

SECOND GRADE SEPTEMBER STARS AND CONSELLATIONS

TOTAL TIME: 45 Minutes (15 minutes per station)

STATION 1: THE SUN

STATION 2: WHERE IS THE NORTH STAR?

STATION 3: CONSTELLATIONS

MATERIALS

Station 1: The Sun

- One copy of the booklet "Our Sun" per child.
- Stapler (supplied by teacher).
- Crayons (supplied by teacher).
- Scissors (supplied by teacher).

Station 2: Where is the North Star?

- One sheet of construction paper with an "X" marked in the middle per child.
- One copy of "Where is the North Star" sheet per child.
- One paper fastener per child.
- One pair of scissors per child (supplied by teacher).
- Crayons (supplied by teacher).

Station 3: Constellations

- 8 Constellation tubes.
- One copy of "Try to Draw a Constellation or Make Your Own Constellation" per child.
- One copy of "Constellations" transparency per child (10 copies included).
- 6 transparency puzzle pieces per child (10 sets included).
- Pencils (supplied by teacher).

Station 1: The Sun

Materials: One copy of the booklet "Our Sun" per child, stapler, crayons.

Activity:

1. Have the children cut the booklet and staple together.
2. Read the booklet to the children. Ask the children to follow along with you.
3. Ask the following questions:
 - **Is our Sun a Star?** *Yes, the Sun is a star. It is the star we know best because we see it almost every day. The sun is much bigger than the Earth. It looks small because it is so far away (93 million miles away!). The sun is the closest star to the Earth and it is the center of the solar system.*
 - **If our Sun is a star, why can we see it during the day?** *Our Sun makes so much light, it hides the other stars in the daytime. At night, when the sun is not in our part of the sky, we can see the other stars.*
 - **Could people live on the Sun?** *No. The sun is made out of gas, mostly hydrogen gas. This gas is compressed into a ball. All of this gas causes a large amount of heat energy to be released and it also makes the sun shine. The scientific name for this process is "thermonuclear fusion." The sun is 27 million degrees Fahrenheit. The sun is not a ball of fire, but it is hot like fire.*
 - **Why does the sun seem to be moving?** *Actually, the sun does not move but the Earth moves around the Sun. It takes a full year for the earth to move one time around the sun and that's why we get a change in the seasons. While it rotates around the sun, it also spins one time each 24 hours (or each day) and that's why the sun seems to come up in the morning and go down at night.*
 - **Can you make electricity from the heat of the Sun?** *Yes! Did you know that the heat of the sun is called Solar Energy. It is used to produce steam which can then be turned into electricity. Very cool!*

- **How bright is the Sun?** *Our sun is really, really, really bright! It is measured in watts... 380 followed by 24 zeros! That is even brighter than all of the lightbulbs on earth put together! The whole reason the sun is so bright is because it is so hot.*
- **Why shouldn't we look directly at the Sun?** *The Sun is very bright and by focusing the light onto the back of your eye (the retina), you are putting a lot of energy (both optical light and infra-red) into a tiny area. At some point in your life you may have tried to set a paper on fire using a magnifying glass, so just think about that being done to the back of your eye! Even scarier is that the retina of your eye does not have pain receptors, so you will not even feel the damage being done. It may not become apparent until later in your life. That's why you should never look directly at the sun and why wearing sunglasses is a good idea.*
- **Why do we need the Sun?** *(1) Plants need light to grow, (2) people and animals need plants for their food, and (3) without the heat from the sun, the Earth would be too cold for people, plants, and animals to live.*

4. Have the children color the booklet with crayons.

Station 2: Where is the North Star?

Materials: One sheet of construction paper with an "X" marked in the middle per child, one copy of "Where is the North Star" sheet per child, one paper fastener per child, scissors and crayons (supplied by teacher).

Activity:

1. Explain that long ago sailors and other travelers looked for the North Star in the sky to guide them.
2. Explain that the two stars that make the front of the Big Dipper are called Pointers. If you follow a straight line out from the Pointers, you will come to the North Star.



3. Have the children color the North Star and the stars in the Big Dipper.
4. Have the children cut out the North Star and the circle.
5. Push the paper fastener through the North Star, the small circle in the center of the wheel, and the middle of the "X" on the construction paper.
6. Turn the circle and watch the Big Dipper constellation move around the North Star.
7. Explain that the Big Dipper changes position in the sky, but the North Star is always in the same place. Therefore, throughout the year the Big Dipper maintains its shape but it appears different in the sky depending on the season.

Station 3: The Constellations

Materials: 8 Constellation tubes, one copy of "Try to Draw a Constellation or Make Your Own Constellation" per child, one copy of "Constellations" transparency per child, 8 transparency puzzle pieces per child, pencils (supplied by teacher).

Activity:

Explain that long ago when ancient people looked at the night sky, they noticed groups of stars that formed images of animals, gods, and heroes. These groups of stars are called constellations.

There are 88 constellations recorded in history. Today we're going to look at 6 of the constellations: The Fish (Pisces), The Hunter (Orion), The Winged Horse (Pegasus), The Lion (Leo), The Swan (Cygnus), The Great Bear (Ursa Major). We also are going to take a close look at the Big Dipper (which is part of the Great Bear) and Orion (which is part of the Hunter).

For fun, ancient people named these constellations and started to tell stories about them. For example, Orion was a hunter who was killed by a giant scorpion. He was placed in the sky but was still chased by the scorpion, which is found in a constellation (Scorpio) on the other side of the sky. When Orion is visible, the scorpion is below the horizon. When the scorpion rises, Orion sets, so that they are never visible at the same time.

1. Let the students observe the constellations in the Constellation tubes.
2. Give each student a constellation puzzle (consisting of one transparency paper and 6 puzzle pieces per child - 10 puzzles in all are included in the box) and let them try to find the shapes that match the stars.
3. Give each student a paper "geoboard" (see enclosed master). Have the students trace the pattern the Big Dipper stars onto the geoboards in the correct geometric relationship. The goal is to be able to identify the Big Dipper in the night sky.

