Overview of Grade 4 Common Core

Drew Polly

Counting Around the Class…

- We are going to count around the class by 8.
- If everyone in the room says a number what number do you think we will end on?
  - Why do you think that?

Counting by 8…

Where is the math?

Where will students struggle?

At this point in the year what numbers could your students handle counting by?

Counting by 8…

- What patterns do you notice?
- How can we use those patterns to help us think about dividing large numbers?

8	88	168	248
16	96	176	256
24	104	184	264
32	112	192	272
40	120	200	280
48	128	208	288
56	136	216	296
64	144	224	304
72	152	232	312
80	160	240	320

Counting by 8…

- There are 266 children in 4th grade. If they are going to be put into groups of 8 how many groups will there be?

Counting by 8…

- 8 x 1 = 8
- 8 x 2 = 16
- 8 x 3 = 24
- 8 x 4 = 32   how can these help us get started?
- 8 x 3 = 24
- Shall we continue?
- 8 x 30 = 240… how can this help us?

Counting by 8

8 x 3 = 24

8 x 30 = 240   266 – 240 = 26

8 x 3 = 24   26 – 24 = 2

2 can't be broken up into groups of 8 so it is a remainder.

Just one issue… where is the answer?

Division solved by multiplication?

- Try it… 976 children put into teams of 8 for field day.
- Which single digit basic fact problem can get us started?
- Which multiplication problem can help us get started?
- 8 x 10 = 80, 8 x 100 = 800 … how can these help?

976 divided by 8

8 x 10 = 80

8 x 100 = 800, so we need at least 100 8's

8 x 110 = 880

8 x 120 = 960, so we need at least 120 8's

8 x 121 = 968

8 x 122 = 976, so we need 122 8's.

976 ÷ 8 -- How many 8s will go into 976?

$$8 \overline{)976}$$

100 x 8 = 800

$$-800$$

176   20 x 8 = 160

$$-160$$

16   2 x 8 = 16

$$-16$$

0   0

100 + 20 + 2 = 122

Standards for Mathematical Practice

‣ What do you know?

‣ Let's look at the rubric.

‣ SMP 1

‣ SMP 6

Resource Evaluation

‣ Let's look at some materials…

What does a good math lesson look like?

- How does it start?

- Where does practice fit in?

- How do you differentiate?

An idea…

- Engage– task or question to review

- Explore– tasks for students to solve

- Explain– discussion, teaching

- Elaborate– more tasks, centers, small group teaching

- Closure– final discussion of main concepts

Problem Types

- Check out this handout….

- Read the tasks in the left hand column.
- What do you notice?

- Read the tasks in the right hand column.
- What do you notice?

Card Games– Close to 270

- Turn 6 cards over. Pick 3 cards to make a 2 digit number and a 1 digit number. You want a product as close to 270 as possible.
- Your score is your distance from 270.
- Play multiple rounds.

- How do we modify this to get 2 2-digit numbers involved?

Card Games– Close to 2,700

- Turn 6 cards over. Pick 4 cards to make 2 2-digit numbers. You want a product as close to 2,700 as possible.
- Your score is your distance from 2,700.
- Play multiple rounds.

- Strategies?
- Modifications?

Card Games– Close to 200

- Turn 6 cards over. Pick 4 cards to make a 3 digit number and a 1 digit number. Your goal is to get a quotient as close to 200 as possible.
- Your score is your distance from 200.

- Strategies?
- Modifications?

Resources and Information

- Drew.polly@uncc.edu

- NCDPI math wiki
  ◦ Unpacking the Standards
  ◦ Units
  ◦ Lessons for Learning
  ◦ Task website
- http://elemath.pbworks.com
  ◦ Planning resources link
- NC State-wide math add-on license

Multiplying Fractions

- Solve each with a picture and an equation.
- You put ¾ of a pound of roast beef on each sandwich. How much roast beef will you need to make 7 sandwiches?
- There is 1 and ¾ pounds of roast beef in a carton. If you have 2 and ½ cartons how much roast beef is there?
- You have 4 pounds of roast beef. If you use 2/3 of it to make sandwiches how much roast beef do you have left?

Multiplying Fractions

- Models?

- How do you know the model matches the picture?

- What is the difference between each of the 3 tasks?

Tiling the Patio

- You have a rectangular patio.
- Your patio is 24 by 12 yards. What is the area of the patio?
- You want to tile 3/4 of the patio. What area will you put tile on?

Strategies and approaches?

18

12
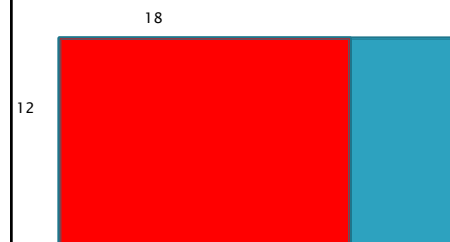
Leftover Pizza

- You have a class pizza party and there are some leftover slices. There are 6 slices of cheese, 7 slices of vegetable, and 5 slices left of pepperoni. If you ordered 3 pizzas of each type and there are 8 slices per pizza:
- A) What fraction of each type of pizza was eaten?
- B) how many total slices of pizza is leftover?
- C) if you combined the leftover pizza into as few boxes as possible, how many boxes would you need?
- Make a picture and use an equation for each part of the task.

Pictures?

- What did you draw?

- How would students model and show this problem with a picture?

Beware of...
  Fraction strips and fraction bars that are pre-made
  Why?

Partitioning leads to development of fraction ideas- Grades 1, 2, and 3- students are expected to make their own partitions

Equations?

- What fraction of vegetable pizzas was eaten?

- $3 - y = 7/8$
- $3 - 7/8 = y$

- Why does this work?

EoG connection...

- What would students be thinking if they answered:
- What fraction of cheese pizza was eaten?
  - ¾ of a cheese pizza
  - 18 slices of cheese pizza
  - 2 ¼ cheese pizzas
  - 6 slices of cheese pizza

Standards

- 4.NF.3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

- How do we teach this?

Strategies for adding/subtracting?

- Pictorial drawings
  ◦ Graph paper
  ◦ Lined paper turned sideways

- Beware of…
  ◦ Fraction strips and fraction bars that are pre-made
  ◦ Why?

- Partitioning leads to development of fraction ideas- Grades 1, 2, and 3- students are expected to make their own partitions

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