



Assessments

Part Two

Blackboard Learn 9.1
Last updated: January 2013

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Table of Contents

| | |
|--|-----------|
| 1: Workshop Overview | 6 |
| Roadmap..... | 7 |
| 2: Student Experience..... | 8 |
| Review: Accessing Tests and Surveys | 9 |
| Hands-on Activity | 10 |
| 3: Creating Advanced Questions..... | 11 |
| Advanced Question Types | 12 |
| Jumbled Sentence Questions | 13 |
| Fill in Multiple Blanks Questions | 15 |
| Hot Spot Questions | 19 |
| Opinion Scale/Likert Questions | 21 |
| Quiz Bowl Questions | 23 |
| Calculated Numeric Questions..... | 26 |
| Hands-on Activity | 27 |
| Metadata..... | 28 |
| Frequently Asked Questions | 30 |
| Hands-on Activity | 31 |
| 4: Creating Pools..... | 32 |
| About Pools..... | 33 |
| Creating a Pool | 36 |
| Editing Pool Questions..... | 37 |
| Importing a Pool..... | 38 |
| Hands-on Activity | 39 |

| | |
|---|-----------|
| 5: Advanced Test Creation | 40 |
| Overview: Creating a New Test Using Pools and Existing Tests | 41 |
| Creating a Test | 42 |
| Specifying Question Settings | 43 |
| Finding and Adding Questions..... | 44 |
| Assigning Point Values | 46 |
| Hands-on Activity | 47 |
| Creating Question Sets | 48 |
| Creating Random Blocks..... | 50 |
| Hands-on Activity | 52 |
| Frequently Asked Questions | 53 |
| 6: Creating and Using Surveys..... | 54 |
| The Survey Lifecycle | 55 |
| Creating and Deploying Surveys | 56 |
| Hands-on Activity | 59 |
| Best Practice: Use Surveys Throughout Your Course..... | 60 |
| Viewing Aggregate Survey Results | 61 |
| Hands-on Activity | 63 |
| 7: Item Analysis..... | 64 |
| About the Test Summary on the Item Analysis Page..... | 67 |
| About the Question Statistics Table on the Item Analysis Page | 69 |
| How to View Question Details on a Single Question | 71 |
| Symbol Legend..... | 75 |
| Item Analysis and Multiple Attempts, Question Overrides, Question Edits | 76 |
| Examples..... | 77 |

| | |
|----------------------------------|-----------|
| Hands-on Activity | 78 |
| 8: Workshop Wrap Up | 79 |
| Spotlight on Your Course | 80 |

1: Workshop Overview

In this workshop, you are introduced to the advanced features and functions of creating tests. You will learn how to create advanced question types and add metadata to questions. You will see how to reuse questions in multiple tests by creating a database of questions.

Advanced test creation strategies you will learn include:

- Searching pools and tests by question type and metadata.
- Adding random blocks of questions to tests.

You will become familiar with the key differences between creating tests and surveys, and learn how to create a survey and view survey results.

Finally, you will learn how to run an item analysis and interpret the results.

Roadmap

2: Student Experience

- Access and take a test with advanced question types.
- Access and take a survey.

3: Creating Advanced Questions

- Add Jumbled Sentence, Fill in Multiple Blanks, Hot Spot, Opinion Scale/Likert, Quiz Bowl, and Calculated Numeric questions.
- Assign metadata to questions.

4: Creating Pools

- Learn how pools can be used in conjunction with tests.
- Note differences between tests and pools.
- Add questions from another course.

5: Advanced Test Creation

- Search for questions by question type and metadata.
- Create a test that draws a random selection of questions.
- Create a test that draws a random selection of questions from a pool.

6: Creating Surveys

- Note differences between surveys and tests.
- Poll student opinion and conduct class evaluations.
- View survey results, including student responses for each question.

7: Item Analysis

- Run an item analysis on at test.
- Discover which questions need your review.

2: Student Experience

In this section, you explore both a test and a survey as a student. This allows you to experience a variety of more advanced question types and see the essential differences between a survey and a test.

These experiences provide an introduction to instructor activities you complete later in the workshop, and provide some context for the decisions you make as an instructor.

Learning Outcomes

After completing this section, you will be able to:

- Describe how advanced question types appear to students.
- Explain survey taking from a student's perspective.

Review: Accessing Tests and Surveys

Students typically access tests and surveys from content areas.

| Tests | |
|---|---|
|  | <p><u>Oceanography Midterm</u></p> <p>This test contains 50 multiple choice questions and three essay questions. You have one hour to complete the test and may only take it one time. Total points: 80.</p> |
|  | <p><u>History of Ocean Exploration and Science</u></p> <p>This test covers material presented in Chapter 1 – The History of Ocean Exploration and Science. This is a timed assessment. You will see all questions at once.</p> |
|  | <p><u>Chapter 4 Test</u></p> |

After you select a test or survey, click **Begin** for the test or survey to appear. Instructions provided by an instructor are located at the top of the test.

Hands-on Activity

For this activity, use your Student Course.

Advanced Quiz

Take the **Advanced Quiz** in the **Assessments** content area and do the following.

- Note the question types and layout. Write down the question types.
- Answer the questions.
- Review your results and read the feedback.

Advanced Quiz Question Types

- List the types of questions you encountered in the **Advanced Quiz**.

Survey

Access **Getting Started** on the courses menu and take the **Attitudes About Writing** survey.

- Note the questions types and layout.
- Answer the questions.
- Review your answers.

For Discussion:

- How can you use the advanced question types in your course?

3: Creating Advanced Questions

In this section, you learn how to create the advanced question types you just explored from the student perspective. In addition, you learn how to add metadata to questions to allow questions to be categorized and searched.

Learning Outcomes

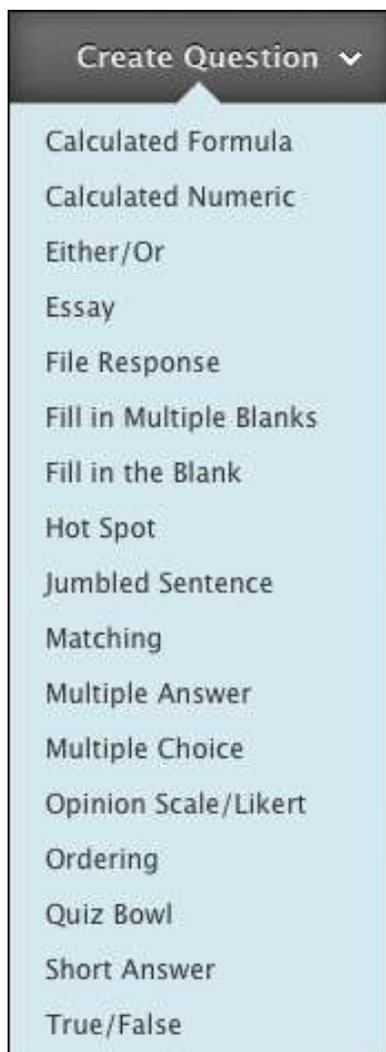
After completing this section, you will be able to:

- Create advanced question types.
- Explain the advantages of adding metadata to questions.
- Add metadata to questions.

Advanced Question Types

This section includes these advanced question types:

- Jumbled Sentence
- Fill in Multiple Blanks
- Hot Spot
- Opinion Scale/Likert
- Quiz Bowl
- Calculated Numeric



Jumbled Sentence Questions

Jumbled Sentence questions require students to complete a sentence by selecting words or phrases from a drop-down list. The same drop-down list appears for all blanks and can include both correct answers and distractors. Up to 20 different words or phrases can appear on the list.

Jumbled Sentence questions are graded automatically.

Question 6 10 points Save Answer

Single water molecules are held together by [] bonds and multiple water molecules are held together by [] bonds. The kind of bond where atoms are sharing electrons, but are not sharing them equally, is called []

- hydrogen
- polar covalent
- nonpolar
- covalent

Type the question text as students see it, but replace the missing information with variables in square brackets. For example, "Single water molecules are held together by [a] bonds and multiple water molecules are held together by [b] bonds. The kind of bond where atoms are sharing electrons, but are not sharing them equally is [c]." Variables consist of letters, digits (0-9), periods (.), underscores (_) and hyphens (-). Variable names must be unique and cannot be reused.

QUICK STEPS: Creating Jumbled Sentence Questions

1. Point to **Create Question** and select **Jumbled Sentence** drop-down list,
2. On the **Create/Edit Jumbled Sentence Question** page, type the question, adding the variables in square brackets. You can use the content editor to format the text and include files, images, web links, multimedia, and mashups.
3. Select **Allow Partial Credit** if you want to allot each correct answer a fraction of the total point value.
4. Select **Number of Answers** from the drop-down list. Click **Remove** to delete extra answers.
5. Type answers in the **Answer** boxes. The list can include correct answers only or both correct answers and distractors. On the next page, you will select the correct answer for each variable.
6. Click **Next**.

7. On the next **Create/Edit** page, use the drop-down list to select the correct answer for each variable.
8. Optionally, provide **Feedback** or **Categories and Keywords**.
9. Click **Submit**.

Partial Credit on Jumbled Sentence Questions

You can specify partial or negative credit for Jumbled Sentence questions. Partial credit gives a percentage of the question's possible points for a partially correct answer.

NOTE: You must enable the options to specify partial credit on the **Question Settings** page in order to use it on individual questions.

QUICK STEPS: Specifying Partial Credit on Jumbled Sentence Questions

1. On the **Test Canvas**, create or edit a Jumbled Sentence question.
2. Under **Options**, select the **Allow Partial Credit** check box.

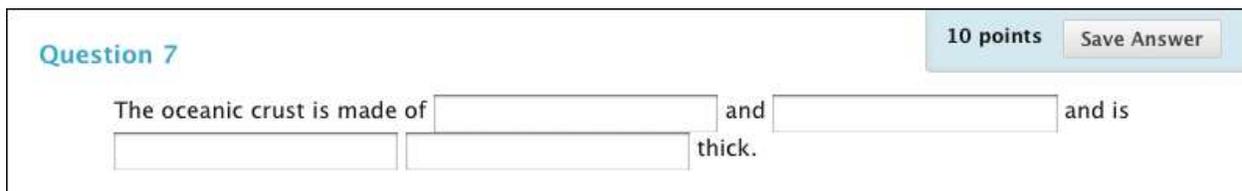


The amount of partial credit is assigned automatically.

