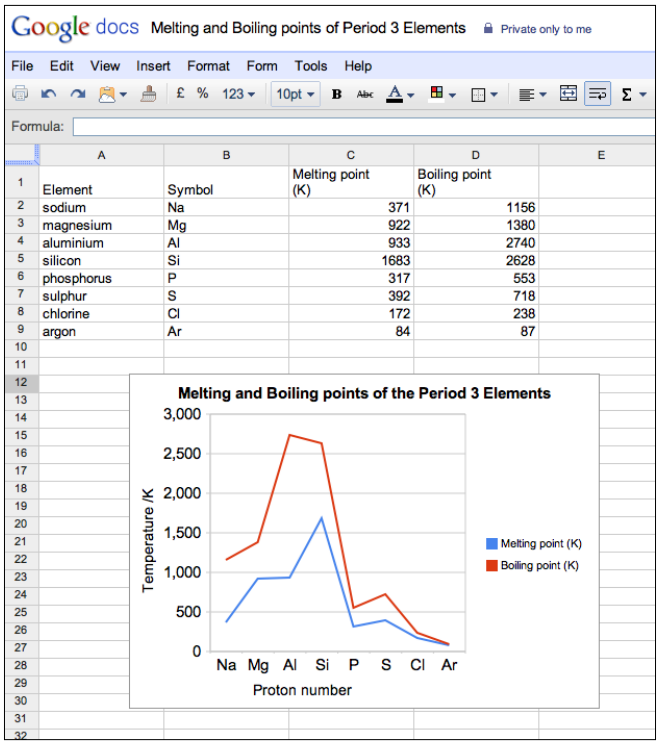
Another popular way to display graphs in Moodle is to use **GeoGebra**. Details of how to use the filter and the GeoGebra software can be found here:

`http://moodle.org/mod/data/view.php?d=13&rid=2423&filter=1`

GeoGebra is a very powerful graphing tool, however younger pupils might not find it easy to use. Try both and see what works for you!

Creating graphs using Google docs

The first thing to do is set up the data table using a spreadsheet and turn it into a graph. Set up a table to show the trend in melting points and boiling points of the Period 3 elements.



	A	B	C	D	E
1	Element	Symbol	Melting point (K)	Boiling point (K)	
2	sodium	Na	371	1156	
3	magnesium	Mg	922	1380	
4	aluminium	Al	933	2740	
5	silicon	Si	1683	2628	
6	phosphorus	P	317	553	
7	sulphur	S	392	718	
8	chlorine	Cl	172	238	
9	argon	Ar	84	87	

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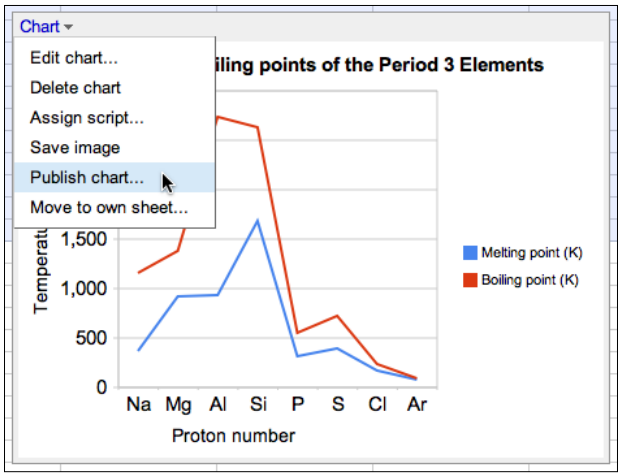
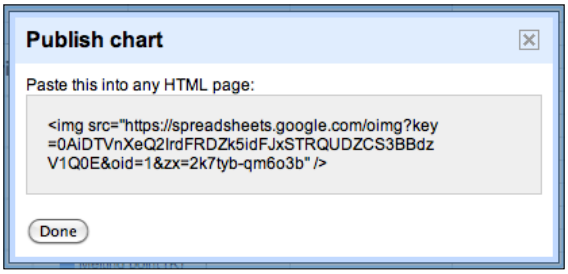
There is a setting in the drop-down menu on the chart **Publish chart**:



This gives you the HTML that you can embed in your course. When you click on **Publish chart**, the HTML looks similar to this:



Copy this code and return to your course.

Embedding the graph

We're going to display the graph on our course front page in the **Metals** section. To do this, turn editing on and from the **Add a resource** drop-down menu, choose **Label**. Once on the **Adding a new Label** page in the HTML editor, click on the icon to put it into HTML mode. Refer to the following screenshot:

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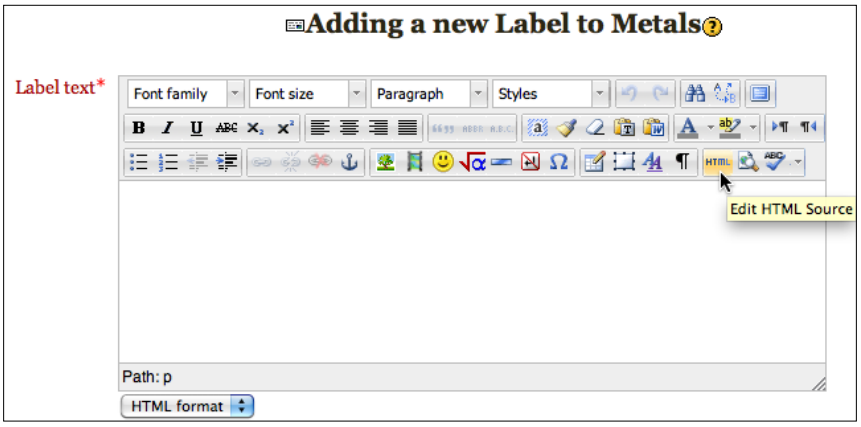
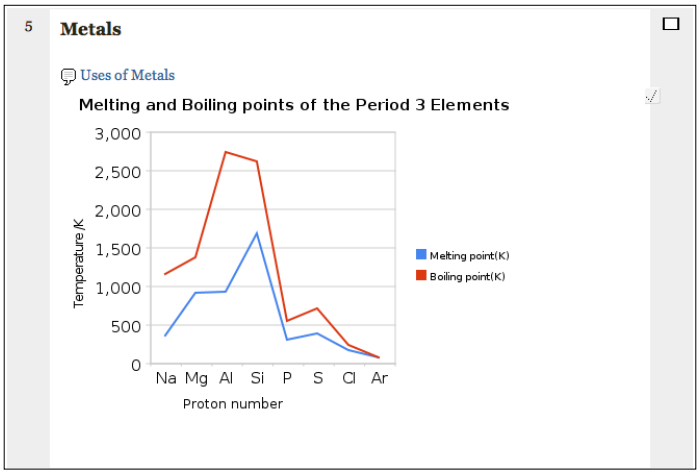


The last thing to do is paste the embed code into the HTML editor and hit the **Update** button.

After clicking the **Save and return to course** button, you should see your graph on the course front page. It should look something like this:



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And the clever thing is that any changes you make in the spreadsheet will automatically update your graph.

Using 'live' graphs with students

A great application of this is for a collaborative data collection exercise. Set up a spreadsheet and a graph in exactly the same way and also publish the spreadsheet, allowing anyone to edit it. Students could then collect experimental data that would display and build a graph on your course as it was collected.

Summary

In this chapter, we have used some very specific tools that will be valuable for enriching your science course. We've looked at 3D molecules, displaying equations, and a neat way to embed live graphs in your course.

In the next chapter, we will be looking at how learners can use self-assessment and reflection to improve their learning.

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8

Self-Assessment, Reflection, and Personalized Learning

"We cannot teach people anything; we can only help them discover it within themselves."
- Galileo Galilei

Self-assessment and reflection on one's strengths, and areas for improvement is a key skill to instill in our learners. In this chapter we will look at how to engage learners in effectively reflecting on their progress, and most importantly, how to advance even further.

By the end of this chapter you will be able to:

- Create lesson activities that can provide personalized learning
- Design blogs for learners to reflect on their understanding and learning

Using self-assessment

Lots of teachers aim for a roughly even ratio of one thirds each of teacher assessment, peer-assessments, and self-assessment, with the latter being the most powerful in terms of bringing progress in learning. For this to be effective, it has to be surrounded in a positive ethos, with the learners comfortable being critical of themselves and able to set challenging but achievable targets.

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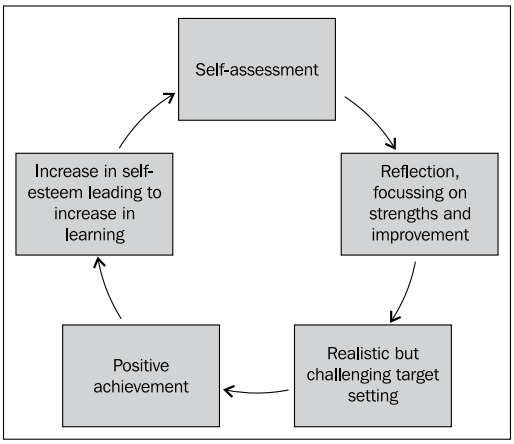
The process is shown in the following chart:



In this chapter, we will start by looking at how pupils can assess their understanding using lessons and then look at ways that they can reflect on their learning using blogs.

Using lessons to provide differentiated personalized learning

The lesson activity allows you to provide a personalized learning experience for your users. The activity can be differentiated on the basis of ability, depending on the answers your users give to different questions. You can read a page and then be faced with a decision or a question and depending on your answer, the user would be taken to a new part of the lesson. The path the user takes is decided by the answers they give. While they do take a while to set up, educationally, they can be very valuable.

Lesson activity planning

It's vital to plan lessons on paper before you begin to make them in Moodle. Try to think about the options you want to offer to your students, the choices they might make, and how the different answers move the user around the course. The following diagram shows a lesson activity, where the student is offered a choice starting on the **Branch Page**. The answers they give on a **Question Page** takes them to different parts of the lesson. One of the initial choices sends the student to a **Cluster Page**, which can then lead on to a randomly chosen question page. Make sure that when you plan your lesson, the different routes lead to the final end of **Lesson Page**.

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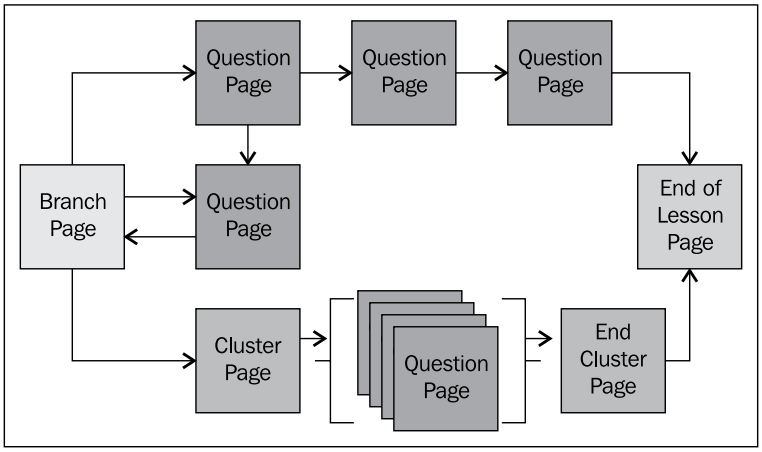
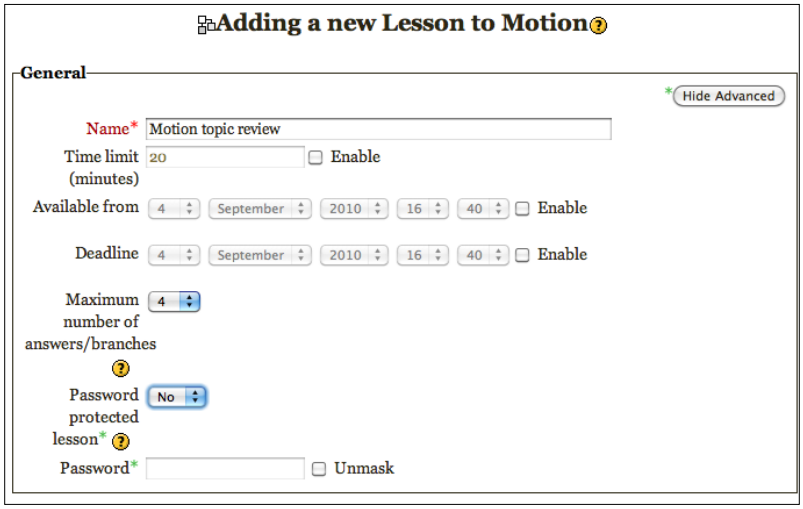


Adding a lesson activity

To get started, choose the lesson from the **Add an activity** drop-down menu. In this example, we're going to make a review lesson for the motion topic. As there are a lot of settings here, we will go through a section at a time.

General settings

In this first section, as well as the more obvious settings, you can specify the maximum number of answers or branches that come from each page. You can also specify a password if you wish.



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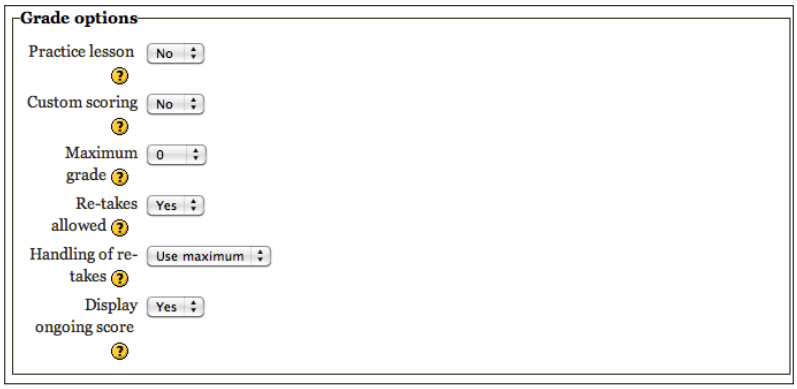
Grade options

As this is a topic review, we want our pupils to be able to learn from it and improve. Therefore, we will let them retake the lesson until they score full marks. To be able to check this in the gradebook, have the **Practice lesson** set to **No**. **Custom scoring** allows you to come up with your own system for marking a lesson (which we don't need here) and we want the pupils to see their ongoing score.



Flow control

This section lets you decide how the lesson will progress. Let's allow our students to review their work; however, we're going to set the **Maximum number of attempts** to **1**. This forces them to follow the lesson through, rather than attempting each question in the lesson until they get it right. The progress bar will let them know how far they are in the lesson and the menu on the left-hand side shows them the different pages in the lesson.

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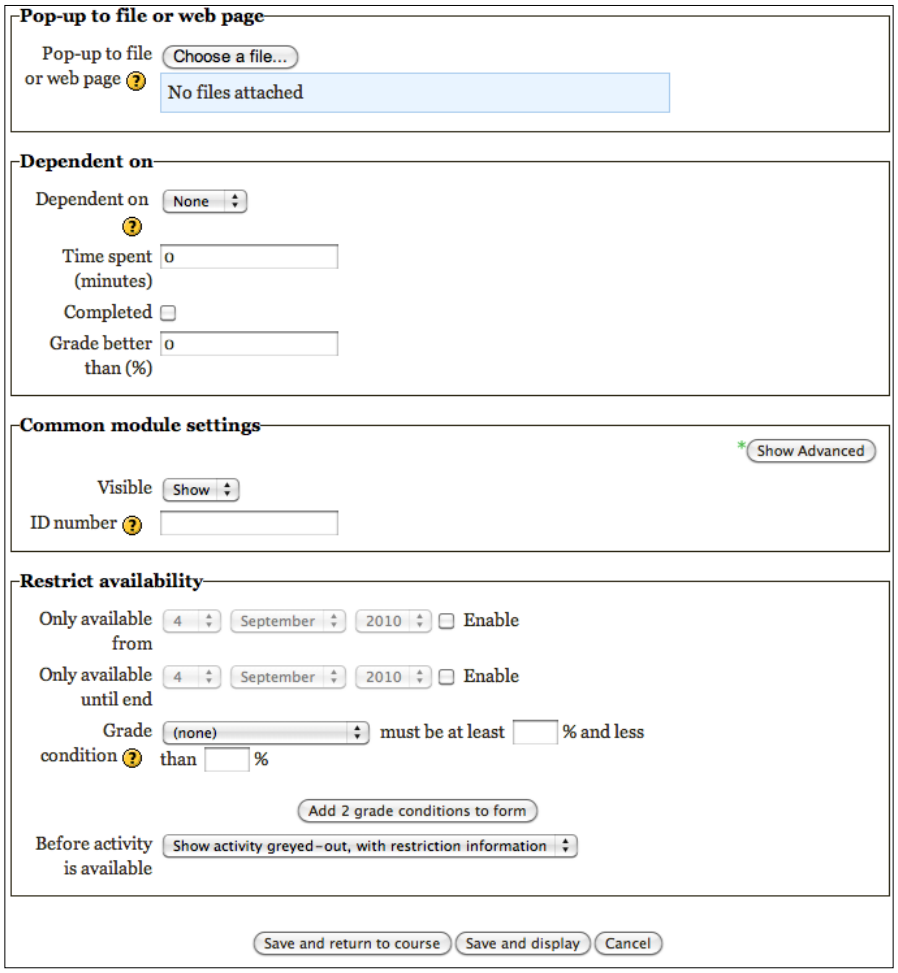
Leave all the other settings as standard.



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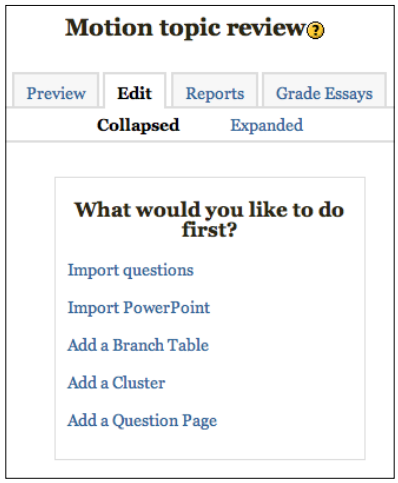
This takes you to the following page:



Adding question pages

For this example, we're going to create the content within Moodle. You could use the import PowerPoint link to speed up the process.

Using the Import PowerPoint function can be a little temperamental. Full instructions are here at `http://docs.moodle.org/en/Import_PowerPoint`. Just simple text and graphics can be imported and it only works with PowerPoint 2003.

So to begin creating the content, click on **Add a question page**. For this first page, choose true/false.

Once there we will type out what we want to be displayed and decide where the correct response will take the user to, and where the wrong response will take the user. Our first question will present the user with a summary and then ask them at the bottom of the page whether or not they understand it. All of this, including the question, goes in the page contents. Let's set it so that a correct answer will take the user to the next page and the wrong response will leave the user on this page. So the idea is that the user won't progress until they click on a yes to say that they have understood the first page.

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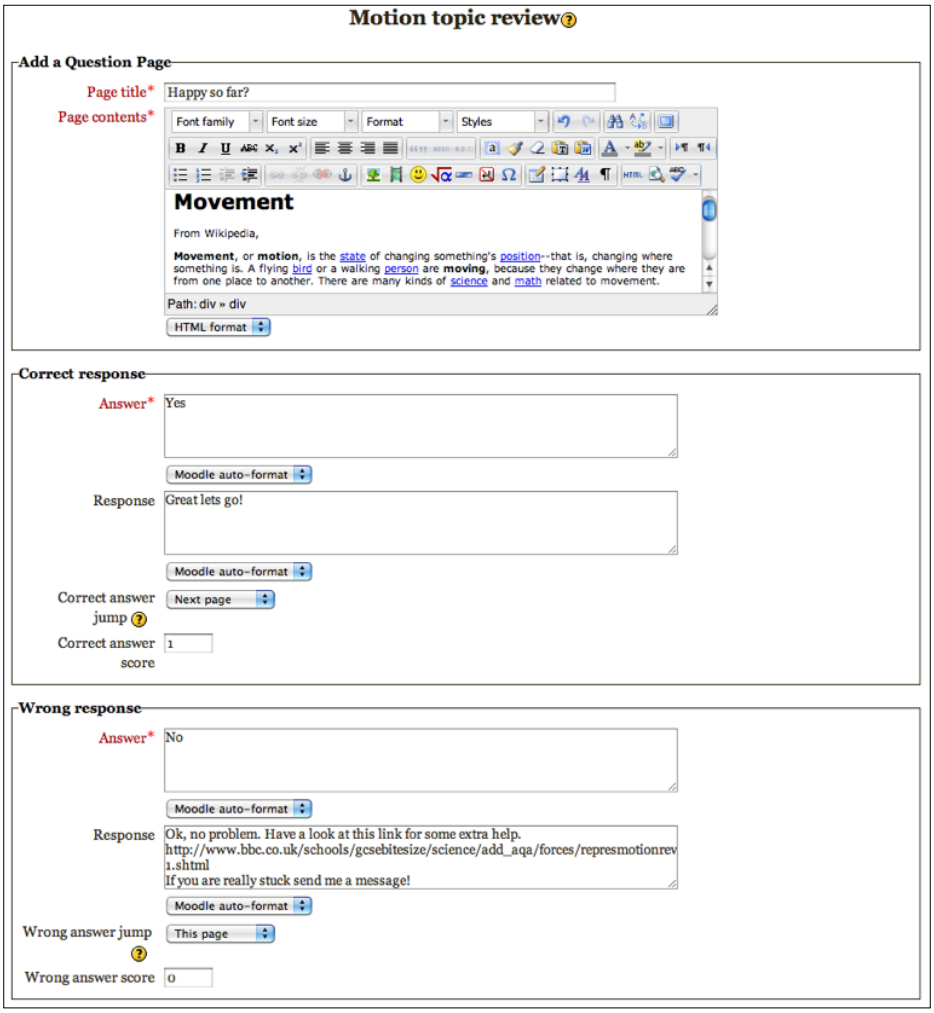
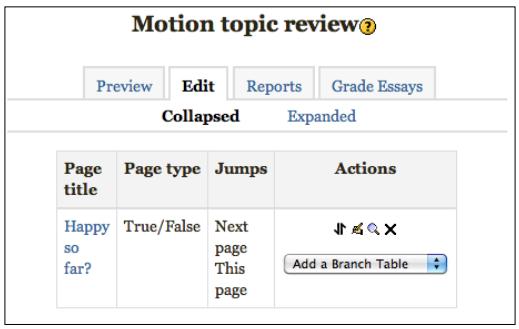


To save your page click on the **Add a question page** button at the bottom. This will take you to your lesson overview that will look a little like this:



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Keep adding new pages until you're happy that you have covered all of your content. You can use the navigation from the answers to send the user to start or the end of the lesson, or any page in between.

