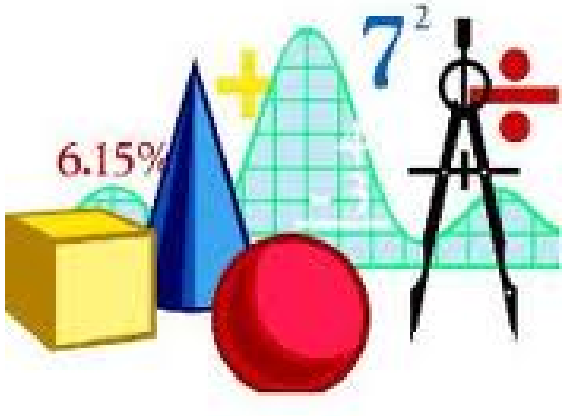
LCPS Elementary Schools and the 2009 Mathematics Standards of Learning



Micki Crouse
LCPS K-12 Math Specialist

VDOE Emphasis on Process Goals

"The content of the mathematics standards is intended to **support** the following five goals for students:

- becoming mathematical problem solvers
- communicating mathematically
- reasoning mathematically
- making mathematical connections and
- using mathematical representations to model and interpret practical situations."

-2009 *Mathematics Standards of Learning*

Versions

Mathematics Standards of Learning (SOL) – Adopted 2009, to be fully implemented in 2011-2012

- The Standards of Learning and Curriculum Framework comprise the mathematics content that teachers in Virginia are expected to teach a expected to learn.
- The Enhanced Scope and Sequence Sample Lesson Plans provide teachers with sample lesson plans that are aligned with the essential and essential knowledge and skills found in the Curriculum Frameworks for the 2009 *Mathematics Standards of Learning*.
- Test blueprints provide information on how SOL assessments are constructed.
- Released tests are SOL assessments recently administered in the commonwealth's public schools.

The Mathematics Crosswalk Between the 2009 and 2001 Standards (PDF) provides detail on additions, deletions and changes included in the 2 *Standards of Learning*.

Standards of Learning Documents for Mathematics – Adopted 2009, to be fully implemented in 2011-2012

Course	Standards of Learning		Enhanced Scope & Sequence Sample Lesson Plans	Test Blueprints *(Revised)***	All Released Tests	SOL Prac
	Standards	Curriculum Framework *(includes supplement)**				
All Mathematics	Word / PDF	NA		NA		
Kindergarten	Word / PDF	Word / PDF		NA		
Grade 1	Word / PDF	Word / PDF		NA		
Grade 2	Word / PDF	Word / PDF		NA		
Grade 3	Word / PDF	Word / PDF		PDF		
Grade 4	Word / PDF	Word / PDF		PDF		
Grade 5	Word / PDF	Word / PDF		PDF		
Grade 6	Word / PDF	Word / PDF				

Assessments: Then and Now

The table shows the number of pounds of recycled paper collected at two elementary schools.

Paper Collected

School	Recycled Paper (pounds)
Stoneview	421
Wheaton	619

What was the total weight of recycled paper collected at these two schools?

F 421 pounds
G 619 pounds
H 1,030 pounds
J 1,040 pounds

OLD

Assessments – Then and Now

Quinn had 354 rings in his store. He sold 138 of these rings. Then he bought 96 more rings. What is the total number of rings he has in his store?

- **A** 120
- **B** 216
- **C** 312
- **D** 588

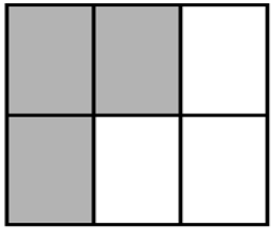
NEW

Grade 3

Assessments Then and Now

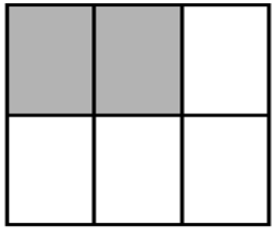
Devon used these models to add two fractions.

Model 1



$\frac{3}{6}$

Model 2

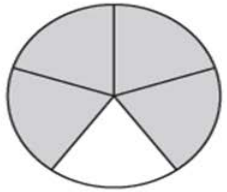


$\frac{2}{6}$

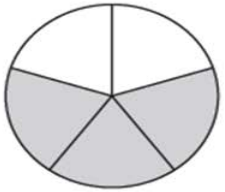
What is $\frac{3}{6} + \frac{2}{6}$?

