Mathematics Grade 7 Unit 07 - Rubric 1

Grade/Subject/(Course)

Grade 7 / Mathematics

Course Version

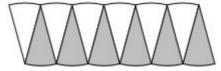
Performance Assessment(s)

Mathematics Grade 7 Unit 07 PA 01

Provide various sizes of paper circles for students to select along with measuring tapes or rulers, string, colored pencils, and scissors.

Analyze the problem situation(s) described below. Organize and record your work for each of the following tasks. Using precise mathematical language, justify and explain each solution process.

- 1. Select a paper circle.
 - a. Using a piece of string and measuring tape or ruler, measure and record the length of the radius, diameter, and circumference of the circle.
 - b. Describe the relationship between the ratio of the circumference of a circle and its diameter and how this ratio is related to π .
 - c. Using a piece of string and your paper circle, approximate the formulas for the circumference of a circle in terms of the radius and π and in terms of the diameter and π .
 - d. Explain the connection between your formulas and the actual formulas for the circumference of a circle, $C = 2\pi r$ and $C = \pi d$.
 - e. Determine the circumference of your paper circle.
 - f. Fold the circle in half and shade one-half of the circle with a colored pencil. Continue to fold the circle to create 8 to 12 equal-size pieces. Cut the circle into equal-size pieces from the center of the circle to the outside of the circle where the length of the non-curved side is the length of the radius of the circle. Lay the equal-size pieces next to each other, alternating shaded sections and unshaded sections, to create a figure similar to the shape below.



- g. Use your model to determine an approximate formula for the area of the circle in terms of the radius and π .
- h. Explain the connection between your formula and the actual formula for the area of a circle, $A = \pi r^2$.
- i. Determine the area of your paper circle.

Standard(s): 7.1A , 7.1B , 7.1C , 7.1D , 7.1E , 7.1F , 7.1G , 7.5B , 7.8C , 7.9B

ELPS <u>ELPS.c.1A</u> , <u>ELPS.c.2C</u> , <u>ELPS.c.2D</u> , <u>ELPS.c.2E</u> , <u>ELPS.c.3C</u> , <u>ELPS.c.3D</u> , <u>ELPS.c.3H</u> , <u>ELPS.c.4D</u> , <u>ELPS.c.4F</u> , <u>ELPS.c.4H</u> , <u>ELPS.c.5B</u> , <u>ELPS.c.5F</u> , <u>ELPS.c.5G</u>