Clusters

Clusters are a bunch of question pages grouped together; the pages are displayed at random to your user. This gives users varied paths through lessons on every attempt. If you do insert a cluster page, you will also need to insert an end of cluster page. It's also worth trying out the lesson in a student role to make sure that it works as you wanted to.

Branches

Branches offer the user a choice of which page to go to. Any choices here are not included in the scoring system. This is a great way to provide different options for your users. For instance, you could use this to demonstrate a 'key' or classification in biology.

Don't forget you can embed videos into your lesson pages as well as hyperlinks that your users can follow. At any time if you want to check your lesson, use the preview tab. The reports tab will show you the attempts that have been made on a lesson. You can use a mixture of question and branch pages in your lesson to add variety.

For more help on lessons have a look at `http://docs.moodle.org/en/Lesson_module_FAQ`.

Blogs

The exciting (and scary!) thing about blogs is that they provide learners with a way to write anything about any topic and publish it instantly.

There is no difference in the setup for any of the following examples. The key to how well they work is how you communicate the task to your users.

Why use blogs?

Blogs can give teachers access to students, especially those who might not usually participate in the classroom.

Cross-subject opportunities for students to read and write.

Effective platform for collaboration and discussion.

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Blogging activities

Here are a few suggestions of uses for blogs:

- Keep a learning diary
- Record notes from experiments
- Reflection on thinking skills and meta-learning (learning about learning)
- Writing assignments
- Keeping a simple portfolio
- Express opinions
- Reflecting on current events and developments in science
- Discussion on class activities
- Record vocabulary lists and keywords
- Showcase good work
- Produce a class newsletter
- Work from science fairs
- Collect and display links to good science revision sites
- Plans for improvement after an offline exam (I could do even better if…)
- Pupils can color their work red/amber/green (traffic lighting) to show the teacher how well they have understood the work (red for not at all, green for completely understood)

Blogs for reflection on learning

Blogs are one of the easiest ways to get users reflecting on their learning.

This requires a culture of trust and openness among your users and it is always good to explain the reasons behind what you are asking them to do.

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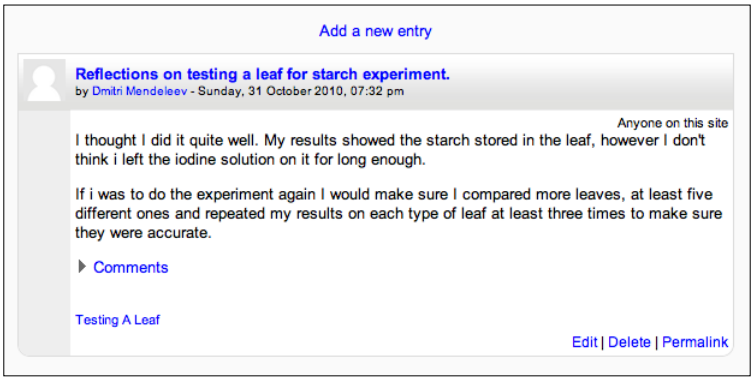
The following is a great example of how you could use a blog. The learner is asked to reflect on the 'testing a leaf for starch' experiment set up earlier in the course.

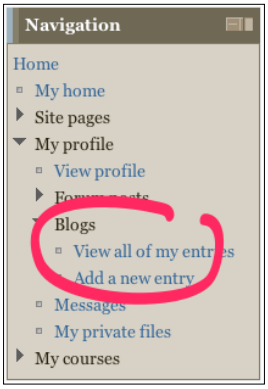


Site blogs vs course blogs

There are two slightly different ways that users can blog in Moodle 2.0—**site blogs** and **course blogs**. As a rule of thumb, you could keep site blogs for learners' own use, their own creativity, ideas, and thoughts. You can use course blogs for anything specific that you have asked them to do. This just helps with organization, if you have lots of users on different courses. Exceptions to this are if you want to get pupils working across subjects or courses, or a task you might want kept separate from your course.

Site blogs

Moodle comes with blogging automatically set up that can be accessed via an individual's profile. Users can access their profiles by either clicking on their name at the top, right-hand side of any page or by using the navigation block, shown as follows:



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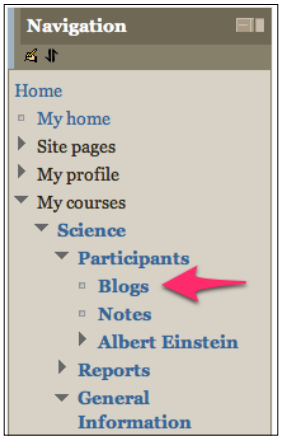
Leading by example

Before asking your students to use blogs you could model for your learners what a good blog is. Your learners will be able to read your work and will no doubt try to imitate aspects of it when writing their own. A teacher written course blog would be a good way for the teacher to communicate the aims and learning outcomes of the course, review the week's learning, or even produce a newsletter for the course. If you are working in a high school, it could also be another way of informing parents about what is going on in your course. For parents to view a teacher's blog, they would need guest access to courses and the teacher blog set to 'publish to the world'.

Let's have a look how to set up a blog to summarize the past week's teaching.
The hard part will be developing the habit of using it!

Setting up a course blog

The link for course **Blogs** is found under **Participants** on the **Navigation** block (on the left-hand side of your course main page).



Once you have clicked on the link, you will see another that looks a little like this:

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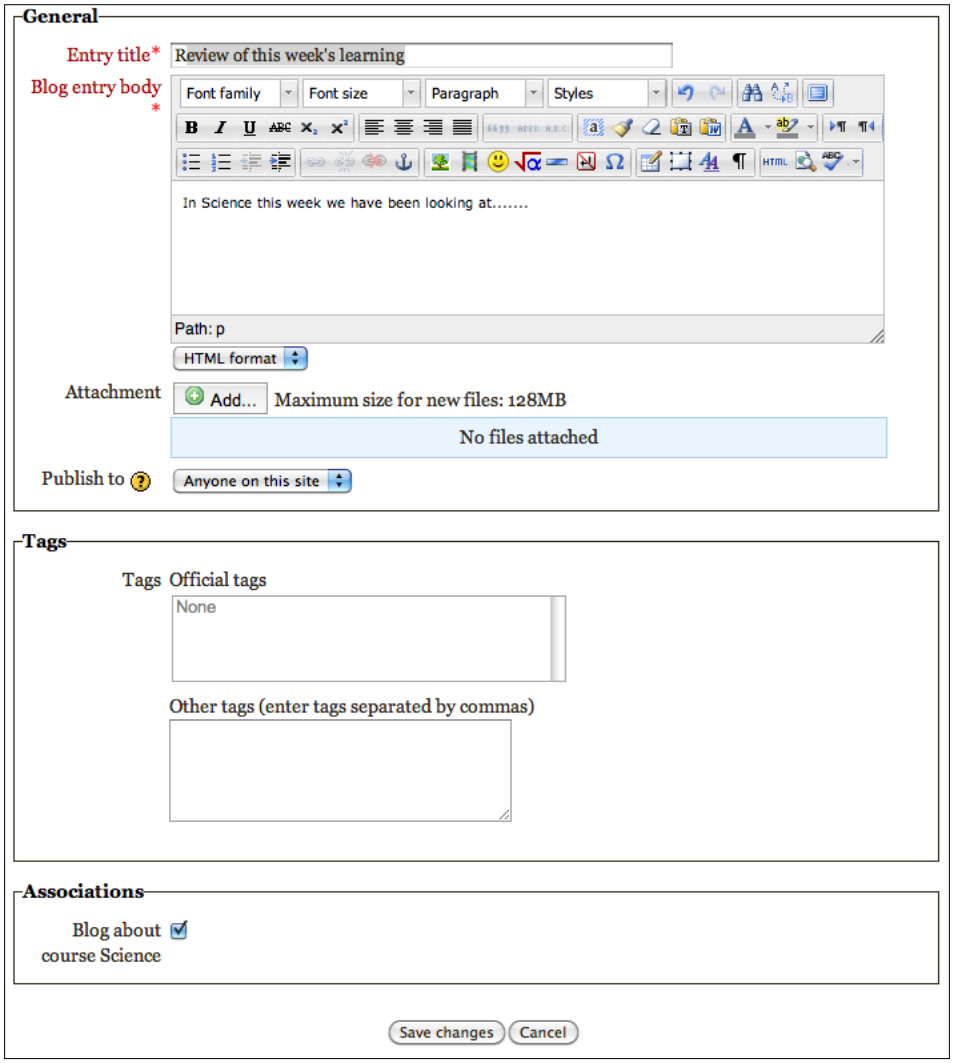
Follow the **Blog about this Course** link and you will be able to start off your blog.

Give it a title and then type away. It's as easy as that. Have a look at the following screenshot:



Publishing a blog

When a user writes a blog they have either two or three options for publishing it, depending on your site setup. Users can choose to either publish their blog to the site, the world (if guest access to your site is enabled), or keep it private.

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For a teacher to be able to view the blogs of their students, the students must publish their blog post. If it is kept private, only the student and site administrators can view it.

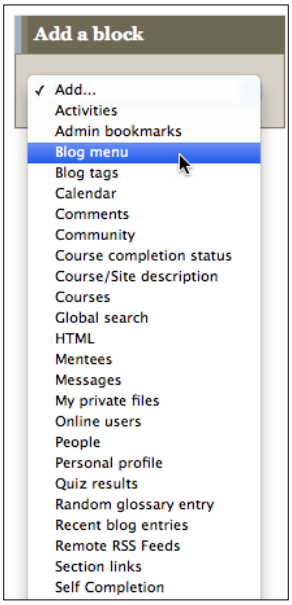
You can also get your users to use tags, so that the blog can be categorized easily.

Accessing and sharing blogs

It's quite a good idea to set some blog writing as a specific task for your users. You could ask them to reflect on a specific piece of work or assessment, and tag it with certain keywords so that you could find and read their work easily.

Blog menu block

The **Blog menu** block makes it easier to read your users blogs. To add the block to your course, turn editing on and on the right-hand side, scroll down to the **Add a block** drop-down menu. From this, add **Blog menu** and repeat the process to add **Blog tags** as shown:



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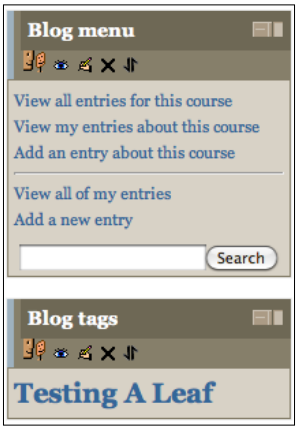
You could also choose to add **Recent blog entries** if you wanted to. So by setting your learners specific tasks to either self assess or reflect on and asking them to tag them you can click on their entries to read what they have written. Popular tags could give you an insight into issues that your students are having. This is what it looks like:



Comments

Users can comment on each other's published blogs.

It's probably worth spending some time (especially with younger students) teaching them how to respond to blogs. You might want to give them some guidelines for replying to blogs that are similar to the ones we used to promote good "chat" etiquette in *Chapter 3, Learning through Discussion: Forums, Chat, and Messaging*.

Show them what a good blog is

Another nice way to get students into blogging is to show them good examples of other people's blogs. This can be used to explain ideas, deliver topic content to students, or get them to see other people's reflections on current scientific news events and developments. All of this helps the learners develop their critical thinking skills and gives them more examples of what makes a good blog.

A good place to start is the site that's given next, which provides a monthly round up of the best science blogs on the Internet:

`http://www.wikio.com/blogs/top/sciences`

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Blogs and RSS

To make the process of reading and responding to blogs easier, you could consider getting your students to set up an RSS reader. One of the most popular web-based RSS aggregators is Google Reader. More information about it can be found here:

`http://www.google.com/intl/en/googlereader/tour.html`

If Google Reader is a little "boring" for your learners, point them towards Goodnoows. This is another web-based feed reader that displays your feeds in the style of a newspaper. You can read more about it here: `http://goodnoows.com`.

Microblogging

Microblogging has become huge in recent years. The most popular services are Twitter, Tumblr, whatyadoin.com, Plurk, Emote.in, PingGadget, Beeing, Jaiku, and identi.ca.

Facebook, MySpace, LinkedIn, JudgIt, and XING status updates are also a social networking form of microblogging. We'll look at these in *Chapter 11*, *Making Moodle Magic*.

Summary

In this chapter, we have developed ideas on how you can get your learners to assess their own learning and understanding via lessons, then reflect on that self-assessment to heighten their perception of their development in skills and content with blogs. The two activities written here are the most difficult and the easiest to set up respectively, and both are incredibly powerful tools for learning. Both give the learner control and ownership of their learning in two very different ways.

In the next chapter, it is your turn to reflect. We will look at a number of ways you can make your course even better for your learners, focusing on using their feedback on your course.

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9
Using Student Voice to Improve Your Course

"I am always doing what I cannot do yet, in order to learn how to do it."
- Vincent Van Gogh

Now that you have an active course set up, with lots of different activities and resources on it, it's time to review how useful it is for your learners.

By the end of this chapter, you will be able to:

- Find out your user's prior knowledge using surveys
- Reflect on how useful your course is for your users by creating surveys
- Customize roles to get your users to create content for your course
- Make a 'suggestion box'
- Build a database activity for your learners to suggest their favorite links
- Import content from other Moodle courses

Eliciting suggestions for course improvement

One of the easiest and most valid ways to find out if your course is any good is to ask your students. There are a number of ways to do this—messaging, chat, choice; however, the one that gives you the most useful information is the feedback activity.

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Feedback allows you to set up quite a detailed survey using a number of different question types and presents the information in a usable and meaningful way. It will present you with bar graphs of the results or you can download the data to use in a spreadsheet.

Where is the feedback module?

By default, the feedback activity is included but disabled in Moodle 2.0, so you will need to ask your Moodle administrator to enable it for you.

An alternative to using the feedback module is to create a form using Google docs or a survey through Survey Monkey. There are many advantages Moodle Feedback has over these others, such as a wider range of question styles and easy tracking of users. However, there is one clever thing a form in Google docs does and that is displaying a graph of submissions over time.

- `http://www.surveymonkey.com/`
- `http://www.google.com/google-d-s/forms/`

Using surveys to improve my course

Most teachers would create a feedback activity for learners to complete at the end of a course. You could use something similar at the start or mid-way through, so that you can make improvements to it as you go along.

Expectations at the start of the course

To help you assess your course, you might want to create questions to find out the following:

- What do they know already? Pre-test the students to find out their prior knowledge (you could also set up a quiz to do this).
- What are their expectations?
- How often do they expect to access the course?
- What are the minimum requirements for contributing to forums?

Why pre-test your students?

This won't let you know how you can improve your course, but it will let you give your users a better experience while they are there. For instance, why teach them or set them an assignment on the parts of cells, if they got full marks on it in your pre-test?

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End of unit/topic review

To improve a particular part of your course, you could use an end of unit review before your learners are tested on it. Get them to give you their suggestions and ideas for improvements, and then test them on the content they should have learned. You may see a correlation between the areas they highlight and their performance in your test.

End of course feedback

Probably the most useful piece of feedback is asking your learners to give you a review of the whole course on completion. This is useful if you need to show how you monitor the quality of teaching and learning.

Questions to find out how your course could be even better

To get you started, here is a selection of questions that you could use to improve your course for your learners:

- Did assignments and exams fitted in with course objectives?
- Did you need technical help during the course?
- Was feedback was given in a timely fashion?
- Did you feel you contributed to discussion work?
- Were you motivated to learn?
- Did practice tests reinforce important concepts and skills?
- Did projects and assignments allowed you to demonstrate your learning?
- Was there anything missing?
- Were there any topics that need further explanation, resources, or activities?
- What did you like best about this course?
- What didn't go so well? What could we do differently next time?
- How would you rate the following aspects of the course?
- What was most valuable to you about this course?
- If you could make only one change to this course to improve it, what would that change be?
- The content was presented in a way I could easily understand.
- The course content built on my prior learning.

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- The course fulfilled the aims set out by my exam board/program of study.
- The course satisfied my own requirements and expectations.
- The difficulty level of course assignments was appropriate.
- The learning activities helped me learn new concepts.
- The pace of the course kept me interested.
- The presentations were easy to follow.
- The teacher communicated clearly and was supportive.
- The teacher provided constructive feedback on assignments.
- The teacher provided regular feedback on assignments.
- The workload was a reasonable amount.
- There was opportunity for feedback and evaluation.
- There were sufficient opportunities to practice and apply important concepts.
- Please list specific strengths or suggestions for improvements to this course.

Think about the questions

Any survey is only as good as the questions you ask. Before you jump in and start constructing your questions it is worth spending some time thinking about them first and sketching them out on paper.

There are two reasons for this:

- Phrase the questions so that you get responses that will help you to improve your course.
- Construct your questions so you can easily analyze the results. For instance be careful asking users to input text. Do you really want to trawl through lots of similar answers, or could you ask them to select the answers from a list, which would give you a nice bar graph of the results.

You could also have your learners create the questions for you, which they could then submit using a database activity or wiki.

Adding a feedback activity

As an example, we'll go through how to add a survey using the feedback activity. The activity is a two-step process, where firstly, you set up the activity and secondly, you add the questions. From the **Add an activity** drop-down menu select **Feedback**.

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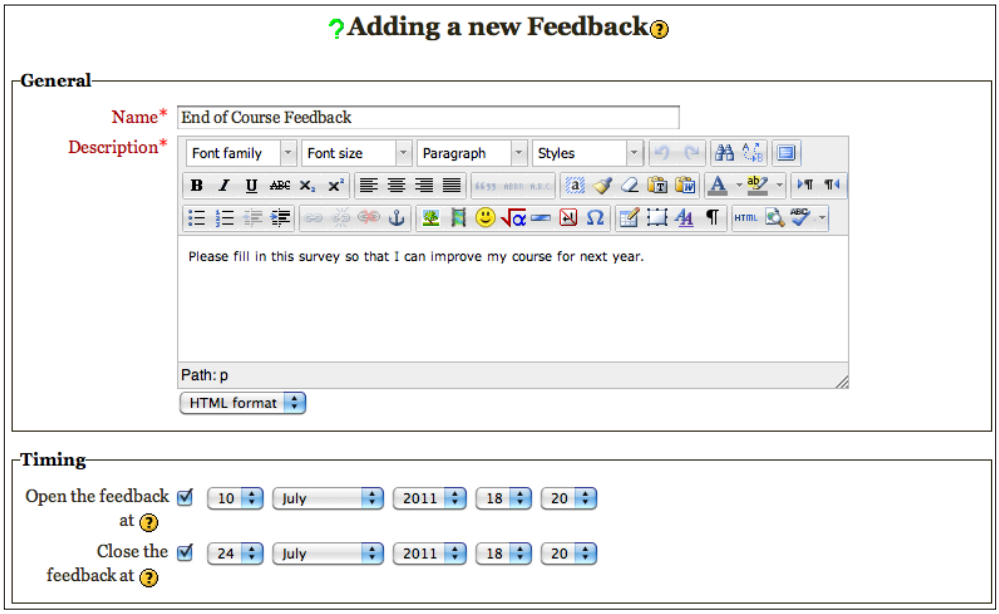
Setting up the feedback

Let's ask our learners to fill in the feedback and set the timing dates so that it is open at the end of our course.



We will allow our learners to give this feedback anonymously so that they can be honest and set it so that they are not shown the results. There may be times when you do want to share the results with your users. You probably don't want to be e-mailed every time a user submits the form and also, you want them each to fill it in just once.

