

Pre-trip preparation for Shadow Stories – Grades 1-2

This lab is a great introduction to some fundamental concepts of optics. Students will investigate, through the use of shadow puppets, what happens when you put different materials in front of a beam of light. They will learn through hands on exploration the concept of transparency and opaque. Students will leave with a puppet which will be great for future writing and storytelling.

Nevada Academic Content Standards in Science (NGSS): 1-PS4-3

Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light.

Common Core: W.K.2 2.

Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.

During your Discovery Class students will be expected to:

- Sit in groups of 4 students per table.
- Students should be prepared to give their full attention to the Lab instructors when given the quiet signal.
- Work cooperatively with one another at the table.
- Follow the hands-on procedures just as the Lab teacher or assistant explains them.

It is important that teachers and chaperones:

- Help focus the students' attention.
- Assist students with the hands-on activities and experiments when necessary.
- Engage students at a higher level by asking open-ended questions throughout the class.
For example: why did you choose ____?
- Turn off cell phones and other electronic devices during the class.

Literary connection:

To get students excited about the upcoming Discovery lesson we suggest reading the following story with your students: *What Makes a Shadow?* by Clyde Robert Bulla.

When you run, your shadow runs. But you can never catch it! What makes a shadow? Where does it come from? When the sun is shining, everything has its own shadow—trees, houses, cars, even clouds and planes way up in the sky. You have a shadow, too. As the sun sets, all shadows become part of a much larger one— the night!