Fill in Multiple Blanks Questions

In Fill in Multiple Blanks questions, students are presented with text containing up to 10 blanks. Students complete the sentence by typing the appropriate word or phrase for each blank.

Fill in Multiple Blanks questions are graded automatically. Answers are scored based on whether the student answer matches the correct answers you provide. You can require student answers to match exactly, contain part of the correct answer, or match a pattern that you specify. You choose whether or not the answer is case sensitive.



Question 7 10 points

The oceanic crust is made of and and is thick.

To create a Fill in the Multiple Blanks question, type the question text as the students see it, but replace the missing information with variables in square brackets. For example, "The oceanic crust is made of [a] and [b] and is [c] [d] thick." Variables can consist of letters, digits (0-9), periods (.), underscores (_) and hyphens (-). Variable names must be unique and cannot be reused.

QUICK STEPS: Creating Fill in Multiple Blanks Questions

1. Point to **Create Question** and select **Fill in Multiple Blanks** from the drop-down list.
2. On the **Create/Edit Fill in Multiple Blanks Question** page, type the question, adding the variables in square brackets. You can use the content editor to format the text and include files, images, web links, multimedia, and mashups.
3. Select **Allow Partial Credit** if you want to allot each correct answer a fraction of the total point value.
4. Click **Next**.
5. On the next **Create/Edit** page, select the **Number of Answers** from the drop-down list for each variable. A single variable can have more than one possible answer.
6. Type answers in the **Answer** boxes.

Select **Exact Match**, **Contains**, or **Pattern Match** from each answer's drop down to specify how it will be evaluated against the student's answer.

Check **Case Sensitive** if you want the answer to take capitalization into account.

7. Click **Next**.
8. Optionally, provide **Feedback** or **Categories and Keywords**.
9. Click **Submit**.

Note how the answers are constructed for the example question. For variable C, the evaluation method is **Exact Match**, since it is a number pulled directly from the textbook. Variable D has two answers, to allow both "km" and "kilometer." The evaluation method for both is **Contains** to allow for minor spelling variations, such as plural or not plural.

1. Question Text

The oceanic crust is made of [a] and [b] and is [c] [d] thick.

2. Answers for: a

Number of Answers

*Answer 1 Case Sensitive

3. Answers for: b

Number of Answers

*Answer 1 Case Sensitive

4. Answers for: c

Number of Answers

*Answer 1 Case Sensitive

5. Answers for: d

Number of Answers

*Answer 1 Case Sensitive

*Answer 2 Case Sensitive

About Creating Answers

Keep the answers simple and limited to as few words as possible. Limit answers to one word to avoid extra spaces between words or the order of the words causing a student answer to be scored as incorrect.

- Select **Contains** from the drop-down list in the answer to allow for abbreviations or partial answers. This option counts the student's answer as correct if it includes the word or words you specify. For example, set up a single answer that contains Franklin so that Benjamin Franklin, Franklin, B Franklin, B. Franklin, and Ben Franklin are all counted as correct answers. This eliminates the need for you to list all acceptable possibilities for the answer Benjamin Franklin.
- Provide additional answers that allow for common spelling errors or select **Pattern Match** from the drop-down list in the answer to create a regular expression that allows for spelling variations.

Pattern Match

Pattern Match is an advanced technique that enables you to use regular expressions when specifying correct answers to allow for some variability in the answers that will be counted as correct. They enable you to count certain patterns as correct, rather than an exact text match. For example, regular expressions enable grading of the wide range of possible answers that are typical of scientific data.

In a regular expression, most characters in the string match only themselves and are called literals. Some characters have special meaning and are called metacharacters. You can conduct an internet search on *regular expressions* for a complete list. Here are a few examples:

- A dot (.) matches any single character except newline characters.
- Brackets [] match anything inside the square brackets for one character.
- A dash (-) inside square brackets allows you to define a range. For example, [0123456789] could be rewritten as [0-9].
- A question mark (?) makes the preceding item in the regular expression optional. For example, Dec(ember)? will match Dec and December.

Simple string examples:

- b.t - matches with bat, bet, but, bit, b9t because any character can take the place of the dot (.)
- b[aeui]t matches bat, bet, but, bit
- b[a-z]t would accept any three-letter combination that begins with b and ends with t. A number would not be accepted as the second character.
- [A-Z] matches any uppercase letter

- [12] matches the target character to 1 or 2
- [0-9] matches the target character to any number in the range 0 to 9

When you select **Pattern Match** for an answer, you can click **Check Pattern** to open a new window where you test your pattern to be sure it will produce the results you want. After testing and editing the pattern, click **Save & Exit** to save your modified pattern as the answer.

Partial Credit on Fill in Multiple Blanks Questions

You can specify partial credit for Fill in Multiple Blanks questions. Partial credit gives a percentage of the question's possible points for a partially correct answer.

NOTE: You must enable the options to specify partial credit on the **Question Settings** page in order to use it on individual questions.

QUICK STEPS: Specifying Partial Credit on Fill in Multiple Blanks Questions

1. On the **Test Canvas**, create or edit a Fill in Multiple Blanks question.
2. Under **Options**, select the **Allow Partial Credit** check box.

The amount of partial credit is assigned automatically, depending on the question's possible points and the number of answers.

Hot Spot Questions

With Hot Spot questions, students are presented with an image and are asked to select a particular area.

Examples of Hot Spot questions include:

- Anatomy: To locate different parts of the body.
- Geography: To locate areas on a map.
- Foreign Language: To select different articles of clothing.

Hot Spot questions are graded automatically.

Question 8 10 points [Save Answer](#)

Click on the graph that shows a diurnal tide cycle.

The image displays three graphs of Tide Height (meters) versus Time (hours) for a 24-hour period. Each graph has a y-axis from -1 to 3 and an x-axis with markers at 12 and 24 hours. A dashed horizontal line is at y=0.

- Graph 1 (Top Left):** Shows a single high tide at 12 hours (height ~1) and a single low tide at 24 hours (height ~-0.5).
- Graph 2 (Top Right):** Shows two high tides at 6 and 18 hours (height ~2) and two low tides at 0 and 12 hours (height ~-0.5).
- Graph 3 (Bottom):** Shows two high tides at 3 and 21 hours (height ~2.5) and two low tides at 9 and 15 hours (height ~0.5).

Selected Coordinates

Have the image file ready before you create the question. You can upload the image file from your computer or link to it from Course Files or Content Collection. Images must be JPG, GIF, or PNG files. Although there are no limitations, take into consideration the size of the image and make adjustments using an image editing application before uploading the file.

QUICK STEPS: Creating Hot Spot Questions

1. Point to **Create Question** and select **Hot Spot** from the drop-down list.
2. On the **Create/Edit Hot Spot Question** page, type the question. You can use the content editor to format the text and include files, images, web links, multimedia, and mashups.
3. **Browse** for the image file. After you upload the file, the file name appears.
4. Click **Next**.
5. On the next **Create/Edit** page, the image appears. Click the mouse and drag it to create a rectangle over the correct answer. When students select a point within the rectangle, they receive credit for a correct answer. The area of the hot spot is defined by pixels. If needed, click **Clear** to remove the rectangle and start again.
6. Optionally, provide **Feedback** or **Categories and Keywords**.
7. Click **Submit**.

Opinion Scale/Likert Questions

Opinion Scale/Likert questions are designed to measure students' attitudes or reactions using a comparable scale. By default, there are five answer choices ranging from Strongly Agree to Strongly Disagree, and a sixth option that allows students to select Not Applicable. You can change the text of the answer choices and adjust the number of answers from 2 to 20.

Opinion Scale/Likert questions are graded automatically.

Question 1 Save Answer

How concerned are you about the polar ice caps melting?

1. Strongly Agree 2. Agree 3. Neither Agree nor Disagree 4. Disagree 5. Strongly Disagree 6. Not Applicable

Opinion Scale/Likert questions are ideal for surveys. If the questions are included in a test, an instructor must select a correct answer. If just an opinion is needed, change the point value to zero so the question does not affect the test total.

QUICK STEPS: Creating Opinion Scale/Likert Questions

1. Point to **Create Question** and select **Opinion Scale/Likert** from the drop-down list.
2. On the **Create/Edit Opinion Scale/Likert Question** page, type a question or statement. You can use the content editor to format the text and include files, images, web links, multimedia, and mashups.
3. Select **Answer Numbering** and **Answer Orientation** from the drop-down lists or leave the defaults.
4. Select **Number of Answers** from the drop-down list or leave the default of six. Click **Remove** to delete an answer box.
5. To change the default answers, or to add answers if you have increased the number of possible answers, type an answer in each box.
6. Select the correct answer if you are creating this question in a test.
7. Optionally, provide **Feedback** or **Categories and Keywords**.
8. Click **Submit**.

Edit the default answers to fit your question or statement. You can remove answer boxes at any time using the **Remove** function to the right of each text box.

Partial Credit on Opinion Scale/Likert Questions

You can specify partial credit for Opinion Scale/Likert questions. Partial credit gives a percentage of the question's possible points for a partially correct answer.

NOTE: You must enable the options to specify partial credit on the **Question Settings** page in order to use it on individual questions.

QUICK STEPS: Specifying Partial Credit on Opinion Scale/Likert Questions

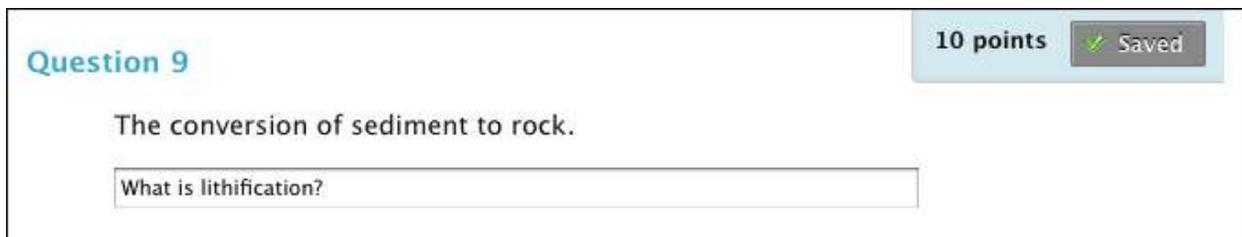
1. On the **Test Canvas**, create or edit an Opinion Scale/Likert question.
2. Under **Options**, select the **Allow Partial Credit** check box.
3. In the **Partial Credit %** text box below each incorrect answer, type a value for partial credit. This number is read as a percent. For instance, typing **50** will give the student 50% of the question's possible points for selecting that answer. Zero is an acceptable value.
4. Click **Submit**.

