Math Topic: Circles - Circumference

Grade Level(s): 7

Learning Outcomes:
C1 Demonstrate an understanding of circles by:
   (a) describing the relationships among radius, diameter & circumference of circles
   (b) relating circumference to pi
   (c) determining the sum of the central angles
   (d) constructing circles with a given radius or diameter
   (e) solving problems involving the radii, diameters & circumferences of circles.

Context of Lesson within the unit:
This is lesson five in the measurement unit. The students were launched into the unit with a pre-assessment task that involved writing a circle journal as well as a in partners, completing a vocabulary sort. After teaching Math Makes Sense Lesson 4.1 and 4.2 we did the following lesson.

Materials:
- Word sort cards
- Circle journals from last week
- Access to the internet or an overhead of the student sheets and Olympic Medal Graph
- Graph can be found here: http://www.heuristiquement.com/2008/07/nombre-de-mdailles-olympique-par-pays.html
- Student circle journals for Olympic work and student copies of the assignment
- Access to compasses and rulers (we prefer the bull's eye compass and have a class set – can order through Spectrum)

Lesson Ideas:

1. Share Learning Intention:
   I will help develop and understand the criteria for comparing circles.
   I will accurately determine the circumference, radius and diameter of the circles on the Olympic Medal Graph.

2. Warm-up or review of concepts:
   Using the two exemplars and the 'generic' rubric, have the students determine how they would assess the work shown. Give lots of opportunities for turn and talk and have students justify their assessment with specific examples.

3. Activity with many levels of entry introduced and practiced
   Project the Olympic Medal Count – Discuss the information can be obtained from the circles. Reinforce the language of radius, diameter and circumference.

4. Establish Criteria for success
   Outline the task – Show what you know about circles by describing the Olympic Medal Count Graph.
   Illicit from the students what they would need to do to show they fully understand circumference, diameter and radius.

   The students I worked with came up with
   - **Compare the countries by calculating the circumference, radius and diameter**
   - **Compare three countries to one country.**

   (Note: I had to scale them down a bit – they had set the bar very high, as the rest of the rubric indicated that they needed show how they made the calculations and to use correct math words and explain clearly with words, numbers and pictures.)

5. Activity continued
   Work time – as the students are working, keep reflecting them back to the criteria to see if they are achieving what was outlined. Provide an opportunity for peer assessment. The crew I worked with were so focused that peer- assessment slowed some of them down, but did provided clarification for others.

6. Reflection: Self assessment based on criteria and learning intention.

Lesson Review:

- ✓ Did I connect the concept to previous experiences?
- ✓ Did I provide individual choice?
- ✓ Was there an open-ended task?
- ✓ Was it possible to enter the task from a variety of levels?
- ✓ Was time provided for 'Turn and Talk' for sharing of strategies and perspectives?