

Online quizzes in Moodle (v3.1)



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

Why use online quizzes for assessment and feedback?	2
Setting up a quiz Using Moodle quiz tool	3
Create question categories	3
Write questions	4
Create quiz	5
Add questions to Quiz.....	6
Add section headings	7
Set value of quiz.....	7
Conditional questions.....	8
Preview Quiz.....	8
Initiate User overrides.....	9
View student results	9
Grade essay questions (manual grading)	9
Reset attempts	10
Dealing with faulty questions	10
Regrade a quiz.....	10
References.....	10

WHY USE ONLINE QUIZZES FOR ASSESSMENT AND FEEDBACK?

Online quizzes are often considered as a method for graded assessment, however can be overlooked as a means of offering students an opportunity to learn how an online quiz works, and to gauge their own level of performance in a topic.

Evidence indicates that formative online quizzes can help students perform better on course assessments (Dobson 2008; Kibble 2007; Velan et al. 2008). Wilson et al. (2011) noticed that students who participated in the formative quiz that was offered received a final grade that was 10% greater than those in the same cohort who did not attempt the quiz. While the researchers cannot discount that those who attempted the formative component may have already been higher achievers, they believe that the observed improvement in performance was the result of students: i) gaining skills in the mechanics of completing online multiple choice quizzes, and ii) learning from the questions and feedback available. Several students in their study reflected that on completion and feedback from the formative task, their understanding was not as comprehensive as they originally perceived. This provided an opportunity to review the information prior to a final assessment task.

When designing online quizzes it is important to consider what evidence of learning will be attained by completion of the quiz. Quizzes can be an effective way of assessing students, however, as with any assessment, they must be aligned to the subject learning outcomes and be carefully planned and constructed. Moodle.org (2014) have provided a guide to [effective quiz practices](#) using Moodle quizzes. Most commonly, the questions in online quizzes consist of multiple choice and true/false responses, and mostly are designed to test the acquisition of knowledge, and how well students remember facts and principles. By using different types of questions (e.g. paragraph, numerical) it is possible to test deeper learning, such as understanding and application. Quizzes can be comprised of a number of different types of questions, some of which can be marked automatically (e.g. multiple choice; true/false; short answer, numerical) while others must be manually marked (e.g. paragraph style questions).

There are a number of tools available in Moodle that provide a quiz-like approach for assessment and feedback:

Active quiz

Active quiz (which replaces Realtime quiz) is designed to be used as a responsive theme in the classroom, where students have access to internet enabled devices. Active quiz can be build using any question type from the quiz question bank, uses timed/not timed questions, with grades being added to the grade book. The value Active quiz is that student responses can be reviewed in real time to promote discussion or to clarify key points prior to moving to the next topic. The impact of equity of some students not having internet connected devices can be overcome by encouraging participants to work in small groups to reach a consensus on the answer, which they then post as a group. [Click here](#) to see a short video on how Active quiz works.

Choice Activity

The Moodle Choice tool is similar to the Active Quiz tool in that it allows students to be polled using a single multiple choice question, however does not need to be administered in real time. You can choose if students will see the responses, and also if responses will be published anonymously. This tool could be used to determine if responses to critical issues alters through the course of the semester, or as a quick poll to quickly divide students into groups depending on their answers. [Click here](#) for information on setting up a *Choice* activity.

Quiz tool

The Quiz tool in Moodle allows you to use a range of question types to test your students' knowledge, and also to provide feedback, which can be in the form of a formative quiz, or via feedback from an assessment task. The most common frequency for feedback in an assessment task is either: (i) directly following the student's submission, or (ii) when the quiz closes. Results from the quiz are stored in the Moodle gradebook, which can be either hidden or made available to students. If the quiz is assigned to groups within the Moodle site, each tutor will be able to segregate and analyse the results from their group. The remainder of this guide focuses on using the Quiz tool in Moodle.

SETTING UP A QUIZ USING MOODLE QUIZ TOOL

The instructions that follow relate to setting up a quiz using the Moodle quiz tool. Figure 1 outlines the process for creating and administering quizzes using the Moodle quiz tool. A separate document *Question types in Moodle* that outlines some of the question types is available to help you design different question types.



