LESSON PLAN by: Tyler Wolfe

Adapted From: Activities for Teaching Science as Inquiry

Lesson: How can you make a demonstration telephone? Length: 60 minutes

Age or Grade intended: 2-4 grade

Academic Standard(s): 2.1.1- Manipulate an object to gain additional information from it.
2.1.6- Use tools to investigate, observe, measure, design, and build things.
2.5.2- Recognize and explain that it is often useful to estimate quantities.

Performance Objectives: 1) Students will understand that sound travels by vibration by performing an experiment with cup phones.
2) Students will correctly assemble cup phones with the materials given.

Advanced Preparation by the Teacher: The teacher must know how the experiment works. The idea of the experiment is to show that sound travels through vibration. The two cups are attached to each other by two different things. They are string and nylon fishing line. The cups need to be of various sizes and styles such as Styrofoam, waxed cardboard and plastic. The teacher needs to put a hole in the bottom of each cup so that the child can attach the string through each one. The point of the activity is to show that when a student talks into one cup, that cup vibrates. The vibration carries through the cup, into the string, into the other cup and eventually produces a sound in the other cup so that the student can hear it. The teacher also needs to be sure he/she has the right materials and enough for everyone.

Materials: string, nylon fishing line, cups of various kinds, nail, paper clips, toothpicks

Procedure

Introduction: Begin by asking the students if they have ever felt the floor shake in the gym when everyone is in there yelling. Ask them if they know why this is. Then ask the students if they know how they can design a “telephone” that will enable them to communicate across some distance using a string as a medium.

Step by Step Plan: 1) Show the students a model of a constructed homemade telephone
2) Have the students cut a 20 ft. strand of string
3) Have the students put the string through the holes in the bottom of each cup and tie them to a paper clip so they do not pull back through
4) Have them try out their new telephone with a friend
5) Have them replace the string with nylon fishing line
6) Repeat step 4 with a friend again

Closure: Have the students write in their science journals and explain which medium worked better, the string or fishing line. Have them explain why they thought one might have worked better than the other. Then ask them what the original source of sound for their telephones was. Ask them what was set in vibration when they spoke into the cup. Lastly, ask them how the sound was detected at the other end of the phone.

Self Reflection: TBA

Assessment: This assessment can take place formatively through observation during the activity. The teacher can make sure that the children are assembling the telephone correctly. Assessment can also take place through reading the journal entries. Based on their observations, the teacher will be able to tell what was understood by the students and what wasn't. The students should explain which medium they thought worked better and why. Their answers should have some insight as to how sound causes vibration. The teacher should also be able to formatively assess the students based on their responses to the questions posed by the teacher.