Indiana Academic Standards for Mathematics

Third Grade

a) Write the numeral below in standard form and expanded form.

five thousand, seven hundred two

a) Activity: create riddles such as, "I have 5 tens, 12 ones and 3 hundreds. What number am I?"

3.NS.1 Read and write whole numbers up to 10,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 10,000.

http://www.ixl.com/math/grade-3/write-numbers-in-words

Indiana Academic Standards for Mathematics

Third Grade

a) Activity: create "I Have - Who Has" cards.

For example, one card might have “6,485” on it, another card could have “6000+400+80+5”, and another card “six thousand, four hundred eighty-five”.

- Each student would have one card and need to find classmates who have cards with an equivalent value in a different representation.

3.NS.1 Read and write whole numbers up to 10,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 10,000.

http://www.ixl.com/math/grade-3/write-numbers-in-words

Indiana Academic Standards for Mathematics

Third Grade

a) Use >, =, or < to compare the numbers.

4,625 ____ 4,652

b) Activity: students play a variation on the card game "War" making the largest possible number from four dealt cards and then comparing their numbers using the signs , and = printed on index cards.

3.NS.2 Compare two whole numbers up to 10,000 using >, =, and < symbols

http://www.ixl.com/math/grade-3/comparing-numbers

Indiana Academic Standards for Mathematics

Third Grade

a) Use >, =, or < to compare the numbers.

4,625 ____ 4,652

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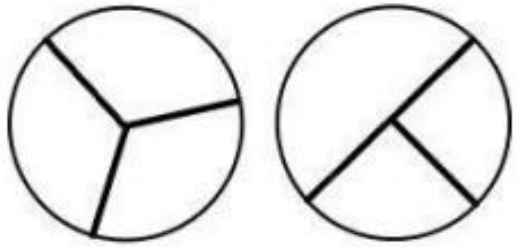
3.NS.2 Compare two whole numbers up to 10,000 using >, =, and < symbols

http://www.ixl.com/math/grade-3/comparing-numbers

Indiana Academic Standards for Mathematics

Third Grade

a) Students initial understandings of fraction should include being composed of many equal pieces called unit fractions (i.e. fractions with numerator 1). For example, the fraction 5/6 is composed of five 1/6 pieces. Students should also recognize figures that have been divided into fractional parts and those which have not. The figure below on the left is an example of thirds but the one on the right does not show thirds. However, students might indicate that the figure on the right has one part which is ½ and two parts showing ¼ and conclude that the two sides are equivalent.



3.NS.3 Understand a fraction, 1/b, as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction, a/b, as the quantity formed by a parts of size 1/b. [In grade 3, limit denominators of fractions to 2, 3, 4, 6, 8.]

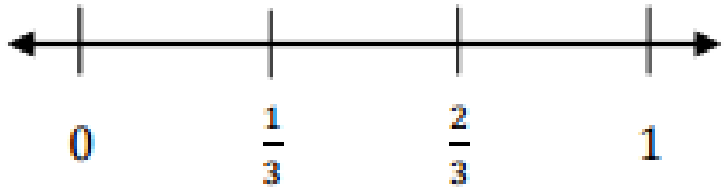
https://www.illustrativemathematics.org/illustrations/833

Indiana Academic Standards for Mathematics

Third Grade

a) Represent ⅙ on a number line.

b) Note: In the picture below, the whole is defined from 0 to 1. It has been divided into 3 equal parts or thirds. The fraction 1/3 is the space between 0 and 1/3. Students will often count the tic marks and think that it shows fourths rather than thirds. One way to introduce fractions is through measurement activities using a ruler and relating it to a number line. It may also help to start by having students use number lines to create the benchmarks for a half, a quarter, three quarters, etc.



3.NS.4 Represent a fraction, 1/b, on a number line by defining the interval from 0 to 1 as the whole, and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line.

https://www.illustrativemathematics.org/illustrations/168

Indiana Academic Standards for Mathematics

Third Grade

a) Represent 3/8 on a number line.

b) Represent 5/4 on a number line.

3.NS.5 Represent a fraction, a/b, on a number line by marking off lengths 1/b from 0. Recognize that the resulting interval has size a/b, and that its endpoint locates the number a/b on the number line.