Figure 1 Steps in creating and administering a Moodle quiz

Create question categories

Before you create your quiz, it is good practice to have your questions written and assigned to question categories. This allows you to randomise questions, and allows you to see clearly which questions belong to each learning outcome and which quiz, if you are using multiple quizzes. Categories may be based on knowledge, skill, or according to the type of question. For example, if your quiz is a mix of randomised multiple choice and essay type questions, you must ensure that all students get an equivalent mix of each type of question. To achieve this you must have each of the question types in their own category. Being organised prior to creating a question can save time and angst later on.

To create categories

1. Navigate to the Moodle site where the quiz is to be built.
2. Turn editing on.
3. Expand the *Administration* block and click on the arrow next to *Question bank* to expand the menu, and select *Categories* (Figure 2).

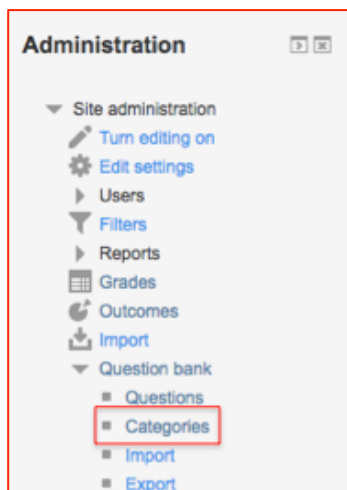


Figure 2 Administration block expanded to show question bank options

4. Existing categories will show, scroll until you see the *Add category* button.
5. Select the *parent category* from the menu and type in the category. You can create subcategories, for example Figure 3 shows a category (Quiz 4) organised according to question type (Calculated, Essay and Multiple Choice type questions). **Figure 4** shows a category (Quiz 5) divided into specific sections of knowledge (Igneous rocks, Metamorphic rocks, Sedimentary rocks) and then Igneous is further divided into type of question (essay, images / application / multiple choice).

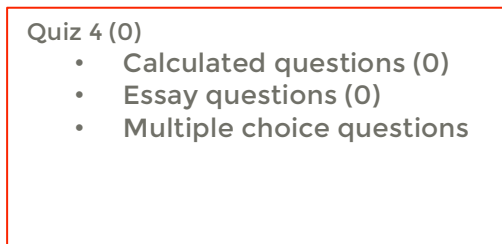


Figure 3 Quiz category showing organisation by question type

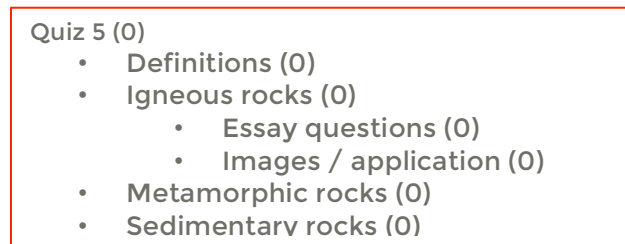


Figure 4 Quiz category showing organisation by subject classification then by question type

Write questions

Figure 5 shows the range of question types available in Moodle 3.1 Quiz tool.

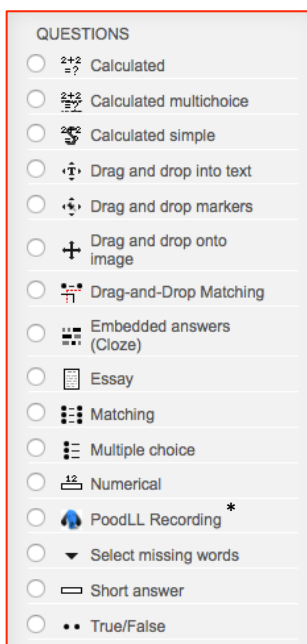


Figure 5 Question types in Moodle

* Currently not available at UOW

To write questions

1. Expand the *Administration* block and click on the arrow next to *Question bank* to expand the menu, and select *Questions*.
2. Select the category for your new question.
3. Click “Create a new question”.
4. Select the question type and click *Add*.
5. Name the question. Do not use a name that gives away the answer, as the question name is visible to students during the quiz. It is recommended to include some sort of code and numbering system. For example IS001 to indicate that the question belongs to the Igneous category, and 001 means question 1.
6. Click the *Expand all* link in the top right to see all options and settings for the question.

