



Quarter 3 – Quarter 4	
Skills	Activities
Find the probability of two different events occurring at the same time.	<p>The probability of a single event is often written as a fraction number of favorable outcomes on top of the fraction and the total number of possible outcomes on bottom of the fraction. When you are dealing with two separate and independent events you must find the probability of each even and multiply them together. What is the probability of flipping heads on a coin and rolling a number greater than 4 on a die.</p> <p>EX: P(heads) = <math>\frac{1}{2}</math> and P(greater than 4) = <math>\frac{2}{6} = \frac{1}{3}</math></p> <p><math>\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}</math></p> <p>So the probability of both events happening would be <math>\frac{1}{6}</math>.</p> <p>Activity: Have your child predict outcomes with probability. Then have them experiment to see if their prediction comes true. Useful tools for probability are cards, dice, spinners, cards, etc.</p> <p><a href="http://www.crctlessons.com/probability-of-compound-events.html">http://www.crctlessons.com/probability-of-compound-events.html</a></p> <p><a href="http://www.crctlessons.com/probability-game.html">http://www.crctlessons.com/probability-game.html</a></p>
Calculate the number of sets that can be made with a group of parts.	<p>Factorial <a href="http://www.onlinemathlearning.com/factorial.html">http://www.onlinemathlearning.com/factorial.html</a></p> <p>Fundamental Counting Principle <a href="http://www.onlinemathlearning.com/counting-principle.html">http://www.onlinemathlearning.com/counting-principle.html</a></p> <p>The Fundamental Counting Principal determines the number of ways that a certain outcome can occur. To find this, simply multiply the number of options in each category. If you have 2 kinds of bread, 3 kinds of meat, 2 kinds of cheese and 2 kinds of mustard, how many sandwiched could you make? By multiplying <math>2 \times 3 \times 2 \times 2 = 24</math> you can determine that there are 24 possible outcomes.</p> <p>To count the number of WAYS that something can happen you can use a Factorial. To use a factorial you multiply the number of choices you have for each position. If you have 4 trophies that you want to place on a shelf you have 4 options for the first spot, then 3 options for the second spot, 2 options for the third spot and just a single option for the last spot. Then by multiplying <math>4 \times 3 \times 2 \times 1</math> you can determine that there are 24 different ways that you can arrange your trophies.</p> <p>You can have your child reproduce this by asking how many different choices they have for many different things. How many outfits can they make? How choices do they have? How many different orders can they do their summer reading?</p>
Identify and understand the many parts of a circle, and solve circle-related problems.	<p>The parts of a circle include:</p> <ul style="list-style-type: none"> <li>Radius – A line segment that from the center to the edge of a circle</li> <li>Diameter – A line segment that touches both sides of the circle and travels through the center</li> <li>Chord – A line segment that touches the circle in two locations</li> <li>Secant – A line that passes through the circle in two places</li> <li>Tangent – A line that touches the circle in exactly one location, it is outside the circle</li> <li>Arc – Any connected part of the circle’s circumference</li> <li>Central Angle – An angle that touches the center of the circle and any two points on the circle</li> <li>Inscribed Angle – An angle that touches the circle in three locations</li> <li>Circumference – The distance around the circle (<math>C = 2\pi r</math> or <math>C = \pi d</math>)</li> <li>Area – The amount of space inside the circle (<math>A = \pi r^2</math>)</li> </ul>

