TEACHER PAGE
Lesson: Acute Triangles Navajo
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New Arizona Math Strand 4 Geometry and Measurement Grade 4, 5, 6
Articulated 4M41-05 Classify triangles as right, acute, or obtuse. **4M64-04** Measure angles using a protractor; **4M51-10** Understand that the sum of the angles of a triangle is 180 degrees.
Old Arizona Math Standard 4 Geometry Grades 4-8
4ME2-PO2 Classify triangles by their angles and sides (e.g., equilateral, acute, isosceles. . .)

Learning objectives: Students will be able to:
•classify acute triangles by their number of sides and measure of angles.
•select acute triangles among other triangles by measuring the angles accurately with a protractor.
•explain and give examples of two classifications of acute triangles.

Materials or special things:
Protractors, colored triangles. English, Navajo and Spanish narrations and scripts.

Overview and Content:
First it is established that triangles have sides and are measured by interior angles. They belong to categories based on that. The acute triangle is defined, illustrated and explained. There are many exercises helping students remember the attributes of acute triangles as distinguishable from other triangles. Students will use an interactive protractor for practice to correctly measure interior angles to distinguish acute triangles from others. Note: The SAY WHAT? and DIG DEEPER sections provide tremendous examples of appropriate labeling of sides and angles of triangles, helpful in mastering the **4M41-03 and 4M61-06** Performance Objectives.

Engage Students:
Show a batch of various triangles made from colored paper and ask the class how they would prove the identity of the triangles. Help students start a chart of attributes for each triangle regarding sides and angles. Be prepared to demonstrate using a protractor if you feel the class is ready.

Follow-up and Extensions:
Identify acute triangles in Navajo rug designs, beadwork and sand paintings. Create patterns for Navajo art projects using acute triangles in special areas for prominence, but include other triangles. Then students must be able to identify, or prove, the triangles used in their patterns. SO WHAT! shows the use of acute triangles in sailing. DIG DEEPER take students into the maze of classifying triangles by angle and side. Students work together in TALK ABOUT IT! to compare and explain triangles with acute angles. SAY WHAT? has a tremendous glossary of terms.

Assessment:
Students must be able to select only acute triangles as illustrated in a Navajo basket.

Teacher Note:
Acute triangles are studied in grade 4 in the new Arizona Math Standards. However, the TRY and SHOW sections of this lesson allow use of a protractor for students to select acute triangles. Measuring with protractors in the standards now occurs in