The following refers mainly to multiple choice type questions, but the settings apply to most question types:

1. Default mark (follows the question text) – this commonly defaults to 1, however can be changed by typing in a new number.
2. One or multiple answers – default is for “one answer only” however, you can change this to multiple answers if the students are expected to make a selection of answers.

3. Set the grade for the correct answer. Grades can be awarded for more than one answer. For example, where two answers are technically correct, however one gets full marks (100%) and the other may be awarded 50%.
4. Shuffle the choices – Questions with answers such as *Both A and B* should not have the answers randomised, as Moodle assigns different placeholders, meaning that answer may be incorrect in the randomised answer list. It is best not to shuffle responses which have a logical list of progression, e.g. numerical responses, as it can be confusing to see the numbers in a non linear order.
5. Feedback within questions – control when and how students receive feedback using the *Students may review* form in the quiz editing form:
 - Overall feedback – use this to provide the same feedback to all students, regardless of their answer choices. This option may be used to give students some background on what knowledge the question was targeting, or to provide a worked example of a problem.
 - Feedback – use this option to include answer specific feedback. For example “*Your answer is incorrect because.... Refer to the text book on page ... to prepare for the final exam*”.
6. Once saved, you can preview individual questions by clicking on the magnifying glass in the menu next to each question (Figure 6). This is highly advisable if the question is a difficult one, or is one of the more advanced question types.



Figure 6 Preview question using magnifying glass icon

Guides for a variety of question types including Drag and Drop, Numerical, Cloze (embedded) and calculated simple questions have been developed as a separate document.

Create quiz

1. Turn editing on and select the section, topic or week or topic for the quiz.
2. Click on *Add an activity or resource* link to expand the menu, select *quiz*.
3. **Tip** – to see all settings and options in the quiz, click on the *Expand all* link on the top right of the page.
4. Set open and close dates (click in the box next to *Enable*). It is important that you have an open and close date, as otherwise students may see the quiz before your allocated time, or feedback set up for when quiz ends will never be available.
5. Set time limit (click *Enable* to allocate the amount of time allowed).
6. Choose whether to show question titles. Leaving the question titles showing makes it easier to identify questions so that the questions can be more easily checked if students question an answer. Figure 7 shows a question with the title not showing, while Figure 8 shows a question with the question title showing.

Which of the following is the most acceptable overall equation for the oxidation of $\text{Cu}_2\text{S}(\text{s})$ with $\text{O}_2(\text{g})$?

Select one:

- a. $\text{Cu}_2\text{S}(\text{s}) + \text{O}_2(\text{g}) \rightarrow 2\text{Cu}(\text{s}) + \text{SO}_2(\text{g})$
- b. $\text{Cu}_2\text{S}(\text{s}) + 3/2\text{O}_2(\text{g}) + 2\text{e}^- + 2\text{H}^+ \rightarrow 2\text{Cu}(\text{s}) + \text{SO}_2(\text{g}) + \text{H}_2\text{O}$
- c. $\text{Cu}_2\text{S}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{Cu}(\text{s}) + \text{SO}_2(\text{g})$
- d. $2\text{Cu}^+(\text{s}) + \text{S}^{2-}(\text{s}) + \text{O}_2(\text{g}) \rightarrow 2\text{Cu}(\text{s}) + \text{SO}_2(\text{g})$

Figure 7 Showing question with no title

#348 of BalancingEquations-101

Which of the following is the most acceptable balanced equation for the thermal decomposition of $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$?

Select one:

- a. $(\text{NH}_4)_2\text{Cr}_2\text{O}_7(\text{s}) \rightarrow \text{Cr}_2\text{O}_3(\text{s}) + \text{N}_2(\text{g}) + 4\text{H}_2\text{O}(\text{g})$
- b. $2(\text{NH}_4)_2\text{Cr}_2\text{O}_7(\text{s}) \rightarrow 2\text{Cr}_2\text{O}_3(\text{s}) + 2\text{N}_2(\text{g}) + 8\text{H}_2\text{O}(\text{g})$
- c. $(\text{NH}_4)_2\text{Cr}_2\text{O}_7(\text{s}) \rightarrow \text{Cr}_2\text{O}_3(\text{s}) + 2\text{NH}_3(\text{g}) + \text{H}_2\text{O}(\text{g})$
- d. $(\text{NH}_4)_2\text{Cr}_2\text{O}_7(\text{s}) \rightarrow 2\text{Cr}(\text{OH})_3(\text{s}) + 2\text{NH}_4\text{OH}(\text{aq})$