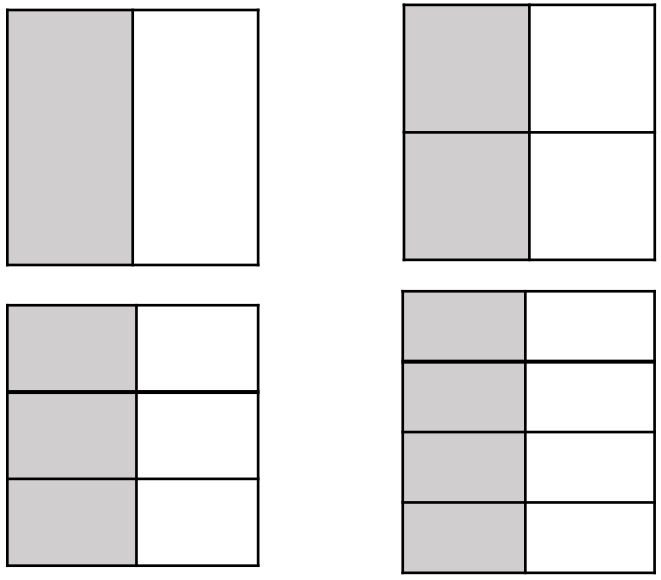
https://www.illustrativemathematics.org/illustrations/168

Indiana Academic Standards for Mathematics

Third Grade

Note: Fraction models can be used to help students understand fraction equivalence.

The models below show that and 1/2, 2/4, 3/6, 4/8 are equivalent.



3.NS.6 Understand two fractions as equivalent (equal) if they are the same size, based on the same whole or the same point on a number line.

https://www.illustrativemathematics.org/illustrations/871

Indiana Academic Standards for Mathematics

Third Grade

a) Name two fractions that are equivalent to ⅔.

b) Explain how you know they are equivalent.

3.NS.7 Recognize and generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent (e.g., by using a visual fraction model).

http://www.ixl.com/math/grade-3/equivalent-fractions-choose-the-equivalent-fraction

Indiana Academic Standards for Mathematics

Third Grade

a) Name two fractions that are equivalent to ¾.

b) Explain how you know they are equivalent.

3.NS.7 Recognize and generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent (e.g., by using a visual fraction model).

http://www.ixl.com/math/grade-3/equivalent-fractions-choose-the-equivalent-fraction

Indiana Academic Standards for Mathematics

Third Grade

a) Use >, =, or < to compare the fractions.

- **2/8 _____ 3/8**
- **5/6 _____ 5/4**

a) Explain how you know your answer is correct.

3.NS.8 Compare two fractions with the same numerator or the same denominator by reasoning about their size based on the same whole. Record the results of comparisons with the symbols >, =, or <.

Indiana Academic Standards for Mathematics

Third Grade

a) Round each number to the nearest 10.

- **64, 71, 46, 25, 963, 577, 206**

b) Round each number to the nearest 100.

- **863, 577, 206, 354, 729**

3.NS.9 Use place value understanding to round 2- and 3-digit whole numbers to the nearest 10 or 100.

Indiana Academic Standards for Mathematics

Third Grade

a) Evaluate each expression.

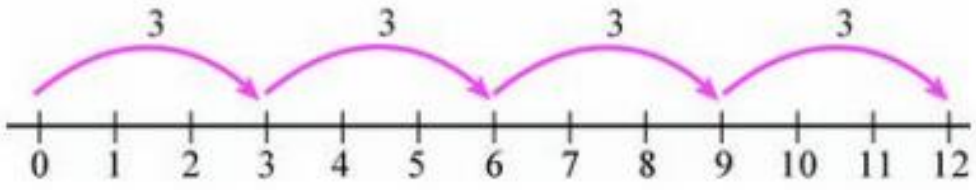
- **345 + 89** **86 – 45** **502 + 293**
- **784- 691** **402 – 165** **487 + 465**

3.C.1 Add and subtract whole numbers fluently within 1000.

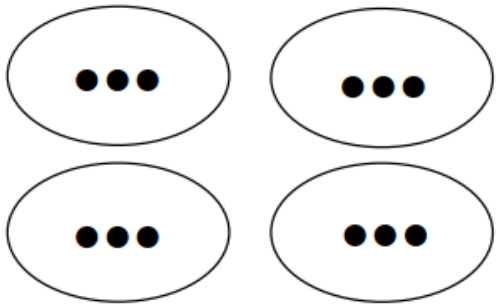
Indiana Academic Standards for Mathematics

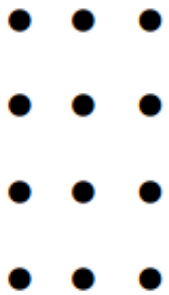
Third Grade

a) For the 4 models below, explain why each shows or does not show the product of 4 and 3.



