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CSI: MATHEMATICS
Curriculum Support Information

A mathematics resource for parents, teachers, and students

GEORGIA DEPARTMENT OF EDUCATION
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Weighty Figures

Students will: **Fourth Grade 3 of 6**

- Investigate what it means to measure weight and angles
- Use common tools to measure weight and angles
- Understand how different units within a system (customary and metric) are related to each other
- Understand how rotations of 180 degrees and 360 degrees are related to circles

Classroom Cases:

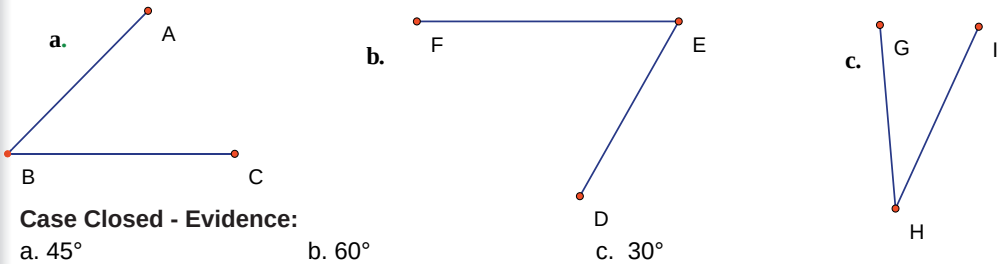
1. Convert the following items to grams:	**Case Closed - Evidence:**
a. 1 kg 300g	a. 1,300 g
b. 4 kg 800 g	b. 4,800 g
c. 5 kg 150 g	c. 5,150 g
d. 2 kg 700 g	d. 2,700 g

2. Convert the following items to kilograms and grams:	**Case Closed - Evidence:**
a. 5,640 g	a. 5 kg 640 g
b. 1,700 g	b. 1 kg 700 g
c. 8,990 g	c. 8 kg 990 g
d. 5,940 g	d. 5 kg 940 g

3. Add these three weights together, keeping in mind that 16 ounces = 1 pound:
2 lb 4 oz + 4 lb 13 oz + 7 lb 8 oz

Case Closed - Evidence:
2 + 4 + 7 = 13 lb
then add the ounces 4 + 13 + 8 = 25 oz then convert to pounds and ounces 25 oz / 16oz = 1 pound, 9 ounces.
Add the 1 pound to the 13 pounds to get 14 pounds and 9 ounces.

4. Use your protractor to measure each angle to the nearest degree.



Case Closed - Evidence:
a. 45° b. 60° c. 30°

5. Jessie is carrying a tray with some of the ingredients she needs for a cake:
2.2 kg of butter, 1.1 kg of flour, and 1.6 kg of sugar.
What is the total weight in grams of the items on the tray?

Case Closed - Evidence:
2.2 + 1.1+ 1.6 = 3.9 kg 3.9 kg x 1000g/1kg = 3900g
Items on Jessie's tray weight 3900 g.

Clues:
Keep in mind that there are two different types of ounces. One is for weight and the other is for capacity and they are NOT the same. (The capacity is the one we use for measuring when pouring! For pouring, 8oz. = 1 cup but 16 oz. of weight = 1 lb.) This can be confusing for students and parents!
Purchase two protractors, one for home and one for school.
When measuring angles, remember always to start at 0 degrees and follow the numbers as they increase. Many students start at 180 degrees and move backwards.
Counterclockwise is sometimes called anti-clockwise.

Further investigations:
Help your child compare weights of items from the grocery store.

Using items from your pantry, ask your child to rank order them from lightest to heaviest.

Choose items from your pantry that would add up to about 10 lbs. Have your child add the weights up and see how close she comes to 10 lb. Do the same with metric units.

Challenge your child to find objects around your home that have angles that measure greater than or less than 90°.

Look for examples of 180° and 360° rotations such as skateboarding. Discuss these examples with your child.

With your child, use playing cards to explore 180° and 360° rotations.

Terminology:
Weight: A measurement attribute which tells us how heavy an object is

Customary Units of Weight:
Ounce (oz)
Pound (lb)
Ton (t)
1 lb = 16 oz
1 t = 2,000 lb

Metric Units of Mass:
Gram (g)
Kilogram (kg)
1 kg = 1,000 g

Protractor: A measurement instrument used to measure angles

Degree: A unit of angle measure equal to 1/360 of a circle

180° rotation: Turn through one-half of a circle

360° rotation: One complete turn; turn through one circle

Book'em:
How Big Is a Foot? by Rolf Myller

How Tall, How Short, How Faraway by David A. Adler

Measuring Penny by Loreen Leedy

Sea Clocks: The Story of Longitude by Louise Borden

Sir Cumference and the Great Knight of Angleland by Cindy Neuschwander

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