MULTIPLE CHOICE QUESTIONS

Cabri enables the creation of Multiple Choice Question (MCQ) interfaces.

Two types of MCQ are available.

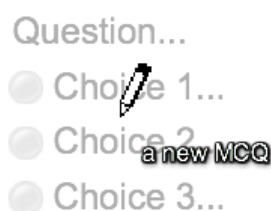| ***Single answer question***	***Multiple answers question***
Only one item can be checked at a time.	Several items can be checked

1. CREATING AN MCQ

See Cabri Author file *mcq* page 1.

Select the **MCQ** tool from the **Text** toolbox.
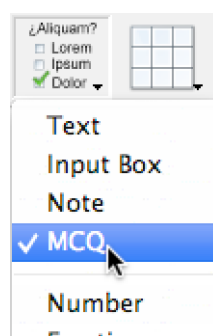
Click in the view to create and position the MCQ.

2. EDITING AN MCQ

Editing the MCQ involves putting in appropriate text for the question and the answer choices, choosing whether the MCQ has a single correct answer or multiple correct answers, and setting the answer(s) which are correct.
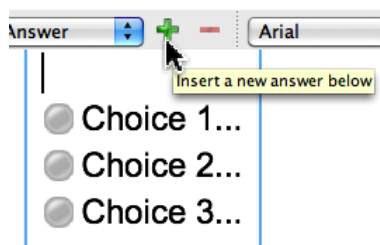
Use the **Text** tool, or double-click on the individual answers or the question.
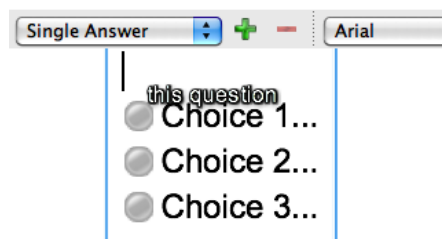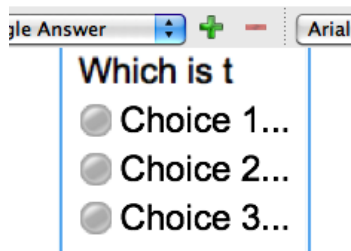
Select whether the MCQ is single-answer or multiple-answer using the drop-down menu.
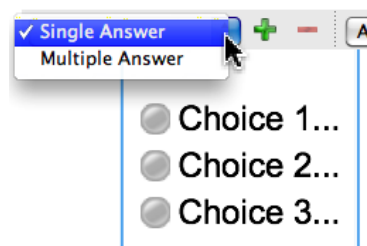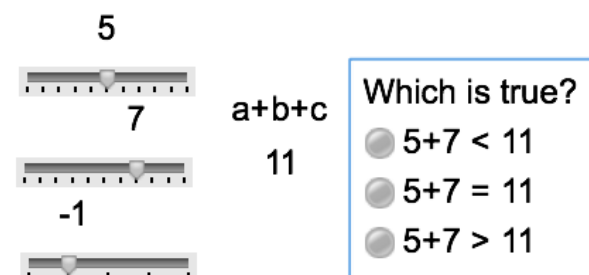
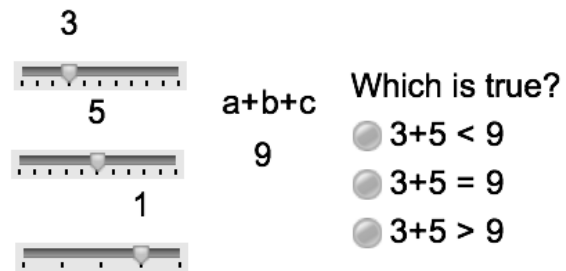Add further choices or delete choices by clicking on ➕ or ➖.

Type in the required text. This may take up as many lines as you like: press `return` for a new line.
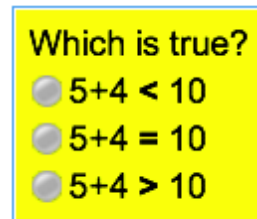
Numbers may be included within the questions or answers.

