Place-Value Blocks

Modeling Numbers

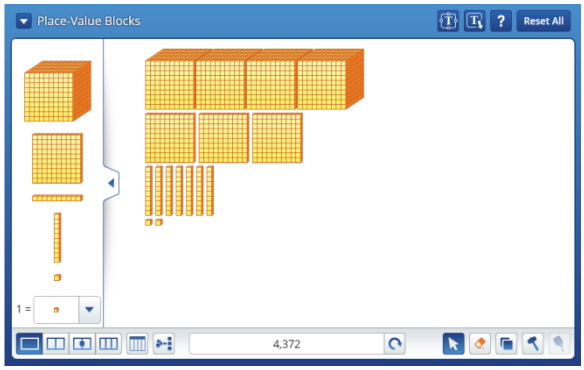
You can model whole numbers using place-value blocks.

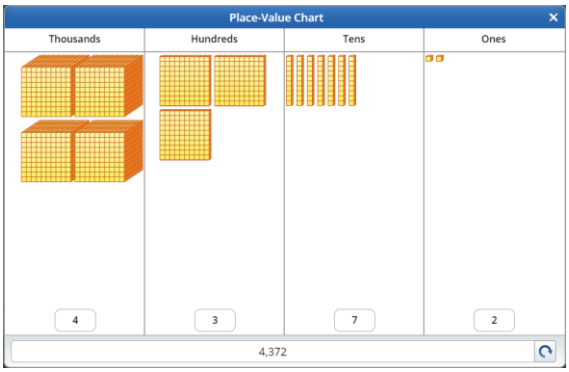
- The 1 = menu allows you to choose which block will be the unit block. When Small is selected, equals 1. The values of the other blocks are set as 10, 100, and 1000.
- Use to move blocks.

Practice Using Place-Value Blocks

Model the number 4,372.

1. Click . Place one Large cube in the workspace for each thousand in the number being modeled. Use 4 .
2. Click . Place one Flat in the workspace for each hundred in the number. Use 3 .
3. Click or . Place one Long (either horizontal or vertical) in the workspace for each ten in the number being modeled. Use 7 .
4. Click . Place one Small cube in the workspace for each one in the number being modeled. Use 2 .
5. Click to arrange the blocks in an organized way.
6. Click to display different ways of naming that number. Click one time for the Odometer to show the number in words. Click again for the Odometer to show the standard form of the number: 4,372.
   - Click to show the place-value chart. Notice that the blocks in the workspace are positioned in the proper columns and the Odometer shows the number: 4,372. Click to close the place-value chart.





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Multiplying Numbers

You can find the product of two numbers using an array. To get to the Arrays mode, click to see the drop-down menu and select **Arrays**.

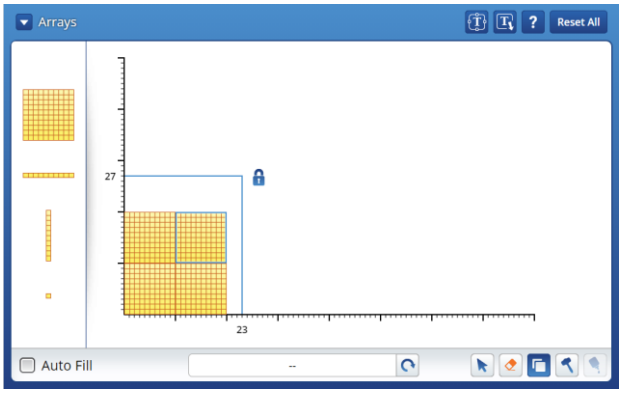
- Click on the in the upper right corner of the array box and drag to resize the array.

Practice Using the Array Workspace

Model the multiplication problem 27 × 23 = 621.

1 Click and drag to set the factors of a multiplication problem. Use 27 along the vertical scale and 23 along the horizontal scale.

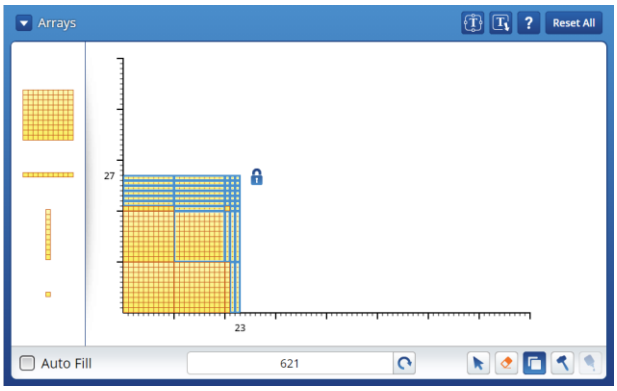
2 Begin to fill the rectangle with blocks.



