Common Core Standards

Volume Unit

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Common Core Volume Standards

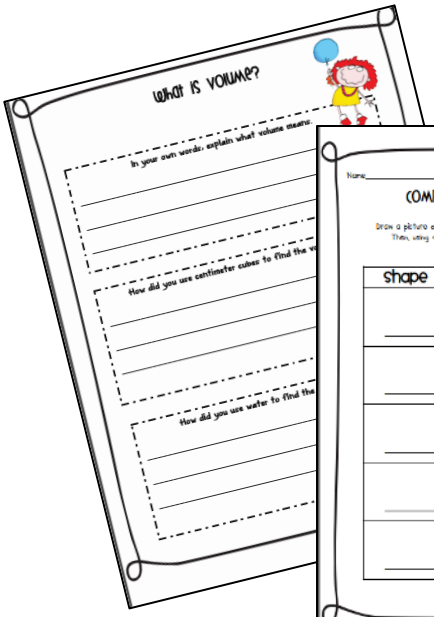
Measurement and Data

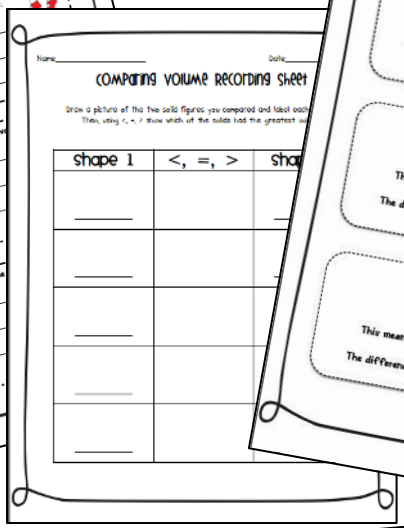
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

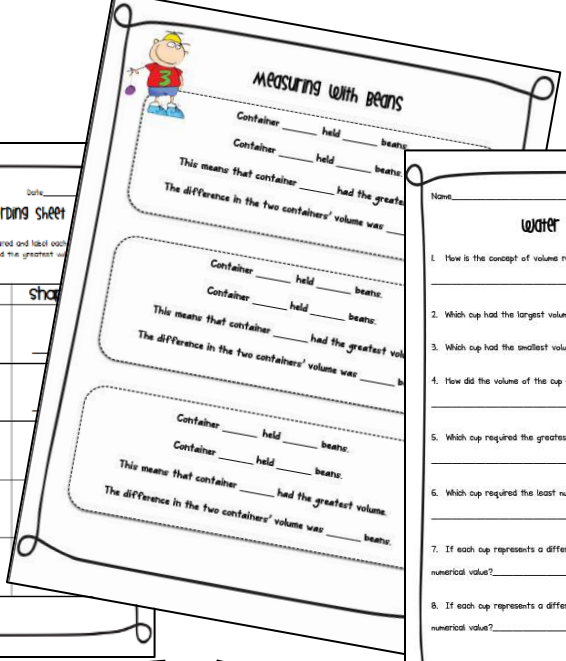
2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (Kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