OLD

What is $\frac{4}{5}+\frac{3}{5}$?



$\frac{4}{5}$



$\frac{3}{5}$

- A $\frac{3}{7}$
- B $\frac{7}{10}$
- C $1\frac{2}{5}$
- D $2\frac{2}{5}$

NEW

Grade 3

Taylor put the following fruit stickers of the same size and shape in a bag:

- 2 apple stickers
- 3 orange stickers
- 1 pear sticker
- 2 plum stickers

Taylor will pick one fruit sticker from the bag without looking. What is the probability the sticker will be a pear sticker?

F $\frac{1}{8}$

G $\frac{1}{7}$

H $\frac{1}{4}$

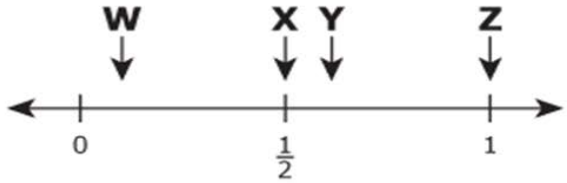
J $\frac{1}{3}$

OLD

Isaiah has erasers in his pocket.

- There are orange erasers and purple erasers.
- All the erasers are the same size and shape.
- Isaiah is least likely to select a purple eraser when he takes one eraser out of his pocket without looking.

Which letter best represents the probability Isaiah will select a purple eraser?



- A W
- B X
- C Y
- D Z

NEW

Grade 4

Assessments Then and Now

Which of these could be solved by using the open sentence $6 + z = 12$?

F Fred caught 6 fish every day for 12 days. How many fish did he catch all together?

G Fred caught 6 fish before lunch. He caught 12 more after lunch. What was the total number of fish he caught?

H Fred caught 6 fish before lunch. He caught more fish after lunch. At the end of the day, he had 12 fish. How many fish did he catch after lunch?

J Fred caught 12 fish. He put them in 6 bags. If each bag had the same number of fish, how many fish were in each bag?

OLD

Grade 5

NEW

Mr. Hansen wrote this equation on the board.

$$r + 3 = 11$$

He drew a model of this equation using this key.

Key
▯ = r
□ = 1

Which model best represents Mr. Hansen's equation?

A ▯▯▯ = □□□□□□□□

C ▯▯▯□ = □□□□□□□□

B ▯□□□ = □□□□□□□□

D ▯□□□□□□□ = □□□□□□□

Grade 5

Highlights– Grade 3-5

- Increased emphasis on **multistep** and **applied problems**
- **Probability** can be represented in many ways
- Increased emphasis on **models** and **multiple representations** (number lines, fraction models, operations with fractions)
- **Prior knowledge** from earlier grade levels
- Testing **the converse of a standard**
- New TestNav bar

Technology Enhanced Items—

about 15% of the test

- Drag and Drop
- Hot Spot
- Short Response
- Graphs

Identify each number that has an absolute value of 4.

Directions: Click on a box to choose each number you want to select. You must select all correct numbers.

16	4	2	$\frac{1}{4}$	0	-2	-4	-16

Back | Reset | Go to...

Question 6 of 10

dk bliss

Review | Next

What is the value of $200 - 2 \cdot 6^2$?

Directions: Type your answer in the box.

Do not use a calculator to solve this problem.

Back Reset Go to...

Question 7 of 10

dk bliss

Review Next

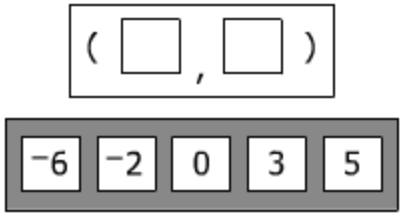
Mr. Miller is putting a border around the edges of a rectangular ceiling. The perimeter of the ceiling is 18 meters. Identify the measurements that could be the two dimensions of the ceiling.

Directions: Click on a box to choose each measurement you want to select. You must select the two correct measurements.

2 meters	3 meters	4 meters	5 meters	8 meters	9 meters

Use the given numbers to create an ordered pair representing a point located on the x-axis.

Directions: Click and drag each selected number to the correct box.

