Cortney Holland
Light and Mirrors
Grade: 2

Making a Kaleidoscope

Objective/Purpose: This lesson allows kids to learn about how mirrors work and the reflection of light off of different surfaces. It also has an arts and crafts part of it too, which keeps the kids attention.

Materials:
3 2x4 sized mirrors for each kid (Call Lowe’s they cut mirror for free once you buy it)
Thick Paper
Tracing Paper
Tape
Bubble wrap
Assorted beads

Time Required: 30 minutes for five children

Background Information: The two weeks before this lesson we did lessons where I lectured and demonstrations about light and reflections. Going into building the kaleidoscope lesson the kids fully understood light, prisms, shadows, rainbows, and reflections. This activity was good because they were able to describe why things looked like they did from their previous lessons. A couple of concepts that we had gone over previously are:
1. White light is made up of all the colors of the rainbow
2. Light bounces off of mirrors and is not absorbed (I compared it to a bouncing ball hitting the ground).
3. Mirror is made of glass with silver behind it.
4. Mirrors reflect objects backwards and this is what you see.

Preparation: You need to buy mirror from Lowe’s and once its bought they will cut it for you there. Dimensions of 2x4 are plenty. Then I set up the materials at each chair for the kids. They all got a thick piece of paper that I punched a hole in the middle of it for them already, a square of tracing paper, crayon, scissors, and the mirrors.

Safety Issues: Warn the kids that mirror is made of glass and it will cut them so they better not touch the edges. Also, its probable best to use kids scissors.

Procedure: Divide kids into groups of five. Since I work with younger kids its easier to do small groups. First thing you need to do is get them to hold up the mirrors with the mirrors facing inward and tape them together forming a triangular shaped cylinder. Then they need to trace the top of the triangular shape onto both the thick and tracing paper. Tell the kids to cut out the thick paper with the hole as close to the middle of the triangle shape as possible. As for the tracing paper, the kids need to leave extra tracing paper outside of the shape they drew. Tape the top onto one end and fold the tracing paper over the other end and tape it all the way around to secure it. Then the kids need to choose 10-
20 beads to put in the hole at the top of the kaleidoscope. Warn them not to get too many or they won’t be able to see the reflections in the mirrors. At this point the kaleidoscope is functional and it looks really cool to take a flashlight and point it into the bottom as they look at the beads. Since the kids were young my teacher and I decided to take an extra step to what the lesson called for. We set aside a separate station and wrapped bubble wrap around the kaleidoscope and taped it securely. This step is completely optional and if you feel that the kids are not going to drop it or poke themselves it is definitely not required.

Possible Questions:
1. Why do you see so many more beads than there really are?
2. What part does light play in this experiment?
3. What colors are light made of and how does this correlate with the different colored beads?

Assessment/Evaluation: At the end of the lesson they are so excited about looking through their kaleidoscope that they will not pay attention to you. This is why I decided to put this as the final lesson in the Light/Mirror/Color section. This experiment was really neat not only because it turned out well, but also because the kids had something they could take home and show their parents.