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# MATH

## In the Utah Core State Standards for second grade there are four critical areas.

The critical areas define what students should know and understand (conceptual understanding), and be able to do (procedural understanding and fluency).

### CRITICAL AREA ONE: By the end of second grade, students should:

# 1

1. Count by fives, tens, and hundreds.
2. Understand the value of each digit in a four-digit number (e.g., 432 is 4 hundreds + 3 tens + 2 ones).
3. Compare three-digit numbers using the  $<$ ,  $>$ , and  $=$  symbols.



#### Examples:

1. Count by fives: 5, 10, 15...1000
2. Write the number 876 in expanded form ( $800 + 70 + 6$ ). Write the value of each digit (8 hundreds + 7 tens + 6 ones).
3. Compare 432 or 446. Which number is greater in value? Show the greater value using the correct symbol ( $446 > 432$ ). Which number is lesser in value? Show the lesser value using the correct symbol ( $432 < 446$ ).
4. What symbol do we use to compare 532 and 532? ( $532 = 532$ ). What does "equal" mean? (532 has the same value as 532.)

### CRITICAL AREA TWO: By the end of second grade, students should:

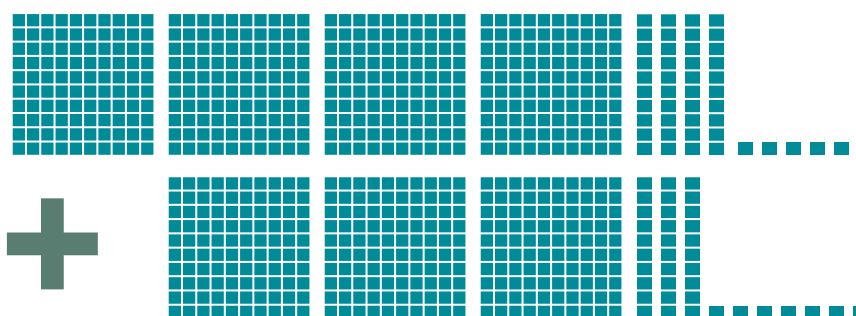
# 2

1. Become fluent with addition and subtraction within 100.
2. Solve problems within 1,000.
  - a. Use models.
  - b. Develop and use efficient, generalizable (can be used in many problems) and accurate methods.
  - c. Use their understanding of place value and properties of operations.
3. Apply appropriate methods to mentally calculate sums and differences for numbers with only 10s or only 100s.

#### Examples:

1. Use mental strategies to fluently add and subtract within 20. By the end of the grade know from memory all sums of two one-digit numbers ( $5 + 7 = 12$ ,  $4 + 9 = 13$ , etc.). "Fluently" means to add and subtract problems quickly, flexibly, accurately, and appropriately.

2. Add:



# 3

- The second grade collected 235 cans for the food drive. The third grade collected 137 cans. How many cans did the second and third grades collect all together? How many more cans did the second grade class collect than the third grade? How many more cans do they need to get to 500? Justify your answer.

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## CRITICAL AREA THREE: By the end of second grade, students should:

- Recognize the need for standard units of measurement (e.g., centimeter and inch).
- Use measurement tools like rulers, yardsticks, and meter sticks.
- Understand that measuring length (linear measure) may require using measurement tools iteratively (over and over until the entire object is measured).
- The smaller the unit of measure (centimeter versus inch) the more times the unit must be used to cover a given length.

### Examples:

- Measure the table in centimeters. Now measure the table in meters. How does your measurement relate to the size of centimeters and meters?
- Measure how tall your chair is in inches and then measure how tall your chair is in feet. Which measurement required more units?
- We need to decorate for our party. How much ribbon will we need to go across four desks placed side by side? Be sure to include your tool and unit of measure. Why did you use that unit?

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## CRITICAL AREA FOUR: By the end of second grade, students should:

# 4

- Describe and analyze shapes by examining their sides and angles.
- Investigate, describe, and reason about decomposing (taking apart) and combining shapes to make other shapes.
- Build, draw and analyze two- and three-dimensional shapes in order to gain a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

### Examples:

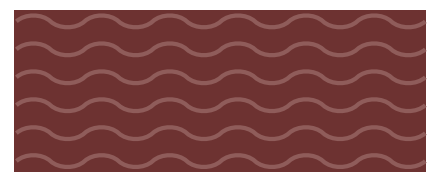
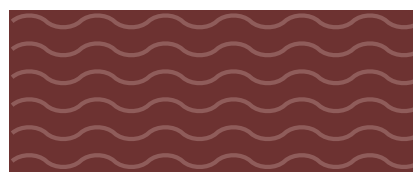
- Look at the shapes below. Name the shape and identify the number of sides and angles on the shape.



- Partition the rectangle into 2 equal rows and 3 equal columns. Record the total number of squares.



- Alex has a candy bar he wants to share with his three friends. He divides the candy bar into equal shares. Show two different ways Alex can partition the candy bar. How many equal pieces will Alex need to share with his friends?



## AT HOME

Parents should act as resources and supports for homework help. They should never do the homework themselves. The tips below come from the National Council of Teachers of Mathematics Homework Tips webpage (<http://www.nctm.org/resources/content.aspx?id=2876>).

### TIPS FOR FAMILIES – HOMEWORK HELP

#### Math Homework Is Due Tomorrow—How Can I Help?

Homework causes trouble in many households. Relax—remember whose homework it is! Think of yourself as more of a guide than a teacher. Don't take over for your child. Doing that only encourages him or her to give up easily or to ask for help when a problem becomes difficult.

The best thing you can do is ask questions. Then listen to what your child says. Often, simply explaining something out loud can help your child figure out the problem. Encourage your child to show all work, complete with written descriptions of all thinking processes. This record will give your child something to look back on, either to review or to fix a mistake, and can also help the teacher understand how the problem was solved.

#### Asking the following kinds of questions can help you and your child tackle the challenges of math homework:

- What is the problem that you're working on?
- Are there instructions or directions? What do they say?
- Are there words in the directions or the problem that you do not understand?
- Where do you think you should begin?
- Is there anything that you already know that can help you work through the problem?
- What have you done so far?
- Can you find help in your textbook or notes?
- Do you have other problems like this one? Can we look at one of those together?
- Can you draw a picture or make a diagram to show how you solved a problem like this one?
- What is your teacher asking you to do? Can you explain it to me?
- Can you tell me where you are stuck?
- Is there someone you can call to get help? Can you discuss the problem with a classmate?
- Would using a calculator help you solve the problem?
- Would it help to go on to another problem and come back to this one later?
- Is there a homework hotline at your school? What is the phone number for it?
- Why don't we look for some help on the Internet?
- If you do only part of a problem, will the teacher give you some credit?
- Can you go in before or after school for help from the teacher?

#### Remember, *support homework—don't do it!*

- ▶ Besides supporting your child on homework, show the importance of learning math by helping your child **connect math with daily life**.
- ▶ Point out **your own activities that involve mathematics**, such as deciding whether you have enough money to buy items on a shopping list, estimating how long it will take to make a trip, determining how much carpet or wallpaper to buy for a room, or developing a schedule to complete a series of tasks.
- ▶ Talking about these everyday situations will give you a chance to increase your child's **appreciation for the usefulness of mathematics**.

Other tips for parents can be found at: <http://www.nctm.org/resources/content.aspx?id=7928>