

The Tale of the Bears

Teacher Sheet(s)

Objective: Students will become familiar with the idea of objects being found in the night sky.

Level: K-4

Subjects(s): Social Studies, Space Science

Prep Time: Less than 10 minutes

Duration: 30 minutes

Materials Category: General Classroom

National Education Standards

Science: 5b

Math:

Technology (ISTE):

Technology (ITEA):

NGS Geography Standards: 10a

Materials:

- Foil star stickers (14 for each student)
- Crayons
- Transparency of the student worksheet (optional)

Related Links:

NASA Site used for derivation of Lesson Plan

[StarChild Coloring Page](#)

[StarChild: A Learning Center for Young Astronomers](#)

(This site contains a lot of information and self-guided activities for students.)

Supporting NASAexplores Article(s):

[Can I See The Space Station?](#)

Pre-Lesson Instructions:

None

Background Information:

Although the whole of Ursa Major is difficult to see without very dark skies, the Big Dipper is one of the most recognizable patterns in the northern sky. In other cultures it was identified as a wagon or cart, a plow, a bull's thigh, and (to the Chinese) the government.

Ursa Major, perhaps better than any other group of stars, shows that just about any shape one wants to imagine can be assigned to the constellation—a plow, wagon, coffin, bear, or even a reindeer, as the people of Lapland imagined the constellation. The middle star in the dipper's handle is Mizar, which is actually a double star. Alcor is so close to Mizar that they appear to be one star, but Alcor is not Mizar's companion star. In some ancient armies, these stars were used as an eye test. If you could see two separate stars, your eyesight was good; if not, you had poor eyesight.

Zeus, King of the Gods, fell in love with the beautiful Callisto, a young woman who was a hunter. When Hera, Zeus' wife, heard of what was happening she was furious and set out after Callisto. On finding her, Hera said, "Your beauty, of which my husband speaks so tenderly, is no more!" Where upon Hera changes Callisto into a bear. Hera left Callisto with her human feelings rather than those of a bear. Callisto roamed the forest day and night in constant fear of the hunters and in fear of other wild beasts, although she was now one.

One day, Callisto found herself face to face with a young and handsome hunter and suddenly recognized him as her son, Arcas. She raised up on her hind legs to embrace her son. Thinking that the bear was about to attack him, Arcas raised his spear and was about to hurl it and kill his mother. Zeus happened to be looking down on the scene from his position on Mt. Olympus and instantly turned Arcas into a bear also. Zeus then grasped each bear by its tail and tugged and tugged until he had managed to lift both high into the sky, Callisto as Ursa Major and her son Arcas as Ursa Minor. This tugging of tails over such a long journey through the sky, stretched both tails and explains why our celestial bears, unlike Earthly ones, have long tails. The tail of Arcas became even longer since he was continuously swung around the sky by the end-star in his tail, Polaris.

On discovering that her husband had given Callisto and Arcas honored places in heaven, Hera was furious. She went down to Earth to visit her friend the ocean god, Poseidon. "How dare Zeus give these two an honored place in heaven?" Hera fumed. "They have now displaced me, Queen of Heaven, from my place in the sky. I ask you forever keep these two penned so that they may never wander far."

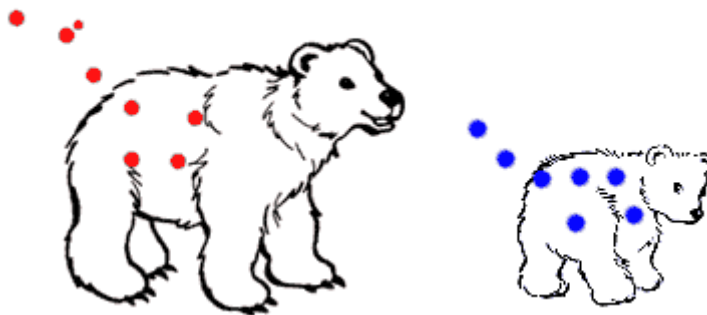
Poseidon was sympathetic and promised that he would grant Hera her wish. He would see to it that "the couple never would be permitted to enter our water in their wandering." In other words, that the bears forever would be forbidden to set below the horizon of the sea as other constellations do. To

this day both the Lesser Bear and the Greater Bear are held high in the sky near the Pole Star, never permitted to sink beneath the sea horizon.