Figure 8 Showing questions with title

7. Set what happens when time expires. To ensure that students receive a mark, the default *Open attempts are submitted automatically* should remain selected.
8. Set the number of attempts allowed. If multiple attempts allowed, indicate which grading method should be used.
9. In layout, select if questions will be randomly assigned or if they will follow a prescribed order. At the New page option, select whether there will be a new page for every question, or after a number of questions. Note: due to Moodle time out it is advised to leave this set to the default of *Every* question (see note below for explanations for this). You can also choose to nominate *Repaginate* while in the Editing quiz settings.
10. Click *Show more* and select your navigation method. Sequential means that students must progress though the quiz, and will not be able to revisit questions.
11. *Grade to pass* – although you can add a pass grade to the quiz, in Moodle 3.1. the gradebook currently shows as completed, even if the learner did not score the required mark. This is an overall bug reported by many Moodle 3.1 users. Moodle.org is investigating this issue.
12. *Review and display* allows you to select what you want the students to see when they view their attempt.
13. Extra restrictions – if students are only to attempt the quiz during class time, it is advisable to set a password (optional). Click in the *unmask* box to see the password you have typed. Change it after everybody in the room has started the quiz, to prevent those external to the room from attempting the quiz outside of your controlled conditions.

Grade boundary – Overall feedback is shown to a student after they have completed an attempt at the quiz (if you have nominated that feedback option). The text that is shown can depend on the grade the student got. For example, if you entered the following boundaries and feedback students who score between 100% and 40% will see the *Well done* message, and those who score between 39.99% and 0% will see *Please study this week's work again*. That is, the grade boundaries define ranges of grades, and each feedback string is displayed to scores within the appropriate range.

Grade boundary: 100% - Feedback: "Well done"

Grade boundary: 40% - Feedback: "Please study this week's work again"

Grade boundary: 0%

Note: Grade boundaries can be specified either as a percentage, for example "31.41%", or as a number, for example "7". If your quiz is out of 10 marks, a grade boundary of 7 means 7/10 or better.

For further information and examples of grade boundaries go to https://docs.moodle.org/22/en/Quiz_settings

Note: It is important to limit questions to one or two per page, or limit your quiz to one question per page, as this means each question is saved as the student progresses through the quiz. Failure to limit the quiz to one question per page can lead to the loss of all of responses from a student should they be timed out, or have technical issues.

Add questions to Quiz

1. Click on the link to your quiz.
2. Expand the Administration block and select *Edit Quiz*.
3. Click the *Add link* (located to the right of the page).

4. To select your existing questions, Select *+ from question bank* and select the category. Select the questions to be added then *Add selected questions to the quiz*.
5. To write a new question click *Add* and then *+ a new question*.

Add section headings

Section headings can be added (optional) to help organise groups of questions and to clarify things such as approach to the question (mathematical questions, analytical questions etc.) or type of question (multiple choice, short answer etc.).

To add a section heading, click on the pencil icon (Figure 9), type in the name of the section and press *Enter* on your Keyboard.

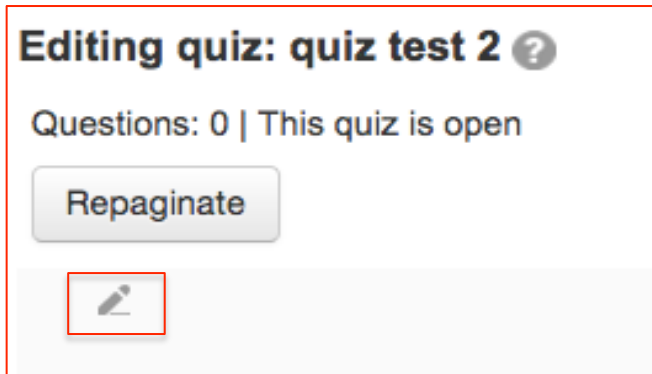


Figure 9 Adding section headings to Quiz

Set value of quiz

Once the quiz has been created and the questions added, the maximum grade will need to be reset. The default for the maximum grade is '10', meaning that question values are scaled up to achieve that score, even if you have set the grade for each question individually. Figure 10: shows that each of the questions in the quiz were scaled up, even though the original question value was 1 per question.