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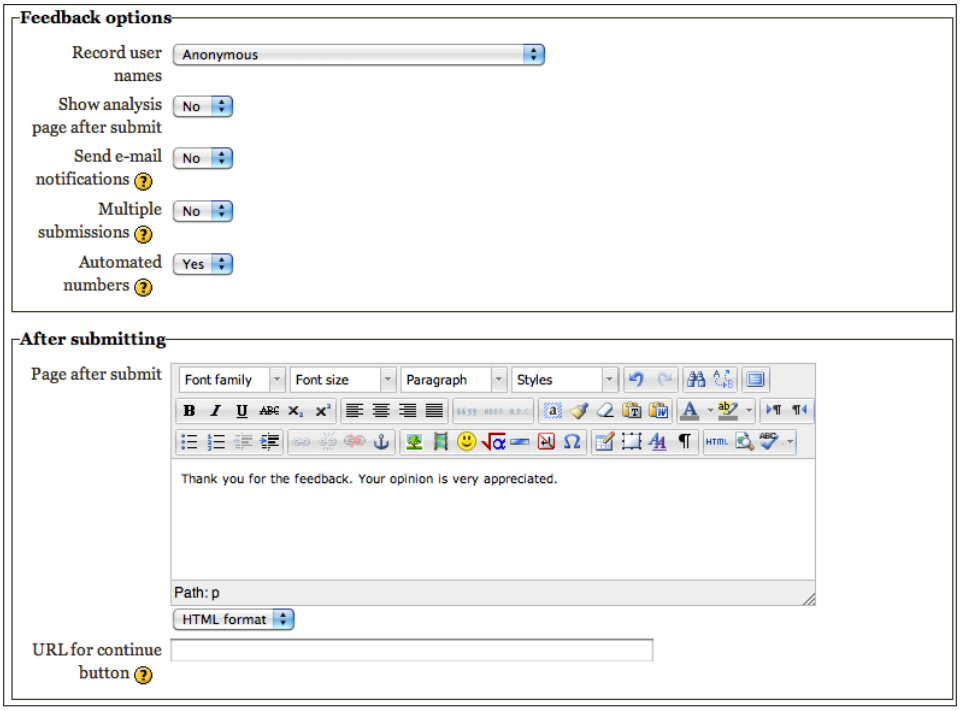
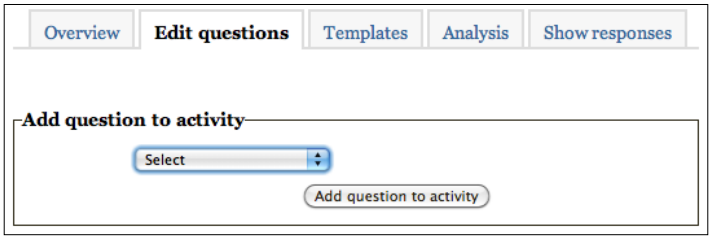
The automated numbers setting attaches sequential numbers to each question. It's also nice to thank the learner for their comments, shown as follows, or offer an incentive based on your school's reward system:



If you have conditional activities enabled on your site, you can also restrict the availability until the users have completed certain activities.

Choosing the questions

The next step is to set up your questions. Most of this is straightforward so the only example to go through in detail is adding a multiple choice question.



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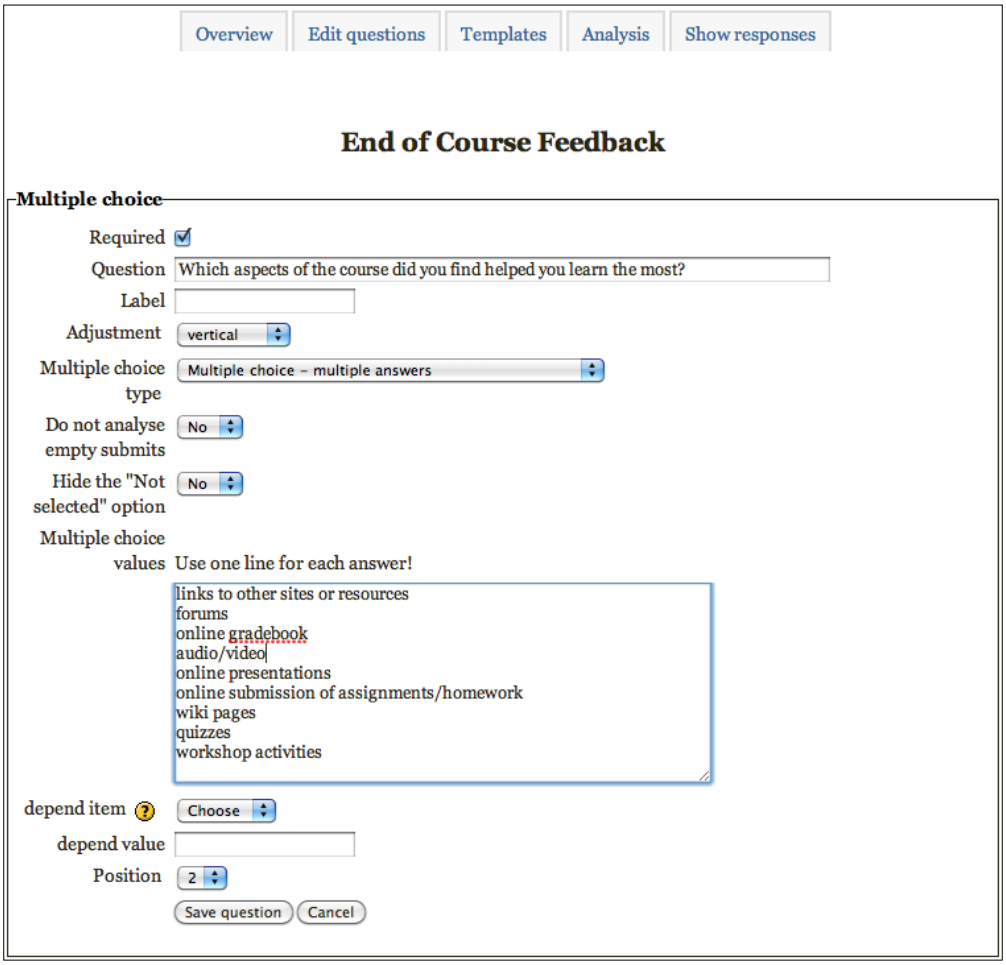
To add a question, go to **Edit questions** | **Select** the question type from the drop-down menu. There are three different **Multiple choice type** questions. These are multiple answer, single answer, and 'single answer from a drop-down menu'. The last of these is useful to save space, as the user clicks on a menu to see the choices. In the following example, we have chosen multiple answers because we would expect users to suggest a few items from the list. If you are analyzing the results, you might get strange percentages from this question type.



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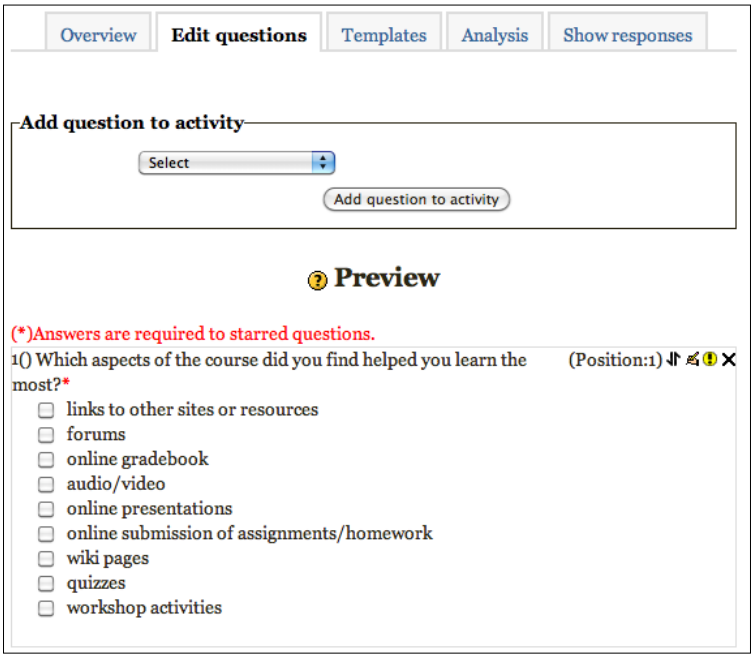
The **depend item** can be used to make a question that depends on an answer from a previous question. So, this is what the first question looks like:



The rated multiple choice is quite nice as it allows users to express how strongly they agree with a statement, on a scale.

Using the suggestions for improvement

After you have highlighted some areas to look at again, there are a few imaginative ways you could generate content to add to your course.

Ask the experts

Children are innately creative and will come up with great ideas for your course given the chance. Interestingly this creativity diminishes with age. 5-year olds have a much more open mind and are more able to think 'outside the box' than 15-year olds. So let's have a look at how you can get your learner's input in improving your course.

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Get pupils to rate each topic

If you set the same series of questions for feedback after each topic you could do some nice analysis comparing the topics in your course. You could ask them to make specific comments for improvement and even ask them to contribute ideas for the content for the course as shown follows.

Allow pupils to create quiz questions

There are many ways you could get pupils creating questions for your quizzes. For instance, if you have a look on the forums at `http://moodle.org/`, you will find some neat excel templates that turn the fields into multiple choice GIFT format questions that you can import. A good place to start is here: `http://moodle.org/mod/forum/discuss.php?d=66660`.

A favorite though, is to change role permissions so students can create quiz questions.

Customizing roles

We've talked about roles throughout the book, however for a reminder have a look at `http://docs.moodle.org/en/Roles_2.0` for an overview. Roles are a really powerful way to give certain students or groups of students 'special powers' in your Moodle course. This is something that your Moodle administrator will need to set up, and it is really easy. With a few clicks they can create a new role, which you can apply (temporary, if you wish) to a user or users. Examples of new roles you could use are:

- Students who can create quiz questions
- Students who are blocked from chat
- Students who can rate database entries

There are many more suggestions for clever uses of roles at `http://docs.moodle.org/en/Roles_FAQ#Are_there_any_example_roles.3F` with instructions how to set them up.

Admins can even tweak the settings to allow teachers to customize these roles themselves, however, there are security risks with some of the role permissions.

Giving a user a new role

Once custom roles have been set up for you, it is easy to give your learners these new permissions.

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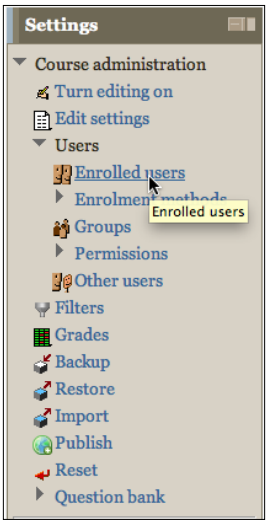
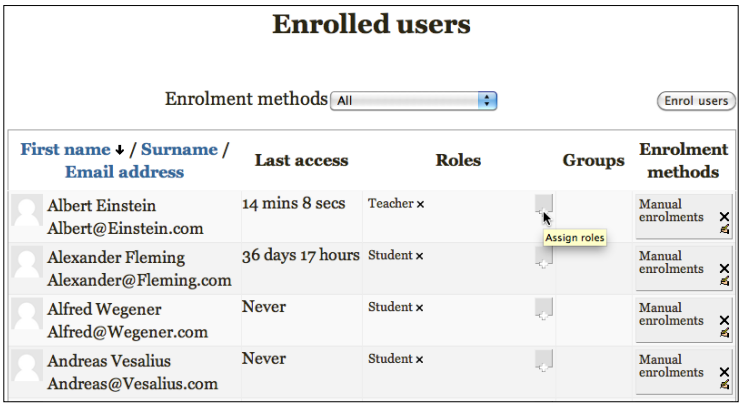
In the **Settings** menu, click on the link **Enrolled users**:



You will then see a page with all your users and their roles. To assign a new role to a user, click on the plus link, as shown in the next screenshot:



You will then see a list of buttons you can use to assign extra roles to your users. To illustrate the point, the following example shows two customized roles, which were created by the site administrator:

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Set up a suggestion box

Something you could set up early on for your course is a "suggestion" box. If you communicate the right ethos to your learners, you will receive a constant stream of ideas, links, and suggestions of content to add to your course. There are a few ways that you could set up a suggestion box.

How about a simple piece of text at the top of your course with your e-mail and "please e-mail me suggestions about how I can make my course better."

To do this, just insert a label with your e-mail address. If your site is open to Google or guest access, there is a chance that your e-mail address could be screen scraped and you could end up with lots of extra junk mail. To avoid this, you could use a site such as scrim (shown as follows) `http://scr.im/`, which turns your e-mail address into a web link:

Another way to do this would be to set up a glossary that they could contribute ideas to and place it in a block on the side of your course. Click the **Turn editing on** button, then in a hidden section choose **Glossary** from the activity drop-down menu.

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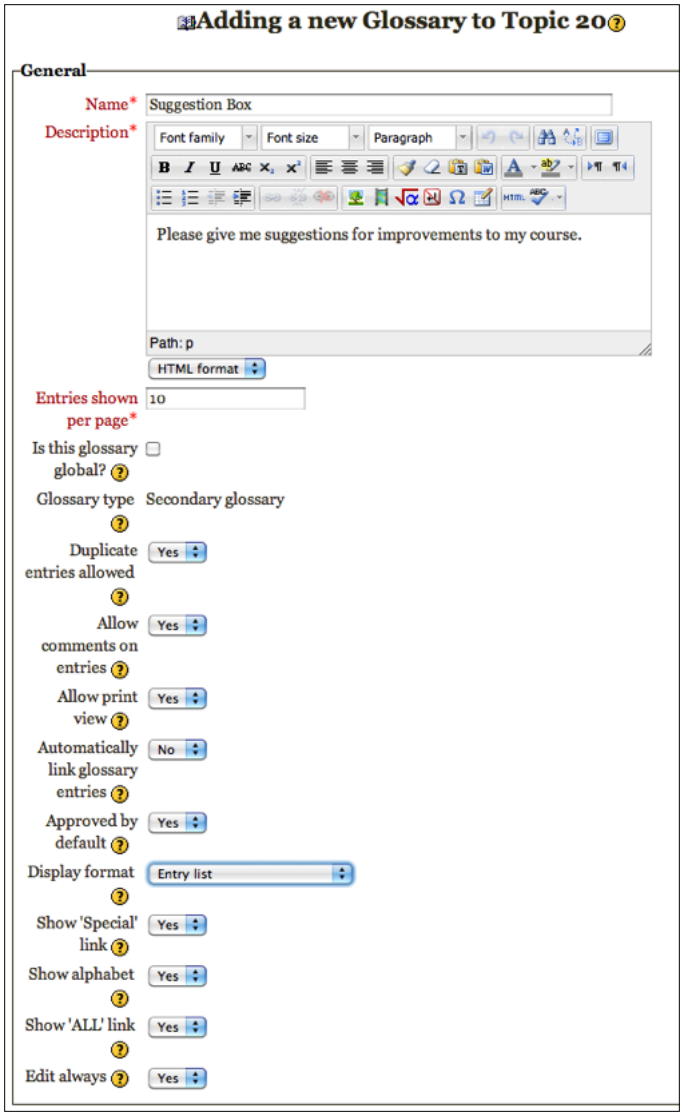
The following screenshot shows the settings to choose. The two settings to point out are, that we don't want it to automatically link to anything in our course, and, as it is going to be used in a block on the side of the course choose to display it in an entry list:



Once you are happy with the settings, save the glossary and go back to your main page. Then from the **Add a block** menu, choose **Random glossary entry**:

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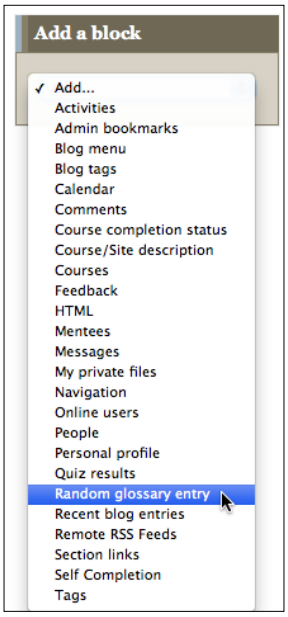
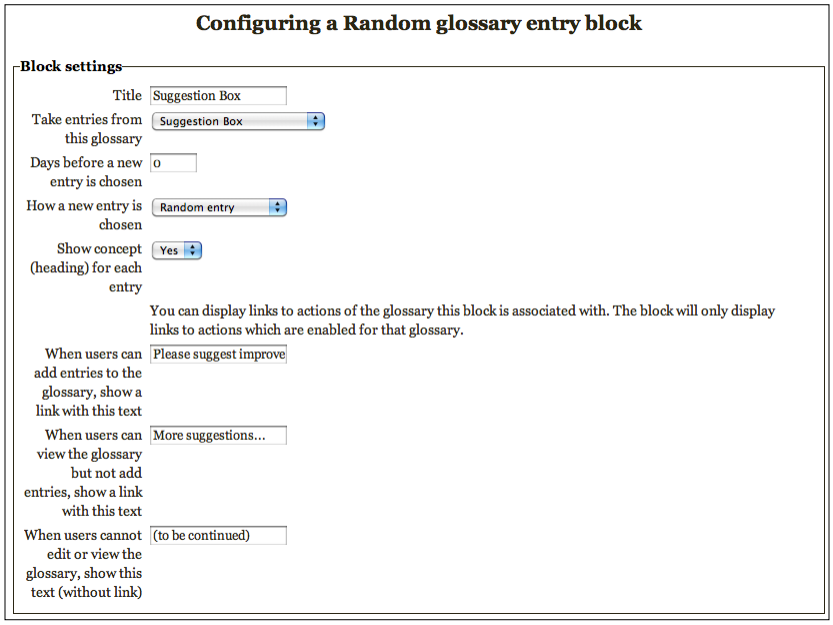


Your new block will appear below your other blocks and will need configuring to display your suggestion box. To do this click the edit button (the hand holding the pen). I've changed the title that will be displayed, along with the other text that will appear in the block as shown:



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My finished block looks like this, with an entry from a learner:

This could almost act as a list for you to check off after you have taken on the suggestion.

Set up a database to collect their favorite links

Another nice way to get learners to contribute to the course is to set up a database, where they could submit their favorite links to other sites.