	<p>Activity: Cut or draw a circle with paper. Have your child draw a radius, chord, tangent, etc.</p> <p>Activity: Find various round objects in your home. Have your child find the radius of the object and measure it. Use this number to calculate the circumference and area of the object.</p> <p>For visual reference: <a href="http://www.coolmath.com/reference/circles-geometry.html">http://www.coolmath.com/reference/circles-geometry.html</a></p>
Find the volume and surface area of three dimensional shapes.	Have your child measure objects around the house and find the volume and surface area of these objects.
Create and identify tessellations. (Tessellations are created when a shape is repeated over and over again without gaps or overlaps.)	<p>** A tessellation is a collection of shapes and figures that fit together in a repetitive pattern and completely fill a surface without gaps or overlaps.</p> <p>To create an object that will tessellate, take a square and cut the shape of your choice out from one side of the square. Slide that shape to the other side of the square and tape it in that location. You may do this as many times as you like until you have a shape that you are happy with. Then, trace the shape over and over again until the paper is filled. There should be no gaps between one traced shape and the next. You can then color and make interesting designs from your resulting pattern. This is referred to as the “Nibble and Slide” Method of Tessellations.</p> <p>A visual and interactive display of tessellations: <a href="http://www.shodor.org/interactivate/activities/Tessellate/">http://www.shodor.org/interactivate/activities/Tessellate/</a></p> <p>Nibbles and Slides Method: <a href="http://library.thinkquest.org/16661/escher/tessellations.1.html">http://library.thinkquest.org/16661/escher/tessellations.1.html</a></p> <p>To view Escher tessellations: <a href="http://www.mcescher.com/">http://www.mcescher.com/</a></p>
Read and interpret data and graphs.	<p>Look for graphs in the news and newspaper. Ask your child what information the graph is showing. Some graphs are drawn in a way that does not necessarily correctly reflect the data. Discuss with your child if they graphs are accurate and if they think that they accurately show the data.</p> <p>Description of various graphs and how to interpret them:  <a href="http://www.internet4classrooms.com/skill_builders/interpret_graphs_language_arts_seventh_7th_grade.htm">http://www.internet4classrooms.com/skill_builders/interpret_graphs_language_arts_seventh_7th_grade.htm</a></p>
Solve problems with proportions.	<p>A proportion is an equation that compares two fractions. If one of the fractions is missing a term you can solve for the variable by finding the cross product. To find the cross product you must multiply the numerator of one fraction by the denominator of the other fraction and place an equals sign between the two new terms. Then, solve the resulting one-step equation, usually by dividing.</p> <p>If you are throwing a party (or pretend to) and have your child determine the number the amount of each thing that you will need. If there are 12 paper plates per package and you need 36 plates you will need 3 packages. Then, you are solving for the missing number in the proportion <math>12/1 = 36/x</math>. Other similar examples can you used as well.</p> <p>Solving proportions game: <a href="http://www.quia.com/r/35675.html?AP_rand=417224333">http://www.quia.com/r/35675.html?AP_rand=417224333</a></p> <p>Do the ratios form a proportion: <a href="http://www.ixl.com/math/grade-7/do-the-ratios-form-a-proportion-word-problems">http://www.ixl.com/math/grade-7/do-the-ratios-form-a-proportion-word-problems</a></p>
Solve problems involving mark-ups, discounts, and/or interest.	<p>To calculate a percent decrease, first subtract your percent from 100%. Then convert the new percent into a decimal by moving the decimal two places to the left. You will multiply the original amount by this decimal to determine the new cost. For example: If your discount is 25% then first subtract <math>100 - 25 = 75\%</math> then turn 75% into 0.75 and multiply your original amount by 0.75.</p> <p>To calculate a markup (tax, tip, etc.), convert the percent into a decimal by moving the decimal two places to the left. You multiply that decimal by your original amount to determine the total markup. If you want to determine the final cost, add the markup to the original price. If your lunch costs \$14 and you would like to leave a 20% tip, you would use the decimal 0.20 that you would then multiply by your original \$14. So, <math>\\$14 \times 0.20 = \\$2.80</math> and your total price would be \$16.80</p> <p>When going to the store with your child, have them calculate the new price after an item is discounted. How much will it cost after 25% off? Then, have them calculate what final price will be after tax. At a restaurant you can have your child calculate how much tip should be given to the waitress based on a percentage that you determine.</p> <p><a href="http://www.math-play.com/Sales-Tax/Sales-Tax.html">http://www.math-play.com/Sales-Tax/Sales-Tax.html</a></p>



<p>Use scale to determine if figures are similar. (In math, figures are similar if all of their angles are the same.)</p>	<p>When two figures are similar, their sides must form a proportion. For example if a two rectangles are similar, and one measures 4x6 and the other measures 8x ? the missing side must be 12, because if one side is twice the length of the similar rectangle, then both sides are twice the length of the similar rectangle. Find shapes that seem to be the same (2 rectangles, 2 triangles, 2 hexagons). Measure the sides of each figure and determine if the sides form a proportion. <a href="http://www.themathlab.com/Algebra/basics/blow%20%27em%20up%20cartoons.htm">http://www.themathlab.com/Algebra/basics/blow%20%27em%20up%20cartoons.htm</a> Similar Figures: <a href="http://www.harcourtschool.com/activity/similar_congruent/">http://www.harcourtschool.com/activity/similar_congruent/</a> Comparing Similar and Congruent Figures: <a href="http://www.bbc.co.uk/schools/gcsebitesize/maths/shapes/congruencysimilarityrev1.shtml">http://www.bbc.co.uk/schools/gcsebitesize/maths/shapes/congruencysimilarityrev1.shtml</a> Determining Similarity with Proportions: <a href="http://www.math.com/school/subject1/lessons/S1U2L4EX.html">http://www.math.com/school/subject1/lessons/S1U2L4EX.html</a></p>
<p>Solve problems involving conversions within the same measurement system</p>	<p>To convert from one measurement to another within the same measurement system, a child must multiply the distance as measured in the larger unit by the number of smaller unit in each larger unit. For example, to find out how many feet are in 5 yards, take the number of yards (5) and multiply by the number of feet in a single yard (3). So, the number of feet that equals 5 yards is (5x3) or 15 feet. Here are some measurements in U.S. Standard measurements. Distance: <b>1 Foot</b> =12 inches <b>1 Yard</b> = 3 feet = 36 inches <b>1 Mile</b>= 1760 yards=5280 feet=63,360 inches.  Volume: <b>1 Cup</b>= 8 fl. oz. <b>1 Pint</b> = 2 cups =16 fl. oz. <b>1 Quart</b>= 2 pints=4 cups=32 fl. oz. <b>1 Gallon</b> = 4 quarts = 8 pints = 16 cups = 128 fl. oz. In US standard measurement you can draw the breakup of the whole. For example, One gallon &gt; 4 Quarts &gt; 8 Pints &gt; 16 cups. A similar drawing could also be made for units of length, money and time. Play the Conversion Scavenger Hunt. Create cards with conversion questions (i.e. 6 feet = _____ inches) on them and place them around your house. Have your child answer the questions, as they are located. If you can, offer your child some reward if they locate and correctly answer all of the questions. Length, Weight and Capacity Game: <a href="http://www.bbc.co.uk/skillswise/numbers/measuring/lwc/game.shtml">http://www.bbc.co.uk/skillswise/numbers/measuring/lwc/game.shtml</a> Unit Conversion Memory Game: <a href="http://www.ezscool.com/Games/UnitConversion.html">http://www.ezscool.com/Games/UnitConversion.html</a></p>