Quiz Bowl Questions

With Quiz Bowl questions, students are presented with an answer to which they must provide the question. The student's response must be in the form of a question that begins with an interrogative, such as who, what, or where. For example, the statement, "It is the only country that is a continent," requires the answer, "What is Australia?"

TIP: Add instructions to the initial statement asking students to respond in the form of a question. Remind students to use a question mark. Incorrect end punctuation results in no credit for the response.

Quiz Bowl questions are graded automatically.



The screenshot shows a quiz question interface. On the left, it says "Question 9". On the right, it shows "10 points" and a "Saved" button with a green checkmark. The question text is "The conversion of sediment to rock." Below this is a text input field containing the text "What is lithification?".

When you create a Quiz Bowl question, you provide:

- The statement to which students must answer with an appropriate question.
- All possible interrogatives the question could begin with—who, what, where, and so on.
- All possible correct answer phrases, including variations in spellings, plurals, and common abbreviations.

By default, when Blackboard Learn scores the question, a correct response contains any one of the interrogatives you added, immediately followed by any one of the phrases you added, including end punctuation.

To award students partial credit for responses including a correct phrase, but missing the correct interrogative, enable the **Allow Partial Credit** option for answers in the test Question Settings.

QUICK STEPS: Creating Quiz Bowl Questions

1. Point to **Create Question** and select **Quiz Bowl** from the drop-down list.
2. On the **Create/Edit Quiz Bowl Question** page, type a statement that students can provide the question to. You can use the content editor to format the text and include files, images, web links, multimedia, and mashups.
3. Select the **Number of Interrogatives** from the drop-down list. Up to 20 interrogatives can be added.
4. If necessary, type or edit the **Interrogatives**. Remove interrogatives using the **Remove** function to the right of each text box.
5. Type the answer phrase. Optionally, select the number of answer phrases if more than one is needed.
6. Optionally, provide **Feedback** or **Categories and Keywords**.
7. Click **Submit**.

1. Question

Question Title

* Question Text

Paragraph Arial 3 (12pt)

The conversion of sediment to rock.

Path: p Words:6

2. Options

Allow Partial Credit

3. Interrogatives

Number of Interrogatives

Interrogative 1

4. Answer Phrases

Number of Answer Phrases

* Answer Phrase 1

Partial Credit on Quiz Bowl Questions

You can specify partial credit for Quiz Bowl questions. Partial credit gives a percentage of the question's possible points for a partially correct answer.

NOTE: You must enable the options to specify partial credit on the **Question Settings** page in order to use it on individual questions.

QUICK STEPS: Specifying Partial Credit on Quiz Bowl Questions

1. On the **Test Canvas**, create or edit a Quiz Bowl question.
2. Under **Options**, select the **Allow Partial Credit** check box.
3. In the **Partial Credit %** text box, type a value for partial credit. This number is read as a percent. For instance, typing **50** will give the student 50% of the question's possible points for including one of the correct answer phrases but not including an interrogative.
4. Click **Submit**.

Calculated Numeric Questions

With Calculated Numeric questions, students are presented with a question that requires a numeric answer. The question does not need to be a mathematical formula; it can be a text question that requires a numeric answer. It resembles a Fill in the Blank question in which the correct answer is a number.

Calculated Numeric Questions are graded automatically.



The screenshot shows a question interface. On the left, it says "Question 10". On the right, there is a blue box with "10 points" and a grey box with a green checkmark and "Saved". The question text is "What percentage of all of Earth's volcanic activity occurs in the oceans?". Below the text is a text input field containing the number "90".

You can specify an exact numeric answer or you can specify an answer and an allowable range.

QUICK STEPS: Creating Calculated Numeric Questions

1. Point to **Create Question** and select **Calculated Numeric** from the drop-down list.
2. On the **Create/Edit Numeric Answer Question** page, type text in the **Question Text** box. You can use the content editor to format the text and include files, images, web links, multimedia, and mashups.
3. Type the **Correct Answer** using numbers.
4. If applicable, type the **Answer Range**. If you add an **Answer Range**, the question is scored as correct if it falls anywhere within the range.
5. Optionally, provide **Feedback** or **Categories and Keywords**.
6. Click **Submit**.

Hands-on Activity

For this activity, use your Practice Course.

From the Tests page:

- Create a test containing three or four of the advanced question types. Select question types you might use in your own course.

Metadata

Metadata describes data and helps you organize content. Tag questions with metadata to help you retrieve them later. You can add the following types of metadata:

- Category
- Topic
- Levels of Difficulty
- Keywords

There are no standard metadata values for each type; you assign metadata values to suit your course content and teaching requirements. For example, for a course on popular culture, you might develop the following classification scheme listed in the following table:

| Metadata Type | Values |
|----------------------|---|
| Categories | The '60s, the '70s, the '80s, the '90s, the 21st Century |
| Levels of Difficulty | Easy, Moderate, Hard |
| Topics | TV, Movies, Music, Sports, Hobbies, Food |
| Keywords | Enter keywords specific to each question. Example: What powdered drink mix was made popular by NASA? Keywords: powdered drink, Tang, NASA |

Tagging questions with specific metadata helps you find and reuse questions later in other tests or in random blocks. If the classification scheme above was used, you can:

- Create a test of moderately difficult questions about music from the '70s.
- Create a test containing questions about TV and movies from the '80s and '90s.
- Add bonus questions to a test by searching for questions assigned a hard level of difficulty.

QUICK STEPS: Creating and Assigning Metadata Values

You can add metadata values to a question during creation or by editing an existing question.

1. Access an existing question or create a new one.
2. Click **Add** for **Categories**, **Topics**, **Levels of Difficulty**, or **Keywords**. Type a word in the **Tag** box. This word is the metadata term assigned to this question that you can use later in searches.

For example, you might assign the following metadata values for the question, "What powdered drink mix did NASA make popular?"

- **Category** = the '60s
- **Topic** = Food
- **Level of Difficulty** = Easy
- **Keywords** = powdered drink, Tang, NASA

The metadata values you create are available for all questions in any test or pool. While you are editing or creating a question, scroll to the **Categories and Keywords** section and click **Choose from Existing**.

5. **Categories and Keywords**

| | | | | |
|----------------------|------|------------------------------|----|----------------------|
| Categories | 1960 | Add Tag <input type="text"/> | OK | Choose from Existing |
| Topics | None | Add | | |
| Levels of Difficulty | None | Add | | |
| Keywords | None | Add | | |

NOTE: The label **None** next to the other metadata types indicates that no values have been assigned for those types.

Frequently Asked Questions

In the following table, learn about creating question metadata.

| Question | Answer |
|---|--|
| Can I create metadata values outside of a question? | No. You always create values and assign metadata within questions. However, to save time, you can access a single question and create all your metadata values for each type of metadata. Then, when you create the next question, you only need to assign the specific value to the question. |
| Do I have to add values for all metadata types? | No. You can use just one if that is all you need to organize your questions. For example, you can assign only keywords to your questions. Keywords are the quickest type of metadata to assign because you do not need to create the values first and then assign them. |

Hands-on Activity

For this activity, use your Practice Course.

Add Metadata

- Select one of the metadata types—categories, levels of difficulty, topics, or keywords—and brainstorm some values you might apply to questions in your course.
- Add metadata to the advanced questions you created in an earlier activity.

4: Creating Pools

In this section, you learn how to create question pools.

Learning Outcomes

After completing this section, you will be able to:

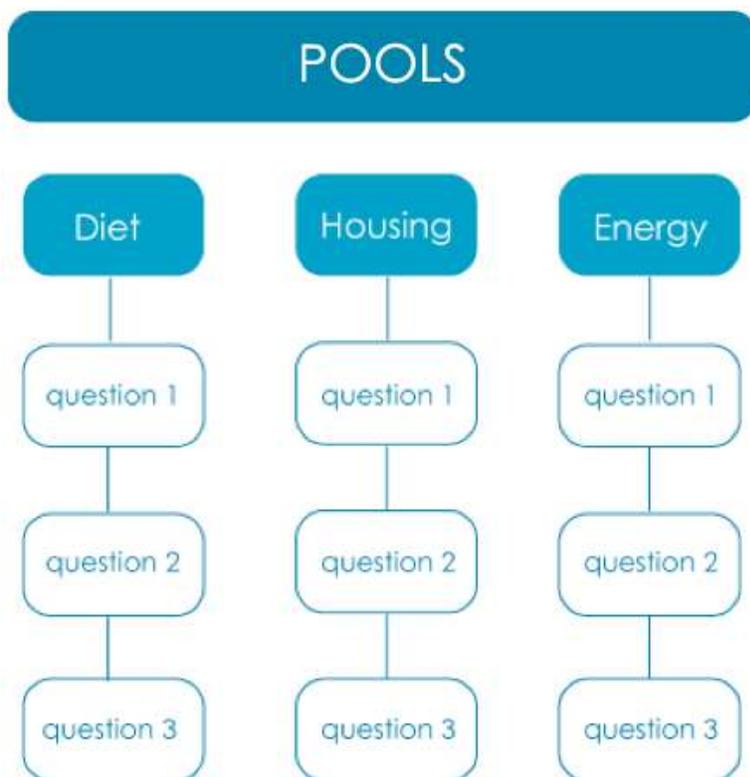
- Explain the advantages of using pools.
- Create a pool and add questions to it.
- Import a pool.

About Pools

A question pool is a collection of questions that is stored for repeated use. You can export and import pools for use in other courses.

Questions in a pool are almost identical to test questions. They can contain feedback, metadata, and all the other elements of a test question, but they do not contain point values.

