What time is it?

Summary

In this activity students use the stars and constellations to tell time.

Group Size

Large Groups

Materials

- *Star Clock*
  Scissors
  Brad fastener

Additional Resources

Media

Beyond The Solar System- Expanding the Universe in the classroom, by Harvard-Smithsonian Center for Astrophysics; ISBN 0-9776402-0-5

Background for Teachers

Students will need to be able to identify stars that are grouped in patterns in the night sky. Students will also understand that these constellations move across the sky in a predictable and measurable way. Relate the changes in the night sky to the movement of Earth.

Intended Learning Outcomes

1. Use science process and thinking skills.
2. Manifest scientific attitudes and interests.
3. Understand science concepts and principles.

Instructional Procedures

Invitation to Learn

Ancient cultures used the stars as a way to determine seasons and time. By looking into the night sky can you determine what season of the year it is? Can you tell what time it is by simply looking at the stars? Why would this information be important? Ancient cultures used the stars to know when to plant their crops and prepare for winter.

Instructional Procedures

Pass out the blackline *Star Clock*.
Cut out the two circles with a pair of scissors.
Cut out the notch on the small circle.
Place the small circle on top of the large circle. Push a large paper fastener to make a center hole through both circles, and spread open the fastener on the back side of the Star Clock.
Find the Big Dipper and the North Star, as shown on the face of your Star Clock.
Face the North Star, as shown on the front of the clock.
Find the current month around the outside circle of the Star Clock. Put your thumb over the current month. Hold your Star Clock so the current month, marked by your thumb, is AT THE TOP.
Holding the large disc firmly with the current date at the top, turn the smaller disc until its stars line up with those in the sky.
Read the time in the window.
If you are on Daylight Savings Time, add one hour.

Extensions

Curriculum Extensions/Adaptations/ Integration

Students can make predictions of why the big dipper moves through the sky the way it does.
Students could work with partners.

Family Connections

Have the students share with their family their new knowledge by demonstrating how the Star Clock works.
Have the students make a poster showing the movement of the constellations.

Assessment Plan

Have the students create a graphic organizer to record their observations.
Have the students demonstrate that they can identify how to locate the North Star by using the Big Dipper as a guide.
Have the students describe their understanding of what forces are at work to make the Star Clock work.

Bibliography

Research Basis

Caine, R.N., & Caine, G. (1994). *Making connections: Teaching and the human brain*. Menlo Park, CA: Addison-Wesley.

Learning from classroom activities with application to real world situations are the lessons students seem to learn from and appreciate the most. Brain research shows the more senses used in instruction, the better learners will be able to remember, retrieve, and connect the information in their memories. "I hear and I forget; I see and I remember; I do and I understand." Students learn best when doing. By incorporating realistic, integrated, or interdisciplinary activities that build on established knowledge and skills and more than one sense, memory pathways become more accessible and cross-referenced for future use. As teachers discover the most effective strategies for better student achievement, they can adapt their lessons accordingly.

Klentschy, Michael (2005).Science notebook essentials. *Science & Children*. 43, 24-27.

When literacy skills are linked to science content, students have a personal and practical motivation to master language as a tool that can help them answer their questions about the world around them. Language becomes the primary avenue that students use to arrive at scientific conclusions.

Authors

Utah LessonPlans