

Dear Parent,

Your child is beginning a unit created at the Battle Creek Area Mathematics and Science Center. This unit was designed to promote science and engineering literacy and integrate reading and writing skills into high-interest science content. During the next twelve weeks, your child will be actively involved with the *Space Systems: Patterns and Cycles* unit. This unit is geared for first-grade students and focuses on the big ideas of obtaining information to determine the seasonal patterns of the sunrise and sunset and the observable patterns of the motion of the sun, moon, and stars.

1. Obtain information through observations, reading, models, and discussions to describe patterns in sunrise and sunset that can be predicted.
2. Obtain information through investigations, models, and discussions to describe patterns in the position of the moon in the sky.
3. Plan and design a model to explain why we get day and night.

First-grade students are also encouraged to think and act like scientists and engineers and begin to develop observation and communication skills in science.

1. Make purposeful observation of objects in the sky.
2. Generate questions based on their observations.
3. Plan and conduct simple investigations into how patterns can be used to predict future positions of objects in the sky.
4. Manipulate simple tools that aid observation and data collection.
5. Construct simple charts from data and observations of how the position of objects in the sky changes.
6. Work in teams to design a model to explain how we get day and night.

In this unit the activities are geared to build on the inherent knowledge and experience that young students have already acquired and use their knowledge in a wider range of tasks. Students will be given the opportunity to observe, research, reflect upon, describe, and discuss how patterns develop in the position and motion of objects in the sky. Suggestions for activities to do at home are included with this letter. These activities will reinforce the concepts taught during this unit instruction.

May you enjoy quality time with your child while discussing the concepts involved with the *Space Systems: Patterns and Cycles* unit. Let us know if we may be of assistance.

The Outreach Staff

Battle Creek Area Mathematics and Science Center

(269) 213-3904 or (269) 213-3905

ACTIVITIES TO DO AT HOME

1. Make sunrise and sunset observations with your child. Keep a record of the time of day the sun rises and sets. Discuss how the amount of daylight and darkness changes throughout the year.
2. Visit a local planetarium. Check out the program schedule for exhibits that include the moon and constellations.
3. Plan on an evening sky watch to make observations of the moon and stars. Ask your student to find "faces" in the moon or connect the stars to make different shapes and figures. Locate the position of the moon and record its position relative to a landmark. Find the North Star or Big Dipper and record where it is located in the sky. Repeat the evening outing several weeks later and note the difference in the shape of the moon and the position of the stars. Discuss how the position of the moon and stars has changed over time.
4. If you live on a street with street lights that come on at dusk and go off at dawn, keep a log of the time each day the lights come on and go off. Discuss with your child the light sensors that turn the lights on when it is growing dark and turn the lights off when it is getting light. After collecting data for several weeks, ask students if the lights are coming on earlier each evening (fall) or later each evening (spring).

5. Make your own constellation projection device. You will need:

flashlight

paper

sharp pencil or hole punch

note card

Have your student make his/her own constellation or an existing constellation on a note card. Punch out the stars or use a sharp pencil and poke holes where each star is drawn. Shine the flashlight through the holes and project the star clusters on the wall or ceiling. Turn out the lights and pull the blinds closed for a more dramatic effect. Have your student tell a story about the constellation.

6. Go to the library and check out books to read related to light and sound. Example titles:

What Makes Day and Night?, by Franklyn M. Branley

Stories in the Stars, by Allison K. Lim

How the Moon Regained Her Shape, by Janet Ruth Heller

What Do You See in the Moon?, by Lara Winegar

The Moon Seems to Change, by Franklyn M. Branley

Moon, by Melanie Mitchell

So That's How the Moon Changes Shape, by Allan Fowler

Zoo in the Sky: A Book of Animal Constellations, by Jacqueline Mitton

The Moon Book, by Gail Gibbons