The North American Indians also chose bears for these two constellations. They called them Okuri and Paukunawa, both meaning "bear." This was before any contact with Europeans. According to some Native American legends, the bowl of the Big Dipper is a giant bear and the stars of the handle are three warriors chasing it. The constellation is low in the sky in autumn evening sky, so it was said that the hunters had injured the bear and its blood caused the trees to change color to red. Another legend explains that the bear's tail is stretched out because a famous warrior grabbed it and used it to swing the bear around and throw it into the sky.

Guidelines:

1. Read the article "Can I See The Space Station From My Backyard?"
2. Hand out the Student Sheets. Let them color the picture and circle the objects that are found above the clouds.
3. Ask them if they knew that there was a bear in the sky. Relate to them the story of the great bear (Ursa Major).
4. Tell them that the bear also contains another common constellation, the Big Dipper. The handle of the dipper forms the tail of the big bear.
5. Show them the overhead or make a guide for them to follow for positioning the stars. Let them place the stars in the correct position and connect the stars to form the big dipper (and put the long tail back on the bear).



6. Do the same with the Little Bear (Ursa Minor). The little bear contains the little dipper, with the North Star forming the very end of the handle.

Discussion/Wrap-up:

None

Extensions:

- Research other constellations and their related mythology.

[Go to the Student Sheet](#)