- Click . Place the block in the lower left corner inside the rectangle.
- Click the on the block in the rectangle to copy a in the rectangle.
- Continue to click the on a in the rectangle until it appears that no more can fit inside the rectangle. (Click 3 times.)

3 Continue placing blocks in the rectangle until it is filled.

- Click . Place a above the upper left .
- Click the on the to copy another inside the array.



4 Continue to click the on a until it appears that no more can fit inside the rectangle. (Click 13 times.)

- Place 6 inside the rectangle.
- Place to fill the rectangle. Place 21 Small cubes.

  The multiplication problem solved is 27 × 23 = 621.
- Check "Auto Fill" to automatically fill the array.

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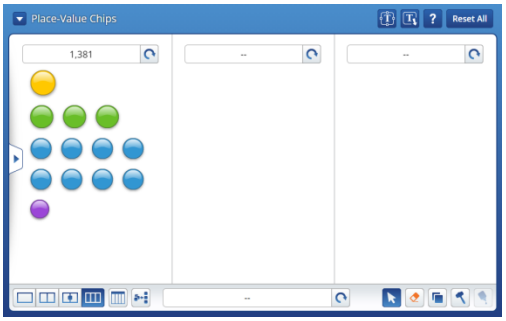
Comparing Numbers

You can compare numbers using place-value chips. Click  to see the drop-down menu and select **Place-Value Chips**.

- Use the  workspace. Actions are applied in this workspace only.
- Use  to copy selected chips.

Practice Using Place-Value Chips

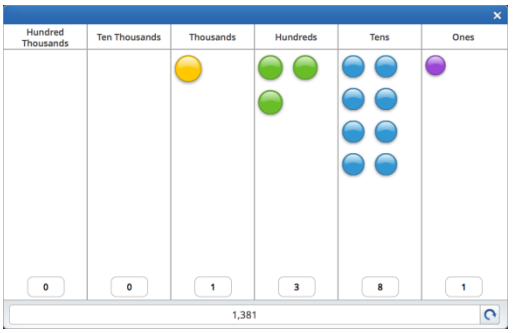
1 Place chips in the left workspace to represent a number having digits in the thousands, hundreds, tens, and ones places. Use 1,381.



- Place 1  . Place 3  . Place 8  . Place 1  .
- Click  once to show the word form of the number in the Odometer. Notice that the Odometer may not display the complete number word in the window. Click on the Odometer window to display the complete text.

  Click  again to check that the left Odometer shows 1,381 in standard form.
- Click  to arrange the blocks in an organized way.

2 Click  to show the place-value chart. Notice the number in each place-value column. Click  to close the place-value chart.



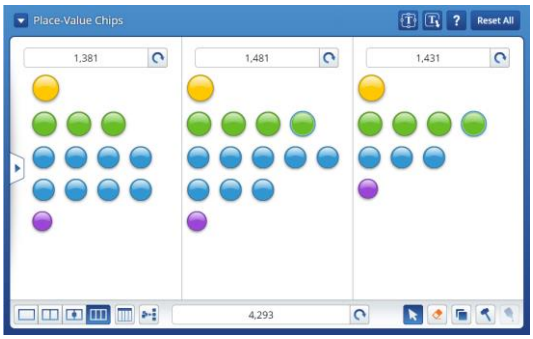
3 In the middle workspace show a number that is 100 more than 1,381.

- Use  and drag a rectangle around all the chips in the left workspace.
- Click  and click on any selected (blue highlighted) chip.
- Click  . Click and hold on one of the blue highlighted chips and drag the group into the middle workspace.

- Place one more  in the middle workspace to add 100 to 1,381.
- Click  two times and check that the middle Odometer shows 1,481.

4 In the right workspace show a number that is 50 less than 1,481.

- Select and copy the chips in the middle workspace. Move the copied chips into the right workspace.
- Use  to take away 50. Click the  on 5  .
- Check that the right Odometer shows 1,431.
- Click  on the lower odometer two times to show the numbers in standard form. This will show the total of all three workspaces. Check that the lower odometer reads 4,293.



Additional Features

- Click the  to break the place-value chips or place-value blocks into smaller units.
- You can use  to combine smaller units into a larger unit. Select a group of ten chips or blocks of the same value, such as ones chips, and click  .