Add a database activity

Choose where you want the database, turn editing on, and then from the **Add an activity** menu, choose **Database**. We are going to set this for our learners as an activity and it will be required of them to give us at least two links. The general settings are shown as follows:

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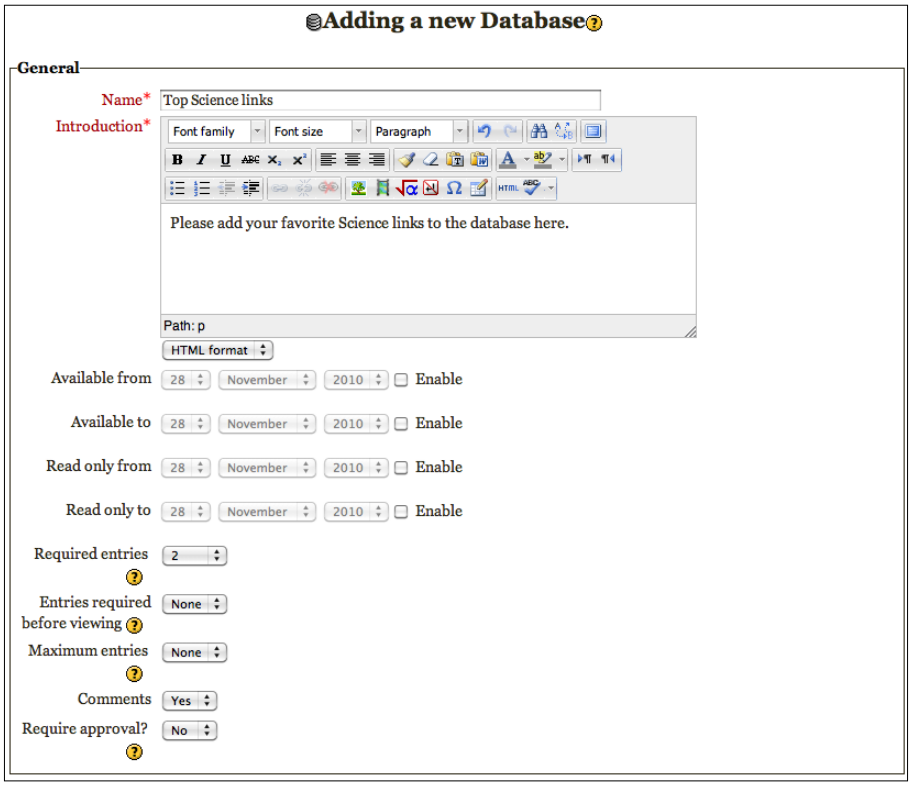
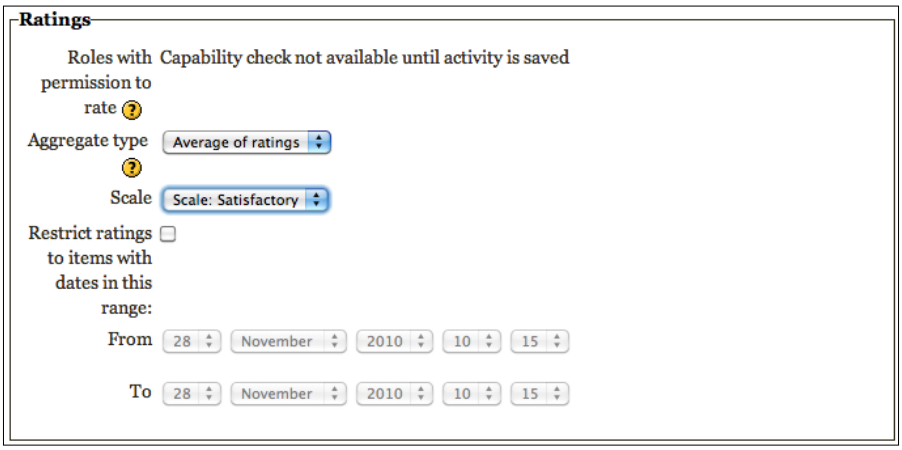


Let's rate this activity. Choose **Average of ratings** and use the **Satisfactory** scale as shown:



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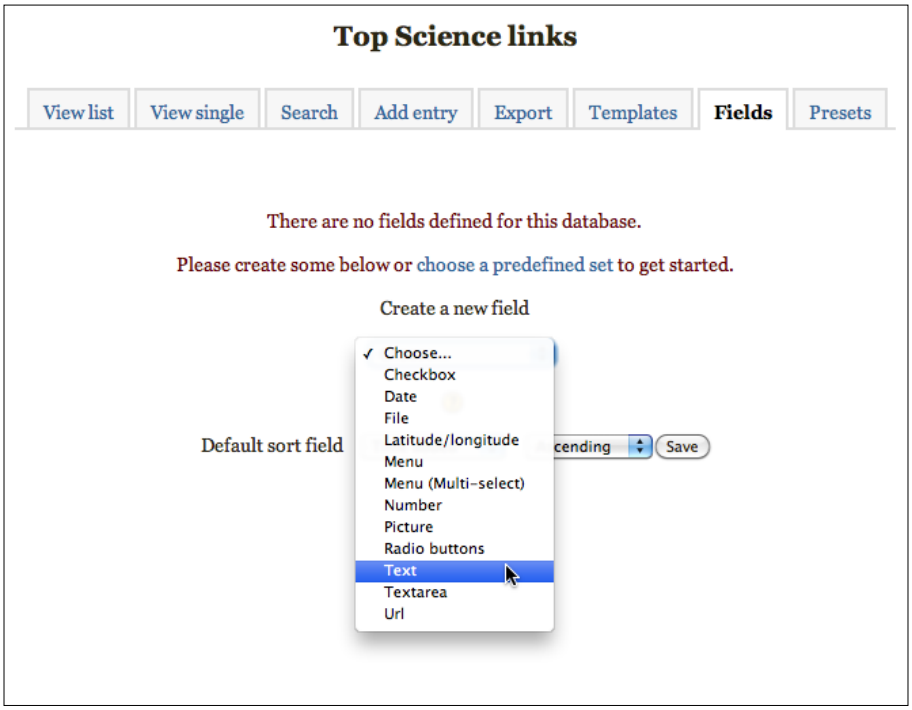
Once you save the settings, you are asked to choose which fields to add. You can start off from a preset; there is an image gallery that comes as standard.



There are four fields to add:

- **Text**: To collect the name of the website
- **Textarea**: For a review
- **Url**: So we can display the link
- **Menu (Multi-select)**: To allow the site to be categorized

For each of these, you will need to give the field a name and description. The **Menu (Multi-select)** requires you to add options. These will appear in the drop-down menu. This is how the page looks now:

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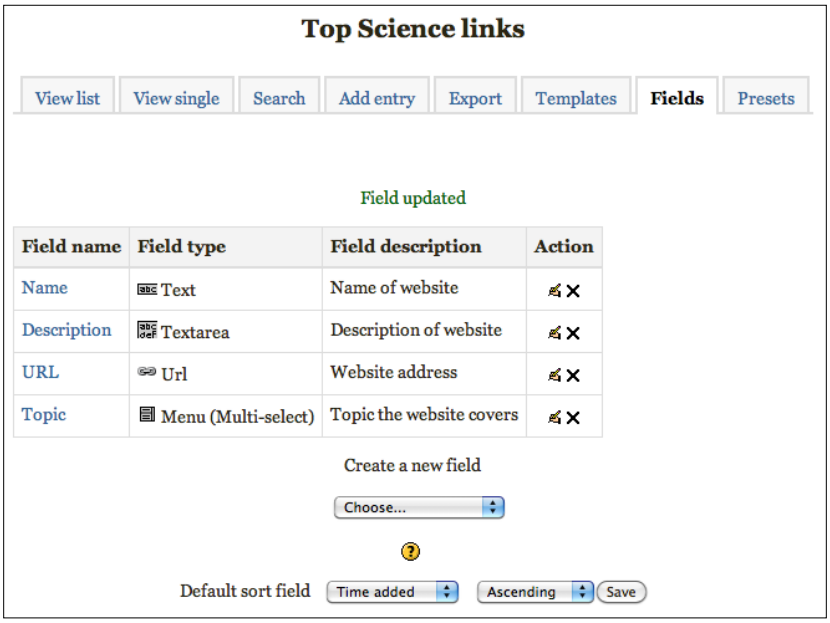
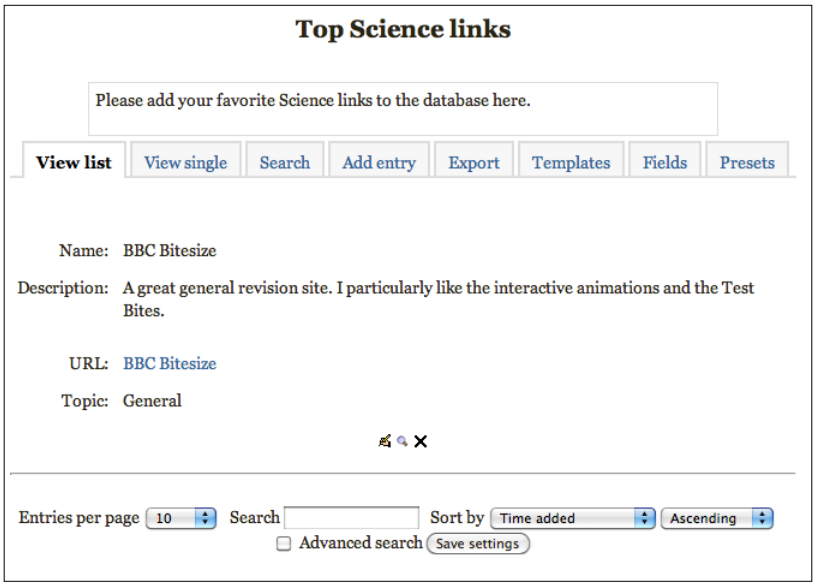


The next step is to create your templates for single and list entries. These are automatically set up for you and will work fine without changing them. If you want to change the way the information displays, edit the templates. After that, your database activity is ready to be used. This is what it looks like with an entry in it:



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Students can not normally rate database entries, however, you could ask your administrator to create a custom role for you. This could then be assigned to your students as I have shown earlier.

What other content could I get my learners to create?

As well as giving your learners rights to vote on database entries and create questions, you could (if you trust them) go further and let them upload resources and create activities. Don't worry too much about training them. They will be able to figure it out for themselves if you point them to the help documents at `http://docs.moodle.org/en/Teacher_documentation`.

You could set up a dummy course for them to use and showcase what they can do and then import anything you would like to use into your course.

Importing content into your course

Another way to improve your course is to use pre-existing content. There are two slightly different ways to import materials into your course. If you are a teacher in another course, you can use the **Import** link in the **Settings** block to re-use content from another course. The other way (which we'll see here) uses the **Restore** link also in the **Settings** block.

In *Chapter 1*, *Getting Started* we looked at how to back up your course. Any course backup can be used to bring content into your course. You can use the process here to import content from community courses mentioned later in this chapter.

Using Restore

In the **Settings** block, click on **Restore**:

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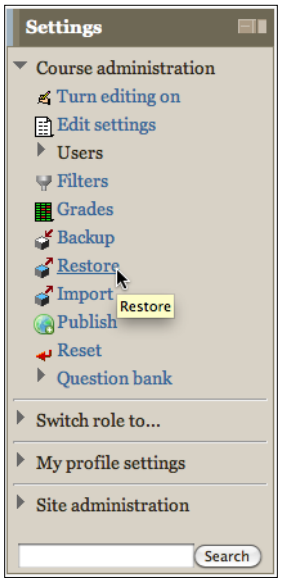
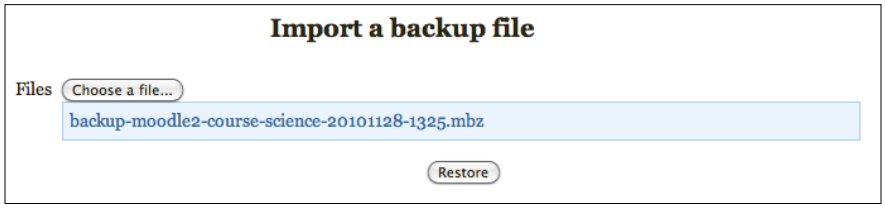


This takes you to a screen, where you can find your backup file and then hit the **Restore** button:



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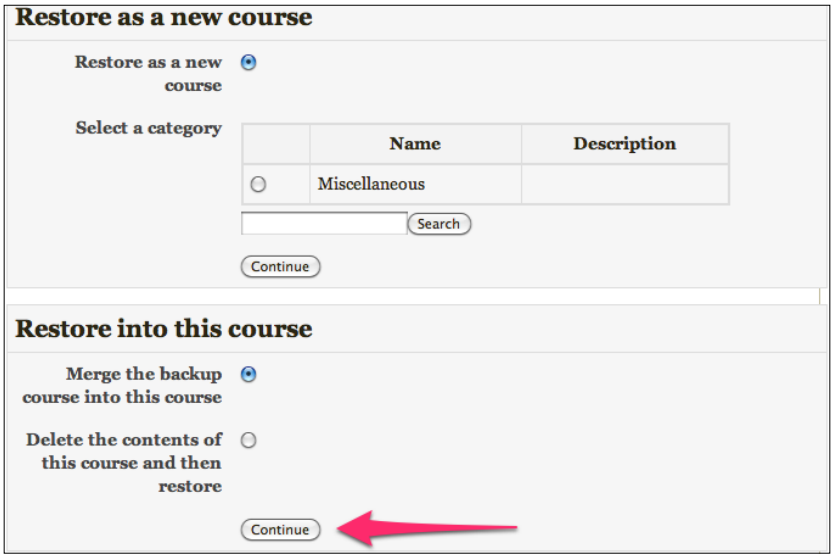
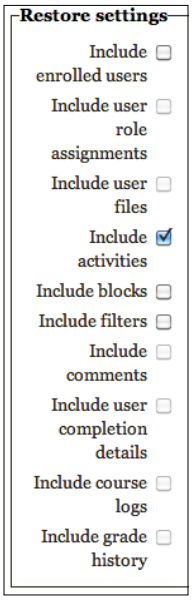
You will then be able to see a list of the possible items you can restore from the backup. Hit **Continue**. Next, you will be presented with a few options about where you want the restore to end up. As we are adding to this course, choose the second **Continue** button (refer to the following screenshot):



You are then asked what you would like to import. Because we're adding content to our course, the only things to select are the activities. This is shown as follows:



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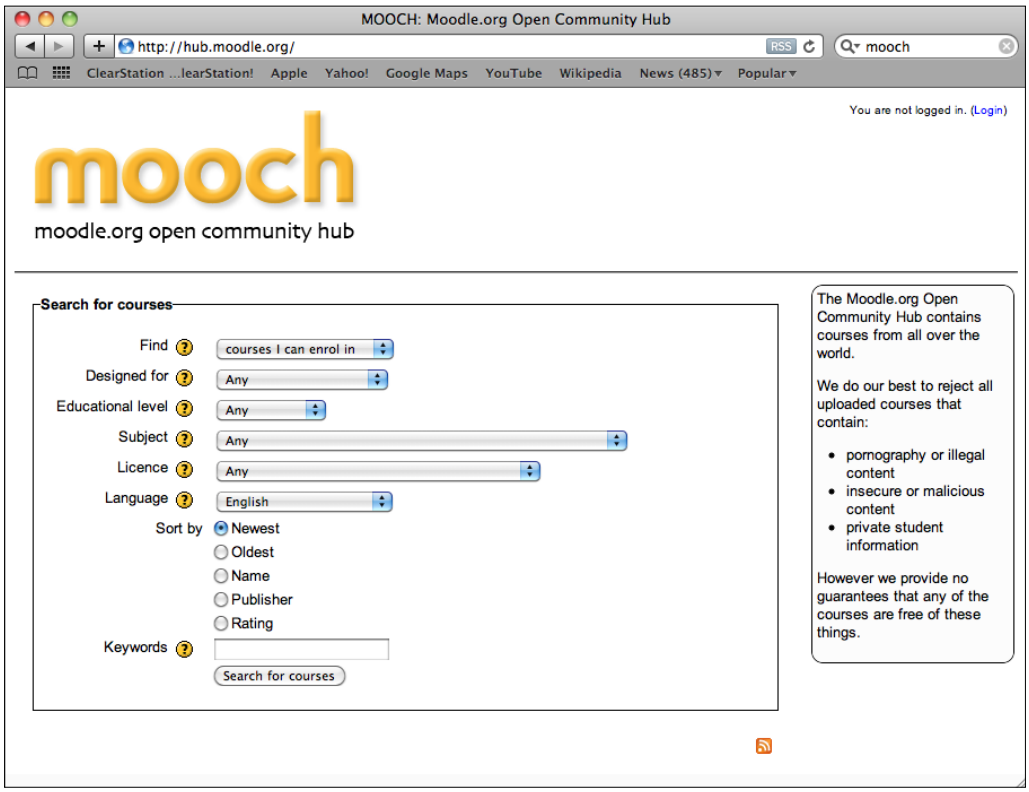
The next two screens offer you the detail of what you would like to restore, followed by a confirmation page. It's as easy as that.

You can use **Restore** to duplicate the activities in your course or make templates, if you are creating many similar courses.

Community hubs

Once you have some ideas on the areas that need improvement, another way to get content for your course is the Moodle course exchange: `http://moodle.org/course/view.php?id=15`. Here you can download courses and questions that people have posted.

You can also download content for your course and share your courses with the world from the `Moodle.org` open community hub. The main hub **Mooch** is at `http://hub.moodle.org/` and is hosted by the site Moodle.org.



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Here you can search for and download courses that other people have made and use them as a template to get you started or import the bits you want from them into your course. The other cool thing community hubs do is that they provide site administrators with the option to connect between the hundreds of thousands of Moodle installations on the Web, allowing your students to enroll in courses hosted elsewhere and students from other sites to enroll for your courses, should you wish. This alone will revolutionize e-learning.

Adding a community block to your course

As standard there is a community block that can be added to your course. Your site administrator will need to set this up. It will embed links and search options to community hubs that you (and your students) can use.

The block contains just one search link and once it is clicked, takes you to a page that will look similar to this:

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Summary

In this chapter, we have covered how to get some feedback from your learners, before, during and on completion of your course, along with some ideas to improve your course further.

In the next chapter, we will look at some house-keeping tasks to perform at the end of the academic year and preparation for the new year.

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10
Housekeeping for the New School Year

"If we teach today as we taught yesterday, we rob our children of tomorrow."
- John Dewey

Now that you have some ideas of how to improve your course, you will want to tidy it up and carry out some housekeeping. Simply un-enrolling users leaves behind content that you will want to get rid of. In this chapter, we will look in detail at how to reset your course and remove or keep content from the previous year.

By the end of this chapter, you will be able to:

- Reset your course
- Copy content out of your course

Why would you want to reset your course?

Teacher and students need a "fresh" course every year to give them the course content free of distractions and subject matter from the previous year's students and you will probably be reusing resources and activities, but with new students.

There also may be data protection issues in your institution, which is another reason to remove all content belonging to users you no longer teach. It is worth noting that once users are removed from your course their grades disappear too.

Resetting your course allows you to empty a Moodle course of user data, while keeping content, activities, and other settings.

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Back up everything

We've covered it a few times, so hopefully, you are familiar with backing up your Moodle course manually, irrespective of any automated course backups going on. This really must come before you do anything else. In the teacher role, you won't be able to use the course **Backup** link in the **Settings** block. To back up your course with the user data (that is their assignments, usernames, and so on), speak to your system administrator. They could either back it up for you if you want to keep everything or tweak your role settings to give you the permissions to back up the lot. There are ways to export users' activity submissions, which we will look at later in this chapter.

With a course backup, you'll be able to restore your course to how it was when you made the backup. It can also be used to copy activities, if you wanted to share your course or create another copy. If you have had your administrator change your permissions and you've backed it up with the user data, it also makes sure you have a copy of any of the assignments your students have posted.

If you have some students that are carrying on for a second year of a course of study, you might want them to still have access to activities and resources. In this case, what you could do is keep your course as it is, adding to it for next year and restore a backup of the course for your new students to use.

Anonymize the user data

One useful feature to point out when backing up your course is anonmyzing the student data. If you have the permissions needed to back up your course with the student data, one of the options is to **anonymize** this data. This could allow you to use the data in other courses or restore your current course. Examples of this might be if you wanted to keep forum contributions as exemplars from one year to the next or a FAQ glossary.

The anonymized data replaces the students' first names, last names, and e-mail addresses with anonfirstname1, anonlastname1, `anon1@doesntexist.com`, removing other personal information from the user profiles. So when it is imported to a new course there is nothing linking the work to particular students, unless of course, they have used their names in forum contributions, and so on.

Exporting useful data

Before you reset your course, give your users ample time to export any data they want to keep. Publicize that you will be resetting their course and deleting the data.

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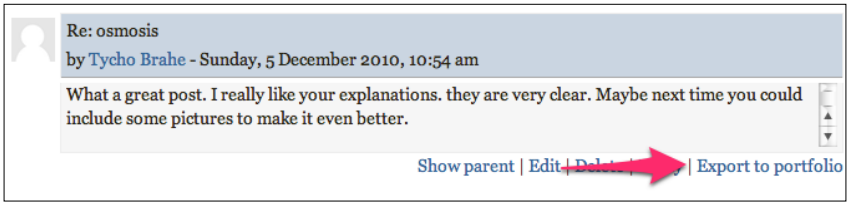
You may have a portfolio system set up already in your school. The portfolio plugins in Moodle allow pupils to export work easily to a number of different portfolios. The following is a list of portfolio plugins that are currently supported:

- Google docs
- Picasa
- Box.net
- Flickr.com
- Mahara

So show your students how to export any data they are proud of and want to keep.

If your school does not have a portfolio system pupils can export their work as HTML documents or Leap2A format which is an industry standard for e-portfolios.

For students, forum posts have a link to export the post shown next:



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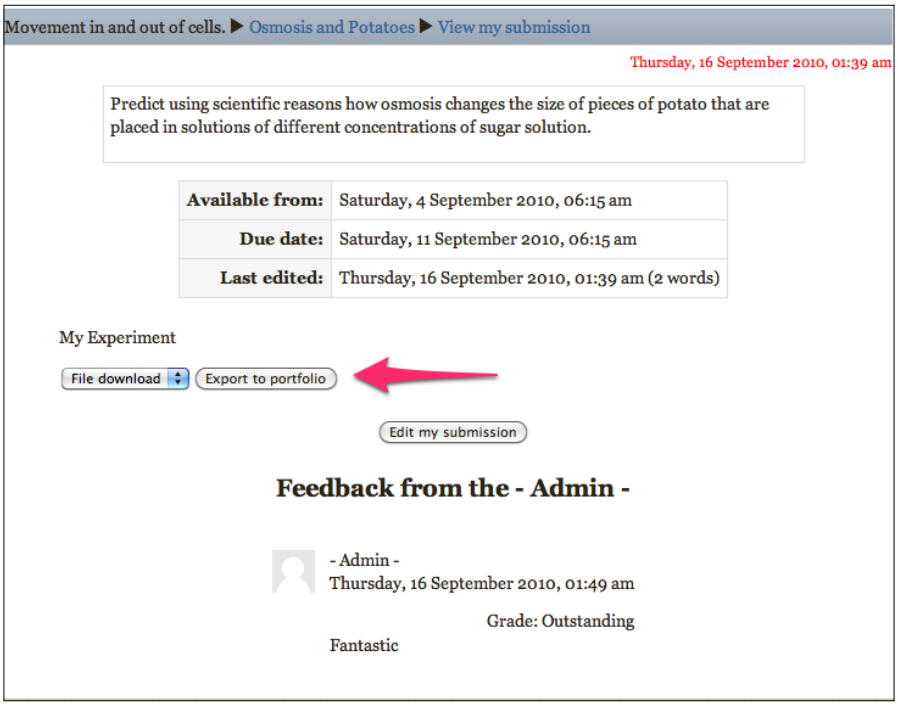
This process is the same for other activities where pupils type directly into the web page using the HTML editor, for example, glossary entries. To export an assignment, there is a button below their submission. Again, this is very similar for activities that require the user to upload a document.



