



Exploring Shadows

Louise Paquette

Grade 1

Subject: Science

Topic: Sun and Shadows

Descriptive Sentence

Through movement, students will explore how shadows are created and change with the movement of the sun.

Curricular Outcome or Expectation

Please see the lesson plan preview for the expectations/outcomes for your province.

Materials

A spotlight

A gym or other large clear space

Space Requirements

Large open space

Complete Description of Lesson

Getting Ready

The following activities encourage a variety of movement with a strong focus on personal space and being aware of others.

- As a general body warm up, ask the students to take a “magic balloon” out of their pockets, then stretch it using their hands, feet, head, belly, knees, etc.
- Ask the students to blow up the balloon and get into it, one body part at a time. Now challenge them to tie up the balloon with themselves inside, feeling the space all around using a variety of body parts.
- Now ask the students to imagine that there is a bucket of paint on the floor at their feet. Challenge the students to paint the interior of the balloon using their hands, feet, knees, elbows and head.
- Have the students untie the balloon and shoot around the space at various levels as the air is expelled, dropping to the floor when all the air is released. Repeat the sequence using different speeds. End by popping the balloon with a pin.

**Please take a moment to review
the “Ocean Warm up” video**



- As a different warm up, the students will travel across the floor exploring levels and quality of movement.
- Arrange the students in 4 or 5 lines on one side of the gym. Tell the students that the floor is the ocean and that they must cross it using different kinds of movement. Take a few minutes to discuss this with the students and create different scenarios. How might the students move if they were on the bottom of the ocean floor, on a surfboard, on a flimsy raft with high waves tossing the raft...etc. Have the first person in each line move across the floor, followed by the second, the third and so on until all students have moved across the floor.
- Repeat the process imagining that the floor is now covered with glue, now extremely hot, now as if you are carrying something very heavy. How else could the students move across the floor? Gallop, skip, on tiptoe, heels...what else?

Develop

- Have a class discussion about shadows.
Why do shadows happen?
What do we need in order to cast a shadow? (A light source, a surface to shine on, an opaque material that will block the light)
When do we see shadows?

**Please take a moment to review
the "Creating Shadows" slide**

- Turn off all light sources except the spotlight. Experiment with creating shadows on the wall of the gym.
- Ask 5 or 6 students to create a shadow by standing between the spotlight and the wall of the gym. Now ask them to demonstrate "changing shadows" while the remainder of the class observes. Have them change size and shape, make the shadow funny or scary, kick, wiggle or jump.
- Ask a different group of students to make a shadow but this time challenge the students to connect the shadows without touching each other. A new group could experiment with putting the shadow in front of or behind them. Continue until all students have had a chance to create a shadow with different challenges.
- Ask the observing students for more suggestions.
You may wish to play music to stimulate imaginations. Suggestions are given at the end of the lesson.

Application

**Please take a moment to review
the "Shadow Creatures" video**

- Ask the students to break up into small groups of three or four and create "Shadow



Creatures". Challenge the students to explore how they can make the creatures move and travel (high or low levels, turning, jumping, etc.). Ask the students to share their creations with the rest of the class.

- Discuss. What made the shadow creatures interesting? What else could be done to create different shadows? Again, you may wish to add music to set an atmosphere.
- Challenge the students as individuals to create a creature. This could be a real or imaginary creature. Discuss with the students how the creature will begin to move, and how it will end. Will it move with large, heavy steps, or perhaps with quick hopping movements? How else could it move? To give some structure for this activity, count out aloud to 8 for each stage.
Decide: funny or scary etc. (8 counts)
Start to form creature (8 counts)
End: exit or dissolve (8 counts)
- Ask 3 students at a time to demonstrate their shadow creatures.
Ask the students to describe what they observed. Find words to describe the shadow creatures. Make a list of these words.
- Now experiment to discover: What happens if something opaque is placed between the light source and the student? What happens if something transparent is placed between the light source and the student? Discuss the results.

Please take a moment to review the "Movement of the Sun" slide

- Next, relate the light source to the sun. Discuss how the sun is a source of light and heat. Talk about the effect of the daily rising and setting cycle of the sun on shadows.
- Use the spotlight to conduct an artificial sunrise and sunset. Challenge the pupils to predict and then see what happens when the sun is on the person's right, their left, overhead, etc. When is the shadow the longest? Does your relationship to the light source affect the shadow? Take time to experiment and discuss the results.

Closure

Shadow Spelling Game

- Place the students in groups of three between the spotlight and the wall. Tell each group a three letter word without the others hearing. Assign each of the three to form one of the letters as a shadow shape on the wall so that the three letter word appears. Ask the class to guess the word.
- Now ask them to find a three letter word from the word "SHADOW" (E.g. had, sad, how, etc. and form the word as a shadow shape on the wall.
- Discuss what you have learned about how shadows are created.
- Share what you have learned with another class and demonstrate your shadow creatures.

Resources

The following CD's have been used effectively but are not an exhaustive list:

[The Gypsy Kings' Greatest Hits](#) by The Gypsy Kings

[Three Suites](#) by Duke Ellington



Enya by Enya

Thunder Drums by Scott Fitzgerald

The Nutcracker by Tchaikovsky

Big Bad Voodoo Daddy by Big Bad Voodoo Daddy

Mishima by Philip Glass

Glossary

1. Opaque. Not letting light through; not transparent
2. Transparent. Allowing light through so that something behind or beyond can be seen
3. Levels. In dance - high, medium, and low