Counters

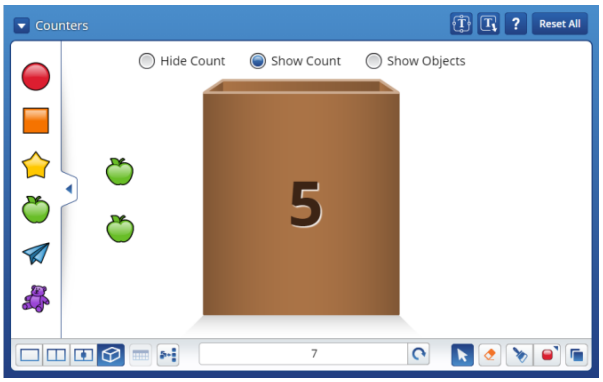
Counting On and Back by 1 and 2

With Counters, you can act out the process of adding 1 or 2 more. You can also act out the process of subtracting 1 or 2.

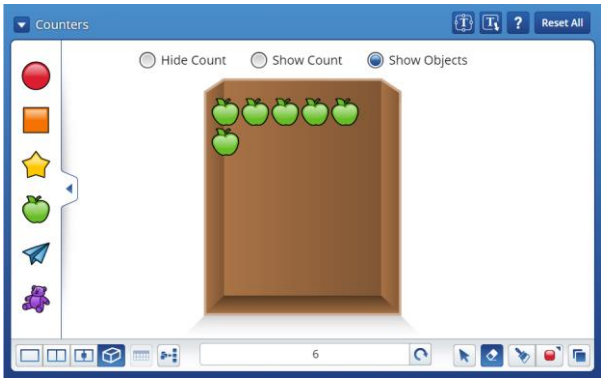
- Use the container workspace: .
- Use to move counters around the workspace.

Practice Using Counters

1. Above your container, click on Show Count. 0 will be visible on your container.
2. Place counters in your container. Place 5 using .
   - Click on . Drag the to your and release. Notice 0 is now 1 on the container.
   - Continue to click and drag the into the bag until the bag displays .



3. Place 2 in the workspace, but outside of the . Click to display the Odometer at the bottom, which will show 7.
4. To count on, use to move the from the workspace into .
   - Click on one and drag it into the bag.
   - Notice the count increases by 1. Repeat with the other .



5. Click on Show Objects. Now the contents of the container show.
6. To count back, use to take away one .
   - Click on , then click one inside the .
   - Notice that the count decreases by 1 in the Odometer.

Counters

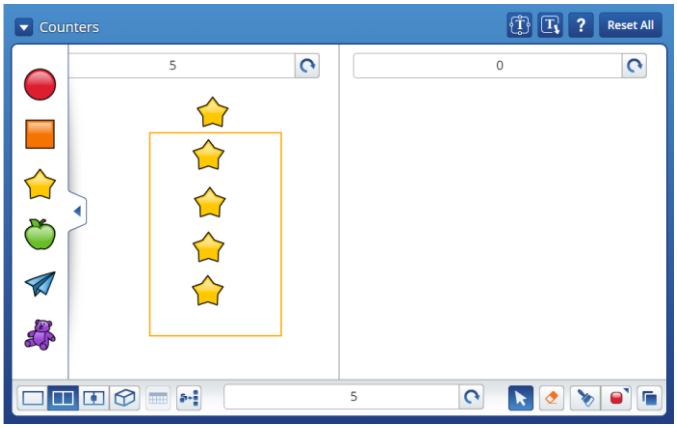
Using Different Workspaces in Counters

Use different workspaces to compare the amount of Counters and see the total.

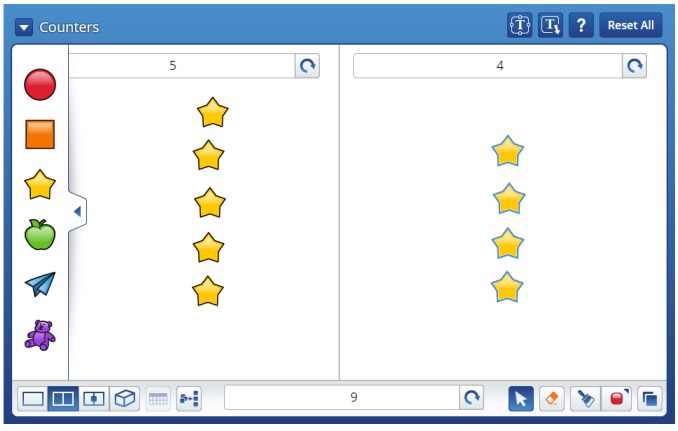
- Use the 2-part workspace: .
- Use to move counters around the workspace.
- Use to copy or "clone" counters.