Many activities have the export capability for students to use and it works really well. If you want to keep a copy separately of your learners' assignments, you can download the lot as a ZIP file, by using the link near the top, left-hand side of the **View submitted assignments** page. This could be used for keeping a copy of science coursework safe.

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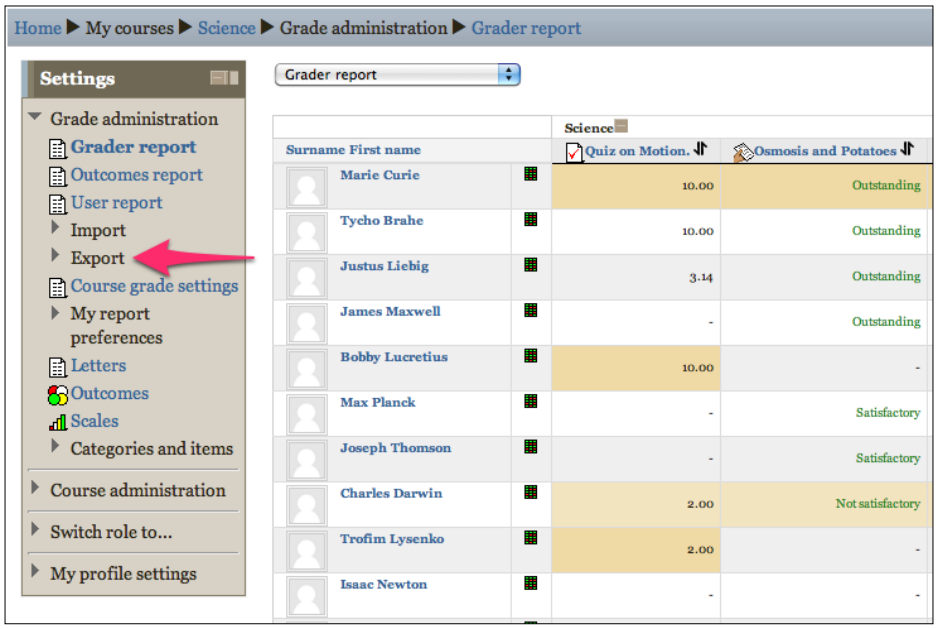
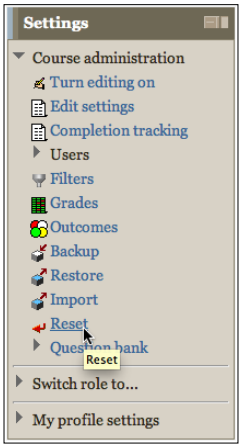
Another useful thing to do at the end of the year is to export your gradebook, so you have a soft copy of all your users grades. The link for this is in the settings menu of the gradebook.



Resetting your course

Once you are happy that you have everything you need from your course, it's time to hit the **Reset** button. To reset your course, you will find the link in the settings block towards the bottom:



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This takes you to a page where you can select which aspects of your course you would like to reset.

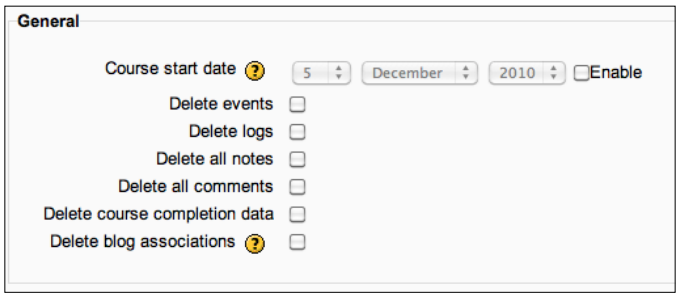
READ THE WARNING!
This will delete your user data!

Probably the most useful thing to point out on this page is the **select default** button. At the time of writing, it is positioned at the bottom of the page. Until you get familiar with the reset options, don't use the default button.

Next, we'll look at the options, a section at a time. Depending on which activities you have used on your course, you may or may not have all of these sections in the following screenshots.

Reset settings - General

From the **General** section, specify the start date for your 'fresh' course. Set it to the start of the new school year. This will keep out students till you are ready for it to go live again. You will probably want to check all of these options except maybe the last two seen in the next screenshot. It will save you some setting up time, if you kept the course completion data and you might want to keep the blogs that the past students have written linked to your course.



Reset settings - Roles

By default users set as Teachers, can't bulk unenrol students during course reset. This is probably a slight oversight, which will probably be changed in later versions. This is because teachers can unenrol students via other ways. We'll look at how to do this in the *Tidying up your reset course* section later.

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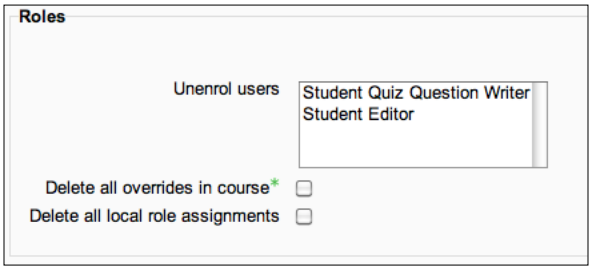
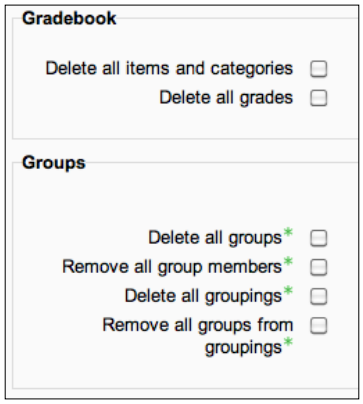
Check all of the boxes in the Roles section (shown in the next screenshot) and also unenrol the custom roles created earlier. To select multiple items in the list, hold down the *Control* key (Windows) or the *Command* key (OSX) and click on the options you want. In the previous versions, you were able to unenrol Teachers (and so lock yourself out of your course), but not any more luckily! Local role assignments and overrides are advanced features allowing you to give users slightly different capabilities in your course. If you don't know what they are, you probably haven't used them.



Reset settings – Gradebook and Groups

For the gradebook reset, you could just delete the grades. This means you would not need to set up your gradebook categories next year. As we discussed earlier, if you exported your gradebook, you will have the records for your students, should you need them in the future. Depending on how you have set up your groups and groupings (groups of groups), you might wish to delete them.



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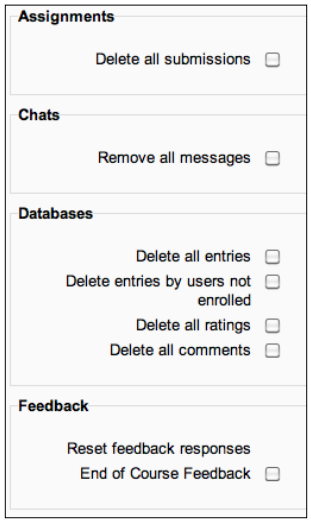
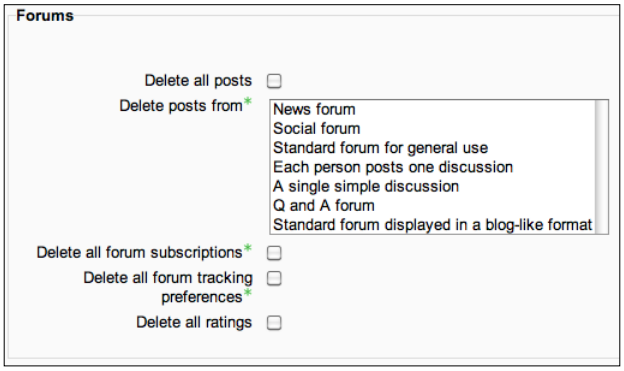
Reset settings – Assignments, Chats, Databases, and Feedback

The next four subsections shown are self-explanatory. You would probably choose to keep the database entries, if you use databases to collect content to use in the course or as exemplars, and check the other boxes to delete the rest.



Reset settings – Forums

You could keep some forums to model good work, or certainly if you've collected discussions as Q&A or FAQs. Again it would depend on the content of the forums. Note that you can reset particular types of forum, but not (yet) individual forums. This is shown in the following screenshot. The options with the green asterisk are under the **Show advanced** settings.



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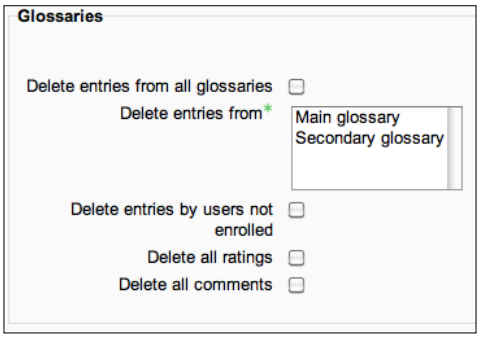
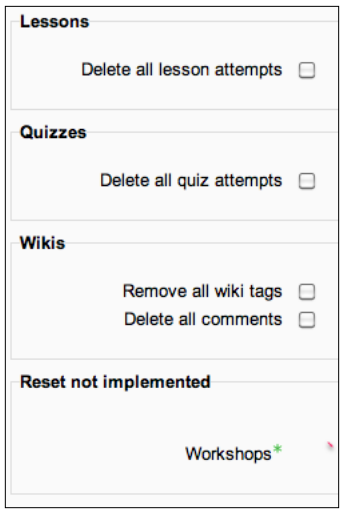
Reset settings – Glossaries

The same applies to **Glossaries**. It's a good idea to keep your main glossary and if you allow multiple entries, your new students can still add definitions for words that are already there. If you've used a secondary glossary as a task, for example, "pick an element, research it, and add your findings as a glossary entry" you should probably delete the entries, so you can use the same task again.



Reset settings – Lessons, Quizzes, and Wikis

Again, the last three sections shown in the next screenshot are obvious. The content in wikis can't be deleted this way, just the comments and tags. The final section **Reset not implemented** gives you a list of unsupported modules. These will need to be cleaned out manually.



The other non-standard activities will appear in the **Reset not implemented** section.

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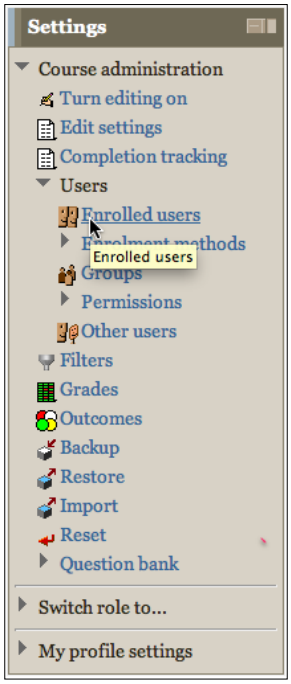
Tidying up your reset course

Once you have reset your course the next thing to do is delete the unused content. You will have a good idea now of what worked, what needs to be improved, or changed. Go through it and be ruthless in deleting, organizing resources into folders, and moving links to web pages onto a page resource, rather than on the course main page.

Don't forget to consider revising or deleting activities to reflect the changing needs of your students.

Removing the students

If you want to unenrol your students (and you probably will) you will need to go to the **Enrolled users** link in the **Settings** block:



Remember, when you do remove students from your course, their grades go with them.

As mentioned earlier, probably by the time you read this, there will be an easier way for a Teacher to bulk unenrol students, but at the moment, you will need to unenrol them one by one.

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Editing the Course settings

In the **Course** settings page, there are a couple of things you might want to look at:

- Check the new start date
- You might want to choose a new theme for your course

Other activities

For wikis that you want to clean out completely and modules that are not supported by the reset process, you will need to either manually go in and delete the content or follow the next steps:

1. Back up the activity using the course backup.
2. Delete the activity from your course.
3. Restore the (empty) backed up activity back into your course.

You should also go through it and check for any due dates for activities or repeating dates in the case of chat activities.

Editing the Group settings

In the **Group** settings, change the enrolment key for each group, so that last year's students can't get back into your course.

Summary

If you follow the steps that are given, you should now have a nice clean course ready for your new students to use at the start of the new academic year. In the last chapter, we'll look at a lot of extras, non-standard modules, and plugins that you can use to make your course even more exciting.

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11
Making Moodle Magic

"Any sufficiently advanced technology is indistinguishable from magic."
- Arthur C. Clarke

In this last chapter, we're going to look at a number of addons. These fall into three categories:

- Contributed modules and plugins
- SCORM packages
- Content from other websites

Rather than showing you step-by-step how to use all of these suggestions, there will be an overview of each and we will discuss how you could use them to extend your course. Hopefully this will enthuse you into exploring other content and ways to excite your learners.

By the end of this chapter, you will be able to:

- Use some of the non-standard Moodle modules
- Include SCORM content into your course
- Create avatars to embed in your course
- Develop mind maps collaboratively with students
- Produce online posters, exciting presentations, virtual notice boards, and live scrapbooks
- Inventively use words to make images and videos

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Contributed modules and plugins

Currently there are 682 modules and plugins that you can download from Moodle.org. These are often created by enthusiastic teachers and released to the Moodle community. They need to be installed by your site administrator, however it is a really easy job so don't let them tell you otherwise! The 'M' in Moodle stands for **modular** so make the most of all the extra bits that the community has produced. Here are just a few favorites. Most already work on Moodle 2.0 and there are plans for the other few to be updated too.

Book module

`http://moodle.org/mod/data/view.php?d=13&rid=319`

The **book** module allows you to create a simple book style layout for information you want to display. Simple HTML pages can be imported, but if you use images remember to upload them separately to your course. For example you could create a book with your class to learn about electronic components. Each pupil could research a different component and create a HTML page (most text editors allow you to save work in this format). If you upload them to a directory (create a ZIP file and upload them in one go) the book module will import them and create a book using the document names as chapters.

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Game module

http://moodle.org/mod/data/view.php?rid=1196

Another activity module, the game module easily produces games from content in your glossary and question repository. Popular games are Hangman and Cryptex (word search). It's great for end of topic revision, or lesson starters, if you see your learners face to face.

Hot Potatoes

http://hotpot.uvic.ca/

Hot Potatoes is a piece of software you can download to create crosswords, cloze questions (fill in the blanks), mix-and-match among others. Once you have created a quiz it can be uploaded to your course for your pupils to use. To install the latest HotPot module for your Moodle site, your administrator can use this link. http://download.moodle.org/download.php/plugins/mod/hotpot.zip.

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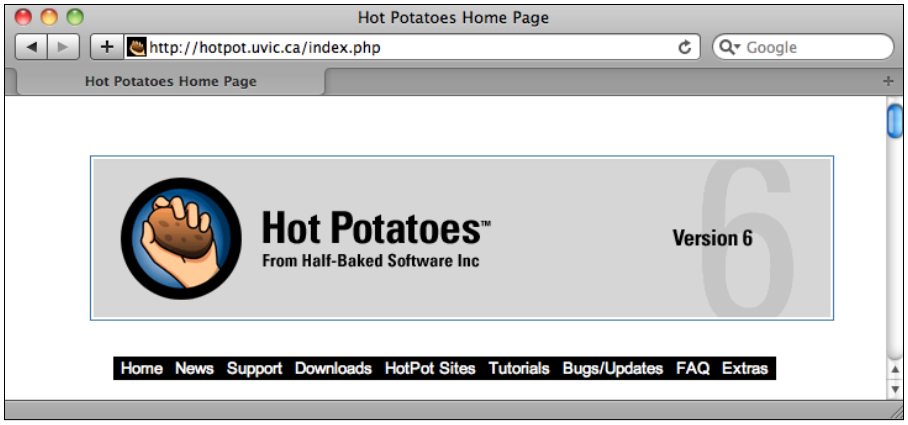
There are plans to integrate it fully so that Hot Potato questions can be imported directly into the question bank

Hot Potatoes is great for creating drag and drop activities, for example, biological classification, crosswords of keywords for most topics, and long cloze-type questions to provide end of topic summaries. Details of how to use the software can be found at `http://hotpot.uvic.ca/tutorials6.php`.



Lightbox

`http://moodle.org/mod/data/view.php?d=13&rid=1021`

Lightbox Gallery is a resource module that creates very slick slideshows from images you upload. You can get your students to take photos using their handphones when they are carrying out experiments, and upload them to a Lightbox Gallery. All the images can be tagged for searching and commented on.

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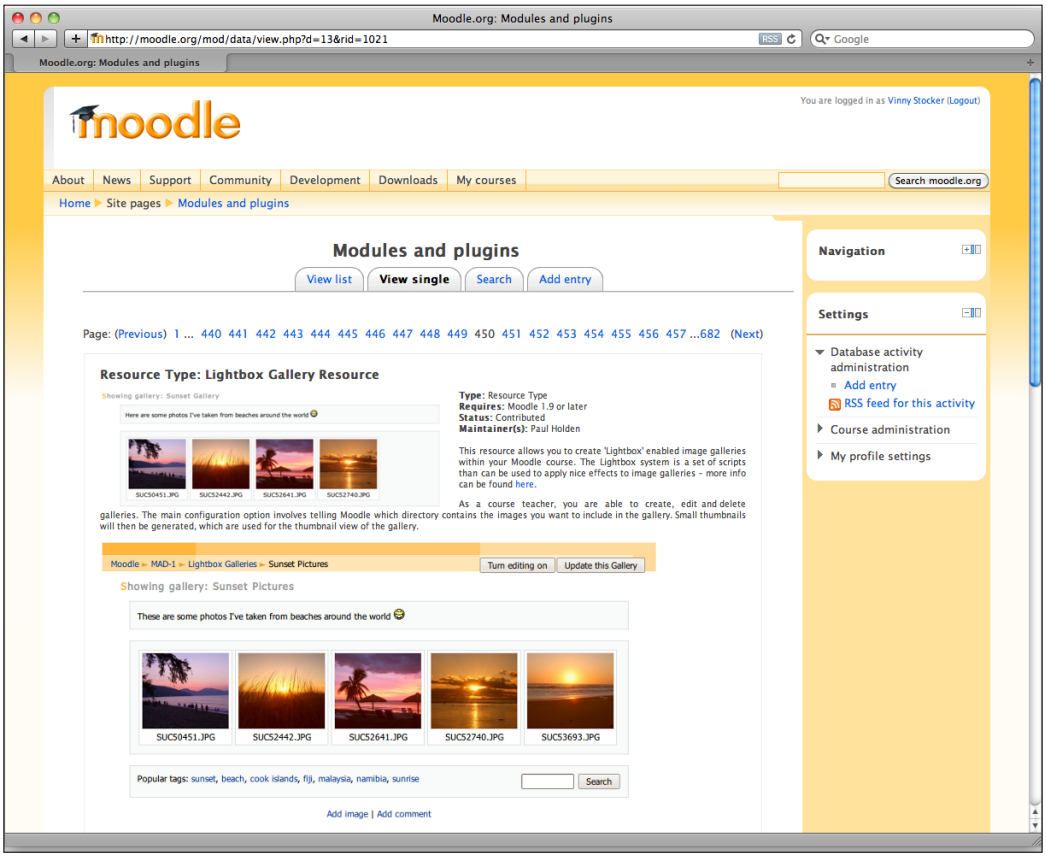

MRBS block

`http://moodle.org/mod/data/view.php?d=13&rid=734`

This block is mentioned as it might be really useful for a science faculty, rather than directly for teaching science. The **Meeting Room Booking System** (**MRBS**) block integrates a room booking system into your Moodle installation. So you could us it to book computer rooms, science labs, resources, or even use it as a system for ordering equipment from your lab technicians.