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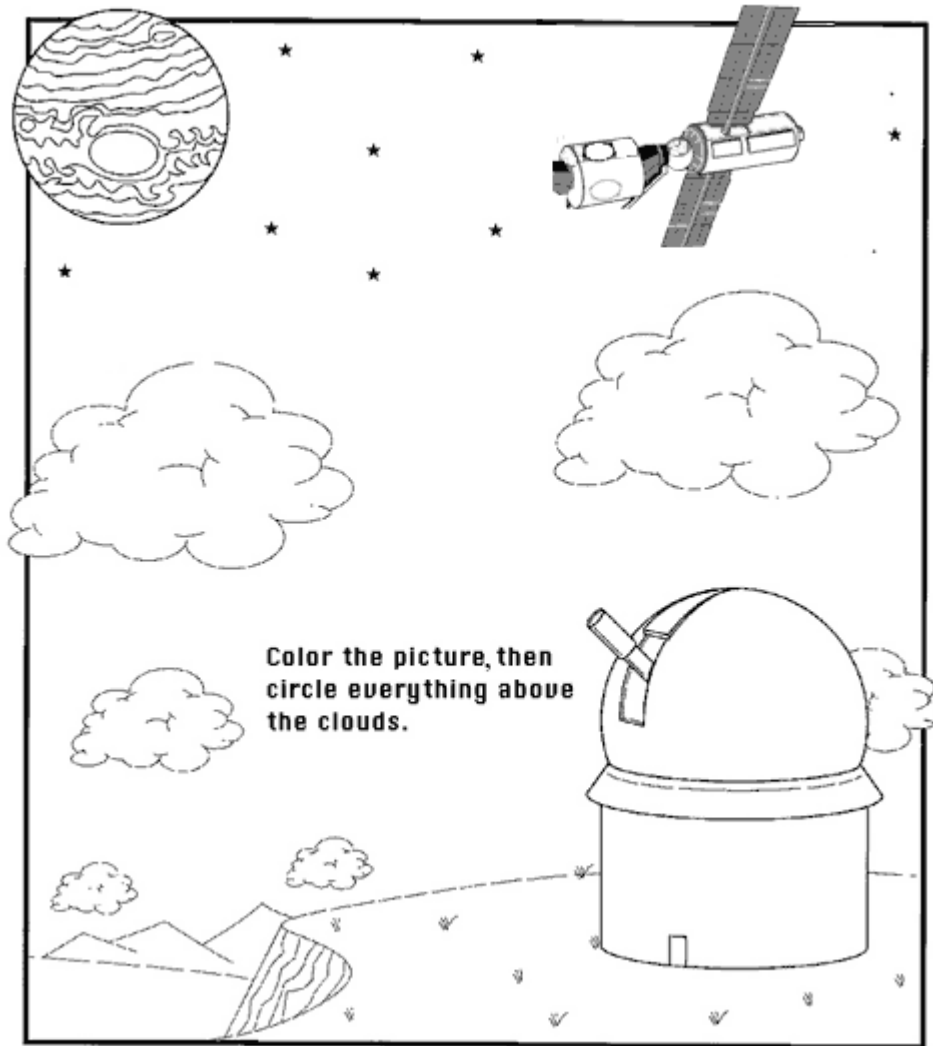
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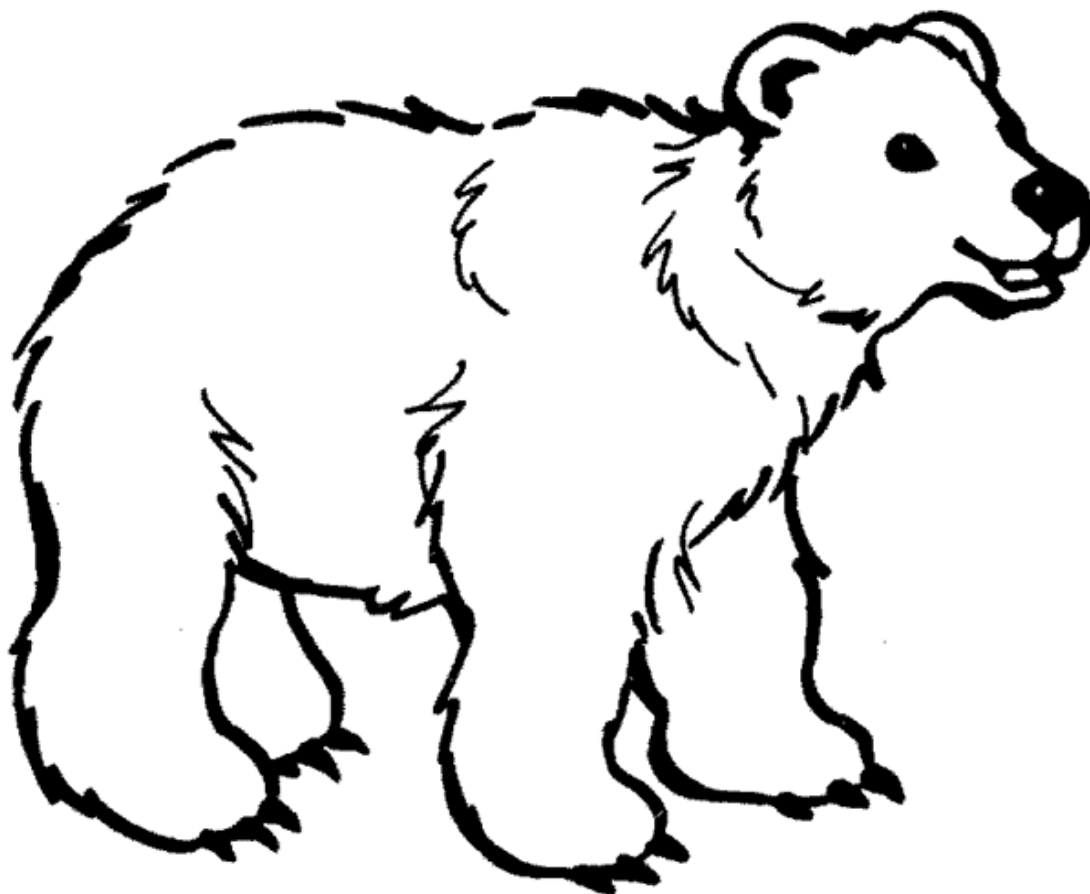


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