

NC Strawberry Investigations Math Questions for 4th Grade

Standard	Question
4OA1/4OA3	<p>Students will use multiplication comparisons to determine the total number of items being described. Students should draw pictures or use manipulatives to help them solve the problems.</p> <p>*Susie and Kayla brought strawberry snack cakes for the class. Susie brought 6 cakes. Kayla brought 3 times as many as Kayla. How many did cakes did Susie and Kayla bring in all?</p> <p>*Mrs. Smith has a small garden with 9 rows of strawberries. There are 8 plants in each row. Mr. Lopez has twice as many strawberries as Mrs. Smith. How many strawberries does Mr. Lopez have in his garden?</p> <p>*Strawberry plants come in bundles of 25 or 50. Johnny bought 5 bundles of 25. Taj bought 3 bundles of 50. Who bought more strawberries?</p>
4OA2/4OA3	<p>Students will use division to find equal shares. Students should draw pictures or use manipulatives to help them solve the problems</p> <p>*The students in Mrs. Jones class harvested 32 strawberries on Day 1 of the harvest. The girls in the class harvested 3 times as many strawberries as the boys. How many strawberries did each group harvest?</p> <p>*Mrs. Smith planted 72 plants in a small garden. She divided her garden into equal rows with an equal number of plants. Find the number of strawberry plants that could be in each row. Make a model to show your work.</p>
4OA3	<p>*From "In Strawberry Fields" from www.agclassroom.org/ok, use Hourly Wages Worksheet and Piece Work Worksheet. These two worksheets include multiplication, addition, and algebra to develop an understanding of income.</p>
4OA4	<p>*Given a number of strawberry plants, students will find all possible factors of the number. If students have a strawberry garden, they can use this skill to determine the best number of row and plants in each row for their garden.</p> <p>Ex. 96 plants - 1 row of 96, 2 rows of 48, 3 rows of 32, 4 rows of 24, 6 rows of 16, and 8 rows of 12.</p> <p>* Given a number of strawberry plants, students will determine if the number is prime or composite. Can there be more than one equal row of strawberries with none left over?</p> <p>Ex. 17 cannot be equally divided. It has only the factors of 1 and 17.</p>
4OA5	<p>Students will recognize the leaves on the strawberry plant are trifoliate and will create a pattern showing the number of leaves on their strawberry plant. They should also identify the rule of the pattern.</p> <p>Ex. If there are 21 leaves on the plant, students should show the pattern as 3, 6, 9, 12, 15, 18, 21. The rule is to add 3 each time.</p>
4NBT1	<p>Students will use place value to break apart numbers and recognize that each place to the right is ten times the place to the left. Ex. In 536, 6 is in the ones place which represents 6 ones. 3 is in the tens place which represents 3 times 10, 3 tens and 30 ones. The 5 is in the hundreds place (which is ten times the tens place) and represents 5 times 100, 5 hundreds, 50 tens and 500 ones.</p>
4NBT2	<p>Using the NC Department of Agriculture's Strawberry Statistics Sheet, students will read, write and compare multi-digit numbers up to 1,000,000.</p> <p>Ex. Value of production column - 15,300 thousands. To enrich, they can add the three zeros to make 15,300,000. 15,300 should be written in word and expanded form.</p> <p>Then, compare numbers from year to year to determine if there was an increase or decrease in value. Students should write the two years they are comparing in a number sentence using the correct symbol (>, <, or =).</p>