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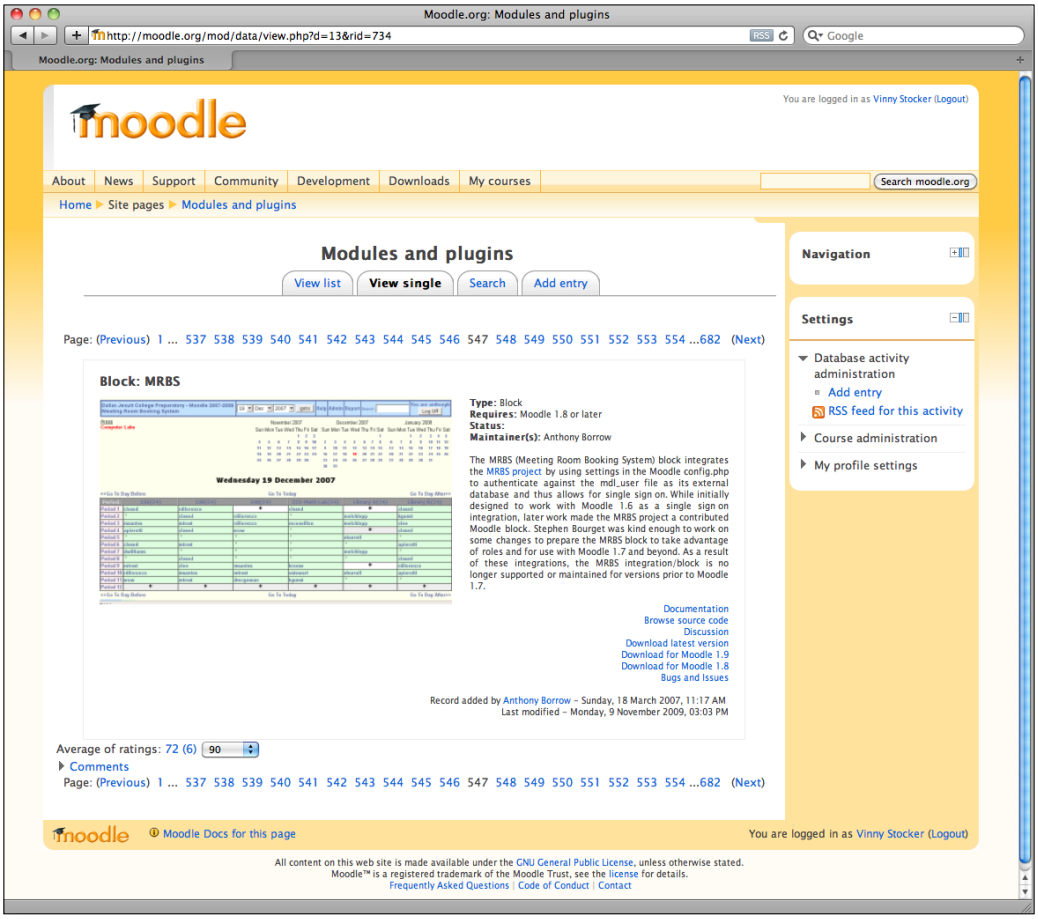
Information on setting it up and implementing it including custom roles, can be found here: `http://docs.moodle.org/en/MRBS_block`.



Flashcard module

`http://moodle.org/mod/data/view.php?d=13&rid=1539`

Sometimes students just need to memorise things. This is where the **flashcard** module comes in handy. One topic students have trouble remembering is *colloids*, their definitions, and examples. So by creating flashcards with names of colloids and pictures, students can take it at their own pace. You could also use it as a card sort activity where students classify the cards. For example, get them to match up energy resources with whether they are renewable or non-renewable. You can use it to help them learn anything involving rote learning, for example, names of chemicals and their formulae, anatomy, or the order of reactivity of metals.

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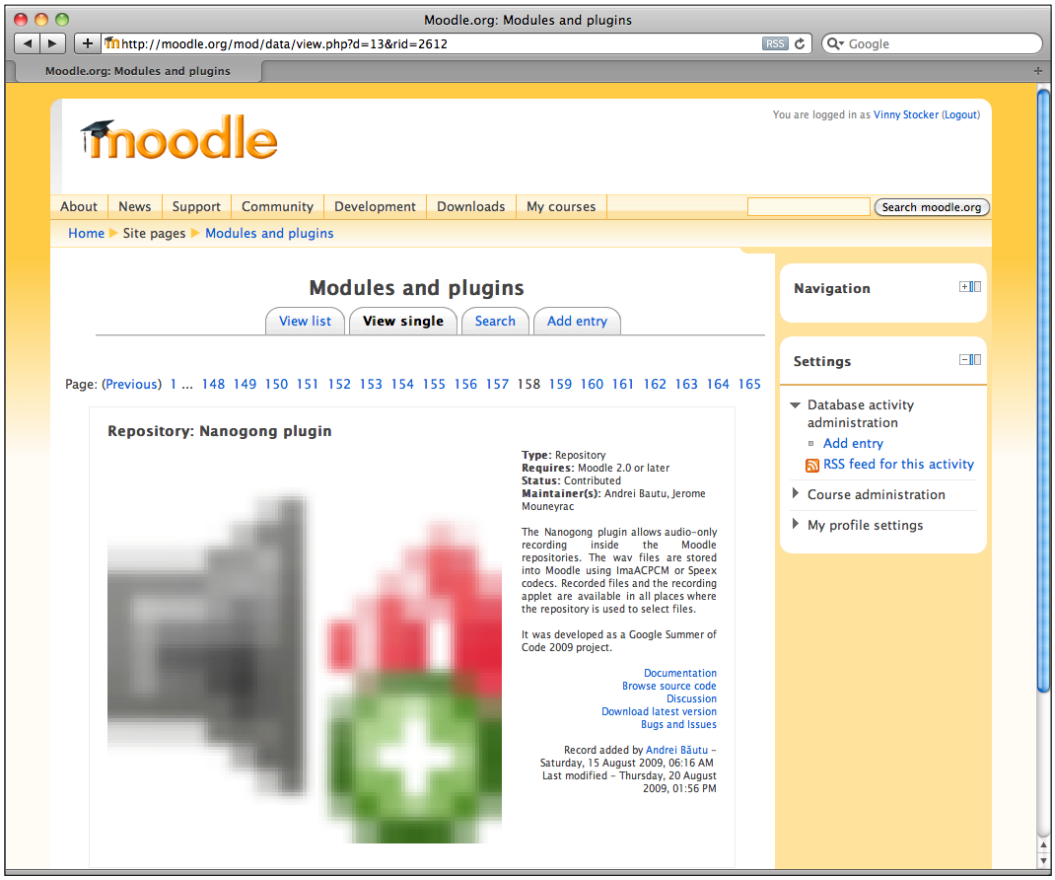
Nanogong

`http://moodle.org/mod/data/view.php?d=13&rid=2612`

This great module is a repository plugin. It allows audio to be recorded directly into your course by users clicking onto a record button and using the inbuilt microphones on their computers to save their recordings in their file areas. This is useful for getting pupils to record definitions for chemical concepts reflecting on their work or submitting an audio assignment. There is also a nanogong assignment plugin, where the assignment requires the students to record audio as their assignment submission. However Moodle.org recommends that you use the repository plugin and set an assignment in the normal way just asking your students to submit their recording.



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Stamp Collection Activity module

`http://moodle.org/mod/data/view.php?d=13&rid=1338`

This module lets the teacher give 'stamps' to students to collect for certain achievements in different activities. You probably use some kind of reward system (merits, credits, house points, and others) with your students, if you see them face to face. With this module, you can integrate your reward system with your course. You can also give pupils the correct permissions to award the stamps, for instance during peer assessment. You can read about it here: `http://docs.moodle.org/en/Stamp_Collection_module`.

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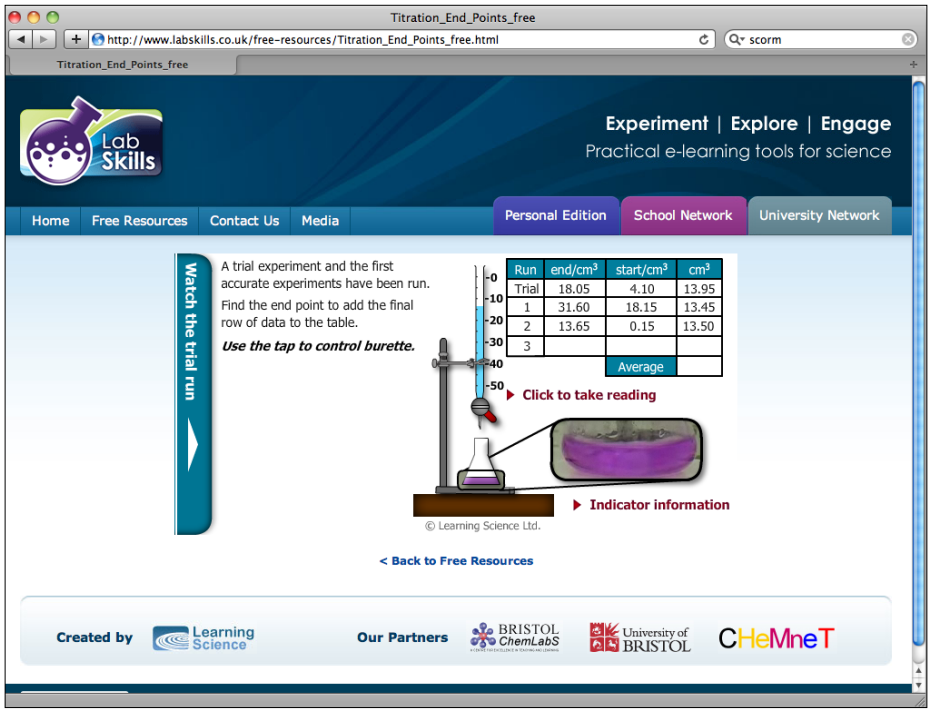
SCORM

SCORM is a technical standard for e-learning software. This means it should be compatible with many different learning management systems. Basically, if it is a SCORM package most likely you can use it in your Moodle course.

LabSkills

`http://www.labskills.co.uk/`

All of what has been mentioned so far doesn't cost you anything. However, AS/A Level Chemistry LabSkills is something worth paying for. It gives you some great interactive content to help your students understand A-Level Chemistry experiments. The mentioned website has a few freebies you can have a play with to help you decide.



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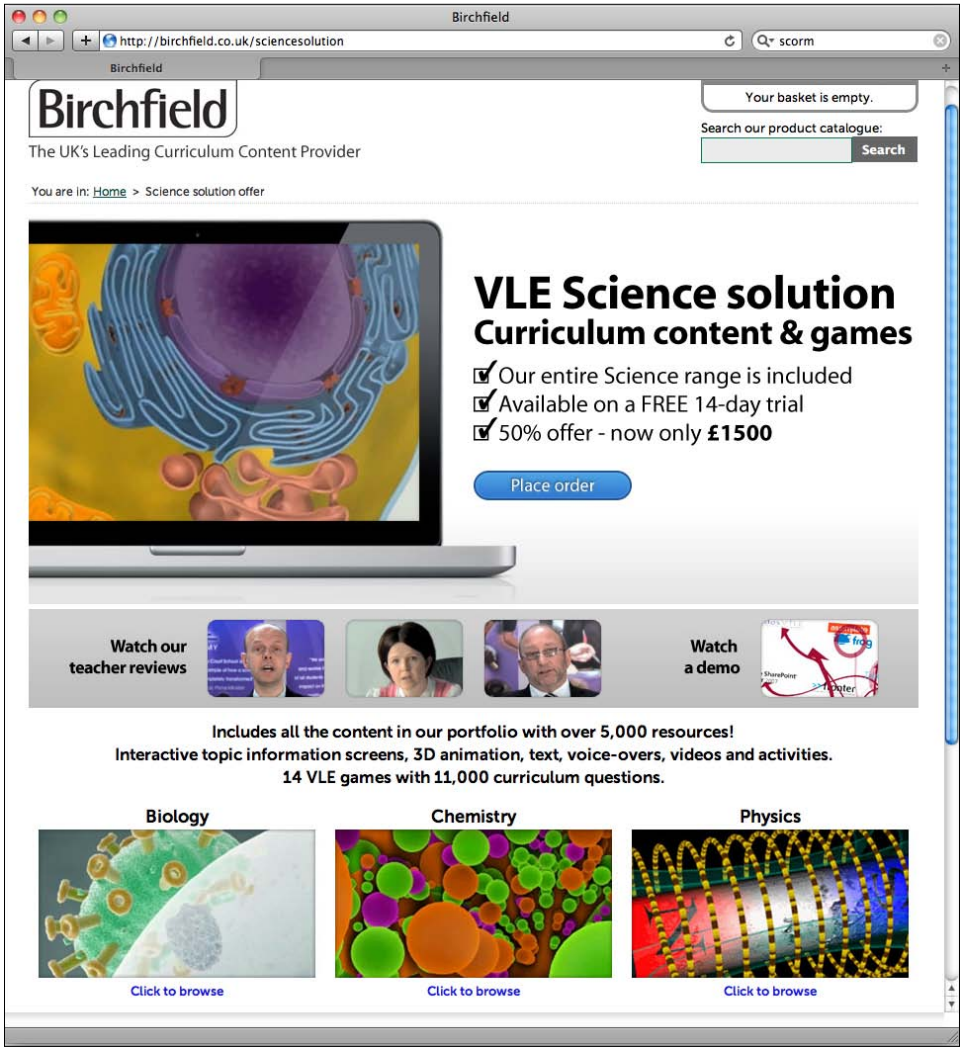
General SCORM resources

`http://birchfield.co.uk/sciencesolution`

It's not cheap, but Birchfield provides some great interactive content for your site. Well, worth a look:



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SCORM creation

If you'd rather create your own SCORM content to add to your site, there are some great resources on the Moodle.org site. Detailed step-by-step documentation can be found here `http://docs.moodle.org/en/Tools_for_creating_SCORM_content`.

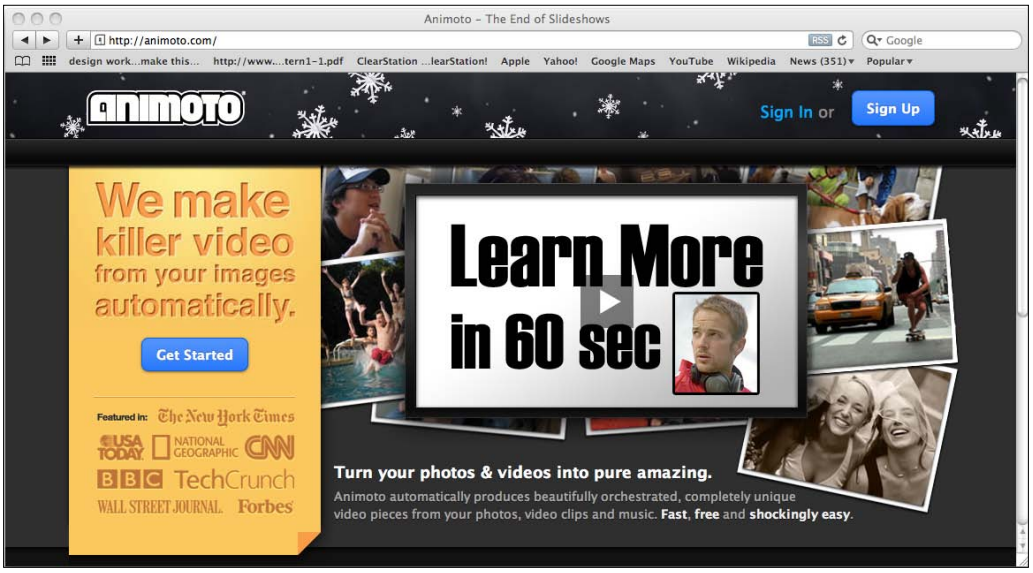
Create content using other websites

In this last section, we'll take a look at some brilliant websites that you can use to create content for your site. Most of them allow the content to be embedded (look for <>) into your course anywhere you use the standard text editor. Remember that you might need to check with your system administrator that they allow embed code to be used on your site. If they don't, an alternative is to add links to show your learners the content. As this technology changes so quickly, have a look at `http://www.go2web20.net` to discover the latest web 2.0 sites for yourself. Each of these has their own specific uses, which are suggested in the text.

Animoto

`http://animoto.com/`

Animoto is a relatively new website you can use to create very cool slideshow-type videos from images, music, and other video clips. Rather than getting your students to write up a science experiment in their exercise book, maybe point them towards Animoto and get them to demonstrate their understanding using this media instead.



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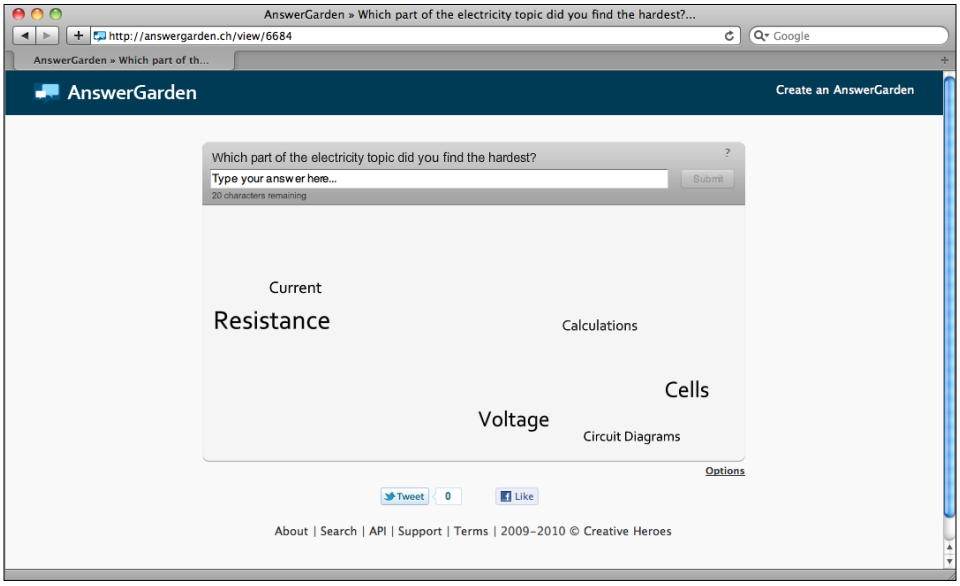
Answer Garden

`http://answergarden.ch/Quickstart-Guide/`

The **Answer Garden** question bar can be embedded in your course. Users can answer your question and their answer will appear in the box below. A good use of this is to get feedback from your students about what they found difficult. Try adding it as a label to a section on your course main page.



Blabberize

`http://blabberize.com/`

Blabberize is a very amusing site, which your pupils will love. The idea is to upload a photo, cut out the mouth, record some audio and the website will make your photo talk along to your recording.

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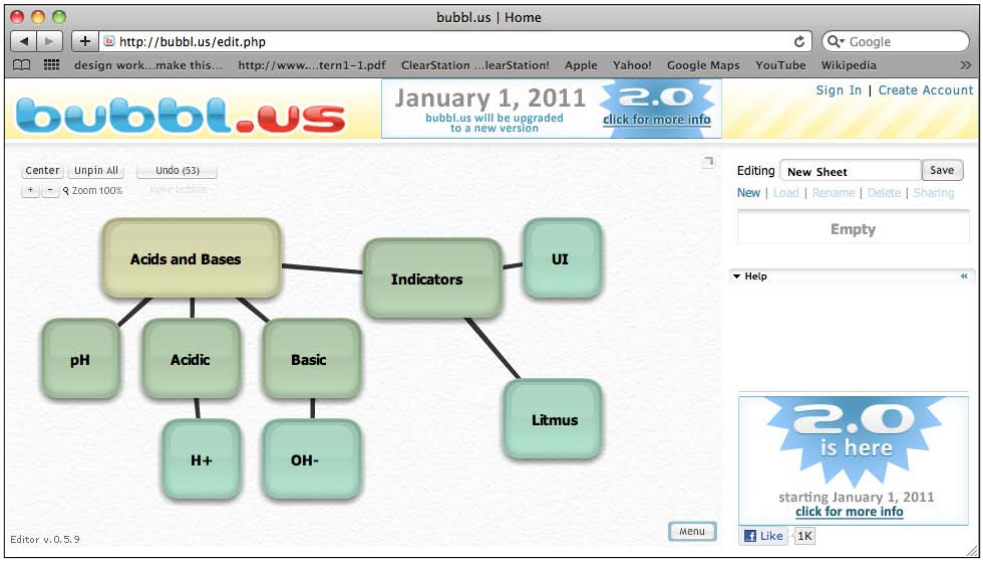
What a great way to get pupils to create summaries of topics. You could even get them to embed their Blabers to a database activity submission and vote for the best one.

Bubbl.us

`http://bubbl.us/`

There is a Moodle module for mind mapping, but the flexibility of using external websites for this is a big bonus. **Bubbl.us** is probably the easiest for students to get going with.



