

EDUC Q405  
Saturday Science  
Spring 2011  
\*Week 3\*

### **Learning Objectives:**

- Students will measure their shadows at two different times from the feet to the head with a meter stick and sidewalk chalk and record the measurement on a worksheet provided to them
- Students will identify the difference between the measurements of shadow 1 and 2 through the result chart done together as a class
- Students will make a model planet out of Play Doh to use in a day/night demonstration with a flashlight
- Students will play a day/night simulation game on the computer through a specific website to see the difference in appearance of shadows during night and day (examples: height of shadow, light or darkness of shadow)

### **Indiana Academic Science Standards:**

#### **Process Standards (NOS):**

- Generate questions and make observations about natural processes.
- Discuss observations with peers and be able to support your conclusion with evidence.
- Make and use simple equipment and tools to gather data and extend the senses.

#### **Core Standard for Kindergarten: Earth and Space Science**

- Observe, record, and recognize patterns and generate questions about night/day and seasons.

#### **Content Standards**

K.2.1 Observe and record during sunny days when the sun shines on different parts of the school building

2.2.7 Investigate how the sun changes from day to day and from season to season by observing and drawing the length and direction of shadows

#### **Teacher Content Knowledge:**

All the required knowledge needed is on <http://en.wikipedia.org/wiki/Shadow>.

We feel this has all the necessary knowledge a teacher must know to teach this lesson.

#### **Materials:**

- 30 pencils
- 12 boxes of crayons
- Markers
- At least 12 pieces of sidewalk chalk
- 12 meter sticks
- 24 flashlights
- 1 globe
- Play Doh enough for each student to make a planet (we did not get to this last week)

- Desk light (to use as a larger sun)
- Chart paper
- 27 First Shadow Observations Handout (page 2 from materials list sent Tuesday)
- 27 Final Shadow observation handouts (page 3 from materials list sent Tuesday)
- 27 Light and Dark Handouts (page 4 from materials list sent Tuesday)

### **Description:**

-Begin by reviewing what we did last week for a few minutes, and tell students we will be focusing more on just Earth today. ("We are going to be learning about what it happening here on Earth due to Earth's rotation.")

-Go outside as soon as possible to measure shadows for the first time. (Work with a partner and measure shadow with sidewalk chalk and meter stick. Record on worksheet)

-Come back to the classroom and discuss how the earth goes around the sun. (Remind them of how we learned the position of planets in relation to the sun.)

(Can show YouTube video: <http://www.youtube.com/watch?v=knK87GoNyGo>)

-Demonstrate the day/night activity with a flashlight and globe in the front of the room.

(Can also show YouTube video: <http://www.youtube.com/watch?v=knK87GoNyGo>)

-Have each student make Earth out of Play Doh to use in their own demonstration with a flashlight and partner. (They need to draw what they see by shading light and dark areas!)

-bathroom/snack

-Go take another shadow measurement outside and record.

-Make a classroom chart of before and after data

Work in small groups at computers in the room to do a shadow simulation game

([http://www.bbc.co.uk/schools/scienceclips/ages/7\\_8/index\\_noflash.shtml](http://www.bbc.co.uk/schools/scienceclips/ages/7_8/index_noflash.shtml))

-Interpret the data (learn WHY did it change)

-Spend last 10-15 minutes at the end to summarize what we have discussed so far, share where you are going next, and to ask for the students to generate ideas or questions they have about this topic that they want to explore about further (if possible)

If extra time allows:

-Show video of what we will be moving into the next week

(Seasons <http://www.youtube.com/watch?v=DuiQvPLWziQ&playnext=1&list=PL0544550960159BC4>)

-Read Aloud *Day and Night* by Joy Richardson

### **Assessment:**

Students will be assessed mostly through observation of their abilities and staying on task.

Each student will record with a measure stick and write down the length on a worksheet.

We will use the handouts to assess their data collection abilities. Each student will provide the measurement to the class for the class chart. Each student will show he or she can simulate night/day with the sun and earth rotation by using a flashlight and Play Doh. We will assess as a class at the end by orally interpreting the data of our chart.

### **Handouts:**

- Page 2 from materials list sent Tuesday (First shadow observation worksheet)
- Page 3 from materials list sent Tuesday (Second shadow observation worksheet)
- Page 4 from materials list sent Tuesday (light/dark simulation observation worksheet)