1st number	2nd number	Product
* * * *	* * *	* * * * * * *





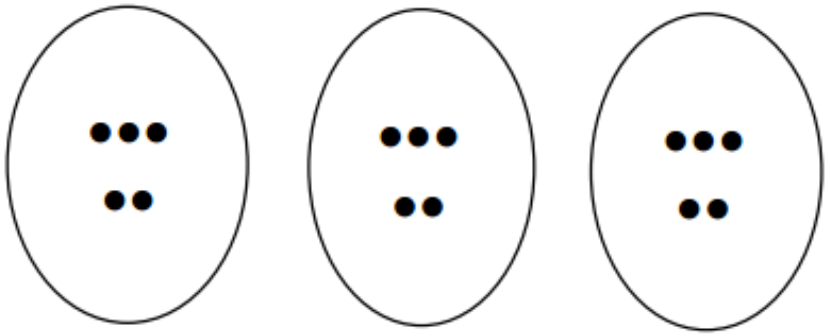
3.C.2 Represent the concept of multiplication of whole numbers with the following models: equal sized groups, arrays, area models, and equal "jumps" on a number line. Understand the properties of 0 and 1 in multiplication.

http://www.ixl.com/math/grade-3/relate-addition-and-multiplication

Indiana Academic Standards for Mathematics

Third Grade

a) For the 3 models below, explain why each shows or does not show 15 ÷ 3.



$5 \times 3 = 15, so\ 15 \div 3 = 5$

●●●|●●●|●●●|●●●|●●●

3.C.3 Represent the concept of division of whole numbers with the following models: partitioning, sharing, and an inverse of multiplication. Understand the properties of 0 and 1 in division.

http://www.ixl.com/math/grade-3/division-word-problems-facts-to-10

Indiana Academic Standards for Mathematics

Third Grade

a) Zack has 72 pencils. He will divide them equally into 9 groups. Which expression represents this situation?

- **72 + 9**
- **72 – 9**
- **72 x 9**
- **72 ÷ 9**

3.C.4 Interpret whole-number quotients of whole numbers (e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each).

https://www.illustrativemathematics.org/illustrations/1531

Indiana Academic Standards for Mathematics

Third Grade

a) Multiply and divide within 100 using strategies, such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8), or properties of operations.

30 x 3 **72 ÷ 9** **24 x 3**

76 ÷ 4 **19 x 5** **84 ÷ 7**

3.C.5 Multiply and divide within 100 using strategies, such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8), or properties of operations.

http://www.ixl.com/math/grade-3/relate-multiplication-and-division

Indiana Academic Standards for Mathematics

Third Grade

a) Evaluate each expression.

5 x 7	3 x 9	0 x 2	6 x 8
7 x 1	1 x 4	6 x 9	24 ÷ 6
64 ÷ 8	63 ÷ 9	35 ÷ 5	20 ÷ 4
9 ÷ 1	81 ÷ 9		

3.C.6 Demonstrate fluency with multiplication facts and corresponding division facts of 0 to 10.

http://www.ixl.com/ math/grade- 2/multiplicationtables-up-to-10

Indiana Academic Standards for Mathematics

Third Grade

a) The 3rd and 4th grade students are going on a field trip. There are 423 students going altogether and 157 of them are 3rd grade students. How many 4th grade students are going on the field trip?

3.AT.1 Solve real-world problems involving addition and subtraction of whole numbers within 1000 (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

https://www.illustrativemathematics.org/illustrations/1315

Indiana Academic Standards for Mathematics

Third Grade

a) A third grade class collected 235 cans for their food drive. The fourth grade class collected 137 cans.

- How many cans did they collect altogether?
- How many more cans did the third grade class collect than the fourth grade class?
- How many more cans are needed to have a total of 700 cans?

3.AT.1 Solve real-world problems involving addition and subtraction of whole numbers within 1000 (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

https://www.illustrativemathematics.org/illustrations/1315

Indiana Academic Standards for Mathematics

Third Grade

a) Jill bought 48 flowers. She will divide these equally into 6 vases. How many flowers will she put in each vase?

b) Jerry bought 9 packages of cookies. Each package contains 10 cookies. How many cookies did he buy in all?

3.AT.2 Solve real-world problems involving whole number multiplication and division within 100 in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

https://www.illustrativemathematics.org/illustrations/262

Indiana Academic Standards for Mathematics

Third Grade

a) Sydney collected 231 rocks last week and 137 rocks this week. She gave 53 of the rocks to her friends. How many rocks does she have now?

3.AT.3 Solve two-step real-world problems using the four operations of addition, subtraction, multiplication and division (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

https://www.illustrativemathematics.org/illustrations/1301

Indiana Academic Standards for Mathematics

Third Grade

a) Eric's goal is to practice his math facts for a total of 75 minutes this week. He practiced yesterday for 15 minutes. For the next 6 days, he will practice the same amount of time each day. How many minutes will Eric need to practice each day to reach his goal?

3.AT.3 Solve two-step real-world problems using the four operations of addition, subtraction, multiplication and division (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

https://www.illustrativemathematics.org/illustrations/1301

Indiana Academic Standards for Mathematics

Third Grade

a) Which two statements could represent 6 x 4?