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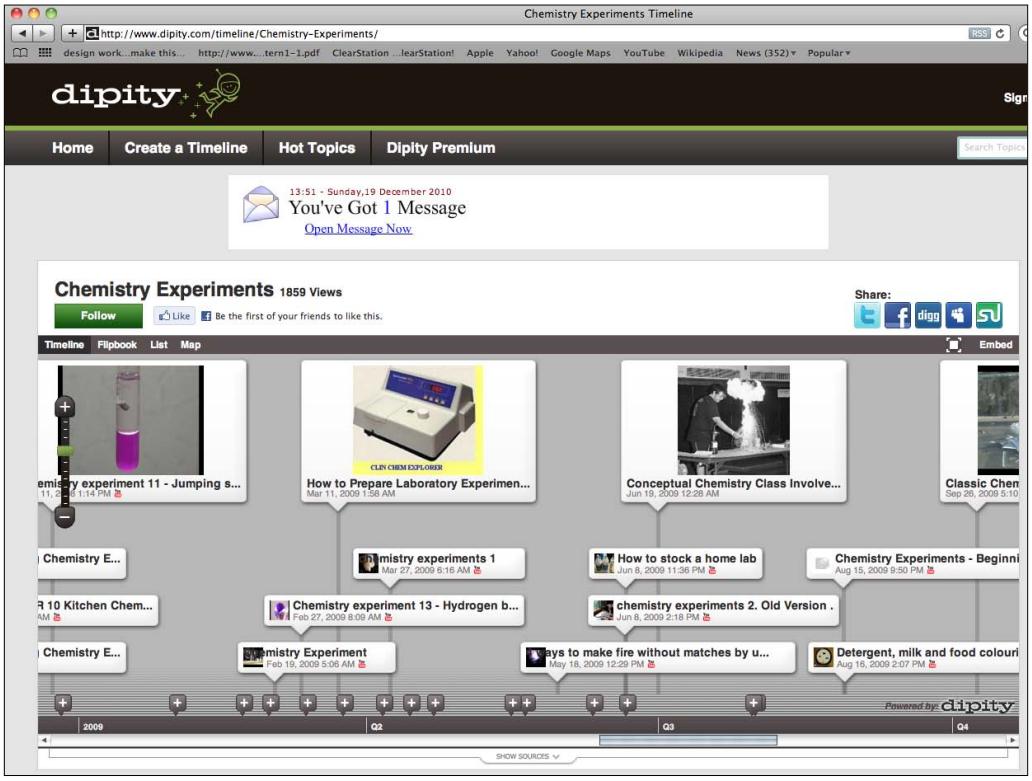
Dipity

http://www.dipity.com/

With this website, you can collaboratevly create interactive timelines. One way to use this is to get your students to work on a time line for the discovery of metals. You could then embed it on the description of a forum and ask your students to discuss the connection between the reactivity of the metals and when they were discovered. The following is an example from their website, using YouTube videos:



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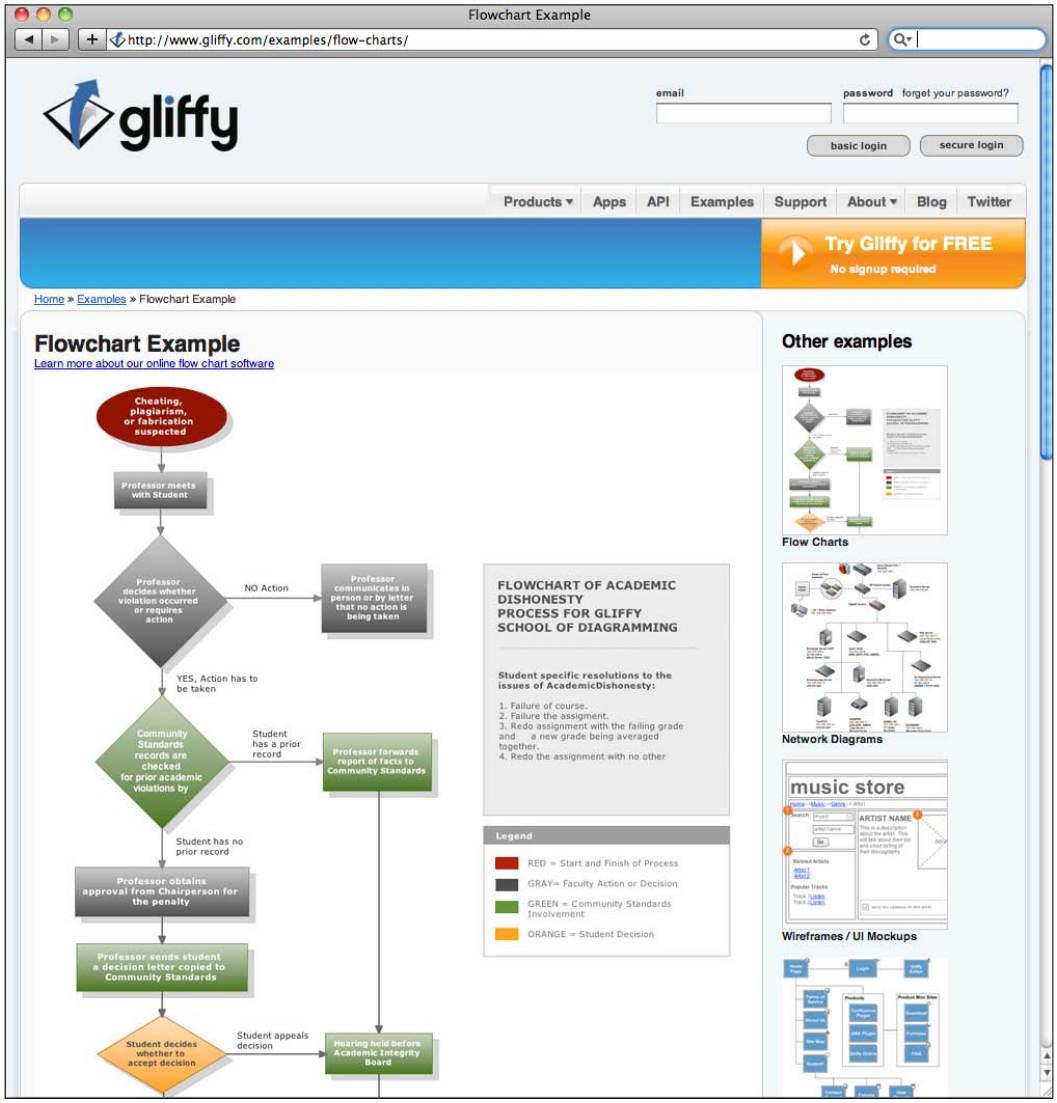
Gliffy

`http://www.gliffy.com/`

As an alternative to mind mapping, have a look at **Gliffy**. It can create flowcharts of processes, Venn diagrams, and charts. You could use it with a class, and have them make keys for biological classification or identification of rocks, to add to your course.

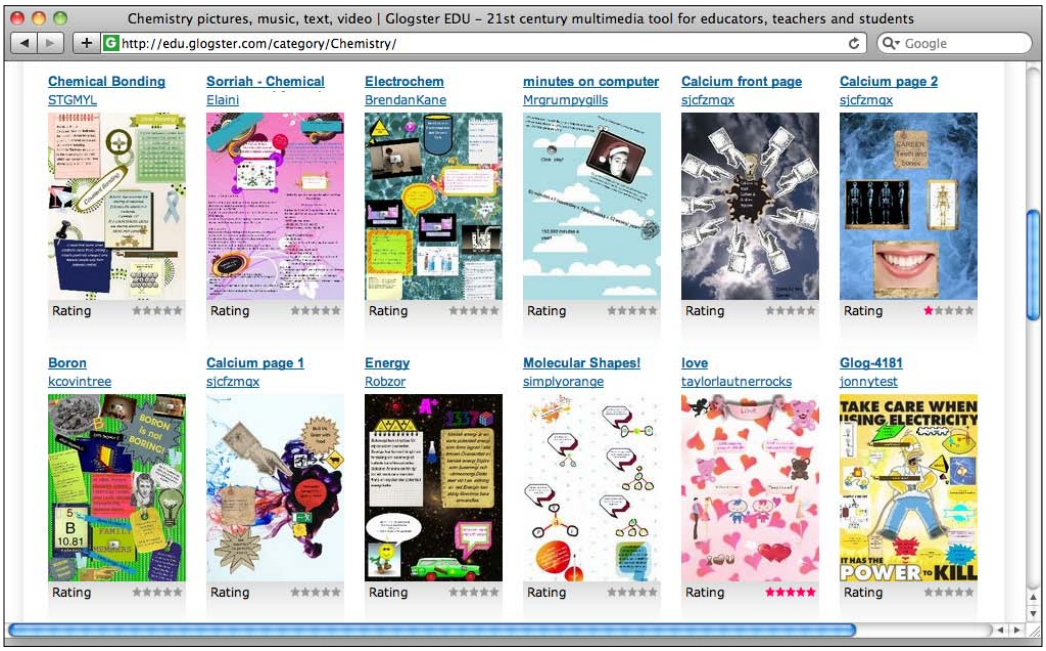


www.it-ebooks.info

Glogster

http://edu.glogster.com/

Glogster is a great site that you and your students can use to create online posters. The basic subscription is enough to start off with, and again you can copy the HTML, so these can be embedded anywhere into a course. Next time you ask your students to create a poster about a particular topic, how about giving them a link to this site instead. To keep evidence on your Moodle site, you could ask them to embed the code from the poster into a forum post and discuss the merits of their work.



Google Earth

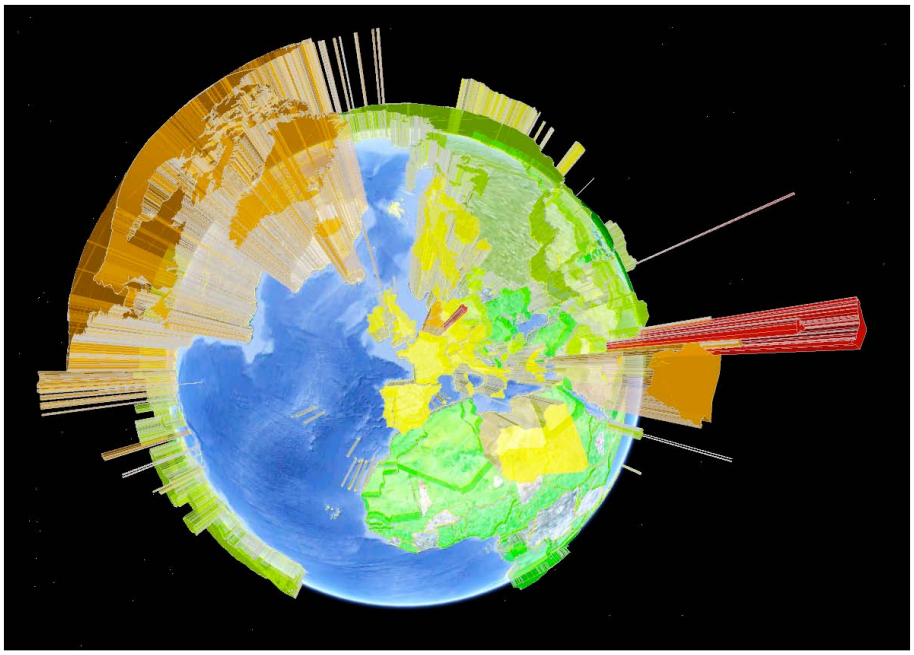
http://www.google.com/earth/index.html

On the Google Earth blog, there are lots of virtual tours (KML and KMZ files) you can download and explore before creating your own tours. Students will need to install the software and follow the links that you put on your course to these tours. When you are teaching topics such as industrial chemistry, there is something special about being able to show them real images of refineries or blast furnaces. It can also lead to interesting discussions about placement of the chemical site and transportation links.

www.it-ebooks.info

Another example could be to get students to have a look at this plugin that shows crude oil consumption per capita and discuss the implications in a forum activity:

`http://bit.ly/hxUceJ`



Google Moon/Mars

`http://www.google.com/moon`

`http://www.google.com/mars`

If you want to go 3D, both of these can be used with Google Earth. The advantage of the web-based versions is that your students don't need the software installed on their machines. They could go exploring landing sites from space missions or if you are teaching the solar system, take a virtual tour using `http://www.google.com/sky/`.

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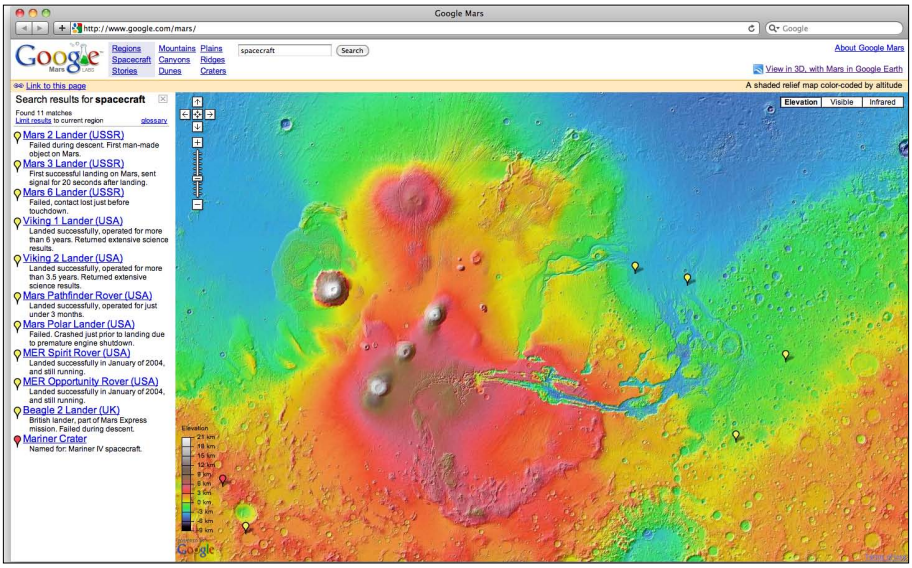
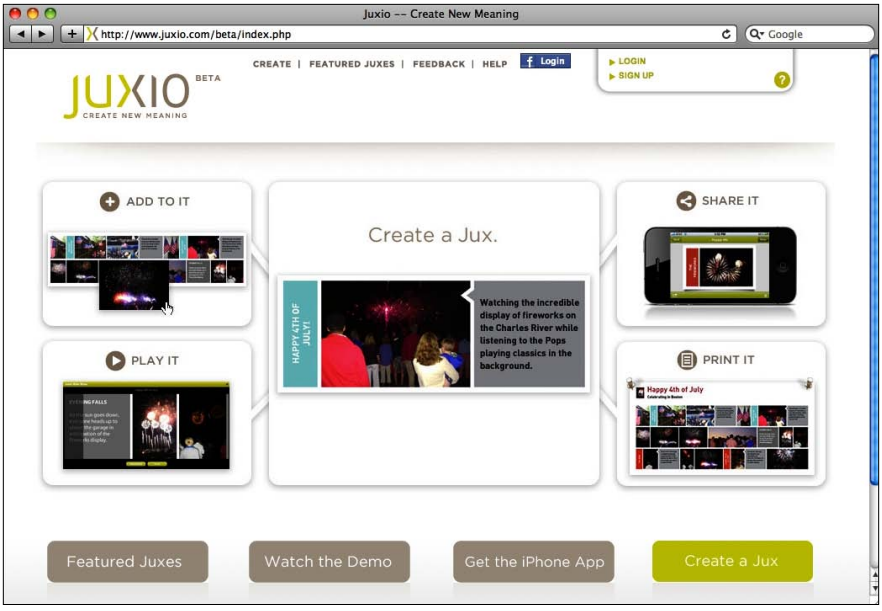


Juxio

`http://www.juxio.com/beta/index.php`

This website allows you to combine images and text; it's great for getting students to display their experiments or project work.



www.it-ebooks.info

Mindmeister

`http://www.mindmeister.com/`

Another mind mapping site, more powerful than others, and visually very exciting, is **Mindmeister**. Use it with your students to get them to collaboratively create revision notes for each topic.

Montage

`http://montage.cloudapp.net/montage/WhatsMontage/`

Although you can only link to **Montage** (not embed) it, it is a great website for creating a 'live scrapbook' on a particular topic. You can add content from a variety of sources, including RSS feeds, YouTube, Twitter, and Bing News. Scarily easy to use!

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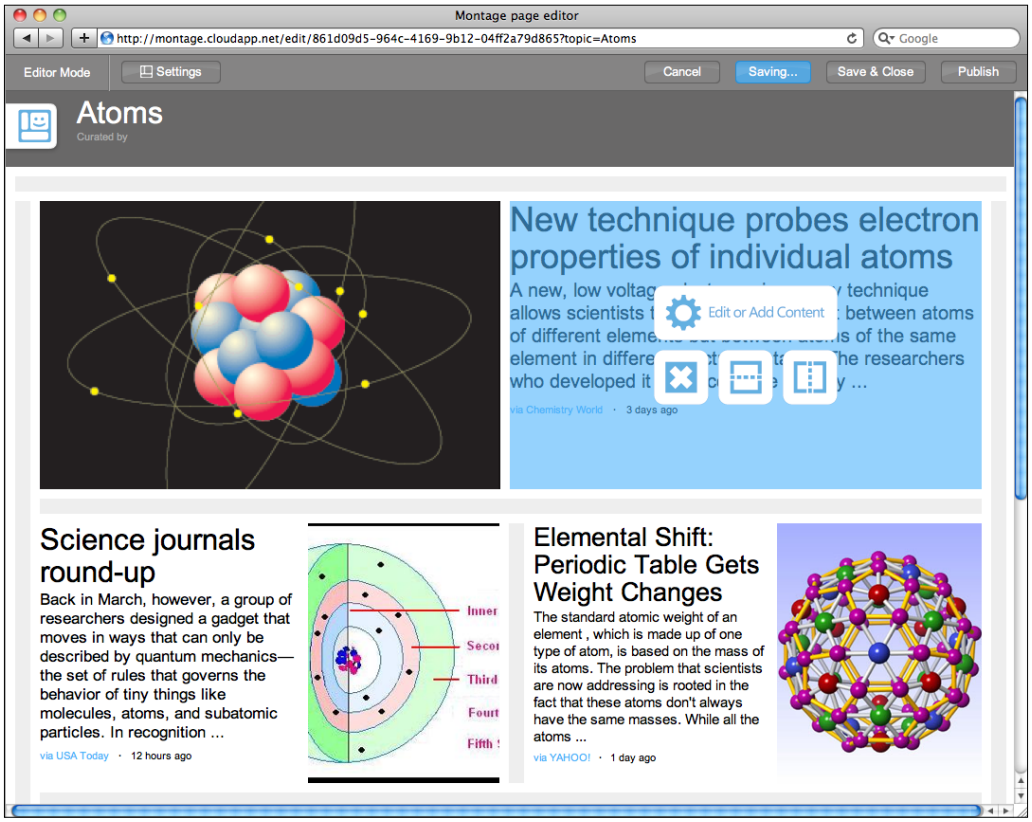

Prezi

`http://prezi.com/`

Prezi is a very innovative way to produce and share beautiful presentations. It's really hard to describe how visually exciting they look. It brings with it aspects of mindmapping, displaying the presentation as one giant page then zooming into parts of it. The best ones play with this to the extreme, clozing in on a full stop for instance to show a piece of text or picture.

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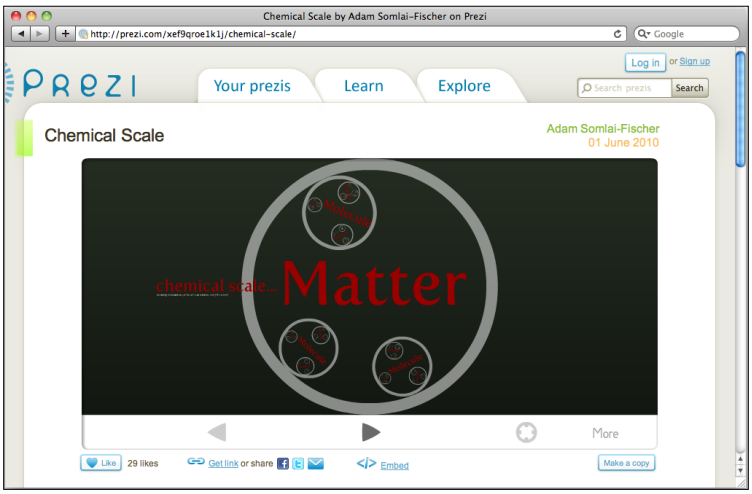
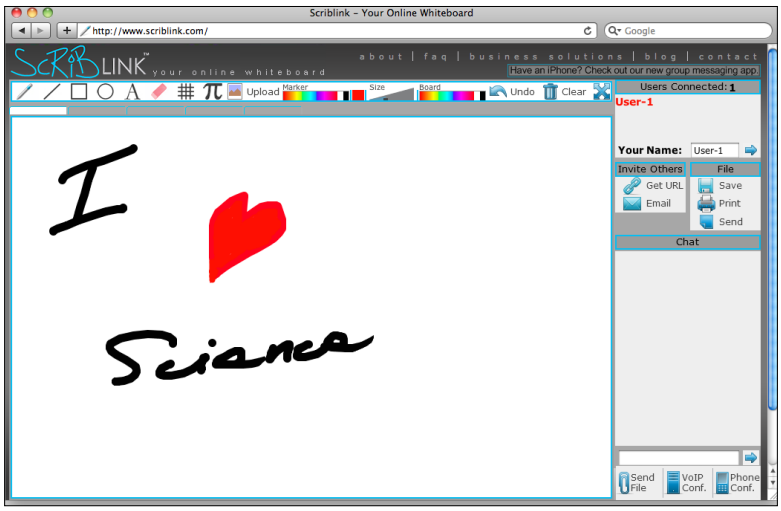
This great example (as follows) uses the zooming function to highlight the difference in scale between concepts:



Scriblink

`http://www.scriblink.com/`

Scriblink is an online collaborative whiteboard. If you have an interactive whiteboard in your classroom bring up Scriblink, share it with other classes being taught at the same time in your school, and run some collaborative lessons with other members of staff. A fine line between good fun and complete chaos! Put the link on your Moodle course to let your students contribute outside of the classroom.