Practice Using Counters

1. In the 2-part workspace, you will see two additional Odometers at the top of each workspace. Click to show 0 on the two Odometers at the top and one Odometer at the bottom of the Tool.
2. Use to click and drag 5 onto the left workspace. Notice the Odometer will display 5.
3. In the workspace, click and drag a rectangle around 4 of the . You will see each star highlighted in blue.
4. Now click and click on the highlighted . You will see 4 more stars pop up on screen and the Odometer will display 9.



5. Use to click and drag the 4 blue highlighted stars into the right workspace. Notice the Odometers on the top of the Tool will read 5 and 4; the Odometer at the bottom of the Tool still reads 9.
6. Click to compare the two workspaces and see which has a greater number.
7. To change the color of the stars in the right workspace, use .



Counters

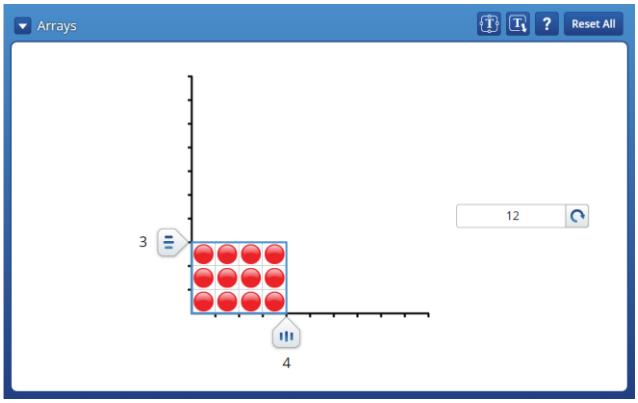
Multiplying Whole Numbers

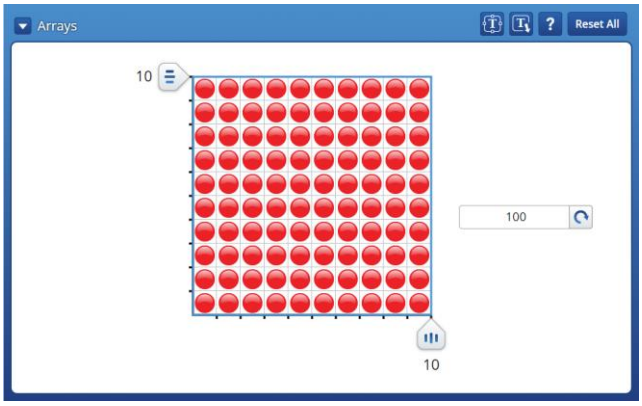
You can use arrays to multiply two whole numbers. To get to the Arrays mode, click  to see the drop-down menu and select **Arrays**.

- Click on  and drag to resize the array.

Practice Using Arrays

1. Name your first factor. Use 3. Click on  and drag to adjust the number on the vertical axis to 3.
2. Name your second factor. Click on  and drag to adjust the number on the horizontal axis to 4.
3. Count the  . The total number is the product.
4. Click  to see the product, 12, shown in the Odometer. Click again to see the product written as words, and again to see an expression, 3 × 4.





The largest number the array can show is

10 × 10, or 100  .

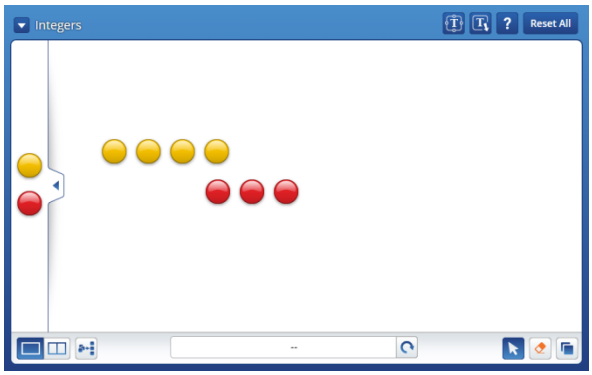
Counters: Integers

Counting Integers

You can use counters to subtract integers. To get to the Integers mode, click  to see the drop-down menu and select **Integers**.

- The one-part workspace provides a space to drag both red and yellow counters onto the mat, each representing an integer. The yellow counters are always the minuend or first number in the subtraction sentence. The red counters are always the subtrahend or the second number in the subtraction sentence.
- Drag counters on to the mat. Count them and use the other color counter to show subtraction of integers.