- The total number of oranges if Bill has 6 bags with 4 oranges in each bag.
- The total number of oranges if Bill has 6 oranges and Amy has 4 oranges.
- The total number of oranges if Bill has 4 oranges and Amy has 6 oranges.
- The total number of oranges if Bill has 4 bags with 6 oranges in each bag.

3.AT.4 Interpret a multiplication equation as equal groups (e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each). Represent verbal statements of equal groups as multiplication equations.

http://www.ixl.com/math/grade-3/multiplication-sentences

Indiana Academic Standards for Mathematics

Third Grade

a) Which two expressions could represent “the total number of marbles if 5 marbles are placed on each of 10 desks?”

10 x 5 **10 + 5** **10 ÷ 5**

10 - 5 **5 + 10** **5 x 10**

3.AT.4 Interpret a multiplication equation as equal groups (e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each). Represent verbal statements of equal groups as multiplication equations.

http://www.ixl.com/math/grade-3/multiplication-sentences

Indiana Academic Standards for Mathematics

Third Grade

a) What is the missing number in each equation?

24 = □ x 6

? x 7 = 56

9 = 72 ÷ □

6 = □ ÷ 7

? ÷ 5 = 6

3.AT.5 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

Indiana Academic Standards for Mathematics

Third Grade

a) A pattern is shown in the table below. To find the 2nd Number, a math operation is done to the 1st Number. Describe how to find the 2nd Number and complete the table.

1st Number	1	2	3	4	5	6
2nd Number	7	14	21	28		

Activity: Have students create their own number pattern. Then, have them switch patterns with other students to try to determine each others' rule.

3.AT.6 Create, extend, and give an appropriate rule for number patterns using multiplication within 100.

https://www.teachervision.com/multiplication/lesson-plan/3033.html

Indiana Academic Standards for Mathematics

Third Grade

Describe similarities and differences between a pyramid and cone.

3.G.1 Identify and describe the following: cube, sphere, prism, pyramid, cone, and cylinder.

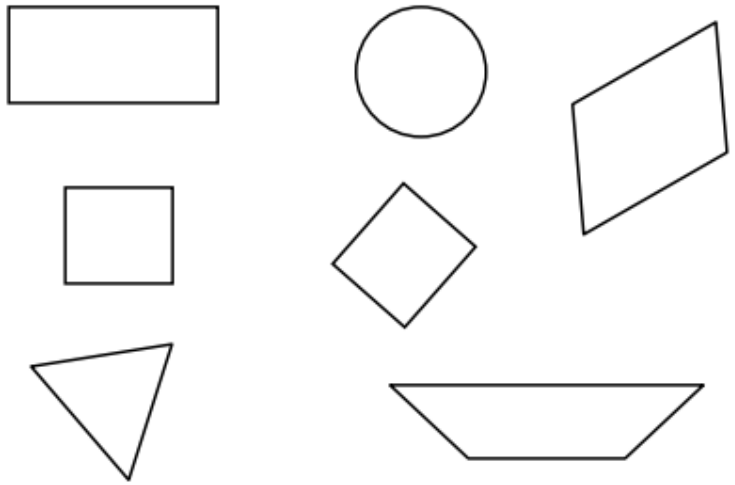
http://www.ixl.com/math/grade-3/identify-planar-and-solid-shapes

Indiana Academic Standards for Mathematics

Third Grade

Which two shapes do not belong in this group?

Describe how they are different from the other 5 shapes.



3.G.2 Understand that shapes (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize and draw rhombuses, rectangles, and squares as examples of quadrilaterals. Recognize and draw examples of quadrilaterals that do not belong to any of these subcategories.

http://www.ixl.com/math/grade-3/which-2-dimensional-shape-is-being-described

Indiana Academic Standards for Mathematics

Third Grade

a) Draw a point, line segment, and line.

b) Describe how a line segment is different than a line.

Activity: Have students identify objects inside and outside the classroom and describe where they see points and lines represented.

3.G.3 Identify, describe and draw points, lines and line segments using appropriate tools (e.g., ruler, straightedge, and technology), and use these terms when describing two-dimensional shapes.

https://www.illustrativemathematics.org/illustrations/1263

Indiana Academic Standards for Mathematics

Third Grade

a) Divide the rectangle on the left so that it is split into 3 parts with equal areas. Then, divide the other rectangle in a different way but still into 3 parts with equal areas.