3

If the slider values are changed, the question changes correspondingly.

Single click on any aspect of the MCQ and then use the Attributes panel to change the appearance of the MCQ as a whole.

The appearance of text may be changed for individual parts of the MCQ within the text editor.
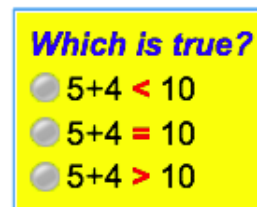
To select an answer in an MCQ, click either on its text or on the associated checkbox or radio button.

To set the correct answer, right-click on the MCQ and select the appropriate number or numbers.
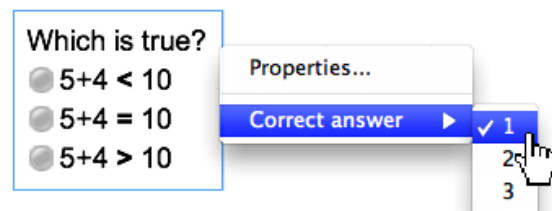
This has been done on page 2 of the Cabri Author file *mcq.*

3. RESULTS OF AN MCQ

There are three types of result that an MCQ can give:

- whether the correct answer has been chosen;
- the number of times the user has selected an answer;
- whether or not a particular answer has been selected.

See page 3 of the Cabri Author file *mcq.*

3.1 Whether or not the correct answer has been chosen

This can be evaluated using the **Count** tool:

Select the **Count** tool from the **Measurement** toolbox.

Click on the MCQ and then click on the page to position the result, which will be "?" until an answer is selected.
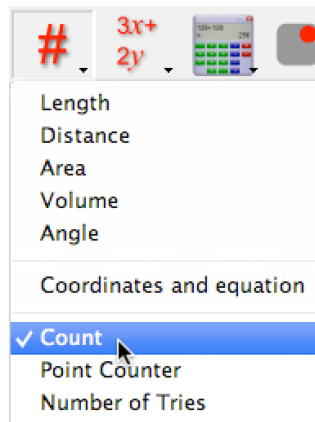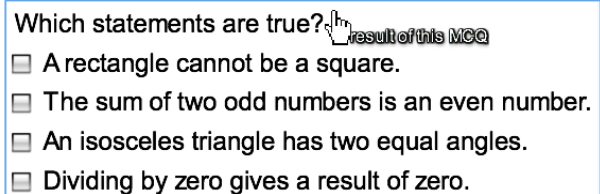
For a Single Answer MCQ, the result becomes 1 if a correct answer is checked and 0 otherwise.

For a Multiple Answer MCQ the result is 0 if an incorrect answer is checked. Otherwise it is the number of correct answers checked.

3.2 Number of Tries

It is possible to count the number of times a user has changed an MCQ by creating a "number of tries" counter.

To create the "number of tries" counter, first select the **Number of Tries** tool from the **Measurement** toolbox.
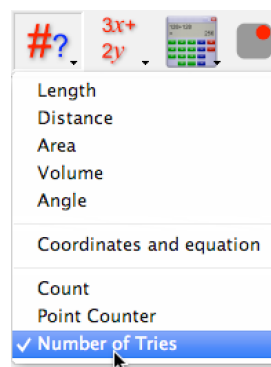
Click on the MCQ and then click in an empty spot in the view to position the number and register the construction.

?   0

Which statements are true? *number of tries for this MCQ*
☐ A rectangle cannot be a square.
☐ The sum of two odd numbers is an even number.
☐ An isosceles triangle has two equal angles.
☐ Dividing by zero gives a result of zero.

Now select the **Manipulation** tool and click to select one of the correct MCQ options. The "count" counter changes from "?" to 1 because one correct response has been selected, and the "number of tries" counter also turns from 0 to 1.

1   1

Which statements are true?
☐ A rectangle cannot be a square.
☑ The sum of two odd numbers is an even number.
☐ An isosceles triangle has two equal angles.
☐ Dividing by zero gives a result of zero.