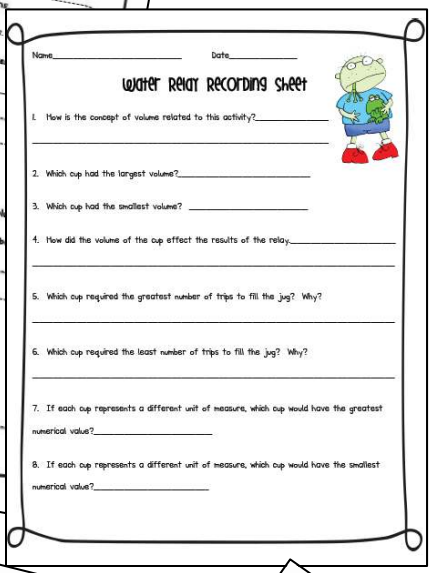
Teacher Notes

With the implementation of the Common Core Standards, one of the most significant changes to my state's math curriculum was the addition of volume to the measurement standards. This unit was designed to meet those new standards, and you'll find a combination of concept building lessons, basic skills, and task cards for reinforcement. Each lesson builds on the previous lesson by first introducing the concept, then allowing students to make comparisons without using any unit of measure. It then progress into nonstandard units of measure and transitions into standard units of measure (all within the metric system). If you've purchased any of my other math units, you'll know that many of my lessons are hands-on and require students to actually DO the math. In this unit, students will find the volume objects using different tools, so it is important to have access to the following manipulatives: variety of cups, milliliters beakers, uncooked rice, and geometric solids.

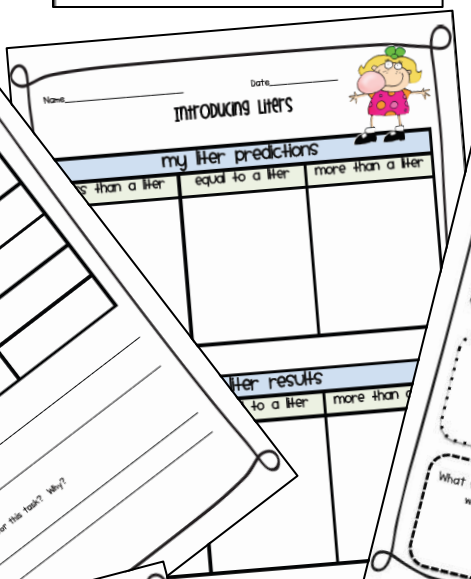

What is volume?
In your own words, explain what volume means.
How did you use centimeter cubes to find the
How did you use water to find the


Name
Date
Comparing Volume Recording Sheet
Shape 1
<, =, >
Sha

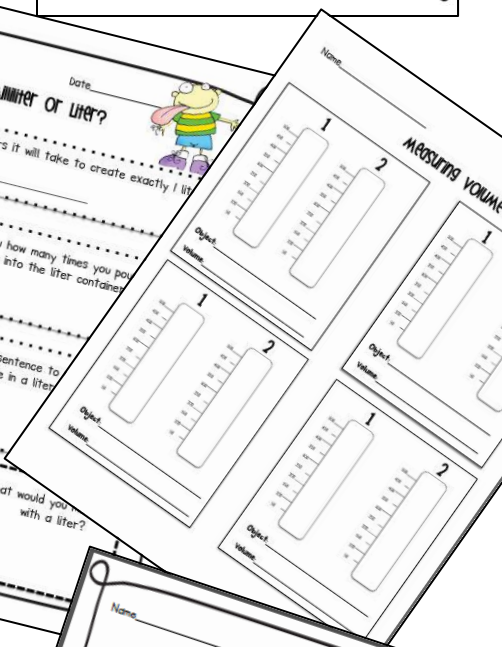

Measuring With Beans
Container ____ held ____ beans.
Container ____ held ____ beans.
This means that container ____ had the greate
The difference in the two containers' volume was
Container ____ held ____ beans.
Container ____ held ____ beans.
This means that container ____ had the greatest vol
The difference in the two containers' volume was ____ b
Container ____ held ____ beans.
Container ____ held ____ beans.
This means that container ____ had the greatest volume.
The difference in the two containers' volume was ____ beans.

