#### SOAR WITH THE COMMON CORE

# California Common Core Standards

Session 2 of 5: Mathematics

### **Mathematics in the Real World**

Activity:

Think about the types of mathematics that you do on a daily basis. Take a couple of minutes to make a list.

### What is shifting?

#### Your child will:

- work more deeply with fewer topics
- Keep building on learning year after year
- Spend time practicing math facts
- Understand why mathematics works and be asked to talk about and prove their understanding
- Use math in real-world situations



#### **Organization of the Mathematics CCSS**



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#### **Counting and Cardinality (Kindergarten)**

#### Know number names and the count sequence

- 1. Count to 100 by ones and tens
- 2. Count forward beginning from a given number within
  - the known sequence (instead of having to begin at 1)
- Write numbers from 0 to 20. Represent a number of objects within a written numeral 0-20 (with 0 representing a count of no objects)

# CLUSTER

DOMAIN

#### **STANDARDS # 1, 2, 3**

#### **Organization of the Mathematics CCSS**

• Two types of standards:

#### **Eight Mathematical Practice Standards**

#### **Content Standards**

#### = Habits of Mind

#### Make sense of problems and persevere in solving them. Mathematical Practice 1



#### When presented with a problem, I can make a plan, carry out my plan, and check its success.

#### **BEFORE**...

**EXPLAIN** the problem to myself.

#### MAKE A PLAN to solve the problem

- What is the question?
- What do I know?
- What do I need to find out?
- What tools/strategies will I use?

#### DURING... PERSEVERE (Stick to it!)

MONITOR my work

**ASK** myself, "Does this make sense?"

CHANGE my plan if it isn't working out

#### CHECK

- Is my answer correct?
- How do my representations connect to mv solution?

AFTER...

#### EVALUATE

- What worked/didn't work?
- How was my solution similar or different from my classmates'?

#### Mathematical Practice #1

#### **Reason abstractly and quantitatively.**



I can use numbers, words, and reasoning habits to help me make sense of problems.

#### Mathematical Practice #2







1) Make an understandable representation of the problem. 3) Pay attention to the meaning of the numbers.

2) Think about the units involved.

Use the properties of operations or objects.

Construct viable arguments and critique the reasoning of others. Mathematical Practice 3		
<i>I can make logical arguments and</i> <i>respond to the mathematical</i> <i>thinking of others.</i>		Practice #3
<ul> <li>can <u>make and present</u> <u>arguments</u> by</li> <li>using objects, drawings, diagrams and actions</li> <li>using examples and non-examples</li> <li>relating to contexts</li> </ul>		
a felating to contexts		Model with mathematics.
Mathematical Practice #4	Consider my ans Does it make see I thought about problem again ar side length on the	And the second s
	makes sense!	َ الْ

#### Use appropriate tools strategically.



I can use certain tools to help me explore and deepen my math understanding.

- I know <u>HOW</u> and <u>WHEN</u> to use math tools.
- I can reason: "*Vid the tool I used give me an answer that makes sense?*"



### Mathematical Practice #5

#### Attend to precision.



*I can be precise when solving problems and clear when communicating my ideas.* 

Mathematicians communicate with others using...

symbol: equal (the same as) 48 inches = 4 feet L units of 1 measure

- math vocabulary with clear definitions
- symbols that have meaning
- context labels
- units of measure
- calculations that are accurate and efficient

### Mathematical Practice #6



### Let's do some math!

- There are 6 tables in Mrs. Potter's art classroom. There are 4 students sitting at each table. Each student has a box of 10 colored pencils.
  - (A) How many colored pencils are at each table?

(B) How many colored pencils do Mrs. Potter's students have in total?

### **Standards and Solutions**

(click on the picture)



### **Content Standards - Kindergarten**



Which group has more? Which group has less? Are these groups equal?



- Count to 100
- Write 0 20
- Add and subtract within 5
- Time



How many sides and corners do these shapes have? Which shape has sides of equal length?

### Content Standards – 1<sup>st</sup> Grade





What is the most popular color of umbrella? What is the least popular color of umbrella?

If you know 8+3=11, then you know 3+8=11





How long is the comb?

### Content Standards – 2<sup>nd</sup> Grade









What is the most common age in our class? What is the least common age in our class?



### Content Standards – 3<sup>rd</sup> Grade



What do the fractions in example 1 have in common?



26 x 24 Sandy walks 26 miles in a month. If she were consistent in her walking for 2 years, how many miles will she have walked? Distributive property of multiplication If  $8 \times 5=40$ And  $8 \times 2=16$ , Then  $8 \times 7$  is:  $8 \times (5 + 2)$  $(8 \times 5) + (8 \times 2)$ 40 + 16 = 56

16 cookies are shared equally between 4 boys. How many cookies will each boy get?

Solution



Each boy will get 4 cookies.

### **Content Standard – 4th Grade**





Expanded form: 6738 = 6000 + 700 + 80 + 3



### Content Standards – 5<sup>th</sup> Grade



### **Content Standards – 6th Grade**

For example, a car travels at a constant speed of 65 mph. List and graph ordered pairs of distances and times. Write the equation d = 65t to show distance travelled (d) depends on the constant speed (65) multiplied by the time travelled.











### Content Standard – 7<sup>th</sup> Grade



### Content Standards – 8<sup>th</sup> Grade

The simplified ratio of the vertical side length to the horizontal side length of each congruent triangle formed by the slope of a line is equivalent to the absolute value of the slope.





#### Larger Triangle:

ratio: vertical side length  $= \frac{6}{3}$ , or 2 horizontal side length  $= \frac{6}{3}$ 

#### Smaller Triangle:

ratio: vertical side length = 2, or 2 horizontal side length 1



Use only the slope and y-intercept to graph  $y = \frac{-3}{4}x + 6$ 



y (0, 6) 4 -3 2 -2 -2 4 6 x The slope is  $\frac{-3}{4}$  and the y-intercept is 6.

Since the y-intercept is 6, plot (0,6).

Since the slope is  $\frac{-3}{4}$ , move 4 units

to the right of (0, 6) and 3 units down to locate a second point.

Draw the line through the two points.

### Let's do more math!

• You won first place at your school Science Fair! You have two choices for the prize:

Option 1: You can take \$20 home with you today. Option 2: Take \$2 a day for the next 15 days.

- 1. Which option earns more money? How much more?
- 2. Which option will you choose? Explain why.

## Standards and Solutions

#### (click on picture)



### Don't let your child be a Calvin



# How can you help?

### Supporting your Child's Mathematical Learning at Home

- Stay informed about which concepts your child is learning in school.
- Help your child know basic mathematics facts.
- Have your child do the mathematics that pops up in daily life.
- Ask your child's teacher for assistance if something is confusing.
- Ensure that they are doing their homework every day.

Thank you

for

joining us today!