Now click on one of the incorrect responses: the count becomes 0 because an incorrect response has been selected, but the number of tries becomes 2.

0   2

Which statements are true?
☐ A rectangle cannot be a square.
☑ The sum of two odd numbers is an even number.
☐ An isosceles triangle has two equal angles.
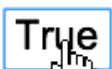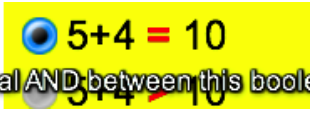☑ Dividing by zero gives a result of zero.

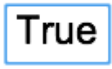## 3.3 Whether or not a particular answer has been selected
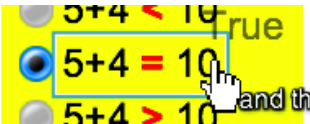
When an MCQ is created, a Boolean is defined for each possible answer, which is **TRUE** if the answer is selected, and **FALSE** if it is not. These may be used to keep track of the type of mistakes that a student makes.

See page 4 in the Cabri Author file *mcq.*

The answers behave as Booleans when used with Boolean operators (=, ≠, and, or, not), as shown to the right.

It may be useful to show the associated Boolean, however.

True   ⊙ 5+4 = 10
logical AND between this boolean
     ○ 5+4 > 10

     ○ 5+4 < 10 *True*

True   ⊙ 5+4 = 10
     ○ 5+4 > 10 *and this answer*

One way to do this is to select the **Number** tool and click on the screen to place a new number.

Which is true?
⊙ 3+5 < 9
○ 3+5 = 9   *edit a new value*
○ 3+5 > 9

Click on the answer for which you want the Boolean.

Which is true?
● 3+5 < 9
○ 3+5 = 8 *take this answer*
○ 3+5 > 9

The Boolean will appear.

Which is true?
● 3+5 < 9   True
○ 3+5 = 9
○ 3+5 > 9

Another possibility is to use the **Expression** tool to create the expression "x" and the **Apply Expression** tool to evaluate it as shown.

Which is true?
● 3+5 < 9   True
○ 3+5 = 9   x
○ 3+5 > 9   *evaluate this expression*

Which is true?
● 3+5 < 9   True
○ 3+5 = 9   x
○ 3+5 > 9   *with this answer for x*

Which is true?
● 3+5 < 9   True
○ 3+5 = 9   x   False
○ 3+5 > 9

Here are the final Booleans:

Which is true?
○ 3+5 < 9   False
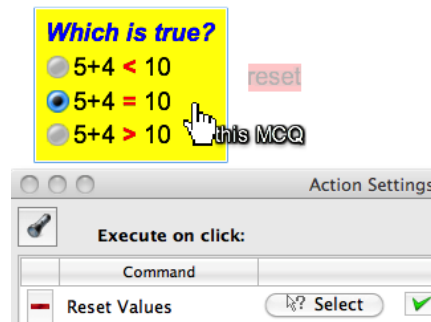● 3+5 = 9   x   True
○ 3+5 > 9   False

4. RESETTING AN MCQ

See page 5 of the Cabri Author file *mcq.*

4.1 Responses

In Teacher and Author modes (but not in Student mode), clicking again on a particular response will deselect the response, important for making the MCQ blank before publishing the file.

MCQs may also be reset using the action "Reset Values": such an action might be attached to the page, or to an object on the page such as the text shown to the right.

Which is true?
○ 5+4 **<** 10
● 5+4 **=** 10
○ 5+4 **>** 10 this MCQ

reset

Action Settings

Execute on click:

Command	
— Reset Values	Select ✔

Another alternative is the action "Reset Activity", which will reset everything on the page to the state it was in when the activity was opened.

4.2 Number of tries

Here are some options to reset the number of tries:

    a) Create an action that will reset the value when the page is opened, or when a button or object is clicked on. The "Reset Values" action will set the number of tries to 0.

    b) Edit the number using the **Number** tool.