4NBT3	<p>Using the NC Department of Agriculture's Strawberry Statistics Sheet, point out to students that the numbers in the chart have been rounded to make comparisons easier.</p> <p>*Looking at the value of production column, students can further round to the tens, hundreds, and thousands place.</p> <p>*Students will research the price of strawberry plants and determine the estimated cost of purchasing 1000 strawberry plants. They should look at more than one website to understand that when making a major purchase, people comparison shop to find the best price.</p>
4NBT4	<p>*Using the NC Department of Agriculture's Strawberry Statistics Sheet, students will add the values for multiple years to learn how much strawberries production has contributed to the economy. Students can add the last 5 years or the last 10 years.</p> <p>*Using the USDA Cash Receipts Document from Farm Marketing & Government Payments, students will use subtraction to determine if there was an increase or decrease in "Vegetables, Fruits, Nuts & Berries" from 2010 to 2011 for your county and bordering counties. Extension: Have students discuss why they think these commodities are grouped together rather than each listed separately.</p>
4NBT5	<p>Using the Planting Table, determine the number of plants in 5 rows and 10 rows for each strawberry entry. Determine the number of strawberry plants for 2, 3, 4, and 5 acres for each strawberry entry. Extension: Using the information from 4NBT3, determine the cost of strawberry plants for 1 acre and 5 acres of land. Some students will need to use a calculator.</p>
4NBT6	<p>Students will use division to solve problems.</p> <p>*Mrs. Smith harvested 117 strawberries from her garden which has 9 plants. How many berries did she harvest from each plant?</p>
4NF1	<p>Students can divide strawberry fields into halves, thirds, fourths (quarters) and understand that dividing the fields make them smaller plots of land. Have students create and properly label (1/4, 1/3, etc.) several examples of how a field could be divided. Students should explain why the number of equal pieces of the whole increases as the fractional part becomes smaller. Students will recognize and understand that two 1/4's is the same as 1/2. Students will use the concept of dividing the strawberry field to see the relationship of equivalent fractions.</p>
4NF2	<p>Compare fractions</p>
4NF3	<p>Students will add and subtract fractions and mixed numbers using the worksheet "Strawberry Fractions" from www.education.com. (This work sheet also includes some multiplication of money.)</p>
4NF4	<p>Access the NC Strawberry Association website, click on recipes and choose "Strawberry Fun Food." Find the recipe for Smooth Stuff. Using this recipe, students will multiply fractions by a whole number. Find the quantities for each ingredient when you double the recipe and then triple the recipe.</p> <p>*Have students find other strawberry recipes and practice multiplying fractions by whole numbers.</p>
4NF5	<p>$1/10 = 10/100$</p>
4NF6	<p>$1/10 = 0.1$ $1/100 = 0.01$</p>
4NF7	<p>Students will research the price of strawberry plants per plant (division may be required as plants are usually sold in bundles.) They will look at multiple sources and compare the prices. Prices should be written as decimals ($19\text{¢} = 0.19$) and then compared in a number sentence using the correct symbol ($>$, $<$, $=$).</p>
4MD1/4MD2	<p>Students will measure strawberry plants - height, width - in centimeters and then convert to millimeters and decimeters.</p> <p>Students will access NC Strawberry Association website. Click on recipes and choose Strawberry Measurements. The first three measures are given as pints = cups. Using this information, find the amount of strawberries in a quart and in a gallon. Ex. How many cups</p>

	<p>of whole strawberries are in a quart? in a gallon? Find the number of pounds in a gallon. *If students have a strawberry garden, have them measure the perimeter of the garden in feet, then convert to inches. Next, measure in meters and convert to centimeters.</p>
4MD3/4MD2	<p>Explain to students that farmers use measures of square feet when they are measuring their fields. They should understand that 1 square foot means a square with a measure of 1 foot. Farmers calculate the area using measures of the perimeter. One acre equals 43,600 square feet. Have students find possible measures of the perimeter. *If students have a strawberry garden, have them measure the perimeter of the garden (add all sides). Students will then use the formula for area ($A = L \times W$) to calculate the area of the garden.</p>
4MD4	<p>Students will measure specific attributes of a strawberry plant to the nearest 1/8 of an inch. Then create a line plot showing the height, width, number of leaves, number of berries, etc. Students should be able to analyze the data and make generalizations about the data. For example, if there are more "x" marks over the 3/4 inch mark for length of strawberries, students should be able to conclude that most strawberries (on their plants) are 3/4 inch in length. *If students have access to a strawberry garden, they should record data in their notebooks on a weekly or daily basis. Any of this data could be used for this skill. Ex. Plot the number of strawberries harvested from each plant or total harvested each day.</p>
4MD5	<p>a. Recognize angles as two rays b. Understand 1 degree turns</p>
4MD6	Measure angles
4MD7	Add and subtract angle measures (complimentary, supplementary)
4G1	<p>Students will develop an understanding of parallel lines by studying how they are used in farming. Have students identify where they might find parallel lines on a farm. (Rows are the obvious choice.) Ask students to discuss why the rows might be parallel. Why would the farmer choose not to have intersecting lines? Discuss the farming equipment, drip line, plastic coverings, and plant spacing being set up on the idea of parallel lines. *Students will create a map of a strawberry farm using points, parallel lines, perpendicular lines, line segments, and angles in their design. (They should research a strawberry farm open to the public to learn what components (You pick area, restroom, fruit stand, store, etc.) need to be included on their map.</p>
4G2	Classify two-dimensional figures
4G3	<p>Students will recognize line symmetry. *Determine if strawberries have line symmetry. Demonstrate and explain your decision. *Show lines of symmetry for a strawberry field.</p>

North Carolina Strawberry Association – www.ncstrawberry.com

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