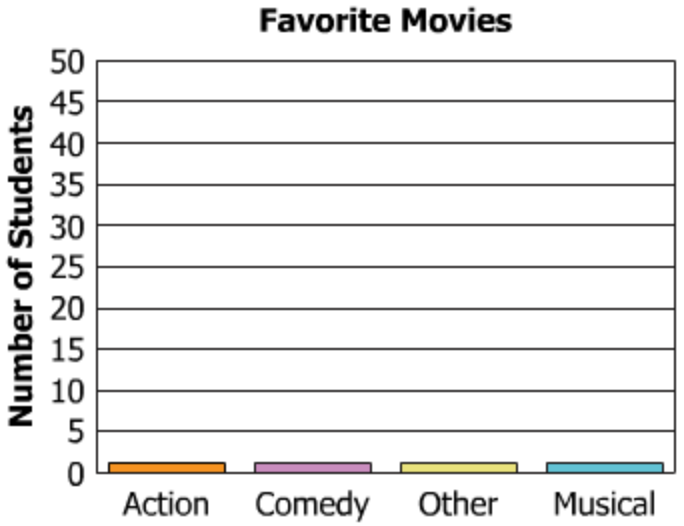


Back | Reset | Go to... | Question 9 of 10 | dk bliss | Review | Next

Cindy surveyed 60 students about their favorite type of movie. This circle graph represents the results of the survey.

Construct a bar graph that could represent the same set of data.

Directions: Click on a location above each bar to show the bar height.



- Process Goals
- Math Class Mantras posters
- Ask the questions:
  - Why?
  - How do you know?
  - Can you explain?

Teaching to what we value…

Performance Task - Definition

- An assessment that requires students to synthesize SOL content in a problem-solving setting that encourages communication, reasoning, critical thinking, connections, and use of varied representations.

Cutting the Cake

John is celebrating his birthday with his friends. Each of his friends wants a different amount of birthday cake.

- **Carl gets $\frac{1}{6}$ of the cake.**
- **Shane and Mateo share $\frac{1}{3}$ of the cake equally.**
- **Jamal gets $\frac{1}{4}$ of the cake.**
- **John gets the remainder of the cake.**

Explain your work for each problem using pictures, words, and symbols.

1. Show how John could cut the cake to give each of his friends the correct amount of cake.

2. What fraction of the cake would be left for John? How do you know?

3. Would all five friends get equal shares of the cake? If so, how do you know? If not, who gets the most cake?

- Directions: Answer each question completely. Include drawings, tables, mathematical expressions or equations, as well as written explanations of your mathematical thinking.
- Jose and Marisol found a total of 87 shells on vacation. Jose found 3 more shells than Marisol. How many did they each find?
- The class was asked to round 347 to the nearest hundred. Susan's answer was 350. Laura's answer was 300. Which answer is correct? Explain your thinking.
- Which is greater: $\frac{2}{3}$ or $\frac{3}{2}$? Use words or pictures to explain your answer.

Grade 3

- Suppose you forgot what 8 x 6 is, but you remembered that 5 x 6 is 30. How could you use this fact to figure out what 8 x 6 is?

- Andre collects stickers. He wants to put 45 stickers in a book. He wants stickers on more than 1 page. He wants more than 1 sticker on each page. He wants the same number of stickers on each page.

  Use words, pictures, and numbers to show 2 different ways Andre could put his stickers in the book.

- Kelli wants to buy 4 pencils for each of the 26 students in her class. Kelli estimates that she needs to buy 150 pencils. Her sister Karen thinks Kelli's estimate is incorrect. Karen estimates that Kelli needs to buy 100 pencils. Whose estimate do you think is more reasonable? Why?

Grade 4

- List 3 numbers between 12.45 and 12.46.
- Jose and Nakia were asked to round 4.744 to the nearest hundredth. Jose's answer was 4.7 and Nakia's answer was 4.70. Which student is correct and explain why.
- Show the algorithm you use for adding fractions with unlike denominators in the following problem:

$$\frac{7}{8}+\frac{1}{3}$$

Explain why your method works.

Grade 5

SOL 5.1 The student, given a decimal through thousandths, will round to the nearest whole number, tenth, or hundredth.

A student has been asked to round a decimal to the nearest whole number. Her answer was 8. Choose all of these that could have been the original number.

8.7	8.1	7.6	8.64	7.71	8.29

Grade 5

Base-Ten Riddles

Base-ten riddles can be presented orally or in written form. In either case, children should use base-ten materials to help solve them. The examples below illustrate a variety of levels of difficulty and could be differentiated to add place values.

