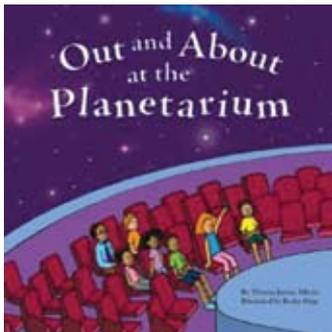


Seeing Stars

By Christine Anne Royce

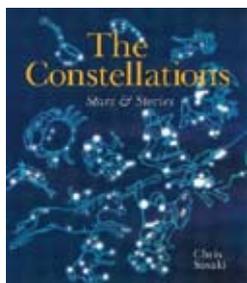
The winter months are a great time to make observations of several familiar constellations. While there's no scientific reason to "know" the constellations—they are simply imaginative pictures imposed on stars—studying constellations can help students connect with culture in a fun way and develop the awareness that stars are different in apparent brightness and color. And, exploring the night sky over a period of weeks can also help students notice the motion of the Sun, Moon, and planets.

This Month's Trade Books



Out and About at the Planetarium
By Theresa Jarosz Alberti.
PictureWindow Books. 2004.
ISBN 1404802991.

Grades K–4
While on a field trip to a planetarium, students are placed in the role of a detective as they search for objects in the sky.



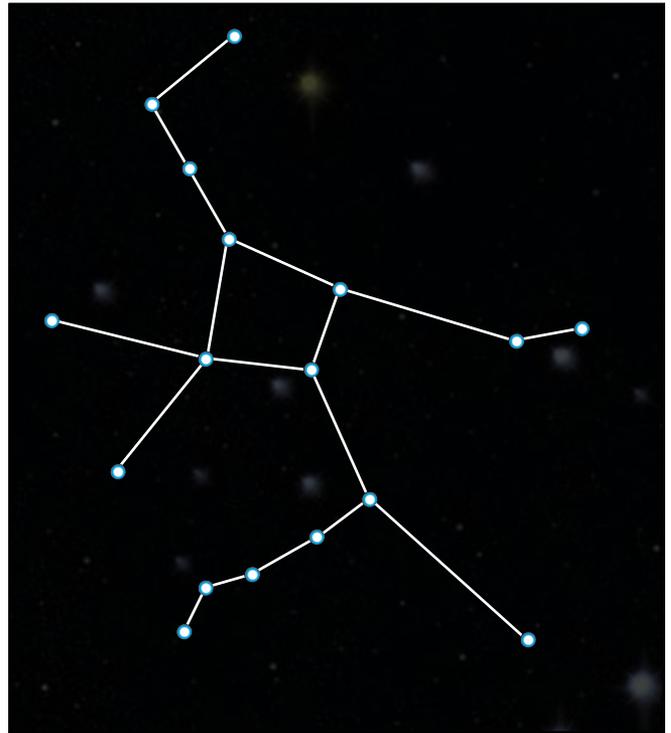
The Constellations: Stars and Stories
By Chris Sasaki.
Sterling Publishing. 2002.
ISBN 0806976357.

Grades 5–8
Narrative descriptions of each constellation are supplemented with star illustrations and an overlaid picture of what the constellation is meant to represent. Another nice feature of this

book is a section of star maps.

Curricular Connections

"Twinkle, twinkle, little star, How I wonder what you are!" This wonder itself demonstrates a child's "powers of observation" as she looks up into the night sky. Having a well developed process skill of observation is important when dealing with astronomy concepts at the elementary level. The Standards state that the appropriate concept for



children at the younger grades is that "Objects in the sky have patterns of movement" (NRC 1996, p. 134), forming a basis for later understanding of the relationships among the Earth, Sun, Moon, and the rest of the solar system. Many classroom activities at this level encourage students to observe objects and materials in their natural environment to build the skill of observation; however, students are naturally interested in "looking up" at what is found in space. The NSES recommendation to observe the sky and observe changes lends itself nicely to observing patterns associated with constellations.

The first activity places children in a comfortable environment while being guided through making "observations" of constellations. As children get older and become more familiar with the idea of patterns, change, and making observations, they can be provided with not only in-class opportunities to discuss constellations but also the opportunity for take-home assignments related to stargazing.

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Grades K–3: Creating Constellations

Purpose:

Using images of constellations, the internet, and a planetarium (if possible), students will make observations about patterns that the stars form.

Materials:

Pictures of constellations, black paper, white chalk

Procedure:

Begin by asking students to listen to *Out and About at the Planetarium*. They should place themselves in the role of “space detective” as the story suggests. As space detectives, they will be looking for or making observations about the stars in the night sky.

The first part of the book focuses on planets, the Sun, the Moon, and the parts of a planetarium. (If your school district or local community has a planetarium, this would be a great time to schedule a visit.) Beginning on page 14 of the book, the story focuses on stars—how some are brighter than others and some form “pictures” in the sky.

Show the students pictures of various constellations via a projector or printouts (one good source is www.fcps.edu/DIS/OHSICS/planet/constell/constell.htm).

At first, point out the different stars for each picture within the overlaid image. Ask the students to observe what part of the picture each star might represent—for example in Orion the Hunter, the three stars in a row represent the belt and the other main stars represent the shoulders and knees. Some constellations will be easier to “see” than others. Ask, “Have you ever observed the night sky or a constellation? If so, which one?” and “Do you think it was easy for ancient people to observe the night sky?”