	Q. 1	Q. 2	Q. 3	Q. 4
Grade/10.00	/2.50	/2.50	/2.50	/2.50
10.00	✓ 2.50	✓ 2.50	✓ 2.50	✓ 2.50

Figure 10 Report showing question values

To edit the value of individual questions, or to change the maximum grade for the quiz:

1. Click on the link to the quiz.
2. Expand the Administration block and *Edit quiz*. Figure 11 shows each question and its value, total of marks, and maximum grade).
3. To change the value of each question click on the pencil icon next to the mark.
4. To change the value of the quiz change the number next to *Maximum grade* and then *Save*.



Figure 11 Editing quiz showing value of questions and maximum grade

Conditional questions

If using the *Interactive with multiple tries* or *Immediate Feedback* behaviour and with the navigation method set to *Free*, it is possible to make the display of question depending on a previous question being answered first.

If the quiz is set for this mode, the question editing page will display padlock icons to the right of each question. See Figure 11 for padlocks on right hand side of questions. Figure 12 shows what the students will see if conditional questions are used.

- To set questions for conditional release, click the padlock next to the question, so that it closes, or locks.

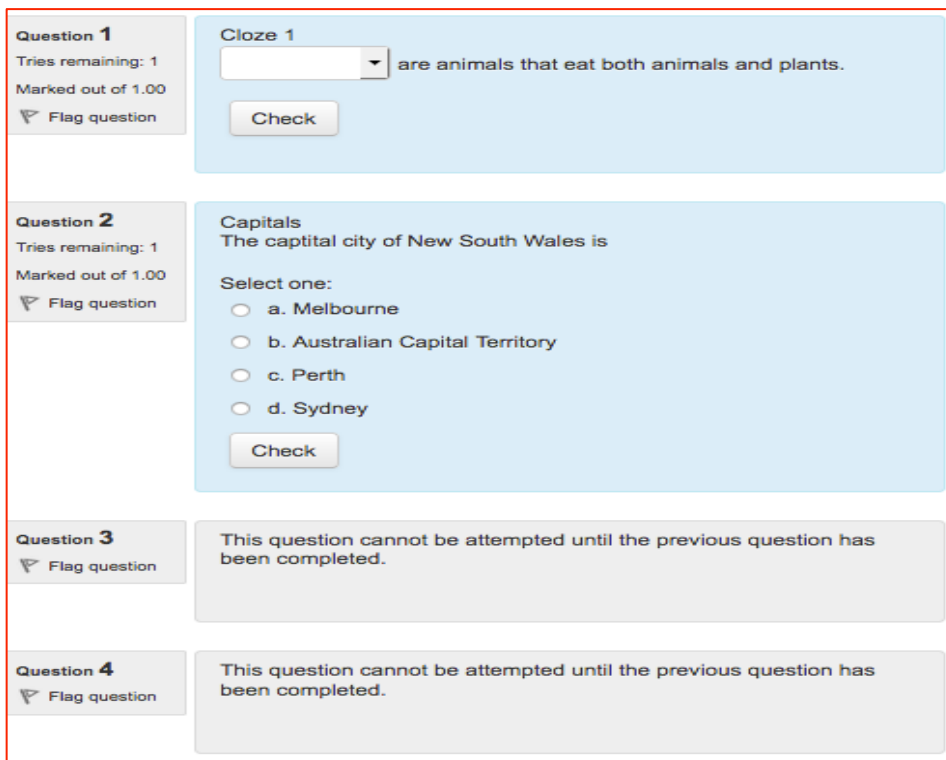


Figure 12 Student view when conditional questions are used

Preview Quiz

It is good practice to preview your quiz to ensure that it looks and behaves how you believe it should. To preview your quiz

1. Expand the Administration block
2. Click *Preview*
3. Attempt the quiz and submit

4. The quiz works like a real quiz, so you can see your grades and any feedback for correct/incorrect answers, just as a student would.