- I have 4 hundreds, 12 tens, and 6 ones. Who am I?
- I am 341. I have 22 tens. How many hundreds do I have?
- I have 17 ones. I am between 40 and 50. Who am I? How many tens do I have?

From *Elementary and Middle School Mathematics* by J.A. Van de Walle.

Student Invented Strategies

Encourage students to develop their own strategies when solving computation problems. When completing problems with invented strategies students make fewer errors, less reteaching is required, students develop number sense, among other things.

What might their strategies look like?

From *Elementary and Middle School Mathematics* by J.A. Van de Walle.

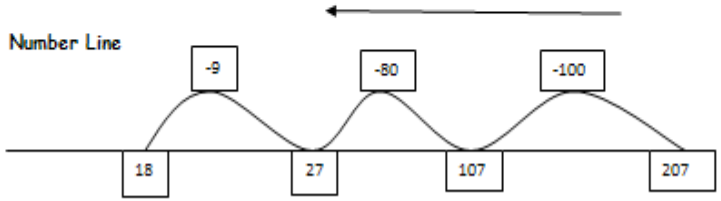
207 - 189

Missing Number Problem

189+_____=207

9+8=17
10+80+10=100
100+100+0=200
8+10+0= 18

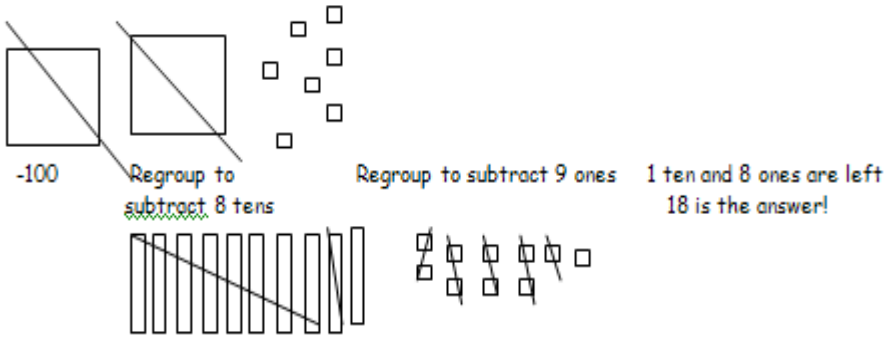
Number Line



Subtracting in Chunks

207-7=200
200-80=120
120-100=20
20-2-18

Draw a Picture



Find the mean of this set of numbers:

23 30 29 30 26

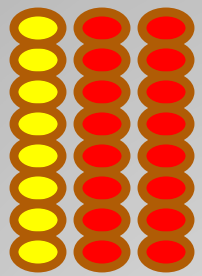
What number can be added to this set so that the mean of the new set is 28?

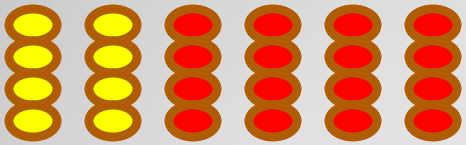
Predict Down the Line

Provide students with a pattern to extend. Have them predict exactly what element will be in, say, the fifteenth position. For example, what shape would be in the fifteenth position of this pattern? How about the twenty-fifth? Hundredth? Explain how you know.

From *Elementary and Middle School Mathematics* by J.A. Van de Walle.

Apples and Bananas





Given 8 bananas and 16 apples, group them into different fractional parts of the whole and use the parts to create fraction names for the fractions that are bananas.

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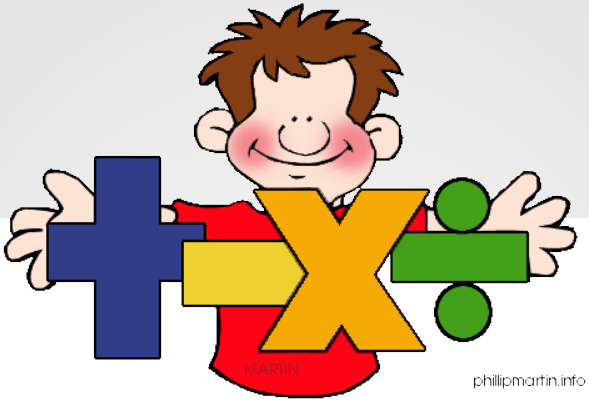

Thank you! ☺

Michelle.Crouse@lcps.org