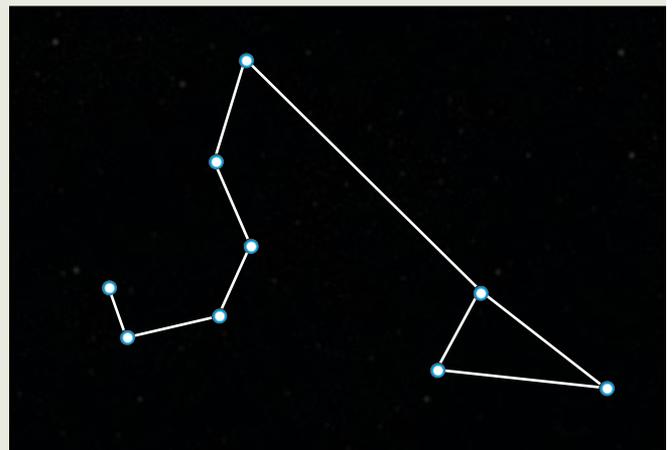
This is a great point to introduce how the constellations obtained their names and perhaps some of the stories behind the constellations, which connects the history of science to this lesson.

After students have had a chance to observe the constellations either in a classroom or in a planetarium, ask the students to generate a list of “things they learned.” Some items may include: constellations are pictures in the sky; different stars make up different constel-

lations; or not all constellations are easy to recognize. The key point to this activity is to have students make observations about what they see and connect those observations to the larger picture.

After students had a chance to observe the “constellations,” ask them to create their own constellation using a piece of black paper and white chalk. The students should think about what they know about constellations—that they have stars at key points in the “picture;” that the stars might be different brightness (which is often represented by size in an illustration);” and that there is usually a story that goes along with the constellation.

Allow each student to design his or her own constellation by drawing it on the paper and lightly drawing the overlaid picture of what it might represent. Students can then either narrate their story using a recorder or write out their story that accompanies the constellation. Constellations can be displayed for your own classroom collection.



Connecting to the Standards

This article relates to the following *National Science Education Standards* (NRC 1996).

Content Standards

Grades K–4

Standard D: Earth and Space Science

- Objects in the sky

Grades 4–6: Stargazing at Home

Purpose:

Older students and their parents have an opportunity to engage in some actual stargazing using starfinder maps.

Materials:

Starfinders that the students will assemble (found at: <http://spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml>)

Procedure:

The Constellations: Stars and Stories is a great book to use as a reference for students. Teachers should select several constellations that they want the students to focus on for this activity. The selection of constellations depends on the location on the Earth, as well as the time of the year. For the northern hemisphere in February, the following constellations would be good choices: Gemini, Orion, Canis Major, Canis Minor, and Cassiopeia.

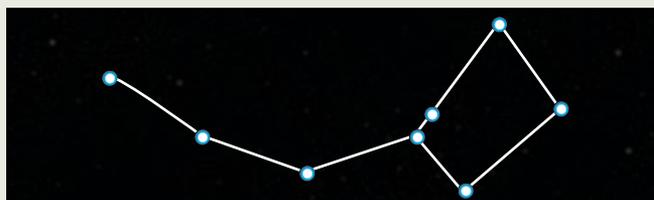
Teachers should engage the students in a conversation about what a constellation is, how to locate them using a starfinder (described in the book), and the fact that different constellations are visible at different points during the year. This can be done while creating the starfinder wheels and modeling their use.



A letter should be sent home explaining that this project will need parental involvement.

Students should be reminded never to venture into dark areas without a parent and to wear reflective clothing. Additionally, a worksheet that allows the students to sketch the constellations they see should be developed. Students can record their observations about the brightness of the stars in each constellation, as well as the position of the constellations at different points in the evening. Students should be encouraged to initially go out at a certain time to allow them to all have similar observations as to the position of the constellation.

One possibility of organizing this activity is to check with local astronomy groups or clubs that often are willing to set up “star parties” for school groups.



Explain to the students that they are going to be making observations of different constellations over the next several weeks and ask them to make some predictions about other things they may observe in the night sky. Some possibilities include clouds, airplanes, a meteor shower, or planets. Each clear night, the student should look at one or more constellations and sketch what they see. Change the time they observe the constellations by 15 minutes each night, thus allowing some change in position due to the rotation of the Earth.

After making observations, students should bring in a drawing of the previous night’s sky each day. After students have had an opportunity to compare the pictures, ask them what they noticed about the position of the constellations each night. Other questions that could be discussed at this point include “Do you think there are different constellations at different points in the year?” or “Why do you think there are different constellations visible in the northern and southern hemisphere?”

Teachers can have students practice finding constellations against a star field by allowing students to use www.kidsastronomy.com/astroskymap/constellation_hunt.htm, a game that challenges students to find different constellations.

Resources

National Research Council (NRC). 1996. *National science education standards*. Washington, DC: National Academy Press.

Internet

Interactive Sky Map

www.kidsastronomy.com/astroskymap/constellations.htm

This interactive sky map allows students to see the outline of different constellations visible in a particular month.