Initiate User overrides

If there are students who are unable to complete the quiz during the required time frame, or who require Reasonable Adjustment (RA) use the *override* option to alter the quiz settings for only those students. To change a quiz setting for a particular user or users

1. Click on the link to the quiz
2. Expand the *Administration* block and select either *user override* or *group override* Figure 13 shows these two options. **Note:** to use group override you will have already placed the students into a *group* with a *grouping*. The following instructions are for *User override* although *Group override* is similar
3. Search for the student/s and click on student name to select
4. Complete the details as required and then *Save* or *Save and enter another override*

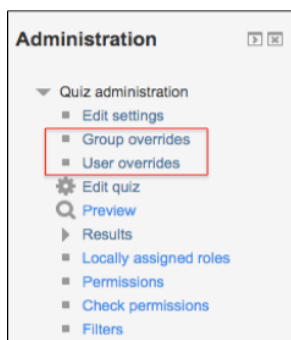


Figure 13 Administration block showing Group and User override options

View student results

There are a number of different ways to see the results of the quiz:

- Grades report** – shows overall results for each student, and their grade for each question
- Response report** – similar to the grades report, instead of grades shows the response the students gave
- Statistics report** – gives statistical (psychometric) analysis of the quiz and the questions within it.
- Manual grading report** – makes it easier to manually grade questions in the quiz

View the quiz results

1. Click on the link to the quiz
2. Open the Administration block to click on the arrow next to *results*
3. Click on the type of report you wish to view (e.g. grades or responses)

Grade essay questions (manual grading)

Essay type questions require the students to write a response to a question. The essay question will not be assigned a grade until it is reviewed and graded by a teacher. To grade an Essay question:

1. Click on the link to the quiz
2. Expand the *Administration* block and select *Quiz administration / Results / manual grading*
3. * To save each grade and comment as you go (recommended), at the top of the page change *Questions per page* to 1
4. Click *Change options*
5. Make comments and grade the first response, click *Save and go to next*. Repeat until all of the Essay questions are graded

* **Note:** This setting is important to ensure that your grades and comments are saved in the event of technical problems.

Reset attempts

Use the *Reset attempts* option if a student requires another attempt at the quiz. Reset all attempts, those of individual students. Note: all existing grades for that quiz for those students will be deleted. To reset grades for individual students

1. Open either the *Grades* or *Response* report
2. Mark the checkboxes next to the student names whose attempts are to be reset
3. Click on *Delete selected attempts*

Dealing with faulty questions

In some instances the wrong answer may have inadvertently been marked as the correct question. Once a quiz has been attempted, it is not possible to remove or add questions. Below are a number of suggestions

1. Set the grade for that question as 0, however this would make it impossible for students to achieve maximum marks
2. Edit the question, changed what will be accepted as a correct answer, then regrading the quiz. Remember that when changing a question, the next time it is used it will be as it was in the last edit. You will also need to regrade each quiz that includes that question.

Regrade a quiz

If a question is revealed as having the incorrect answer marked as correct, you can correct the question (see point 2 above) and then regrade the question. To do this:

1. Locate the question, and change the answer so that it reflects the correct response.
2. Click on the link to the quiz, which will then show how many students have attempted the quiz
3. Click on the link to show attempts
4. Use the *Select all* link to select all students who have attempted the quiz
5. Click the *Regrade selected attempts* button

REFERENCES

Dobson, J L 2008, 'The use of formative online quizzes to enhance class preparation and scores on summative exams', *Advances in Physiology Education*, 32:297-302. <http://advan.physiology.org/content/ajpadvan/32/4/297.full.pdf> (Accessed 30/9/14)

Kibble, J 2007, 'Use of unsupervised online quizzes as formative assessment in medical physiology course: effects of incentives on student participation and performance', *Advances in Physiology Education*, 31(3), 253-260.

Moodle.org 2014, Effective quiz practices, https://docs.moodle.org/27/en/Effective_quiz_practices (Accessed 1 October 2014)

Velan G, Jones P, McNeil HP & Kumar, RK 2008, 'Integrated online formative assessments in the biomedical sciences for medical students: benefits for learning'. *BMC Medical Education* 9(52). <http://www.biomedcentral.com/1472-6920/8/52>. (Accessed 30/9/14)

Wilson, K Boyd, C Chen, L Jamal S (2011). Improving student performance in a first-year geography course: Examining the importance of computer-assisted formative assessment. *Computers & Education* 57(2):1493-1500.