## 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

## Domain

## Clusters

## Standards

## Organization of the Mathematics CCSS

## DOMAIN

## 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)
3. 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)

## 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.



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?

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

## AFTER...

## CHECK

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


## EVALUATE

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


## Mathematical Practice \#1

## Mathematical Practice \#2

## Reason abstractly and quantitatively.



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

Contextualize (Numbers to Words)


Decontextualize (Words to Numbers)


Reasoning Habits

[^0]2) Think about the units involved.
4) Use the properties of operations or objects.

## Construct viable arguments and critique the reasoning of others.

I can make logical arguments and respond to the mathematical thinking of others.

I can make and present arguments by...

- using objects, drawings, diagrams and actions
- using examples and non-examples
- relating to contexts

I can analyze the reasoning of others by...

- listening
- asking and answering questions
- comparing strategies and arguments


## Mathematical Practice \#3

## Model with mathematics.



I can recognize math in everyday life and use math I know to solve problems.
I can...

## Practice \#4 <br> Mathematical

## Use appropriate tools strategically.



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

## Mathematical Practice \#5

- I know HOW and WHEN to use math tools.
- I can reason: "Did the tool I used give me an answer that makes sense?"



## Attend to precision.

 problems and clear when communicating my ideas.
## Mathematical Practice \#6

## I can be precise when solving

Mathematicians communicate with others using...

|  | - math vocabulary with clear definitions |
| :---: | :---: |
|  | mbols that have meaning |
|  |  |
| 't. units of | cite of measure |
| measure | - calculations that are accurat and efficient |

Look for and make use of structure.
Mathematical Practice 7

## Mathematical Practice \#7

## Numbers

 For Example:

So, $\frac{3}{10}+\frac{4}{100}=\frac{34}{100}$

Equivalent Fractions

Spaces
For Example:


Lines and Angles


Symmetry

I can see and understand how numbers and spaces are organized and put together as parts and wholes.


## Mathematical Practice \#8

Look for and express regularity in repeated reasoning.


I can notice when calculations are repeated. Then, I can find more general methods and short cuts.


## 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 - $\mathbf{1}^{\text {st }}$ Grade

What color is your umbrella?


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 $3+8=11$


What time is it?


How long is the comb?

## Content Standards - $\mathbf{2 n d}^{\text {nd }}$ Grade




## Content Standards - $\mathbf{3 r}^{\text {rd }}$ Grade


$26 \times 24$
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

$$
B \div 3=\frac{3}{3}
$$

Each boy will get 4 cookies.

## Content Standard - $4^{\text {th }}$ Grade



$$
9.25<9.7
$$

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


## $\frac{53}{100}=0.53$

$54 \times 12=$

$$
28 \div 7=?
$$

## Content Standards - $\mathbf{5}^{\text {th }}$ Grade


$\frac{2}{3} \div 3=$
$\frac{2}{3}$ is 3 groups of what number?


## Content Standards $\mathbf{- 6} \mathbf{6}^{\text {th }}$ 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 $d=65 t$ to show distance travelled (d) depends on the constant speed (65) multiplied by the time travelled.

| $d=65 t$ |  |
| :---: | :---: |
| $t=$ hours | distance |
| 1 | 65 |
| 2 | 130 |
| $1 / 2$ | 32.5 |



Step 1: $\mathbf{k} \div 3=\mathbf{4}$

Step 2:
$k \div \underset{x 3}{3}=\underset{x 3}{4}$

Step 3:

Step 4
$k \frac{1}{x 3}=\frac{4 \times 3}{12}$
$\mathrm{k}=12$


## HISTOGRAM SAMPLE




## Content Standard $-7^{\text {th }}$ Grade

$$
\begin{aligned}
& 6 \times 6=6^{2}=36 \\
& \sqrt{36}=6
\end{aligned}
$$

$$
\begin{aligned}
3 x-2(-2 x+7) & =-7 \\
3 x+4 x-14 & =-7 \\
7 x-14 & =-7 \\
7 x-14+14 & =-7+14 \\
7 x & =7 \\
\frac{7 x}{7} & =\frac{7}{7} \\
x & =1
\end{aligned}
$$


$\sqrt[3]{8}=2$

## Content Standards $\mathbf{- 8} \mathbf{8 t h}^{\text {th }}$ 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.


$$
\text { slope }=\frac{-2}{1} \text {, or }-2
$$

## Larger Triangle:

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

## Smaller Triangle:

ratio: $\frac{\text { vertical side length }}{\text { horizontal side length }}=\frac{2}{1}$, or 2



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


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!


[^0]:    1) Make an understandable representation of the problem.
    2) Pay attention to the meaning of the numbers.