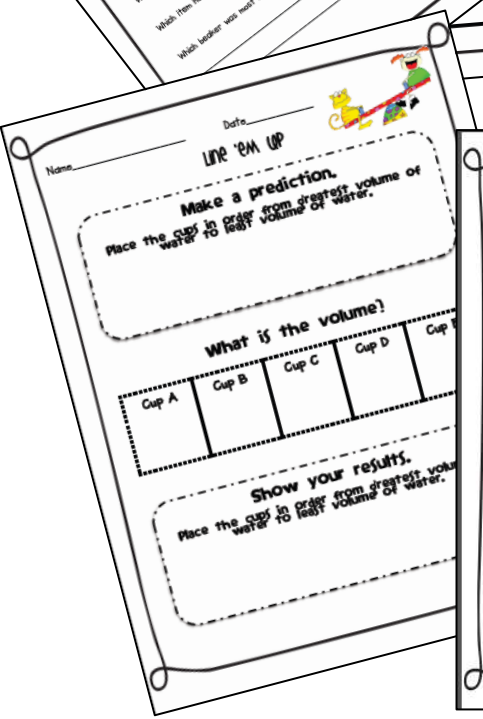

Name
Date
Water Relay Recording Sheet
1. How is the concept of volume related to this activity?
2. Which cup had the largest volume?
3. Which cup had the smallest volume?
4. How did the volume of the cup effect the results of the relay.
5. Which cup required the greatest number of trips to fill the jug? Why?
6. Which cup required the least number of trips to fill the jug? Why?
7. If each cup represents a different unit of measure, which cup would have the greatest numerical value?
8. If each cup represents a different unit of measure, which cup would have the smallest numerical value?

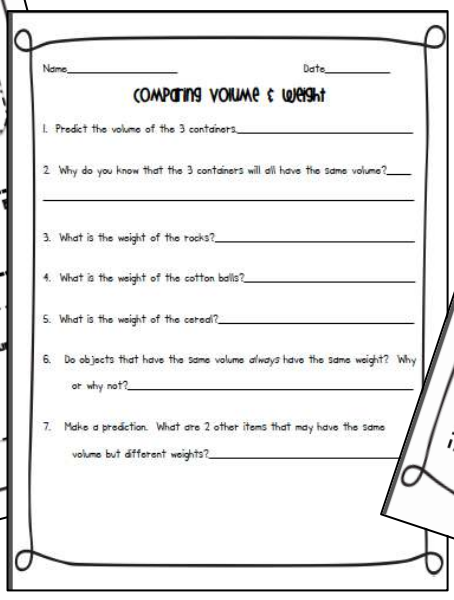

Date
What's My Volume?
prediction
volume
cup
toilet paper roll
water bottle
medicine bottle
pop tart box
Which item had the greatest volume?
Which item had the least volume?
Which beaker was most useful for this task? Why?

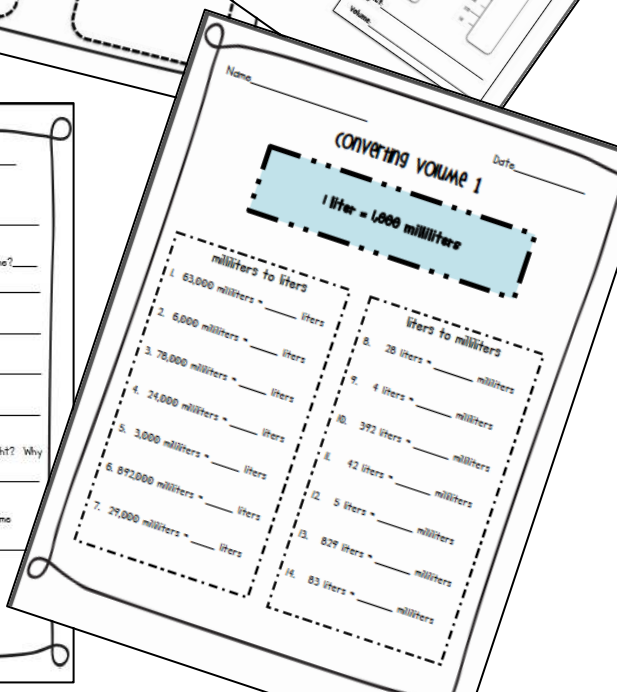

Name
Date
Introducing Liters
my liter predictions
equal to a liter
more than a liter
liter results


Name
Date
Milliliter or Liter?
Predict how many milliliters it will take to create exactly 1 li
Create a tally chart to show how many times you po
50 milliliter container into the liter containe
Use a multiplication number sentence to
many milliliters are in a liter
What would you measure with a milliliter
What would you
with a liter?


