Investigation of Pot Sherds

(This exercise should follow Discovering Pi.)

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Lesson Overview: In this lesson, students will measure pot sherds and use their knowledge of Pi to infer possible uses of pottery.

Objectives: In their study of archeology and mathematics, students will use broken pieces of pottery to compute circumference from a section of a circle. They will also infer possible functions of ancient or historic ceramics.

TEKS [mathematics] 4.6; 4.12; 4.14; [social studies] 4.7; 4.8; 4.9.

Materials: Broken pieces of clay pottery (rim sherds) in various sizes, ruler, compass, paper, and pencils.

Activity: Students will trace the outer edge of broken pieces of pottery. The will use their prior knowledge of Pi to estimate the circumference of the original piece of pottery.

Step 1: Divide students into teams

Step 2: Ask students to CAREFULLY choose several pieces of rim sherds, making sure that they choose a piece that has a rounded edge.

Step 3: Place the pottery piece on paper and trace around the outer edge of the rim.

Step 4: Take the compass, discuss with the students how they might use the compass to help them determine where the rest of the circle is. Have the students continue the arch of their pottery circle using the compass.

Step 5: Have the students measure the diameter of the circle. Record the diameter of the circle.

Step 6: Have the students estimate the circumference of the circle, using Pi. Note: They might want to verify their answers by measuring with string. Record this estimate.

Step 7: Repeat the procedure. Each team should do at least three different-sized pieces.

Step 8: Record all measurements and report on a student designed chart. Have students include their ideas of how the various pots may have been used (if they were discovered at an archeological site).

Closure: Discuss with the whole group the above procedure. What may be wrong with their estimations? (Small base with large opening) What could be done to increase the accuracy of their estimations? (Find more pieces of the same pot) Discuss with the group possible uses of ancient pottery and why this would be important to archeologist.

Extension: Ask students to think of other ways that archeologist might use Pi. What other mathematics could archeologist use to help them in their work? The following site focuses on Pi.

http://ofcn.org/cyber.serv/academy/ace/math/cecmath/cecmath023.html