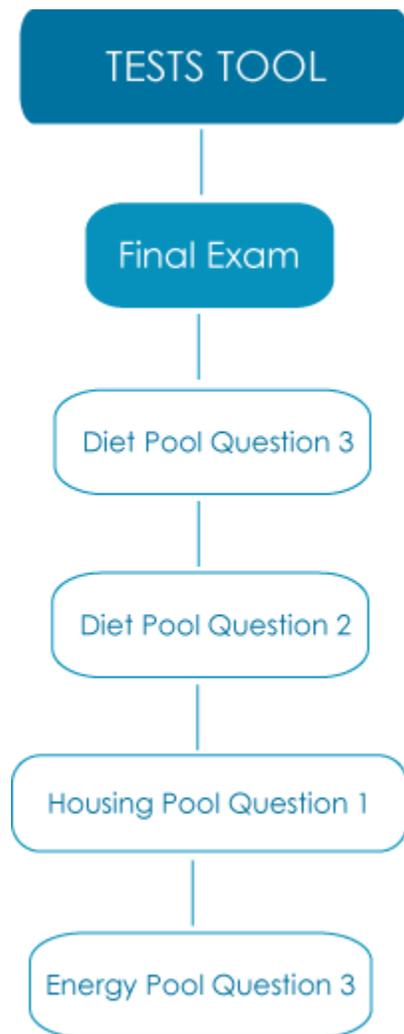
Instructors typically use pools to create a database of questions they can reuse in multiple tests. For example, an instructor for a course on Sustainable Living can create a question pool for each of the central topics in the course. In the illustration below, the instructor has created three pools: Diet, Housing, and Energy.



Using Pools in Test Creation

You cannot deploy pools or make them visible to students. However, during test creation, you can find questions to include by searching pools.

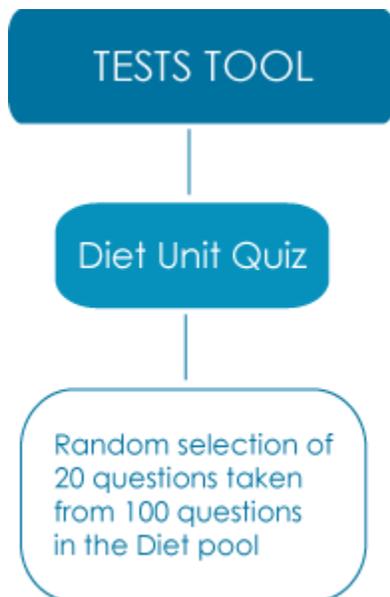
For example, our instructor can create a final exam consisting of questions taken from each of the topic pools.



Using Pools for Random Block Tests

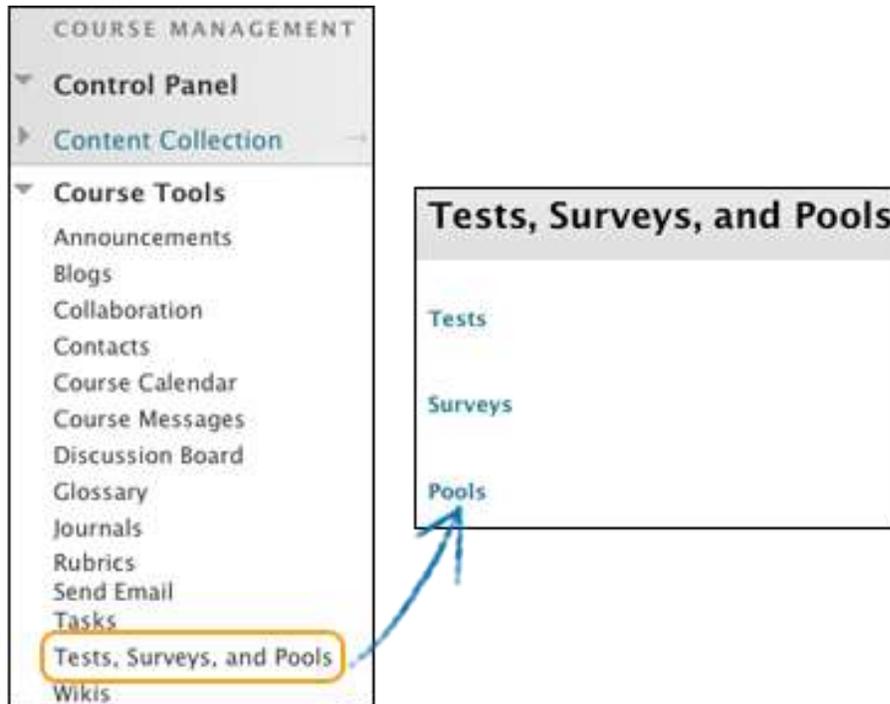
You can also create a test containing a random block of questions drawn from a specific pool. Each time the test is taken, a random selection of questions is drawn from the specified pool.

For example, our instructor can create an end-of-unit quiz consisting of 20 questions taken from the Diet pool.



Creating a Pool

You create and manage pools from the **Pools** page. Access the control panel and expand the **Course Tools** section. Select **Tests, Surveys, and Pools** and then click **Pools**.



Creating a pool is almost identical to creating a test. The overall steps include the following:

1. **Build the pool:** Students do not see the pool name, description, or instructions, so the information you add is only for your purposes.
2. **Specify the pool's question settings:** These are identical to a test's question settings, except there are no scoring options. For example, there is no option to add default point values because pool questions do not have points assigned. You assign points to the questions after they have been added to a test.
3. **Add the questions:** The process in pools is identical to the process for adding questions to a test.

Editing Pool Questions

You can edit pool questions at any time.

If you want to edit a pool question that is currently being used in a test, you can choose to submit your changes or save the edited version as a new question. If you **Submit**, edits such as changing a designated correct answer will cause any existing submissions to be regraded. Choosing **Save as New** will create a separate, edited version of the question and will not cause regrading.

NOTE: If any students are in the process of taking a test, you may not be able to edit questions until they have submitted their work and the test is no longer in progress.

QUICK STEPS: Editing Pool Questions

1. Access the **Pools** page.
2. Access the contextual menu for the pool you want to edit and select **Edit**.
3. On the **Pool Canvas**, access a question's contextual menu and click **Edit**.
4. Edit the question. Choose **Submit** to save your changes or **Save as New** to create a new question from the edited version.

Create/Edit True/False Question

* Indicates a required field.

Cancel Save As New Submit

1. Question

Question Title

* Question Text

Rich text editor toolbar: Paragraph, Arial, 3 (12pt), bulleted list, numbered list, indent, link, unlink, undo, redo, spell checker.

The oceanic crust is made of basalt and gabbro.

HTML CSS

Importing a Pool

You can export a pool of questions from one course, and then import into another course.

Before importing the pool, ensure the file is readily available. For example, you can export a pool and save the resulting zipped file on your computer to upload to another course.

QUICK STEPS: Importing a Pool

1. On the **Pools** page, click **Import Pool**.
2. On the **Pool Import** page, click **Browse My Computer**.
3. Click **Submit**. The **Pool Import Complete** page appears.
4. Click **OK**. The imported pool is added to the list on the **Pools** page.

| Pools | | |
|-----------------|---------------------|---------------------------|
| Build Pool | Import Pool | |
| Name ▲ | Number of Questions | Date Last Edited |
| Ocean Life Pool | 3 | January 15, 2013 11:57 PM |

Hands-on Activity



For this activity, use your Practice Course.

Create a Pool

- Create a pool and add two or three questions.

Import a Pool

- Import the **Astronomy Fun Facts** pool. It is provided by the facilitator or can be downloaded from the **Workshop Resources** content area.

5: Advanced Test Creation

In this section, you create a test using the question pool imported in the last section, and use metadata to assist with finding appropriate test questions.

Learning Objectives

After completing this section, you will be able to:

- Create a test by finding questions.
- Create a test containing question sets.
- Create a test containing a random block of questions drawn from a pool.

Overview: Creating a New Test Using Pools and Existing Tests

You can create a new test by searching pools and other existing tests to find appropriate questions to add. Search for questions by question type, such as **Multiple Choice**, and by metadata, such as **Category** or **Levels of Difficulty**. For example, you can search pools and tests to create a final exam containing moderately difficult, multiple choice questions drawn from review quizzes, self tests, and a question pool.

The steps to create a test by searching pools and tests are:

1. Create a test.
2. Specify the question settings.
3. Find and add questions.
4. Assign point values

The part of the process that differs from routine test creation is the reusing of questions.

Creating a Test

Add the test information, including a name, description, and instructions.

QUICK STEPS: Creating a Test

1. On the **Control Panel** expand the **Course Tools** section and select **Tests, Surveys, and Pools**.
2. Select **Tests**.
3. On the **Tests** page, click **Build Test**.
4. Type the test's **Name, Description, and Instructions**.
5. Click **Submit**.

The **Test Canvas** appears and you can begin to add questions to the test.

To add questions to an existing test, access the **Tests** page. Access a test's contextual menu and select **Edit** to begin or continue adding questions.

Specifying Question Settings

The second overall step is to specify the test's **Question Settings**. The settings you specify are applied to questions you add to the test by searching pools and other tests. For example, if you do not select **Provide Feedback for Individual Answers**, the individual feedback is not included in the test you are currently creating, even if the question you searched for contains individual feedback.

NOTE: The default point value is only applied to questions taken from pools. If you add questions from another test, the original point value is retained.

QUICK STEPS: Specifying Question Settings

1. On the **Test Canvas**, click **Question Settings** on the action bar.



2. Select the options by selecting the check boxes.
3. Click **Submit**.

Finding and Adding Questions

The third step is to find questions. You can browse, preview, and select questions from the **Find Questions** page.

QUICK STEPS: Finding and Adding Questions

1. From the Test Canvas, point to Reuse Question.
2. Select Find Questions.
3. On the **Find Questions** page, use the **Browse Criteria** section and **Search current results** box to narrow your search. The **Criteria Summary** section lists currently selected criteria.
4. Select the check boxes for the questions you want to include in your test or survey. Selected questions are displayed in the panel at the bottom of the page.
5. Choose to Copy selected questions or Link to original questions.
6. Use **Question Display** to choose full text or truncated text.
7. Click the **Preview** icon next to each question to see its answers and feedback.
8. Click **Submit**.