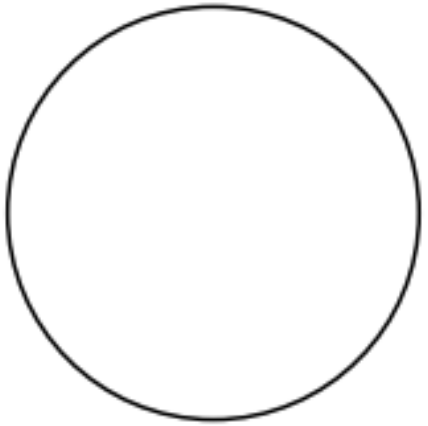
3.G.4 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole (1/2, 1/3, 1/4, 1/6, 1/8).

https://www.illustrativemathematics.org/illustrations/1502

Indiana Academic Standards for Mathematics

Third Grade

a) Divide the circle so that it is split into 4 parts with equal areas. Then, determine how much each area represents in terms of the whole circle.



3.G.4 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole (1/2, 1/3, 1/4, 1/6, 1/8).

https://www.illustrativemathematics.org/illustrations/1502

Indiana Academic Standards for Mathematics

Third Grade

a) Mr. Ruiz wants to bring lemonade for his 24 students on Friday. Which amount of lemonade would be reasonable for Mr. Ruiz to bring for his students?

- **About 4-5 quarts**
- **About 2-3 gallons**
- **About 1 liter**

<u>Activity</u>: Have students identify five things that have a mass of about 1 gram, 5 grams, 10 grams, and 1 kilogram. This may help students develop gram benchmarks.

3.M.1 Estimate and measure the mass of objects in grams (g) and kilograms (kg) and the volume of objects in quarts (qt), gallons (gal), and liters (l). Add, subtract, multiply, or divide to solve one-step real-world problems involving masses or volumes that are given in the same units (e.g., by using drawings, such as a beaker with a measurement scale, to represent the problem).

https://learnzillion.com

Indiana Academic Standards for Mathematics

Third Grade

a) What is the length of the line segment to the nearest quarter-inch?

_____

3.M.2 Choose and use appropriate units and tools to estimate and measure length, weight, and temperature. Estimate and measure length to a quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.

http://www.ixl.com/math/grade-3/which-metric-unit-is-appropriate

Indiana Academic Standards for Mathematics

Third Grade

a) Based on the thermometer below (given in degrees Fahrenheit), what is the temperature?

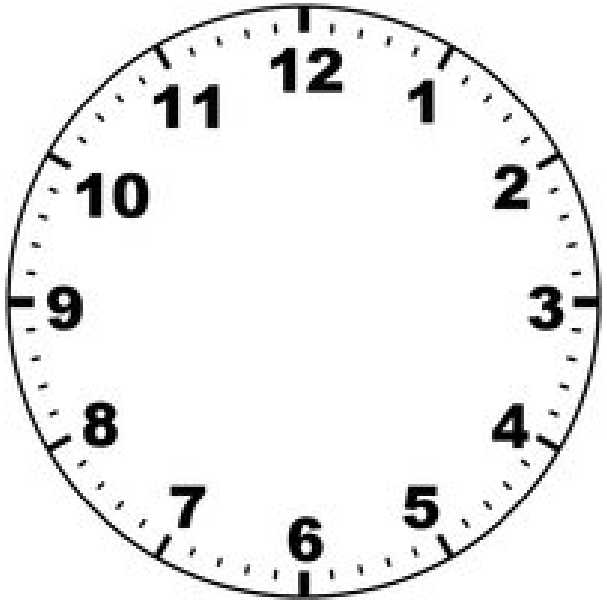
3.M.2 Choose and use appropriate units and tools to estimate and measure length, weight, and temperature. Estimate and measure length to a quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.

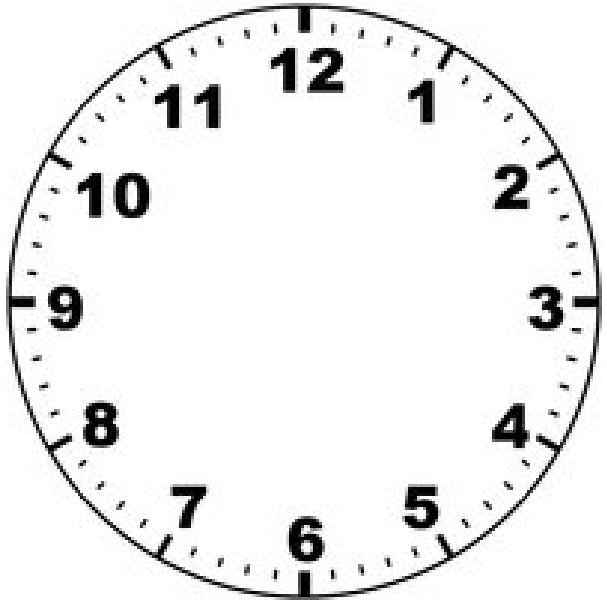
http://www.ixl.com/math/grade-3/which-metric-unit-is-appropriate

Indiana Academic Standards for Mathematics

Third Grade

a) Noah starting reading his book at 7:15 p.m. He stopped reading at 8:05 p.m. How many minutes did Noah read?





