What's Your Angle?

Developed by: Jennifer Reiter, 2014 Iditarod Teacher on the Trail ™

Discipline / Subject: Math

Topic: measuring and drawing angles

Grade Level: Fourth, others with modifications

Resources / References / Materials Teacher Needs:

http://www.brainpop.com/math/geometryandmeasurement/angles/

http://www.mathplayground.com/measuringangles.html

http://www.youtube.com/watch?v=PdmAsP-4V6Q

http://www.youtube.com/watch?v=jqXixGfqqoo

iPad app Kids Angle Measuring from CTT Source Technology Group

Lesson Summary:
Students will practice measuring angles found on dog sleds and then will create harness designs by measuring and creating their own angles.

Standard's Addressed: (Local, State, or National)
Grade 4 Common Core State Standards:

CCSS.Math.Content.4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.

CCSS.Math.Content.4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Learning Objectives:	**Assessment:**
TLW measure angles in whole number degrees using a protractor. TLW create angles when given a specific measurement.	Students can be assessed on the two class assignments and one homework assignment included.

Procedural Activities

Day One:

Vocabulary: clockwise, counterclockwise, degree, protractor, acute angle, obtuse angle, ray, right angle, vertex

1. Play the following BrainPop Introduction to Angles video to introduce the idea of angles to the students: http://www.brainpop.com/math/geometryandmeasurement/angles/
2. Demonstrate how to measure angles using a protractor. Introduce the vocabulary of obtuse, acute, and right angles. You can use Math Playground on the Smartboard (or the students could work through the activity independently) as an interactive tool to demonstrate using a protractor: http://www.mathplayground.com/measuringangles.html
3. Students practice using the iPad app Kids Angle Measuring from CTT Source Technology Group. If the iPad application is not available, students can practice measuring angles either found in the classroom or provided by the teacher.
4. Play the following video to introduce the process of building a dog sled: http://www.youtube.com/watch?v=PdmAsP-4V6Q
5. Students complete the "What's Your Angle?" assignment pages by measuring the angles found on the dog sled diagram and classifying them as obtuse, acute, or right.

Day Two:

1. Play the following video to introduce students to fitting dog harnesses: http://www.youtube.com/watch?v=jqXixGfqqoo
2. Have the students review measuring and classifying angles by measuring the angles of a traditional x-back harness on the included "Harness Maker" worksheet.
3. Have the students create their own dog harness that includes a set of given angle measurements. Provide then with a paper copy of the model dog to experiment and sketch their design on. The final copy should be created with thin strips of cardstock on a separate dog that can then be displayed.
4. The assignment sheet, "Sled Dog Angles," could be assigned for homework at this point.

Materials Students Need:

Day One: worksheets, protractors

Day Two: dog outlines (two copies per student), thin strips of cardstock, glue, scissors, protractors

Technology Utilized to Enhance Learning:

See Teacher Material List

Other Information:

Modifications for Special Learners/ Enrichment Opportunities:
Students could work in partners as needed.

The required angles in the harness could be altered to fill the needs of various students.

If possible, students could measure and compare angles on actual harnesses of various styles.

Older students could research and/or experiment to see if the angles that are in harnesses are for practical or cosmetic reasons. Does changing the angles effect the harness?

Additional Information