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Tagxedo

http://www.tagxedo.com/

Tagxedo is similar to Wordle, which we will look at later, Tagxedo gives you the ability to produce larger images from words. More than just a bit of fun, it can be used for revision of key words, lesson starters, and is great for visual learners.

www.it-ebooks.info

Toondoo

`http://www.toondoo.com/cartoon/449973`

Toondoo allows you to make comic strips easily. The following example is one that you could use with a class of younger pupils to introduce ideas about magnets and electromagnets. At the end of the lesson, show them how to use the website and set them homework to make their own. So that they could view each others' get them to embed the code using the <> link into a glossary activity on your Moodle site.

Tubechop

`http://www.tubechop.com/`

Tubechop does exactly what it says on the tin: chops a section out of a YouTube video and embed it into your course. It's ideal for short snippets, when you don't want to show complete videos.

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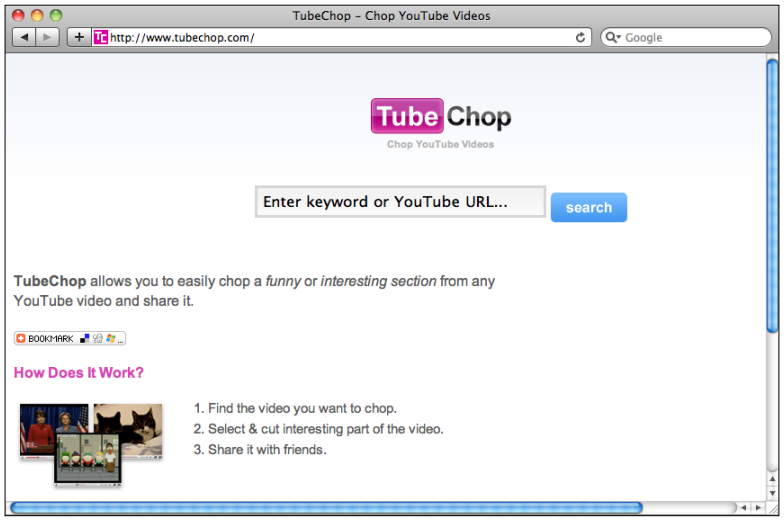

Twitter

`http://twitter.com/`

No list of useful educational websites is complete without a mention of **Twitter**. It can help you discover so many useful resources and learn things relevant to your teaching and personal development. I really recommend (if you haven't done so already) to sign up. If you would like to follow me, I am `@vinnystocker`.

In an educational context, there are many ways to use Twitter in the classroom. Just Google it. A useful Twitter widget—found here `http://twitter.com/about/resources/widgets/widget_list`—will embed a list of users' tweets into your course that you specify.

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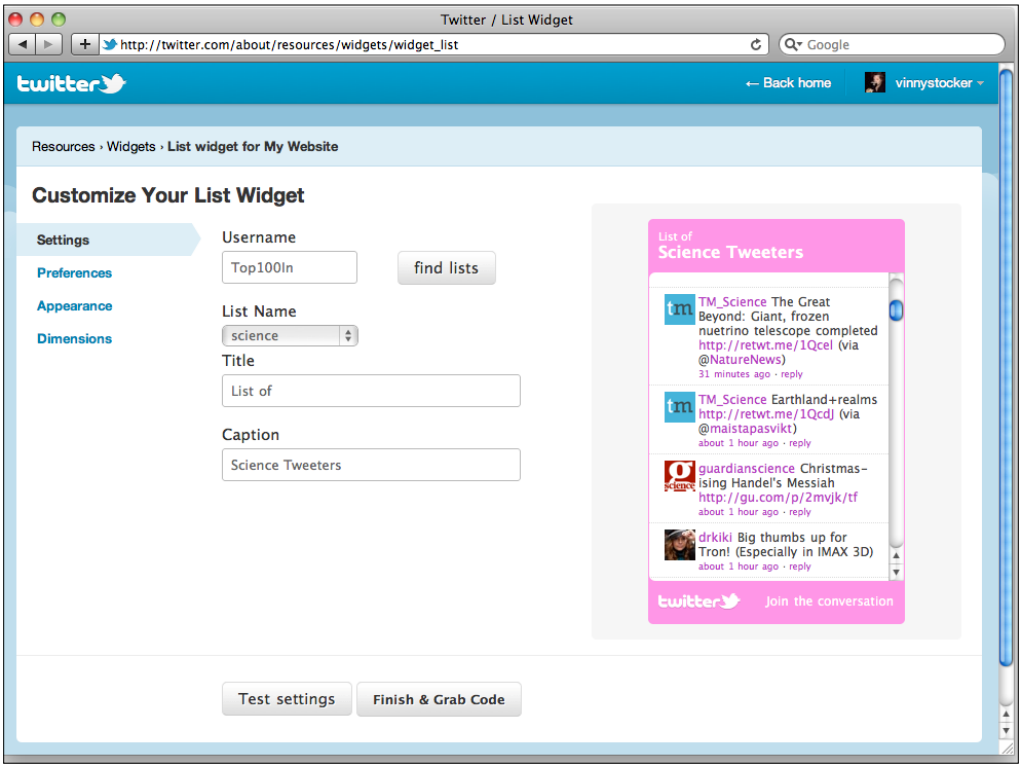
You might want to have a list of famous scientists tweeting on your Moodle site. Embed the widget in an HTML block beneath the side of your course et voila:



Voki

`http://www.voki.com/`

Voki is a site that has been around for a while now and is well documented in other Moodle books. It allows you to create a talking avatar (yep, using your voice if you want) that you can embed in your course. It can increase the motivation of your learners and makes the whole experience for your learners a lot more personal. It is nice!

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Alternatives include `http://www.sitepal.com/` and `http://www.readthewords.com/`.

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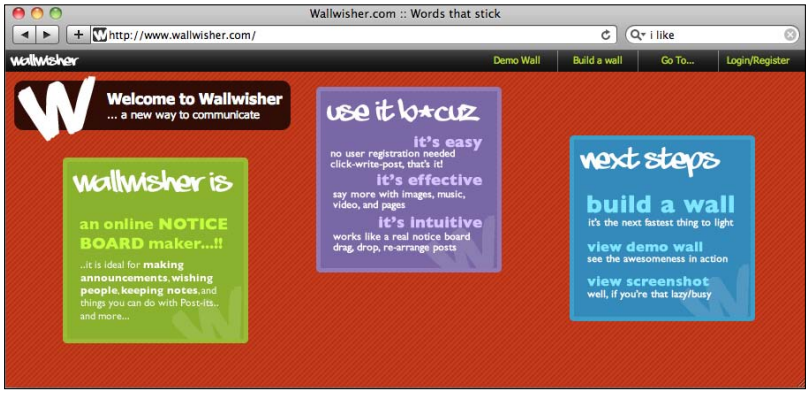
Wallwisher

`http://www.wallwisher.com/`

With this site, you can create virtual bulletin board for your class, which you could embed in one of the sections of your course; this is good for brainstorming, organising ideas, and discussion work.



Weebly

`http://education.weebly.com/`

This is a great site for getting pupils to create websites. Its drag-and-drop interface is very intuitive and easy to use, even for the younger students. As it is quite easy to use, you could get students to create a website for a mini-project.

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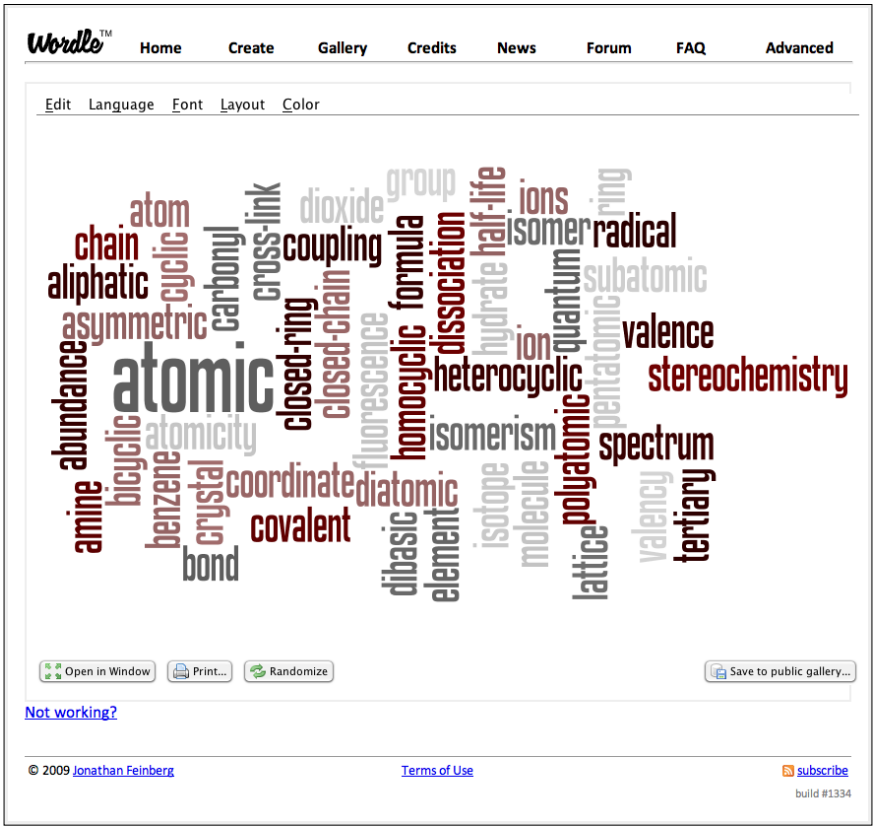
Wordle

http://www.wordle.net/

Wordle is a great way to get students interested in a topic. You can easily create images from lists of words or RSS feeds to use in your site. Here is an example that took me a couple of minutes to put together to introduce a chemistry topic. Using the advanced settings you can change the size of the words too.



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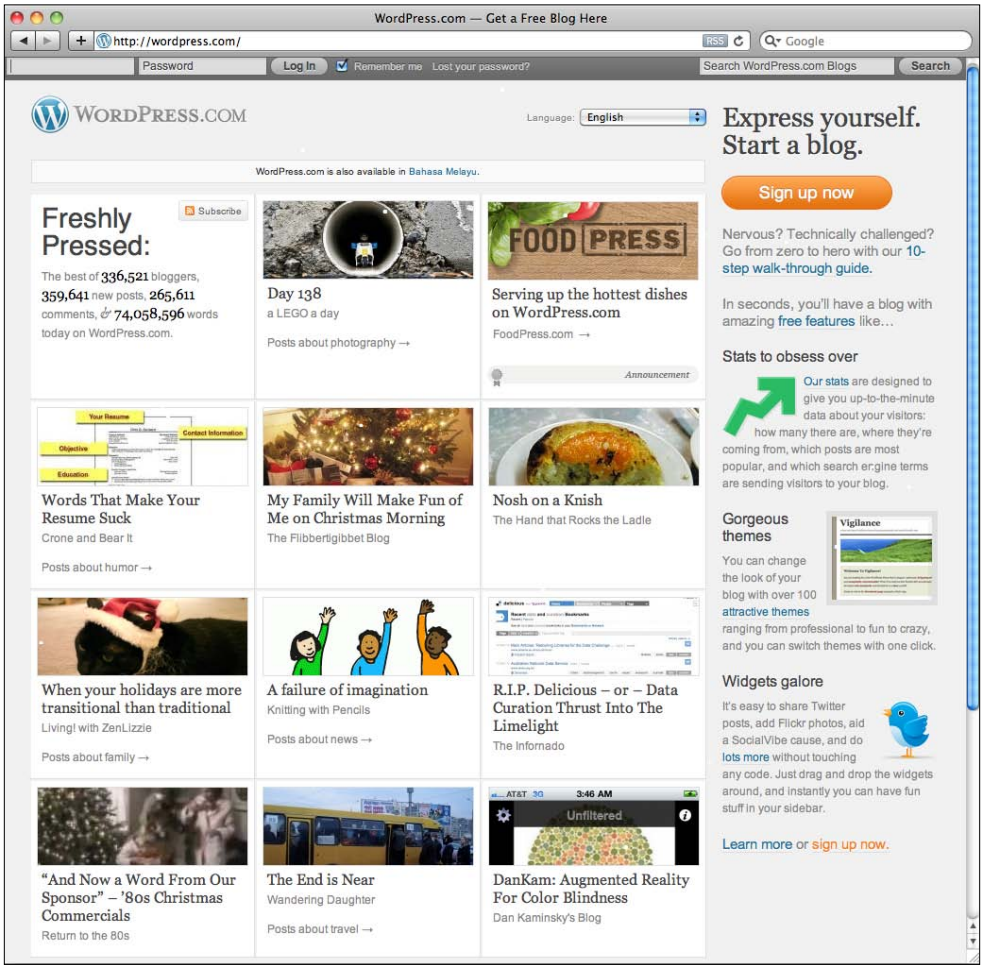
Wordpress

`http://wordpress.com/`

If the blogs in Moodle are not enough for you, have a play with Wordpress. Students could send you links to their blogs or your administrator can allow Wordpress blogs to be integrated with user profiles. Refer to `http://docs.moodle.org/en/Blogs_2.0`.



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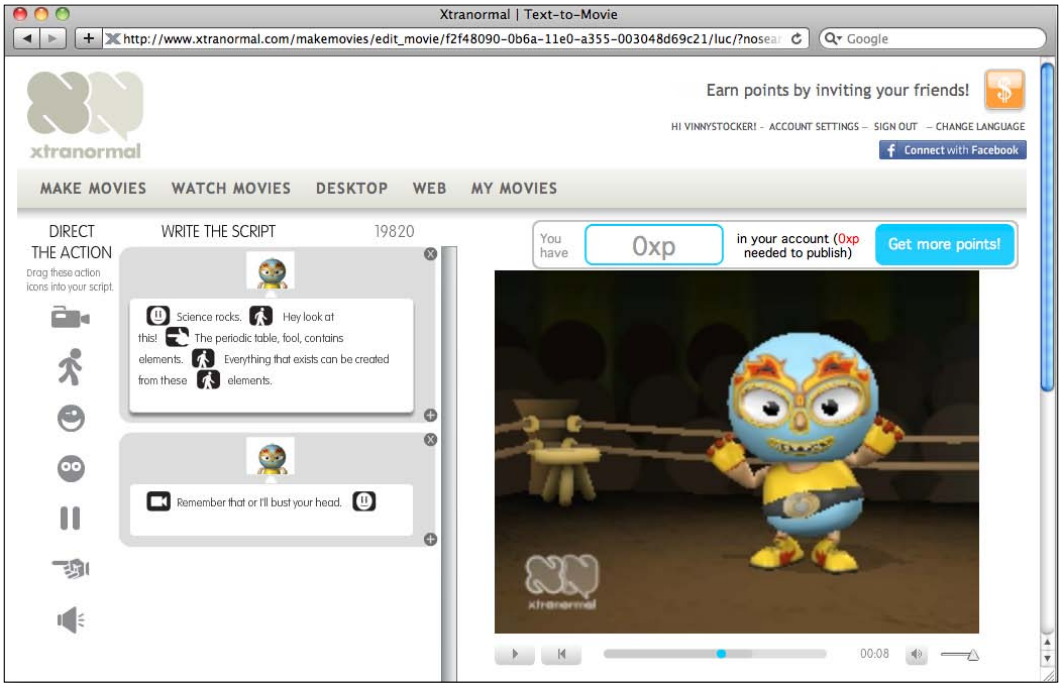
Xtranormal

http://www.xtranormal.com/

If you can type, you can make movies. It's a myth that students retain 10% of what they are told. If you make it interesting, they will remember it. So what better way to tell them something is by "Luchadorz", an animated wrestler wearing skin-tight Lycra! There are lots of different characters and scenes to choose from and it is really easy to produce a short animated film to embed in your course.



Summary

Hopefully, in this final chapter, you've got some ideas to take away and play with, experimenting with new technologies to have a bit of fun with online learning. The final thing to say is try to get as much of your personality into your course as you can. At worst, you might get a few groans from your learners; at best, you could inspire them in their learning and make a huge impact on their lives—which is why most of us go into teaching in the first place.

Moodle on!

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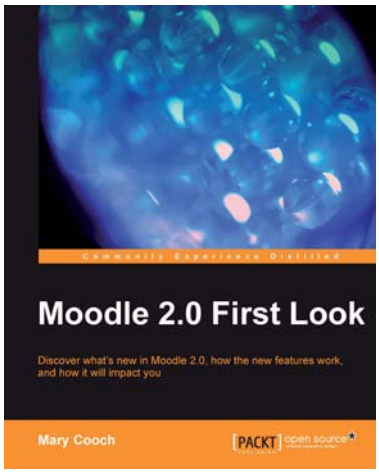

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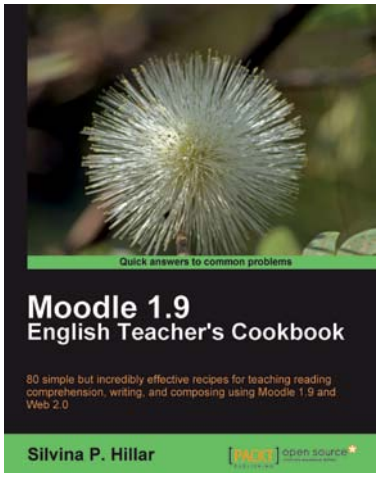

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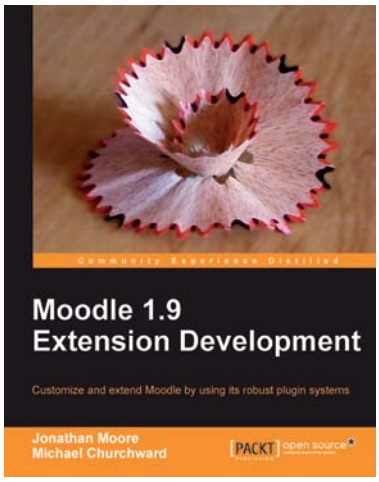

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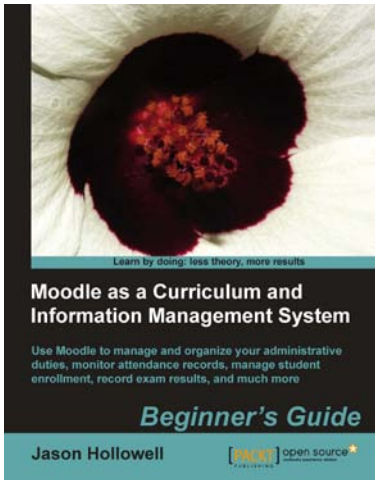

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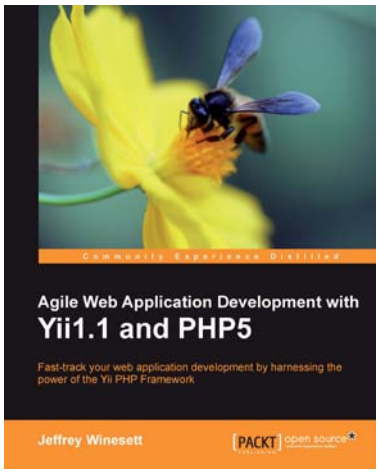

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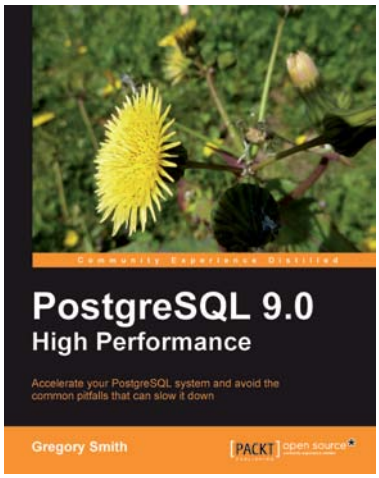

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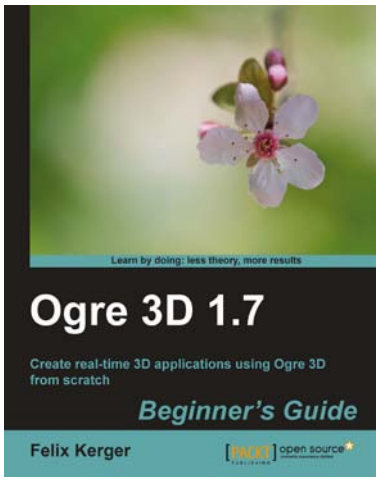

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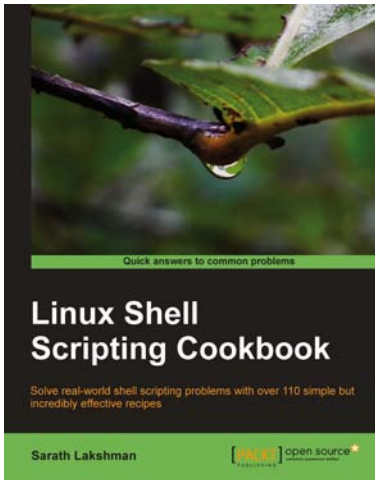

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