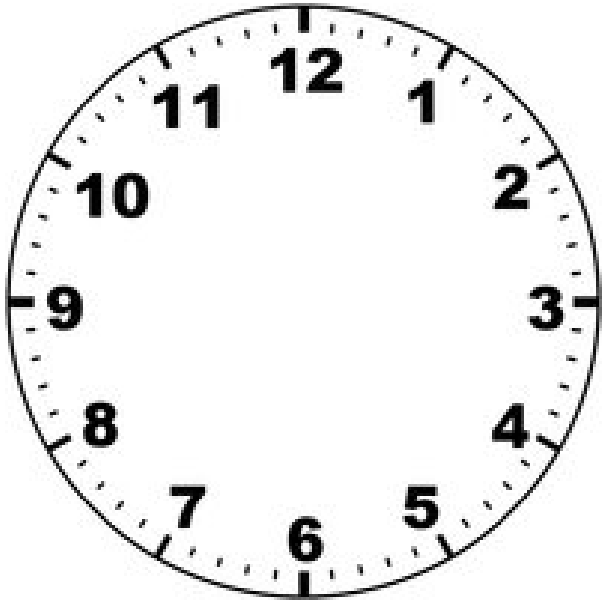
3.M.3 Tell and write time to the nearest minute from analog clocks, using a.m. and p.m., and measure time intervals in minutes. Solve real world problems involving addition and subtraction of time intervals in minutes.

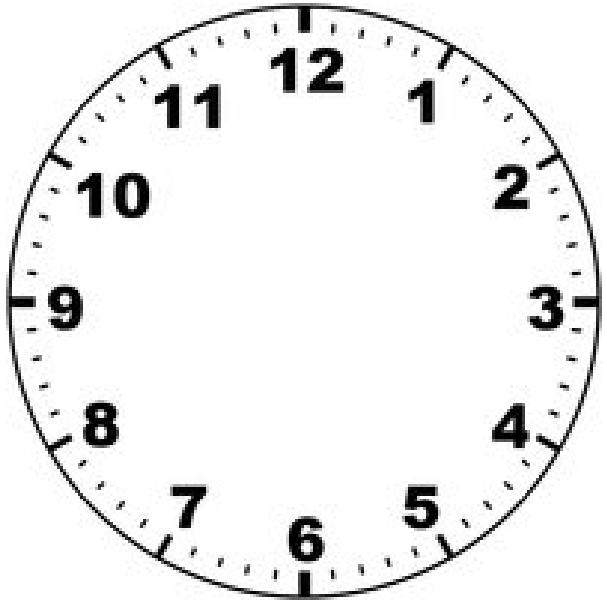
http://www.ixl.com/math/grade-3/read-clocks-and-write-times

Indiana Academic Standards for Mathematics

Third Grade

a) Ned starting watching a movie at 4:30 p.m. The movie stopped at 5:15 p.m. How many minutes was the movie?





3.M.3 Tell and write time to the nearest minute from analog clocks, using a.m. and p.m., and measure time intervals in minutes. Solve real world problems involving addition and subtraction of time intervals in minutes.

http://www.ixl.com/math/grade-3/read-clocks-and-write-times

Indiana Academic Standards for Mathematics

Third Grade

a) Derek has $5.00. He wants to buy a sandwich for $2.25, chips for $0.75, a drink for $1.25, and a cookie for $1.25. Does Derek have enough money to buy all of this? Support your answer using words, numbers, and/or symbols.

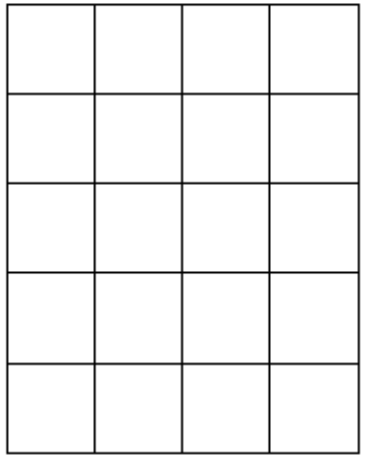
3.M.4 Find the value of any collection of coins and bills. Write amounts less than a dollar using the ¢ symbol and write larger amounts using the $ symbol in the form of dollars and cents (e.g., $4.59). Solve real-world problems to determine whether there is enough money to make a purchase.

http://www.ixl.com/math/grade-3/purchases-do-you-have-enough-money-up-to-10-dollars

Indiana Academic Standards for Mathematics

Third Grade

a) In the diagram below, a small square represents one square unit. What is the area of the rectangle?