Name
Measuring Volume
Object
Volume


Name
Date
Line 'em Up
Make a prediction.
Place the cups in order from greatest volume of water to least volume of water.
What is the volume?
Cup A
Cup B
Cup C
Cup D
Show your results.
Place the cups in order from greatest volu
water to least volume of water.


Name
Date
Comparing Volume & Weight
1. Predict the volume of the 3 containers.
2. Why do you know that the 3 containers will all have the same volume?
3. What is the weight of the rocks?
4. What is the weight of the cotton balls?
5. What is the weight of the cereal?
6. Do objects that have the same volume always have the same weight? Why or why not?
7. Make a prediction. What are 2 other items that may have the same volume but different weights?


Name
Date
Converting Volume 1
1 liter = 1,000 milliliters
milliliters to liters
1. 63,000 milliliters = ____ liters
2. 5,000 milliliters = ____ liters
3. 78,000 milliliters = ____ liters
4. 24,000 milliliters = ____ liters
5. 3,000 milliliters = ____ liters
6. 892,000 milliliters = ____ liters
7. 29,000 milliliters = ____ liters
liters to milliliters
8. 28 liters = ____ milliliters
9. 4 liters = ____ milliliters
10. 392 liters = ____ milliliters
11. 42 liters = ____ milliliters
12. 5 liters = ____ milliliters
13. 829 liters = ____ milliliters
14. 83 liters = ____ milliliters

Name_____ Date_____

VOLUME WORD PROBLEMS 1

If a cup of water has a volume of 125 milliliters, and a cup of orange juice has a volume of 123 milliliters, what is the total volume of the two liquids?

One beaker has a volume of 267 milliliters, and a different beaker has a volume of 2,050 milliliters. How many more milliliters is the second beaker?

If a liquid has a volume of 72 liters, and a different liquid has a volume of 300 liters. How many more liters is the second liquid?

Four drinks have a volume of 260 milliliters. If each drink has the same volume, what is the volume of each drink?

If six measuring cups have a volume of 47 milliliters each, what is the total volume of the six measuring cups?

Juice boxes have a volume of 125 milliliters. How m

Name_____ Date_____

Read the Beaker's

Look at the beakers below and record the volume of each beaker.

Volume_____ Volume_____

Name_____ Date_____

ESTIMATING VOLUME

Choose the best estimate.

Fish Tank 275 milliliters Or 275 liters	Water Can 4 liters Or 400 liters	Swimming Pool 300,000 liters Or 300,000 milliliters
Juice Box 120 milliliters Or 120 liters	Soft Drink 355 milliliters Or 35 milliliters	Tablespoon 14 milliliters Or 140 milliliters
Glass of Milk 473 milliliters Or 473 liters	Bathtub 270 liters Or 270 milliliters	Water Balloon 500 milliliters Or 5,000 milliliters
Bottled		

Convert the following measurements.

63,000 milliliters
_____ liters

1

Convert the following measurements.

32,000 milliliters
_____ liters

2

Convert the following measurements.

4 liters
_____ milliliters

3

Convert the following measurements.

89 liters
_____ milliliters

4

Solve the following word problem.

If a cup of apple juice has a volume of 133 milliliters, and a cup of orange juice has a volume of 156 milliliters, what is the total volume of the two juices?

9

Solve the following word problem.

A pail of water has a volume of 167 liters. A taller pail of water has a volume of 138 liters. What is the total volume of both pails of water?

11

What is the volume?

17

What is the volume?

18

What is the volume?

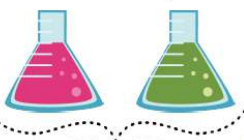
19

What is the volume?

20

Volume

How much space an object takes up



Milliliter

A metric unit of volume

1/1000 of a liter

Liter

A metric unit of volume that equals 1,000 milliliters