

**Implementation Project**  
**Mrs. Lowry's fourth-grade class**  
**Magruder Elementary School**

**Introduction**

I was assigned, along with Rebecca Merlin, to design and implement a technology-driven lesson in Joyce Lowry's fourth-grade class at Magruder Elementary School.

Mrs. Lowry has about 18 students of varying abilities. Her class was well-behaved. We arrived before the start of the school day because our lesson was done in the morning. The students came in, put their books and materials away and promptly began their morning work without reminders from Mrs. Lowry. They were polite and respectful during the time we were in the classroom. They raised their hands until called on to speak, and they followed the classroom rules.

The activity Rebecca and I chose to do – a lesson on the phases of the moon – was selected with input from Mrs. Lowry. The activity fit with Mrs. Lowry's lessons and Virginia Standards of Learning on the moon's phases and the moon's effect on Earth.

**Objectives**

The objective was to have the students understand the following:

1. The moon's rotation around Earth.
2. The eight phases of the moon: new, waxing gibbous, first quarter, waxing crescent, full, waning gibbous, last quarter, waning crescent.
3. The length of the lunar cycle.
4. Moon's influence on the tides.

## Materials

Materials for the lesson include a PowerPoint presentation in which we introduced the phases of the moon, with definitions for each. The presentation also includes fun facts about the moon and an explanation about tides and how the moon affects tides. As an example of tides, we chose to include a movie and a brief description of the Bay of Fundy, in Nova Scotia, Canada. The Bay of Fundy has the world's most extreme tides, and we thought it was illustrative of the moon's gravitational effect on the change in water levels on Earth.

We also used several Internet sites for activities during and after the presentation.

Other materials included a flip book activity created using PowerPoint. For the activity, students had to identify the phases of the moon, in order, and then cut them out and staple them together to make a flip book.

We brought Oreo cookies, icing and paper plates to use for an activity in which students created the phases of the moon by using the cookies. The icing was used as glue to hold the cookies to the paper plates. Students had to make the four main phases of the moon by taking the Oreos apart and scraping off some of the filling to make the moon's quarters.

We also used paper-and-pencil technology for a Think-Pair-Share activity.

## Description

- Before the lesson, we introduced ourselves and explained why we were invited to Mrs. Lowry's class.
- Begin the lesson with the PowerPoint presentation; Rebecca and I took turns talking about the slides and asking questions of the students.
- At the conclusion of the PowerPoint presentation, we divided the class into four groups and assigned them to four activities:
  - **Oreo Moon Phases.** Students will create the four major phases of the moon (new, first quarter, full, last quarter) with Oreo cookies and icing. They will write the phases on the paper plate, then apply icing to the back of the cookie and "glue" the cookie to the appropriate place on the plate.
  - **Internet stations.** Students were directed to two Web sites to find and record the following information:

- How much do you weigh on the moon?
- What phase of the moon were you born under?
- **Think-Pair-Share.** Students will divide into groups of two, talk about the lesson and write down two main things they learned.
- **Moon phases flip book.** Students will identify the phases of the moon, write the name of the phase under the picture, then cut out the phases and put them in the correct order.

### Evaluation Procedure

We initially planned to use the flip book as the assessment activity. It required students apply what they had learned in order to complete the assignment.

After the lesson, however, the flip book proved to be too difficult; if we had been given more than one hour to teach the lesson, it probably would have been a good assessment tool.

In a discussion with Rebecca, and later with Mrs. Lowry, we agreed that the four activities we had planned were too much to do in a one-hour lesson. It would have been better to do it over the course of a week and would have made the activities easier for the student to think through and apply what they had learned.