Find Questions

Questions are organized by the **Criteria** listed on the page. Use the **Criteria** drop-down lists to search for questions to add to the test. Click **Submit** to finish. Click **Cancel** to return to the previous page. [More Help](#)

Criteria Summary

Pools **Ocean Life Pool** + Tests **All Tests** + Question types **Multiple Choice**

Displaying 1 to 18 of 18 items

Question Display Mode Copy selected questions Link to original questions

| <input type="checkbox"/> | Question Text | Question Type | Mode | Points | Source Name | Source Type |
|-------------------------------------|---|-----------------|-------------------------------------|--------|--------------|-------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Copy of What are beaches generally composed of? | Multiple Choice | <input type="button" value="Copy"/> | 10 | not deployed | Test |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> How old is the oldest oceanic crust? | Multiple Choice | <input type="button" value="Copy"/> | 10 | Chapter 1 | Test |
| <input type="checkbox"/> | <input type="checkbox"/> What are beaches generally composed of? | Multiple Choice | -- | 10 | Chapter 4 | Test |
| <input type="checkbox"/> | <input type="checkbox"/> What happens when a piece of continent reaches an ocean-bound subduction zone? | Multiple Choice | -- | 10 | Chapter 4 | Test |
| <input type="checkbox"/> | <input type="checkbox"/> What is the last remnant of an eroded headland called? | Multiple Choice | -- | 10 | Chapter 3 | Test |

Selected Questions: **2**

Linking to or Copying an Original Question

Linking to a question means that a link to the original question is added to the test. This is not another instance of the question. Any change made to the original question is reflected in the link in the new test. This option works well for questions you might update frequently, such as those that incorporate current events.

A copied question creates a new question that is a copy of the original. Any revisions made to the original question are not reflected in the copy. Copying a question is valuable when you want to create similar questions with minor alterations.

You can change this option at any time while searching for questions on the **Find Questions** page.

Browse by Criteria

All questions appear in the list by default. To narrow your selection, browse based on certain criteria. Search by selecting from specific pools, tests, and question types.

If you have added metadata, such as topics or keywords, to your questions, you can also browse by metadata criteria. The more metadata added to each question, the more specific your search can be. Browsing by metadata makes it easier to find exactly what you are looking for. Expand a section to select the browse criteria.

Search Current Results

You can also search by words or phrases contained in question text. These words do not have to be identified in the question metadata when you create the question.

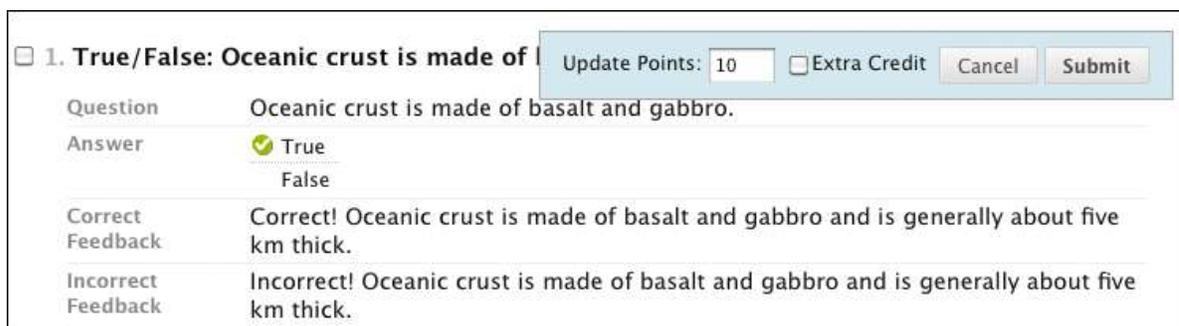
NOTE: As you narrow your search, each search criteria is listed in the **Criteria Summary** section for easy reference.

Assigning Point Values

After selecting the questions, you can assign or edit point values.

QUICK STEPS: Assigning Point Values

1. On the **Test Canvas**, click a question's point value to access the **Update Points** and **Extra Credit** field.
2. Type the points possible.
3. Click **Submit**.



The screenshot shows a dialog box for editing a question. At the top, it says "1. True/False: Oceanic crust is made of". To the right, there is a field for "Update Points" with the value "10", a checkbox for "Extra Credit", and "Cancel" and "Submit" buttons. Below this, the question details are shown in a table-like format:

| | |
|--------------------|---|
| Question | Oceanic crust is made of basalt and gabbro. |
| Answer | <input checked="" type="checkbox"/> True <input type="checkbox"/> False |
| Correct Feedback | Correct! Oceanic crust is made of basalt and gabbro and is generally about five km thick. |
| Incorrect Feedback | Incorrect! Oceanic crust is made of basalt and gabbro and is generally about five km thick. |

Next Steps

After you add questions and assign point values, you can proceed with the typical next steps, including ordering the questions and deploying the test. See the *Assessments: Part One* manual for more information on these tasks.

Hands-on Activity



For this activity, use your Practice Course.

Add Questions from Pools and Tests

- Add questions to the **Unit 5 Quiz** by searching the **Astronomy Fun Facts** pool for any questions containing the keyword **Venus**. Assign point values if necessary. Make the quiz available.
- Create a **Midterm Exam**. Search all pools and tests for Multiple Choice questions in the **scientists** category. Assign point values if necessary.

Creating Question Sets

You can specify a random selection of questions to be presented each time a test is taken. To do this, you create a question set or random block.

A **Question Set** is a collection of questions retrieved from existing tests and pools. From this set, you specify how many questions to present in the test. The specific questions presented are randomly chosen each time the test is taken. Question selection uses the same tool as **Find Questions**, and includes a search function and the capability to browse by metadata.



9. **Question Set** Points per question:

Total Points: 10

Total Questions: 4

Number of Questions to display:

[▶ Questions in the Set](#)

QUICK STEPS: Creating Question Sets

1. Create or access a test.
2. On the **Test Canvas**, point to **Reuse Question** and select **Create Question Set** from the drop-down list.
3. On the **Create Question Set** page, search for questions using the **Browse Criteria** options or type a term in the **Search current results** box.
4. From the list of questions that meet your search criteria, select the check boxes for the questions to include in the test. Select the check box in the header row to select all questions.
5. Click **Submit**. The question set is added to the test.
6. Assign the **Number of Questions to Display** to students. Use a number less than the total number of questions to ensure varying question sets are presented.
7. Type a point value per question. This point value is assigned to every question in the set. You cannot assign separate point values for individual questions in the same question set.
8. Click **Questions in the Set** to expand or collapse the list of questions. You can view, edit, add, and delete individual questions.

NOTE: When you add questions to a test using the question set feature, each question is linked, not copied. Therefore, if you change the original question, the revised version of the question appears. After the test with the linked question is deployed, the questions no longer reflect revisions made to the original.

Creating Random Blocks

Random Blocks randomly select questions to be presented each time the test is taken. Unlike question sets, random blocks draw questions from pools only. You cannot draw random blocks of questions from tests. Question selection for random blocks does not have a search function or the capability to browse by metadata.

10.  **Random Block** Points per question:

Total Points: 10

Total Questions: 5

Number of Questions to display:

Source Pool: Ocean Life Pool, Waves and Currents

Question Types: All Pool Questions

[▶ Preview questions that match selected criteria](#)

QUICK STEPS: Creating Random Blocks

1. Create or access a test.
2. On the **Test Canvas**, point to **Reuse Question** and select **Create Random Block** from the drop-down list.
3. On the **Create Random Block** page, select one or more pools.
4. Select at least one question type to include in the test. All questions that meet the criteria are added to the random block.
5. Click **Submit**. The random block of questions is added to the test.
6. Assign the **Number of Questions to Display** to students. Use a number less than the total number of questions to ensure varying questions are presented.
7. Type a point value per question. This point value is assigned to every question in the random block. You cannot assign separate point values for individual questions in the same random block.
8. Click **Preview questions that match selected criteria** to expand or collapse the list of questions. You can view and edit individual questions. You cannot delete questions in the random block.

Creating Pools: Creating Random Blocks

NOTE: When you add questions to a test using the Random Block feature, each question is linked, not copied. Therefore, if you change the original question, the revised version of the question appears. After the test with the linked question is deployed, the questions no longer reflect revisions made to the original.

Hands-on Activity



For this activity, use your Practice Course.

Create a Random Block:

- Create a test containing a random block of five Multiple Choice questions. Set the random block to select three of the five questions. Add the test to the **Assessments** content area and make it available. Preview the test several times. Note how you are presented with different questions each time.

Create a Question Set:

- Create a test containing a question set of five questions you select. Set the question set to select three of the five questions. Add the test to the **Assessments** content area and make it available. Preview the test several times. Note how you are presented with different questions each time. How do question sets differ from random blocks?

Frequently Asked Questions

In the following table, learn about using pools.

| Question | Answer |
|---|---|
| Can I convert tests into pools? | Yes. Create a pool and then use the Find Questions feature to add questions from a specific test, or all tests. |
| Is it better to keep the same type of questions together in one pool? For example, should I keep all my Multiple Choice questions in the same pool? | It is not necessary to do this, but in some circumstances, this is an advantage. For example, create a final exam containing a random selection of 50 Multiple Choice questions, 25 Short Answer questions, and 3 Essay questions. Put each question type in a separate pool. This allows you to assign different point values for the different types of questions, and also ensures the same question types are grouped together in the exam. |
| Can I reuse a test given at the beginning of the course? What is the best way to achieve this? | Yes. You can copy the test. Access a test's contextual menu and select Copy . The copied test appears in the list and has a number appended to the name, such as Unit 1 Quiz(1). You can edit this name, if needed. If you want to use a test in another course you can export it and import it to the other course. |

6: Creating and Using Surveys

You can use surveys to poll student opinion and conduct class evaluations. Survey results are anonymous, but you can see whether a student has completed a survey and view aggregate results for each survey question.