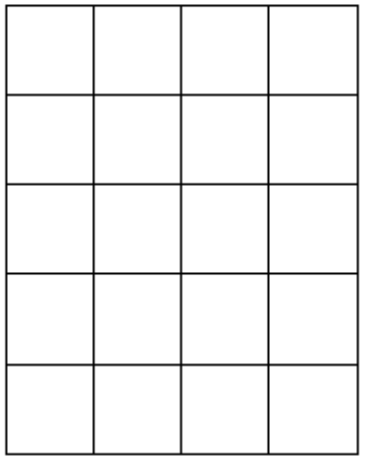
3.M.5 Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths. Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.

http://www.ixl.com/math/grade-3/area-of-figures-made-of-unit-squares

Indiana Academic Standards for Mathematics

Third Grade

a) In the rectangle below, how many rows and columns are there? The product of the number of rows and columns should equal the area found in the previous question. See if this is true for other rectangles such as one with 7 rows and 2 columns. Does the product of the number of rows and columns equal the area? Show your work.



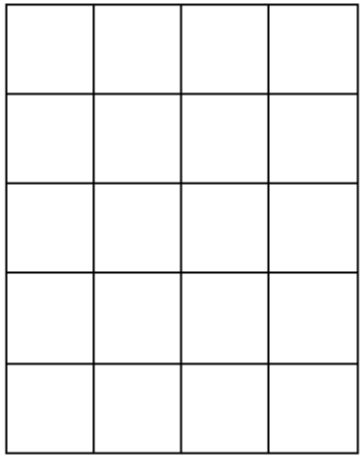
3.M.5 Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths. Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.

http://www.ixl.com/math/grade-3/area-of-figures-made-of-unit-squares

Indiana Academic Standards for Mathematics

Third Grade

a) Draw a rectangle with the same perimeter as the one below, but with a different area.



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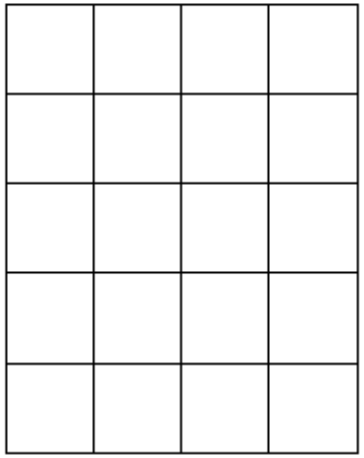
http://www.ixl.com/math/grade-3/area-of-figures-made-of-unit-squares

Indiana Academic Standards for Mathematics

Third Grade

a) Draw a rectangle with the same area as the one above, but with a different perimeter.



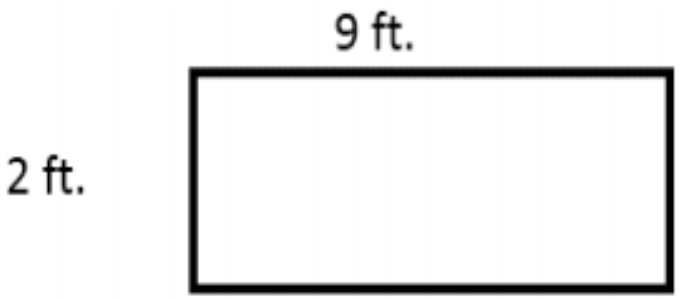
3.M.5 Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths. Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.

http://www.ixl.com/math/grade-3/area-of-figures-made-of-unit-squares

Indiana Academic Standards for Mathematics

Third Grade

a) What is the area of the rectangle below?



3.M.6 Multiply side lengths to find areas of rectangles with whole-number side lengths to solve real-world problems and other mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

http://www.ixl.com/math/grade-3/area-of-rectangles

Indiana Academic Standards for Mathematics

Third Grade

a) Juanita's group is working at a rectangular table that measures 8 feet by 6 feet. What is the area of the table?

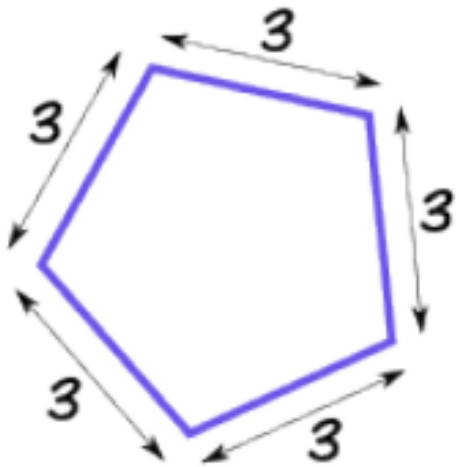
3.M.6 Multiply side lengths to find areas of rectangles with whole-number side lengths to solve real-world problems and other mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

http://www.ixl.com/math/grade-3/area-of-rectangles

Indiana Academic Standards for Mathematics

Third Grade

a) What is the perimeter, in units, of the pentagon?