## RESOURCES

<http://www.amblesideprimary.com/ambleweb/mentalmaths/fracto.html>

<http://www.kidsolr.com/math/fractions.html>

<http://www.gamequarium.com/fractions.html>

Hands on models for dividing fractions:

[http://ims.ode.state.oh.us/ODE/IMS/Lessons/Content/CMA\\_LP\\_S01\\_BH\\_L06\\_I08\\_01.pdf](http://ims.ode.state.oh.us/ODE/IMS/Lessons/Content/CMA_LP_S01_BH_L06_I08_01.pdf)

[www.funbrain.com/tens/index.html](http://www.funbrain.com/tens/index.html)

<http://www.math.com/school/subject1/lessons/S1U1L4GL.html>

<http://www.math.com/school/subject1/lessons/S1U1L5GL.html>

<http://www.math.com/school/subject1/lessons/S1U1L6GL.html>

<http://staff.argyll.epsb.ca/jreed/math9/strand1/1101.htm>

<http://classroom.jc-schools.net/basic/math-order.html>

<http://www.math-play.com/Factors-and-Multiples-leopardy/Factors-and-Multiples-leopardy.html>

To learn the rules for adding, subtracting, and multiplying integers, please refer to this web site:

<http://www.homeschoolmath.net/teaching/integers.php>

<http://www.gamequarium.com/equations.html>

[http://nlvm.usu.edu/en/nav/frames\\_asid\\_201\\_g\\_4\\_t\\_2.html?open=instructions](http://nlvm.usu.edu/en/nav/frames_asid_201_g_4_t_2.html?open=instructions)

<http://www.ixl.com/math/grade-7/model-and-solve-equations-using-algebra-tiles>

<http://www.gamequarium.com/equations.html>

<http://www.shodor.org/interactivate/activities/GeneralCoordinates/>

<http://www.mathwire.com/games/guessmyrulegame.pdf>

<http://pbskids.org/cyberchase/games/functions/functions.html>

<http://regentsprep.org/Regents/math/ALGEBRA/AT1/TActive.htm>

<http://www.kidsnumbers.com/pythagorean-theorem-game.php>

<http://www.mathopenref.com/coordvertical.html>

<http://www.college-cram.com/study/algebra/graphs-and-lines/midpoint-of-a-line-segment/>

Useful tools for probability are cards, dice, spinners, cards, etc.

<http://www.crctlessons.com/probability-of-compound-events.html>

<http://www.crctlessons.com/probability-game.html>

Factorial <http://www.onlinemathlearning.com/factorial.html>

Fundamental Counting Principle <http://www.onlinemathlearning.com/counting-principle.html>

<http://www.coolmath.com/reference/circles-geometry.html>

A visual and interactive display of tessellations: <http://www.shodor.org/interactivate/activities/Tessellate/>

Nibbles and Slides Method: <http://library.thinkquest.org/16661/escher/tessellations.1.html>

To view Escher tessellations: <http://www.mcescher.com/>

Description of various graphs and how to interpret them: [http://www.internet4classrooms.com/skill\\_builders/interpret\\_graphs\\_language\\_arts\\_seventh\\_7th\\_grade.htm](http://www.internet4classrooms.com/skill_builders/interpret_graphs_language_arts_seventh_7th_grade.htm)

Solving proportions game: [http://www.quia.com/rr/35675.html?AP\\_rand=417224333](http://www.quia.com/rr/35675.html?AP_rand=417224333)

Do the ratios form a proportion: <http://www.ixl.com/math/grade-7/do-the-ratios-form-a-proportion-word-problems>

<http://www.math-play.com/Sales-Tax/Sales-Tax.html>

<http://www.themathlab.com/Algebra/basics/blow%20%27em%20up%20cartoons.htm>

Similar Figures: [http://www.harcourtschool.com/activity/similar\\_congruent/](http://www.harcourtschool.com/activity/similar_congruent/)

Comparing Similar and Congruent Figures: <http://www.bbc.co.uk/schools/gcsebitesize/maths/shapes/congruencysimilarityrev1.shtml>

Determining Similarity with Proportions: <http://www.math.com/school/subject1/lessons/S1U2L4EX.html>

Length, Weight and Capacity Game: <http://www.bbc.co.uk/skillswise/numbers/measuring/lwc/game.shtml>

Unit Conversion Memory Game: <http://www.ezscool.com/Games/UnitConversion.html>