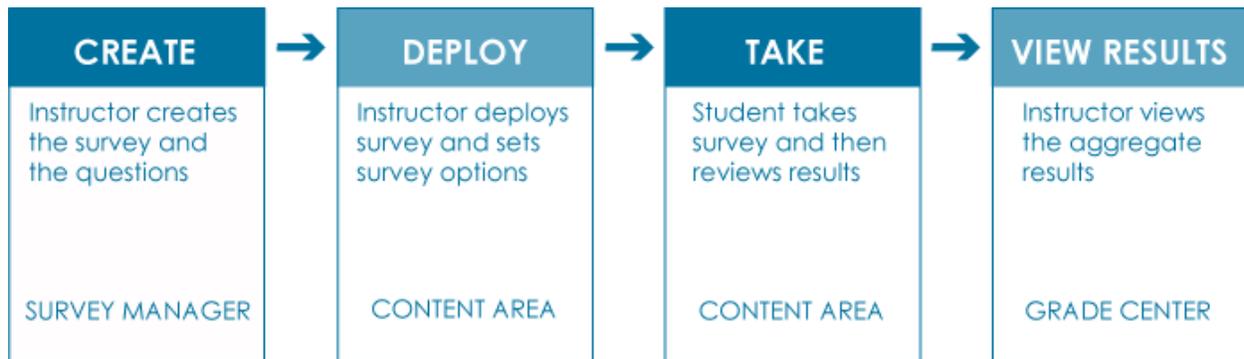
Learning Objectives

After completing this section, you will be able to:

- Describe the lifecycle of a survey.
- Explain the differences between tests and surveys.
- Create and deploy a survey.
- View survey results.

The Survey Lifecycle

There are four major stages in the survey lifecycle. You have already seen a survey from a student perspective. Now, from an instructor perspective, you learn to create and deploy surveys, as well as view their results.



Creating and Deploying Surveys

Since survey creation and deployment is almost identical to test creation, we will focus on the differences:

- A survey's creation settings do not include options for assigning scoring defaults because survey questions are not graded.
- Correct answers are not specified when questions are added.
- Random blocks of questions, question sets, and file response question cannot be added to surveys.

Take Survey: Course Evaluation

Description What did you think of the course? Your thoughts will help the instructor continue to improve the course. Your input is appreciated.

Instructions Please take a moment to respond to the following survey questions. Your responses are anonymous.

Multiple Attempts Not allowed. This Survey can only be taken once.

Force Completion This Survey can be saved and resumed later.

★ **Question Completion Status:**

1 2 3

Question 1

a. Strongly Agree b. Agree c. Neither Agree nor Disagree d. Disagree e. Strongly Disagree f. Not Applicable

QUICK STEPS: Creating Surveys

1. On the **Control Panel**, expand the **Course Tools** section and select **Tests, Surveys, and Pools**.
2. On the **Tests, Surveys, and Pools** page, click **Survey**.
3. On the **Survey** page, click **Build Survey**.
4. On the **Survey Information** page, type the name, description, and instructions.
5. Click **Submit**.
6. On the **Survey Canvas**, click **Questions Settings** on the action bar.
7. On the **Survey Question Settings** page, select the check boxes for your choices.
8. Click **Submit**.
9. On the **Survey Canvas**, add new or existing questions.
10. When you have finished adding questions, click **OK**.

| Surveys | | |
|--------------------|---------------|----------------------------|
| Build Survey | Import Survey | |
| Name ▲ | Deployed | Date Last Edited |
| Course Evaluation | Week 2 | December 10, 2012 12:42 PM |
| Polar ice caps | Tests | January 15, 2013 10:02 PM |
| What do you think? | No | January 16, 2013 4:02 PM |

QUICK STEPS: Deploying Surveys

1. Navigate to the content area where you want to deploy the survey.
2. Point to **Assessments** and select **Survey** from the drop-down list.
3. On the **Create Survey** page, select the survey from the **Add Survey** box.
4. Click **Submit**.
5. On the **Survey Options** page, specify the availability and other survey settings.
6. Click **Submit**. The survey is now added to the content area.



The screenshot shows a web interface titled "Create Survey". At the top right, there are two buttons: "Cancel" and "Submit". Below the title, the first step is labeled "1. Add Survey". Under this step, there are two options: "Create a New Survey" with a "Create" button, and "Add Survey" with a dropdown menu. The dropdown menu is open, showing a blue header "Select Survey Below" and a list item "What do you think?".

Hands-on Activity



For this activity, use your Practice Course.

Create a survey, by choosing one of the following options:

- Create a survey to assess the knowledge or past experiences of students entering your course.
- Create a survey to gain early feedback on students' understanding of course content.
- Create an end-of-course evaluation to gather student opinions about your course.

Deploy the survey, selecting settings that allow students to take the survey twice and allow them to see their submitted answers.

Best Practice: Use Surveys Throughout Your Course

Many instructors only use surveys to conduct an end-of-course evaluation. Although it is important to collect this information, the data can only be used to help the next group of students. Using surveys throughout your course gives you the opportunity to revise the course flow and content to match the background and needs of your students.

Here are some ideas for using surveys throughout your course.¹

At the Beginning of the Course

- Ask students to complete a brief survey about their current subject knowledge, what they hope to learn in the course, and their learning styles and preferences.
- Ask students a few questions to allow them to demonstrate their analytical thinking. For example, a professor in the Goldman School of Public Policy at Berkeley gauges the level of student thinking by asking questions about their approaches to uncertainty and risk.

During the Course

- After a lecture, ask students to complete a brief survey about the muddiest point—the least clear concept discussed in the lecture.
- Ask students to rate how challenging they found a lecture or module.

¹The Early Feedback Working Group & Tollefson, S. (2005). How am I doing? Early feedback from instructors to students and from students to instructors. *Office of Educational Development Teaching Resources*

Viewing Aggregate Survey Results

For each survey, you can view the aggregate responses to each question, including the distribution of student responses for each question.

QUICK STEPS: Viewing Aggregate Survey Results

1. In the Grade Center, access a survey's contextual menu in its column header.
2. Select **Attempts Statistics**.
3. On the **Survey Statistics** page, review the statistics.
4. Click **OK** at the bottom of the page to return to the **Grade Center**.

The screenshot shows a Blackboard Grade Center interface. At the top, there are buttons for 'Move To Top' and 'Email', and a 'Sort Columns By' dropdown set to 'Layout Position' with an 'Order' dropdown set to 'Ascending'. Below this is a 'Grade Information Bar' with 'Last Saved: January 16, 2013 5:32 PM'. The main table has columns for 'Last Name', 'First Name', 'History of Oce', 'Chapter 4 Tes', 'Chapter 9 Tes', and 'Polar ice caps'. The 'Polar ice caps' column header has a dropdown arrow, and a contextual menu is open over it. The menu items are: 'Quick Column Information', 'Edit Survey', 'Attempts Statistics' (highlighted with an orange box), 'Download Results', 'View Grade History', 'Edit Column Information', 'Column Statistics', 'Set as External Grade', 'Show/Hide to Users', 'Clear Attempts for All Users', 'Sort Ascending', 'Sort Descending', and 'Hide Column'. The table rows show student names and their scores in various tests, with a green checkmark in the 'Polar ice caps' column for the first row.

| Last Name | First Name | History of Oce | Chapter 4 Tes | Chapter 9 Tes | Polar ice caps |
|-----------|------------|----------------|---------------|---------------|----------------|
| Akbar | Mina | -- | -- | -- | ✓ |
| Brown | Tony | -- | -- | -- | |
| Casper | Chris | -- | | -- | |
| Dubois | Alyssa | -- | -- | -- | |
| Farrell | Andy | -- | -- | -- | |
| Gonzales | Monica | -- | -- | -- | |
| Hernandez | Juan | -- | -- | -- | |
| Katril | Sunil | -- | -- | -- | |
| Lopez | Bruce | -- | -- | -- | |
| Lucern | Leo | -- | -- | -- | |

In the Grade Center, a check mark indicates the survey has been submitted.

The response rates provide the percentage of students who chose each answer.

| Survey Statistics: Polar ice caps | |
|---|---|
| Name | Polar ice caps |
| Attempts | 2 (Total of 2 attempts for this assessment) |
| Instructions | |
| Alignments | |
| Question 1: Opinion Scale/Likert | |
| How concerned are you about the polar ice caps melting? | |
| | Percent Answered |
| Strongly Agree | 50% |
| Agree | 50% |
| Neither Agree nor Disagree | 0% |
| Disagree | 0% |
| Strongly Disagree | 0% |
| Not Applicable | 0% |
| <i>Unanswered</i> | 0% |

Hands-on Activity



For this activity, use your Practice Course.

View Statistics

- View the **Attempt Statistics** for the survey: **What Do You Know?**

7: Item Analysis

Item analysis provides statistics on overall test performance and individual test questions. This tool contains some of the same information as the Column Statistics and Attempts Statistics discussed earlier, but presents it in a way that helps you quickly evaluate the quality of each question and its ability to discriminate between students who understand the material and those who do not.

You can use item analysis to:

- Improve questions for future test administrations or to adjust credit on current attempts.
- Discuss test results with your class.
- Provide a basis for remedial work.
- Improve classroom instruction.

You can access item analysis in three locations within the assessment workflow. It is available in the contextual menu for a:

- Test deployed in a content area.
- Deployed test listed on the **Tests** page.
- Grade Center column.

You can run item analyses on deployed tests with submitted attempts, but not on surveys.

The screenshot shows the 'Grade Center : Tests' interface. At the top, there are navigation options: 'Create Column', 'Create Calculated Column', 'Manage', and 'Reports'. Below this is a 'Grade Information Bar' with 'Move To Top' and 'Email' buttons. A table displays student data for the 'Unit 2 Quiz':

| Last Name | First Name | Username | Unit 2 Quiz |
|-----------|------------|----------|-------------|
| Brown | Tony | tbrown | 30.00 |
| Casper | Chris | ccasper | -- |
| Cooper | Ashby | acooper | 30.00 |
| Durand | Porter | pdurand | -- |

A context menu is open over the table, listing options: 'Quick Column Information', 'Edit Test', 'Grade Attempts', 'Grade Anonymously', 'Item Analysis', 'Attempts Statistics', and 'Download Results'. A blue arrow points from the 'Item Analysis' option to the 'Item Analysis : Unit 2 Quiz' window. This window features a green status bar: 'Status: Complete. Item Analysis of Unit 2 Quiz successfully ran on January 4, 2013 10:47 AM. View Analysis'. Below the status bar, the title 'Item Analysis : Unit 2 Quiz' is displayed. A 'Select Test:' dropdown is set to 'Unit 2 Quiz' with a 'Run' button next to it. Under the heading 'Available Analysis', a link is shown: 'Unit 2 Quiz - January 4, 2013 12:47 AM'.

