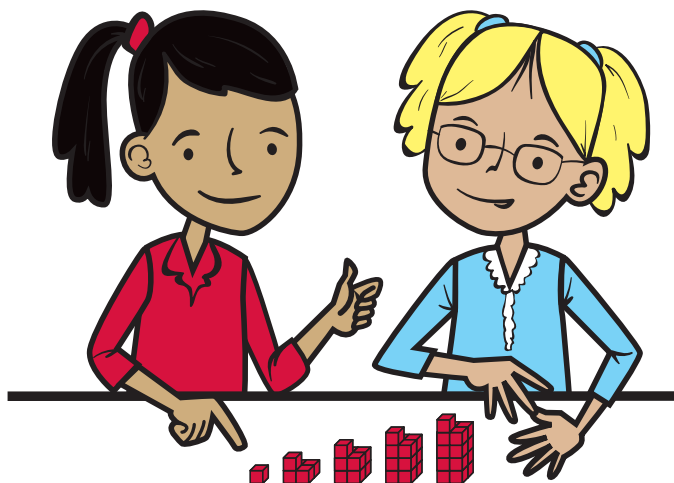


# Bridges in Mathematics

## Grade 5 Unit 6

# Graphing, Geometry & Volume



In this unit your child will:

- Calculate the volume of a rectangular prism using a formula and other strategies
- Graph points in the coordinate plane
- Sort and classify triangles, quadrilaterals, and other two-dimensional shapes
- Multiply a mixed number by a whole number and by another mixed number

Your child will learn and practice these skills by solving problems like those shown below. Keep this sheet for reference when you're helping with homework. Use the free Math Vocabulary Cards app for additional support: [mathlearningcenter.org/apps](http://mathlearningcenter.org/apps).

PROBLEM	COMMENTS
<p>Plot and label these points on the coordinate plane below. The first one has been done as an example. (1,10) (2, 8) (3, 6) (4, 4)</p> <p>What would be the next point if the pattern continued?</p> <p>(5, 2)</p>	<p>Students practice plotting points on the coordinate grid. The first number in each ordered pair identifies the x-coordinate, and the second identifies the y-coordinate. Students locate each point on the coordinate grid by going over and then up by those amounts. They will use these graphing skills to solve story problems later in the unit.</p>
<p>Circle the isosceles triangle that is also an obtuse triangle.</p>	<p>Students consider categories of triangles that overlap, as well as those that don't. While identifying the varieties of ways that a triangle may be categorized, students think carefully about the properties of triangles and use logical reasoning to determine which categories overlap and which do not. They work with quadrilaterals (polygons with 4 sides) in the same way during this unit.</p>

PROBLEM	COMMENTS									
<p>A box measures 26 cm by 8 cm by 10 cm. What is the volume of the box?</p> $V = l \times w \times h$ $26 \times 8 = 160 + 48 = 208$ $208 \times 10 = 2,080$ <p>The volume is 2,080 cubic centimeters</p>	<p>Students apply the formula for finding volume during this unit. In so doing, they also get a lot of practice multiplying numbers of different magnitudes.</p>									
<p>Sketch and label an array that shows <math>1\frac{1}{2} \times 2\frac{3}{5}</math>. Then use your sketch to find the product.</p> <table border="1" data-bbox="186 535 690 709"> <tr> <td></td> <td style="text-align: center;">2</td> <td style="text-align: center;"><math>\frac{3}{5}</math></td> </tr> <tr> <td>1</td> <td><math>1 \times 2 = 2</math></td> <td><math>1 \times \frac{3}{5} = \frac{3}{5}</math></td> </tr> <tr> <td><math>\frac{1}{2}</math></td> <td><math>\frac{1}{2} \times 2 = 1</math></td> <td><math>\frac{1}{2} \times \frac{3}{5} = \frac{3}{10}</math></td> </tr> </table> $2 + 1 + \frac{3}{5} + \frac{3}{10}$ $3 + \frac{6}{10} + \frac{3}{10} = 3\frac{9}{10}$		2	$\frac{3}{5}$	1	$1 \times 2 = 2$	$1 \times \frac{3}{5} = \frac{3}{5}$	$\frac{1}{2}$	$\frac{1}{2} \times 2 = 1$	$\frac{1}{2} \times \frac{3}{5} = \frac{3}{10}$	<p>Students use the array model to multiply mixed numbers. A mixed number is made up of a whole number and a fraction. The array model works exactly the same way as it does when multiplying multi-digit numbers, except that the dimensions are broken into whole number and fraction parts, rather than into hundreds, tens, and ones.</p>
	2	$\frac{3}{5}$								
1	$1 \times 2 = 2$	$1 \times \frac{3}{5} = \frac{3}{5}$								
$\frac{1}{2}$	$\frac{1}{2} \times 2 = 1$	$\frac{1}{2} \times \frac{3}{5} = \frac{3}{10}$								
<p>Use doubling and halving to solve the problems.</p> <p><math>3\frac{1}{2} \times 18</math></p> <p><math>7 \times 9</math></p> <p>63</p> $2\frac{2}{5} \times 75$ $= 1\frac{1}{5} \times 150$ $= (1 + \frac{1}{5}) \times 150$ $= 150 + 30$ $= 180$	<p>Students have used doubling and halving to multiply larger numbers, and now they apply the same strategy to multiply with fractions and mixed numbers. The strategy involves doubling one of the numbers while halving the other to produce a combination that is easier to work with yet still has the same product.</p>									

## FREQUENTLY ASKED QUESTIONS ABOUT UNIT 6

**Q:** I don't remember a lot of this geometry vocabulary. What can I do to brush up on it?

**A:** You can use the Word Resource Cards app (see previous page) to help or consult any number of online math glossaries for kids. Many of the assignments also include a section devoted to reviewing and explaining key vocabulary terms, especially different kinds of triangles and quadrilaterals.