Practice Using Counters



1. Illustrate the subtraction of the integers 4 − 3.
   - Drag 4 yellow counters onto the mat. Then drag 3 red counters onto the mat. Count the difference.

     4 − 3 = 1. Click  to show the equation.
2. To arrange the counters, click  . This will arrange the counters in a line for easier viewing and counting.
3. Anytime you want to start a new set of counting integers, use **Reset All** to clear the mat and start over.

Counters

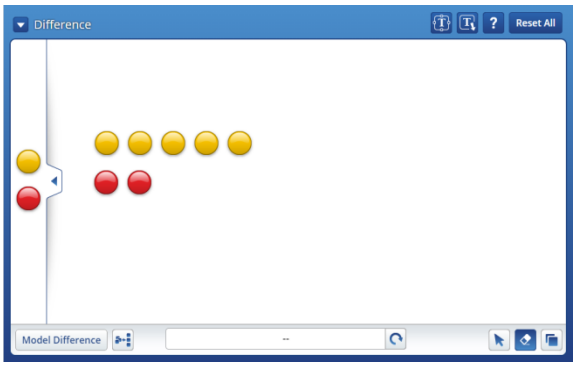
Finding the Difference

You can use counters to model subtraction. To get to the Difference mode, click  to see the drop-down menu and select **Difference**.

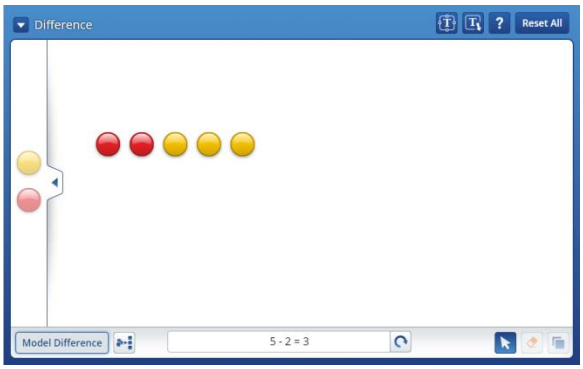
The Difference mode will always subtract the greater number of counters from the lesser number. For example, if there are more yellow counters, then the Tool will use the yellow counters as the first number in the subtraction sentence or "minuend". If there are a greater number of red counters, the Tool will use the red counters as the first number in the subtraction sentence. This way, all problems result in a positive number.

- You can place counters on the workspace, then move them into different positions to compare them.
- Use Model Difference to show the subtraction.

Practice Using Counters to Subtract

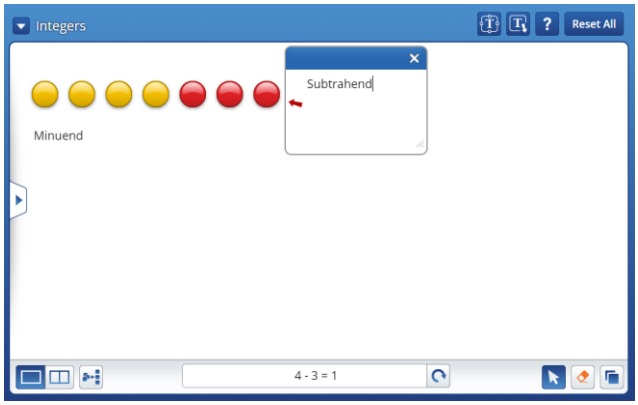


1. Model and solve the subtraction problem 5 − 2. Drag 5 yellow counters into the workspace and place in a row, as shown at right. This is the minuend.
2. Drag 2 red counters for the subtrahend into the workspace and place in a row below.
   - You can compare the lengths of the lines of counters to find that there are 2 more yellow counters than red counters.
3. Click Model Difference. The counters will move on top of each other to show the extras, or the difference. You can click it again to undo the action and separate the counters again, to show all of the counters.
4. By looking at the workspace and the Odometer, you can see that 5 − 2 = 3.



Additional Features

- You can use the  to copy counters instead of dragging them onto the desktop. This is especially useful with larger numbers.
- You can use the  to erase counters on the workspace.
- The Text box  and Text box with arrow  buttons are along the top of the Tool. When you click on one of the Text box buttons, a dialog box will appear on the workspace. You can add any text into this box. You can also drag the box anywhere on the workspace. When you click outside the box, the outline of the box disappears and only the text and arrow are visible.



- In Counters mode in the Basic Workspace, you can put counters in a ten-frame. Click the ten-frame button  and then click on the workspace. Click on  and drag counters into the ten-frame.