Dakota State University
College of Education

LESSON PLAN FORMAT

Name: __Katie Stier_____
Grade Level: __First Grade___
School: _____
Date: _____
Time: __12:45-1:20___

Reflection from prior lesson:
Science is very scattered. Students get to work on Science every other week, and for three consecutive days. This creates an environment where units (experiments, instruction, and activities) are limited to those that can be completed in a short amount of time. This group of students does not have the capacity to go two weeks without revisiting content.
The day before today's lesson, students watched a video to pique interest with the idea of communication. Students learned about a variety of ways to communicate, including a few unique ways. We practiced communicating via flashlight signals, so that their brains could open up to learning to communicate in a nonconventional manner, which prepared them for today's lesson.

Lesson Goal(s) / Standards:
1-PS4-1 Plan and carry out an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

1-PS4-4 Design and build a device that uses light or sound to solve the problem of communicating over a distance.

Lesson Objectives:
After an experiment, students will identify at least 2 observations of success and failure in their device.

In a shared class discussion, students will present at least 1 solution that will allow the telephone to generate sound.

Through an experiment, students will, with 100% independence, test a telephone device to create a sound.

Materials Needed:
Paper cups
String
paper clip
What worked sheet

Contextual Factors/ Learner Characteristics:

The students think that Science is the coolest subject in the world, so managing behaviors is quite simple. A lot of times, students understand that if they miss the directions, their experiment won't work, where their friends' experiments will work. This creates a quiet atmosphere for instruction. There is a pair of students that are not able to work with each other in any way, due to behaviors. For this reason, students will complete their experiments in pairs as assigned by the teacher.

A. The Lesson

1. Introduction (5 minutes)
    - getting attention
        - Students will be returning from specials for this lesson, so extra time is needed in order to relax our bodies and get ready for the lesson. Students use unique callbacks to get attention. Teacher will call to the class "classy, classy" and every student is expected to respond with "yessy, yessy". This will signal to the teacher that the students are ready to learn.
        - "I will give you about 10 seconds to put all of your stuff away. The only thing you will need for right now is your brain." "When I say *rule 1*, you say *follow directions quickly*. 'Rule 1'". Students are expected to respond with follow directions quickly and are to work towards clearing their desk completely.
    - relating to past experience and/or knowledge
        - "Yesterday during Science we watched a video. Who can raise their hand and explain to the class what the video was about. If you need a reminder- I remember seeing a telephone, a flashlight, an email, lots of things. But what were those things trying to tell us?"
        - "Great! Yes- yesterday we learned about all of the different ways we can communicate with one another."
    - creating a need to know (related to past knowledge)
        - "One of the ways that we learned to communicate was through telephone. How many of you have ever used a telephone?" *allow for giggles and a show of hands*
        - "But what happens if we don't have a telephone? Sometimes we have to build our own ways to communicate. If we don't have a telephone or another way to communicate, we need to build a device that can help us."
    - sharing objective, in general terms
        - Today we are going to experiment with some tools to see if we can figure out how to communicate.

2. Content Delivery (20 minutes)

Model experiment

- "Each of you will be paired up with a friend. You and your friend will have 2 cups connected to each other by a string. There are some rules with these tools."
- demonstrate positive use of equipment
    - "what you need to do is experiment with the cups. Use different ways to try to communicate to one another. One person speaks into the phone while the other listens."
    - "When you do this, if you decide that you want to pull your string, it needs to be pulled gently." *demonstrate a gentle pull*

- demonstrate negative use of equipment
    - “If you are not following our Rule #4, which is making smart choices, your device will not work. It will break and you and your friend cannot communicate.”
    - “One of the quickest ways to break your device is to squeeze your cup. If you squeeze your cup it will” *students shout *break** “Don’t squeeze your cup. Hold it lightly, but have a good grip.
    - “Another way to break your device is to pull hard. If you argue with your friend or you aren’t being careful, your cups will pull apart and you will lose your string. *demonstrate pulling to hard to break the string.* “There are only enough sets for each group to have one.”
- “Watch me and _____ perform this experiment. We are going to practice different techniques and see if we can get them to work.” *practice unsuccessfully so that students can develop their own understanding of how the phones must work.*

Telephones

- “I am going to begin passing out to groups. When you get your cups, find a spot in the room where you and your friend will have enough space to do your experiment. I am going to let you be in charge of your actions today. Be next to a group that you know will keep your behavior worthy of clipping up. Please do not begin your experiment until the timer starts. This will prevent your friends from not getting enough time.”
- Start timer.
- “I am going to walk around the room while you do your experiment. If you think you have gotten it to work, I am going to come ask you what you did and why it worked, so be thinking about that while you do it.”
- Teacher will walk around room and engage in group experiments along the way. Possible questions to ask students: “Is your phone working? What do you think is making it work? What can you try differently to make it work? What other ways can you build a device that can communicate?

3. Closure (10 minutes)

Discussion and Demonstration (7 minutes)

- “Let’s all come together and talk about what we have learned. I am going to have some of you come up and show me your method of using the telephone. I will be your partner, and I will do exactly what you tell me you did.”
- Allow for students to take turns and describe.

Review (2 minutes)

- “We have learned about ways to communicate. One of the ways we learned was to make a telephone out of cups. What method made the telephones work?
- Allow students to respond. Expected response is to pull the string tight and hold it steady to allow for the vibration of the sound.
- “That’s right. When we pull the string nice and tight, we can talk through the cups as the string does a very very little vibration to move the sound across.

Transition (1 minute)

- “Following directions quickly, you are expected to stack your cups on the classroom library table and quietly sit in your seat. Once these things have been

completed, you will be dismissed for recess. Rule one." *students respond with *follow directions quickly*.*

- After science, students transition to recess. An extra minute is needed out of the lesson to review expectations and explain the dress code for the day.

B. Assessments Used

Demonstration

During the closure, some groups were brought to the front to test their hypothesis with me as their partner. We will try the experiment exactly as they tell, and discover which way works.

Discussion

During the closure and during the experiment, teacher walks around and discusses with the students their success and failure. Students will explain what makes the experiment work, and what types of things made it not successful. Students also discussed whether or not the experiment would work if some variables were changed, and how the experiment would have to change to accommodate the variables.

C. Differentiated Instruction

This lesson is all about experimenting and exploration. Students will not have an 'assignment' with this. Students are expected, however, to identify methods of success or different ways to get to success. For this reason, students will be paired according to differing abilities. Those students that are below level in science will be paired with students that are at or above level.

Those that are far above expected levels will be paired together, so that further questioning for enrichment can be acquired.

D. Resources

National Science Teacher Association- https://betterlesson.com/lesson/638060/telephones