Access previously run item analyses under the **Available Analysis** heading or select a deployed test from the drop-down list and click **Run** to generate a new report. The new report's link appears under the **Available Analysis** heading or in the status receipt at the top of the page.

NOTE: For best results, run item analyses on single-attempt tests after all attempts have been submitted and all manually graded questions are scored. Interpret the item analysis data carefully and with the awareness that the statistics are influenced by the number of test attempts, the type of students taking the test, and chance errors.

QUICK STEPS: How to Run an Item Analysis on a Test

You can run item analyses on tests that include single or multiple attempts, question sets, random blocks, auto-graded question types, and questions that need manual grading. For tests with manually graded questions that have not yet been assigned scores, statistics are generated only for the scored questions. After you manually grade questions, run the item analysis again. Statistics for the manually graded questions are generated and the test summary statistics are then updated.

1. Go to one of the following locations to access item analysis:
 - A test deployed in a content area.
 - A deployed test listed on the **Tests** page.

- A Grade Center column for a test.
2. Access the test's contextual menu.
 3. Select Item Analysis.
 4. In the **Select Test** drop-down list, select a test. Only deployed tests are listed.
 5. Click **Run**.
 6. View the item analysis by clicking the new report's link under the **Available Analysis** heading or by clicking **View Analysis** in the status receipt at the top of the page.
 7. Click on questions that are recommended for review – indicated by red circles – to investigate if the question is a good discriminator of student knowledge. Questions are flagged for review based on discrimination and difficulty levels.

Filter Questions

Select Question Type: | Select Discrimination: | Select Difficulty: |

| Question | Question Type | Discrimination ▲ | Difficulty | Graded Attempts | Average Score | Std Dev | Std Error |
|--|----------------------|---------------------|------------|-----------------|---------------|---------|-----------|
| * ● S1: Something you should never put on a bum... | Short Answer (RB) | Cannot Calculate | 0.0% | 0 | 0.0 | 0.0 | 0.0 |
| MC2: Which of these has the most medical training... | Multiple Choice (RB) | 0.82 | 50.0% | 4 | 5.0 | 5.78 | 2.89 |
| ● O1: Put the following emergency tasks in order... | Ordering | 0.83 | 87.5% | 4 | 8.75 | 2.5 | 1.25 |

About the Test Summary on the Item Analysis Page

The Test Summary is located at the top of the item analysis page and provides data on the test as a whole.

Item Analysis : Chapter 3 Test

Select Test: Chapter 3 Test [Run](#)

Available Analysis

- Chapter 3 Test - September 4, 2012 4:48 PM
- Chapter 1 Test - September 4, 2012 2:06 PM

Chapter 3 Test

Analysis Last Run September 4, 2012 4:48 PM. Run Item Analysis again to display the latest question data [Edit Test](#)

Test Summary

| | | | | | |
|-----------------|--------------------|----------------------|--------------------|---------------|--------------|
| 240.0 | 39 | 1 | 8 | 248.63 | 00 hr 54 min |
| Possible Points | Possible Questions | In Progress Attempts | Completed Attempts | Average Score | Average Time |

Discrimination

| | |
|----|------------------|
| 10 | Good Questions |
| 4 | Fair Questions |
| 5 | Poor Questions |
| 20 | Cannot Calculate |

Difficulty

| | |
|----|------------------|
| 18 | Easy Questions |
| 11 | Medium Questions |
| 10 | Hard Questions |

A Edit Test provides access to the Test Canvas.

B The Test Summary provides statistics on the test, including:

Possible Points - the total number of points for the test.

Possible Questions - the total number of questions in the test.

In Progress Attempts - the number of students currently taking the test that have not yet submitted it.

Completed Attempts - the number of submitted tests.

Average Score - scores denoted with an * indicate that some attempts are not graded and that the average score might change after all attempts are graded. The score displayed here is the average score reported for the test in the Grade Center.

Average Time - the average completion time for all submitted attempts.

Discrimination - this area shows the number of questions that fall into the **Good** (greater than 0.3), **Fair** (between 0.1 and 0.3) and **Poor** (less than 0.1) categories. A discrimination value is listed as **Cannot Calculate** when the question's difficulty is 100% or when all students receive the same score on a question. Questions with discrimination values in the **Good** and **Fair** categories are better at differentiating between students with higher and lower levels of knowledge. Questions in the **Poor** category are recommended for review.

Difficulty - this area shows the number of questions that fall into the **Easy** (greater than 80%), **Medium** (between 30% and 80%) and **Hard** (less than 30%) categories. Difficulty is the percentage of students who answered the question correctly. Questions in the **Easy** or **Hard** categories are recommended for review and are indicated with a red circle.

NOTE: Only graded attempts are used in item analysis calculations. If there are attempts in progress, those attempts are ignored until they are submitted and you run the item analysis report again.

About the Question Statistics Table on the Item Analysis Page

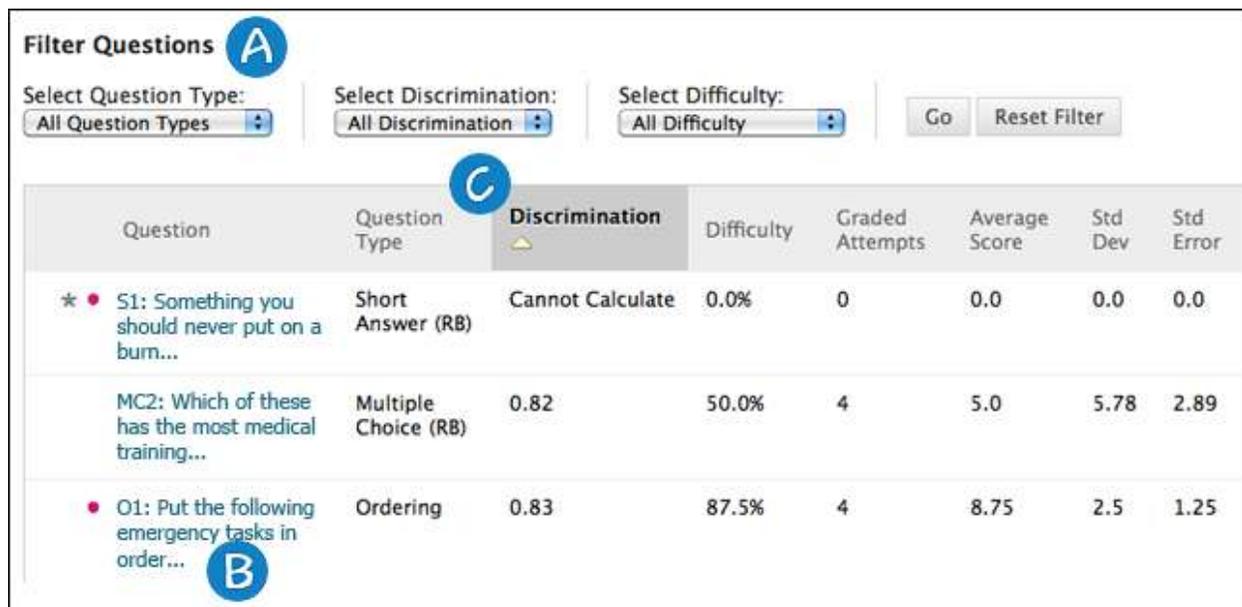
The question statistics table provides item analysis statistics for each question in the test. Questions that are recommended for your review are indicated with red circles so that you can quickly scan for questions that might need revision.

In general, good questions have:

- **Medium** (30% to 80%) difficulty.
- **Good** or **Fair** (greater than 0.1) discrimination values.

Questions that are recommended for review are indicated with red circles. They may be of low quality or scored incorrectly. In general, questions recommended for review have:

- **Easy** (> 80%) or **Hard** (< 30%) difficulty.
- **Poor** (< 0.1) discrimination values.



| Question | Question Type | Discrimination | Difficulty | Graded Attempts | Average Score | Std Dev | Std Error |
|--|----------------------|------------------|------------|-----------------|---------------|---------|-----------|
| * S1: Something you should never put on a burn... | Short Answer (RB) | Cannot Calculate | 0.0% | 0 | 0.0 | 0.0 | 0.0 |
| MC2: Which of these has the most medical training... | Multiple Choice (RB) | 0.82 | 50.0% | 4 | 5.0 | 5.78 | 2.89 |
| O1: Put the following emergency tasks in order... | Ordering | 0.83 | 87.5% | 4 | 8.75 | 2.5 | 1.25 |

- Filter the question table by question type, discrimination category, and difficulty.
- Investigate a specific question by clicking its title and reviewing its **Question Details**.
- Statistics for each question are displayed in the table, including:

Discrimination - indicates how well a question differentiates between students who know the subject matter those who do not. A question is a good discriminator when students who answer the question correctly also do well on the test. Values can range

from -1.0 to +1.0. Questions are flagged for review if their discrimination value is less than 0.1 or is negative. Discrimination values cannot be calculated when the question's difficulty score is 100% or when all students receive the same score on a question.

Discrimination values are calculated with the Pearson correlation coefficient. X represents the scores of each student on a question and Y represents the scores of each student on the assessment.

$$r = \frac{1}{n - 1} \sum_{i=1}^n \left(\frac{X_i - \bar{X}}{s_X} \right) \left(\frac{Y_i - \bar{Y}}{s_Y} \right)$$

The following variables are the standard score, sample mean, and sample standard deviation, respectively:

$$\frac{X_i - \bar{X}}{s_X}, \bar{X}, \text{ and } s_X$$

Difficulty - the percentage of students who answered the question correctly. Difficulty values can range from 0% to 100%, with a high percentage indicating that the question was easy. Questions in the **Easy** (greater than 80%) or **Hard** (less than 30%) categories are flagged for review.

Difficulty levels that are slightly higher than midway between chance and perfect scores do a better job differentiating students who know the tested material from those who do not. It is important to note that high difficulty values do not assure high levels of discrimination.

Graded Attempts - number of question attempts where grading is complete. Higher numbers of graded attempt produce more reliable calculated statistics.

