

Give Me a Break

Name: _____

Grade Level: K-2

Professions: Radiologist and Radiologic Technician

References: www.healthyhands.com

All HOTT lesson plans are designed with the purpose of increasing students' awareness of the variety of health careers that are available to them. If possible, invite the corresponding health professional into your classroom to discuss his/her occupation. If this is not an option, use the attached sheet(s) to share this/these career(s) with your students.

Purpose: To introduce students to the importance of a survey questionnaire, the basics of data collection and graphing concept of relationships between data.

Materials needed: Paper, pencils, markers or dot stickers, and large construction paper or bulletin board paper.

Duration: At least 2 class periods

Procedures:

- ◇ To begin the lesson, ask your students if any of them have ever broken a bone. Lead a short discussion on broken bones and the treatments that students received. Then ask your students the following questions. Do you think it takes a large bone longer than it takes a small bone to heal? Accept students responses as guesses for this question. Then tell students that they are going to try to answer the questions by gathering information from their schoolmates.
- ◇ Next ask your students to work as a class to generate a list of questions for a survey on broken bones and healing time. (Questions might include: Name and age? Have you ever broken a bone? Which bone did you break? Did you have a cast? How long was the cast on? How long did it take your bone to heal? Did you require any physical therapy afterwards?)

- ◇ When the class has decided on questions, take your students to other classes to conduct the survey.
- ◇ When the survey is complete, have your students plot their data on a large graph. The vertical axis should be labeled “Length of Healing Time” and divided into weeks. The horizontal axis should be labeled with the different bones that appeared in the survey. Using markers or dot stickers, have your students plot points for the healing times for each broken bone; there should be several points for each kind of broken bone, and some of the points may overlap. The collection of points above each bone should give a clear sense of the approximate average healing time.
- ◇ Lead a discussion about the graph. Ask the class to note whether there seems to be a relationship between the size of the bone and the length of healing time. You can also ask students to consider why (or why not) a relationship exists.

Adaptations: For younger students, you might want to utilize a simpler graphing project. The survey could only collect data about which students had ever broken a bone and which bones they broke. You could then have the class create a bar graph for the various bones, indicating how often each had been broken for class members. The graph would then indicate which bones seemed to be the most and least likely to break. Students in higher grades should be able to develop their own survey questions regarding broken bones: Do girls break more bones than boys break? Do adults break more bones than children break? Are more large bones than small bones broken? Do older students break more bones than younger students? Are certain places—playgrounds, the home, the school—more likely to lead to broken bones than others? Students can also develop individual graphs depicting the information they have gathered. When they are finished, they can share their graphs with the rest of the school.

Discussion Questions:

1. Discuss how the x-ray machine has changed the treatment of broken bones. What problems could have happened before we had x-rays?
2. Healthy bones are always growing. Our bodies repair them when they age. Discuss how diet, exercise, and age affect the health our bones.
3. Suppose that a tiny camera could replace a person's eye. How could having a camera for an eye help you? What problems would you have?
4. Noise pollution is a problem for today's hearing health. What sources of noise pollution can affect our hearing? How can we protect our ears from noise damage?

Evaluation:

You can use a five-point rubric to evaluate student work.

Five points: survey questionnaire designed; survey completed with 15 responses; graph designed correctly; data entered correctly on the graph; students participates in discussions.

Three points: survey questionnaire partially complete; survey completed with 10 responses; graph designed correctly, but minimal labeling; some participation in discussion.

On point: survey questionnaire incomplete; survey completed with five responses; graph partially designed, not labeled, students does not participate in discussion.