3.M.7 Find perimeters of polygons given the side lengths or by finding an unknown side length.

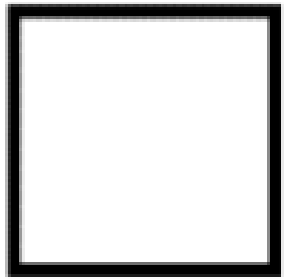
http://www.ixl.com/math/grade-3/perimeter-find-the-missing-side-length

Indiana Academic Standards for Mathematics

Third Grade

a) What is the perimeter of the square?

3 in.



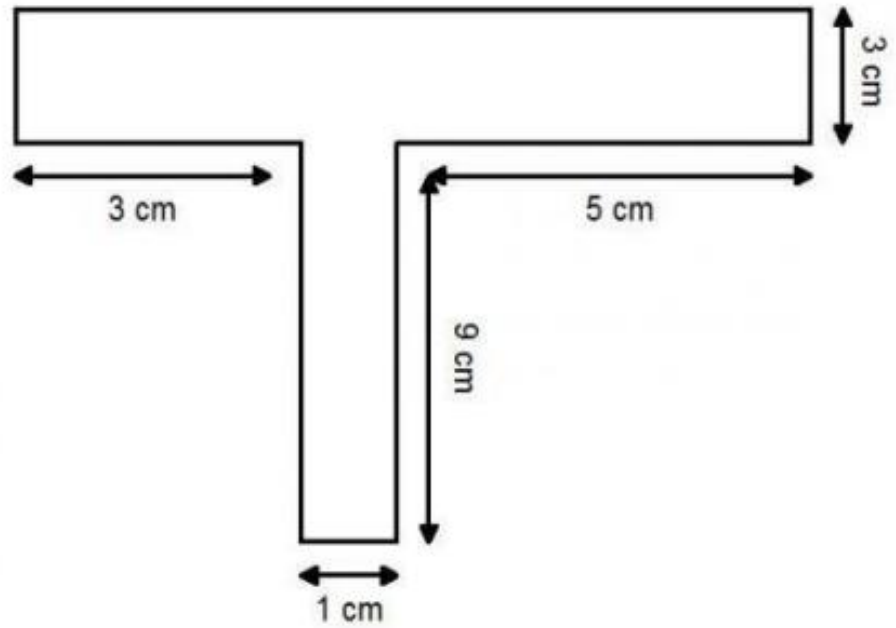
3.M.7 Find perimeters of polygons given the side lengths or by finding an unknown side length.

http://www.ixl.com/math/grade-3/perimeter-find-the-missing-side-length

Indiana Academic Standards for Mathematics

Third Grade

a) What is the perimeter of the shape below?



3.M.7 Find perimeters of polygons given the side lengths or by finding an unknown side length.

http://www.ixl.com/math/grade-3/perimeter-find-the-missing-side-length

Indiana Academic Standards for Mathematics

Third Grade

a) Based on the graph below, how many more books did Nick read than William?

Number of Books Read	
Nick	□ □ □ □ □ □ □
William	□ □ □
□ = 3 books	

3.DA.1 Find Create scaled picture graphs, scaled bar graphs, and frequency tables to represent a data set—including data collected through observations, surveys, and experiments—with several categories. Solve one and two-step "how many more" and "how many less" problems regarding the data and make predictions based on the data.

http://www.ixl.com/math/grade-3/create-pictographs

Indiana Academic Standards for Mathematics

Third Grade

a) Based on the graph below, how many more strawberries did Dorothy eat than Susan?

Number of strawberries with each student	
Margaret	
Susan	
Maria	
Dorothy	

Key:  represents 2 strawberries

3.DA.1 Find Create scaled picture graphs, scaled bar graphs, and frequency tables to represent a data set—including data collected through observations, surveys, and experiments—with several categories. Solve one and two-step "how many more" and "how many less" problems regarding the data and make predictions based on the data.

http://www.ixl.com/math/grade-3/create-pictographs

Indiana Academic Standards for Mathematics

Third Grade

a) Ten students in Darrel's class measured the length of their thumb to the nearest quarter-inch. The data is shown below. Create a line plot to display the data.

$$1\frac{1}{4}, 1\frac{1}{2}, 2\frac{1}{2}, 2\frac{1}{4}, 2, 1\frac{3}{4}, 2, 1\frac{1}{4}, 1\frac{1}{2}, 1\frac{1}{4}$$

3.DA.2 Generate measurement data by measuring lengths with rulers to the nearest quarter of an inch. Display the data by making a line plot, where the horizontal scale is marked off in appropriate units, such as whole numbers, halves, or quarters.