Average Score - scores denoted with an * indicate that some attempts are not graded and that the average score might change after all attempts are graded. The score displayed here is the average score reported for the test in the Grade Center.

Standard Deviation - measure of how far the scores deviate from the average score. If the scores are tightly grouped, with most of the values being close to the average, the standard deviation is small. If the data set is widely dispersed, with values far from the average, the standard deviation is larger.

Standard Error - an estimate of the amount of variability in a student's score due to chance. The smaller the standard error of measurement, the more accurate the measurement provided by the test question.

How to View Question Details on a Single Question

You can investigate a question that is flagged for your review by accessing its Question Details page. This page displays student performance on the individual test question you selected.

1. On the **Item Analysis** page, scroll down to the question statistics table.
2. Select a linked question title to display the **Question Details** page.

Question Details: Multiple Choice

← Return A << < Page 10 of 13 > >>

Chapter 1 Test B Edit Test
 Analysis Last Run September 4, 2012 2:06 PM.

| | | | | | | |
|--|--------------------------------------|------------------------------------|----------------------------------|----------------------------|------------------------------|----------------------------|
| C 0.82 | 50.0% | 4 | 5.0 | 5.78 | 2.89 | 0 |
| Discrimination Good <small>(i)</small> | Difficulty Medium <small>(i)</small> | Graded Attempts <small>(i)</small> | Average Score <small>(i)</small> | Std Dev <small>(i)</small> | Std Error <small>(i)</small> | Skipped <small>(i)</small> |

Multiple Choice(RB): MC2

Question: D
 • Which of these has the most medical training?

| Answers | Total <small>(i)</small> | Top 25% <small>(i)</small> | 2nd 25% <small>(i)</small> | 3rd 25% <small>(i)</small> | Bottom 25% <small>(i)</small> |
|---|--------------------------|----------------------------|----------------------------|----------------------------|-------------------------------|
| EMT | 1(25.0%) | 0 | 0 | 0 | 1 |
| <input checked="" type="checkbox"/> Paramedic | 2(50.0%) | 1 | 0 | 1 | 0 |
| First Responder | 0(0.0%) | 0 | 0 | 0 | 0 |
| Firefighter | 1(25.0%) | 0 | 0 | 0 | 1 |

Legend
 • Review recommended ▲ Questions might have changed after deployment
 * Not all submissions have been graded (QS) Question Set (RB) Random Block

- A. Use the arrows to page through questions sequentially or to skip to the first or last question.
- B. Click **Edit Test** to access the **Test Canvas**.
- C. The summary table displays statistics for the question, including:

- **Discrimination** - indicates how well a question differentiates between students who know the subject matter those who do not. The discrimination score is listed along with its category: Poor (less than 0.1), Fair (0.1 to 0.3), and Good (greater than 0.3). A question is a good discriminator when students who answer the question correctly also do well on the test. Values can range from -1.0 to +1.0. Questions are flagged for review if their discrimination value is less than 0.1 or is negative. Discrimination values cannot be calculated when the question's difficulty score is 100% or when all students receive the same score on a question.

Discrimination values are calculated with the Pearson correlation coefficient. X represents the scores of each student on a question and Y represents the scores of each student on the assessment.

$$r = \frac{1}{n - 1} \sum_{i=1}^n \left(\frac{X_i - \bar{X}}{s_X} \right) \left(\frac{Y_i - \bar{Y}}{s_Y} \right)$$

The following variables are the standard score, sample mean, and sample standard deviation, respectively:

$$\frac{X_i - \bar{X}}{s_X}, \bar{X}, \text{ and } s_X$$

- **Difficulty** - the percentage of students who answered the question correctly. The difficulty percentage is listed along with its category: **Easy** (greater than 80%), **Medium** (30% to 80%), and **Hard** (less than 30%). Difficulty values can range from 0% to 100%, with a high percentage indicating that the question was easy. Questions in the easy or hard categories are flagged for review.

Difficulty levels that are slightly higher than midway between chance and perfect scores do a better job differentiating students who know the tested material from those who do not. It is important to note that high difficulty values do not assure high levels of discrimination.

- **Graded Attempts** - number of question attempts where grading is complete. Higher numbers of graded attempt produce more reliable calculated statistics.
- **Average Score** - scores denoted with an * indicate that some attempts are not graded and that the average score might change after all attempts are

graded. The score displayed here is the average score reported for the test in the Grade Center.

- **Std Dev** - measure of how far the scores deviate from the average score. If the scores are tightly grouped, with most of the values being close to the average, the standard deviation is small. If the data set is widely dispersed, with values far from the average, the standard deviation is larger.
- **Std Error** - an estimate of the amount of variability in a student's score due to chance. The smaller the standard error of measurement, the more accurate the measurement provided by the test question.
- **Skipped** - number of students who skipped this question.

D. The question text and answer choices are displayed. The information varies depending on the question type:

| Type of Information Provided | Question Types |
|---|--|
| Number of students who selected each answer choice - and - distribution of those answers among the class quartiles. | Multiple Choice Multiple Answer True/False Either/Or Opinion Scale/Likert |
| Number of students who selected each answer choice. | Number of students who selected each answer choice. |
| Number of students who got the question correct, incorrect, or skipped it. | Calculated Formula Calculated Numeric Fill in the Blank Hot Spot Quiz Bowl |

| Type of Information Provided | Question Types |
|--|--|
| Number of students who got the question correct, incorrect, or skipped it. | Essay File Response Short Answer Jumbled Sentence (also includes the answers students chose from) |

Answer Distributions

The distribution of answers among the class quartiles is included for Multiple Choice, Multiple Answer, True/False, Either/Or, and Opinion Scale/Likert question types. The distribution shows you the types of students who selected the correct or incorrect answers.

- **Top 25%:** Number of students with total test scores in the top quarter of the class who selected the answer option.
- **2nd 25%:** Number of students with total test scores in the second quarter of the class who selected the answer option.
- **3rd 25%:** Number of students with total test scores in the third quarter of the class who selected the answer option.
- **Bottom 25%:** Number of students with total test scores in the bottom quarter of the class who selected the answer option.

Symbol Legend

Symbols appear next to the questions to alert you to possible issues:

Legend

● Review recommended ⚠ Questions might have changed after deployment
★ Not all submissions have been graded (QS) Question Set (RB) Random Block

- Review recommended: This condition is triggered when discrimination values are less than 0.1 or when difficulty values are either greater than 80% (question was too easy) or less than 30% (question was too hard). Review the question to determine if it needs revision.
- Question may have changed after deployment: Indicates that a part of the question changed since the test was deployed. Changing any part of a question after the test has been deployed could mean that the data for that question might not be reliable. Attempts submitted after the question was changed may have benefited from the change. This indicator helps you interpret the data with this in mind.
- This indicator is not displayed for restored courses.
- Not all attempts have been graded: Appears for a test containing questions that require manual grading, such as essay questions. In a test containing an essay question with 50 student attempts, this indicator shows until the instructor grades all 50 attempts. The Item Analysis tool uses only attempts that have been graded at the time you run the report.
- (QS) and (RB): Indicate that a question came from a Question Set or Random Block. Due to random question delivery, it is possible that some questions get more attempts than others.

Item Analysis and Multiple Attempts, Question Overrides, Question Edits

The item analysis tool handles multiple attempts, overrides, and other common scenarios in the following ways:

- When students are allowed to take a test multiple times, the last submitted attempt is used as the input for item analysis. For example, a test allows three attempts and Student A has completed two attempts with a third attempt in progress. Student A's current attempt counts toward the number listed under **In Progress Attempts** and none of Student A's previous attempts are included in the current item analysis data. As soon as Student A submits the third attempt, subsequent item analyses will include Student A's third attempt.
- Grade Center overrides do not impact the item analysis data because the item analysis tool generates statistical data for questions based on completed student attempts.
- Manually graded questions or changes made to the question text, correct answer choice, partial credit, or points do not update automatically in the item analysis report. Run the analysis again to see if the changes affected the item analysis data.

Examples

Item analysis can help you improve questions for future test administrations or fix misleading or ambiguous questions in a current test. Some examples are:

- You investigate a Multiple Choice question that was flagged for your review on the item analysis page. More Top 25% students choose answer B, even though A was the correct answer. You realize that the correct answer was miskeyed during question creation. You edit the test question and it is automatically regraded.
- In a multiple choice question, you find that nearly equal numbers of students chose A, B, and C. Examine the answer choices to determine if they were too ambiguous, if the question was too difficult, or if the material was not covered.
- A question is recommended for review because it falls into the hard difficulty category. You examine the question and determine that it is a hard question, but you keep it in the test because it is necessary to adequately test your course objectives.

Hands-on Activity



For this activity, use your Practice Course.

Run Item Analysis

- Run an item analysis on **Unit 1 Quiz**.
- Are any questions flagged for your review? If so, click their titles to view their question details.

8: Workshop Wrap Up

The Workshop Wrap Up provides the opportunity to reflect on what has been learned by focusing your attention on the key concepts presented in the workshop. Also, the next page includes questions for brainstorming some ideas about how to use advanced question types, pools, and surveys in your online course.

In this workshop, you learned how to do the following:

- Create advanced question types, such as Jumbled Sentence, Fill in Multiple Blanks, Hot Spot, Opinion Scale/Likert, Quiz Bowl, and Calculated Numeric.
- Explain the advantages of adding metadata to questions.
- Add the four types of metadata to questions to help retrieve questions later.
- Explain the advantages of using pools.
- Create pools and add questions to them.
- Import pools.
- Create a test by finding questions.
- Create a test containing question sets.
- Create a test containing random blocks.
- Describe the lifecycle of a survey.
- Explain the differences between tests and surveys.
- Explore ways to use surveys throughout your course.
- Create and deploy a survey, and view survey results.
- Run item analysis on a test and view the results.

Spotlight on Your Course

Now that you are familiar with the advanced assessments features, it is time to think about how you can take advantage of them in your course.

- Consider the array of question types you have at your disposal. Do you have any ideas for using the advanced question types?
- Will you use metadata to organize your questions? Do you have any ideas for a classification scheme, or is there an existing scheme you could apply?
- What type of question pools will you create? Can you take advantage of existing pools in other courses or turn tests into pools for a new course?
- How will you use surveys to achieve your teaching goals?