



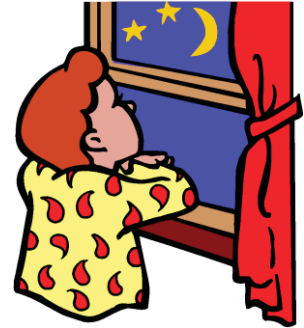
Civil Air Patrol's ACE Program

Do You See What I See? Grade 1 Academic Lesson #9

Topic: stars, night sky, myths (science, language arts)

Lesson Reference: "Star Pictures" from *Earth Science Activities for the Elementary Classroom* (KSAM) ©1995 by Curriculum Associates, LLC

Length of Lesson: 45 minutes

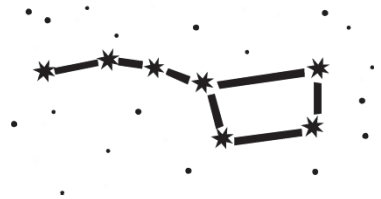


Objectives:

- Students will identify star patterns in the night sky.
- Students will find star patterns given a cluster of stars.
- Students will define constellation.
- Students will understand that stars are different colors, not just white, due to their temperature.
- Students will associate constellations with stories, specifically the Big Dipper.

Next Generation Science Standards:

- Scientists use different ways to study the world. (1-PS4-1)
- Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2)



CCSS ELA:

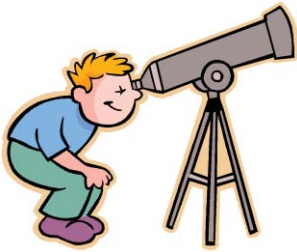
- RI 1.3 - Describe the connection between two individuals, events, ideas, or pieces of information in a text.
- RI 1.6 - Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

Background Information: (from *Earth Science Activities for the Elementary Classroom's* "Star Pictures" lesson - Reproduced here by permission of the publisher.)

The night sky has changed very little throughout human history. Although both the Earth and the stars are in motion, the stars appear fixed and unchanging to us because they are so distant from earth. Early astronomers looked at stars and grouped them into patterns called constellations. Due to the tremendous number of stars, not all stars are included in constellations. Do not be surprised if some constellations appear differently on different star charts. This is due to interpretation. The names of constellations were based on familiar animals, objects, or mythical figures. Though it must have taken

a great deal of imagination for the originators to see the various figures, shapes, and characters among the stars, many (if not most), constellations do not look a great deal like what they are supposed to represent. As a consequence, a number of the more famous constellations have taken on secondary or informal names that seem to more accurately describe the star patterns. For example, this activity includes the group of stars known as the Big Dipper. The Big Dipper is actually part of Ursa Major which means "the Great Bear."

Background building video - ["Constellations: Connect the Dots in the Sky!"](#)



Materials:

- chalkboard/dry erase board and chalk/dry erase markers
- pencil
- crayons or at least 17 star stickers (or 1 star sticker sheet) for each student
- front and back copies of Cassiopeia/Cepheus and Big Dipper star pictures worksheet (one per student or pair of students)
- "Mystery Constellation" pages (one per student or pair of students)
- (optional) computer with Internet and projection system
- (optional) [Constellation PowerPoint presentation](#)

NOTE: This lesson is easy to modify to fit available time and resources. Consider implementing the Constellation PowerPoint presentation listed in the "materials" section above. Also, consider replacing or adding to step #9 in the lesson presentation with an "enrichment/extension" activity.

Lesson Presentation: (from CAP)

1. Ask students if they have gazed at the clouds and noticed the way the clouds were arranged in the sky made the clouds look like a picture of something. Ask volunteers to share examples of "cloud pictures" they have seen in the sky.
2. Ask students if they have ever done the same thing with the stars at night. Have they ever looked at the stars and thought about how the arrangement of stars could make a picture? Allow some volunteers to share their stargazing experiences.
3. Draw some stars on the board. Ask students to look at it for a minute and see if they can imagine a star picture. Ask volunteers to share any picture they may see, similar to the cloud activity. Tell the students that you see a star picture and demonstrate how you can connect the stars and make the picture visible to class. Explain to the students that your

star picture may not have been what they imagined. Although everyone was looking at the same group of stars, people may have seen different star pictures.

4. Tell students that a certain group of stars used to indicate a picture is known as a constellation. Have students repeat the word "constellation." Explain that there are many stars in the sky. Throughout time, people have looked at the stars and created constellations. Like stories that continued to be passed along, people shared their star pictures and stories about constellations. Many of the drawings and stories became famous and are still used today to identify star patterns in the sky. Tell students that they will identify some real constellations today.
5. Distribute the Cassiopeia and Cepheus star sheets.
6. Instruct students to look at the first large square filled with stars. Ask students if they can imagine a picture by connecting some of the stars. Confirm that you could make a letter that looks like a "w" as indicated in the small square on the left side of the page. Ask students to connect the correct stars in the large square in order to make the same "w" picture as shown on the left side of the page. Tell students that the "w" is actually part of a constellation called Cassiopeia.

Ask students to look at the large #2 star box named "Cepheus." Ask students if they can imagine making a picture by connecting some of the stars. Confirm that you could make a picture that looks like a house by connecting five of the stars as indicated in the small square on the left side of the page. Ask students to connect the correct stars in the large square in order to make the same house picture as shown in the small square on the left side of the page. Tell students that this "house" is actually part of a constellation called Cepheus.

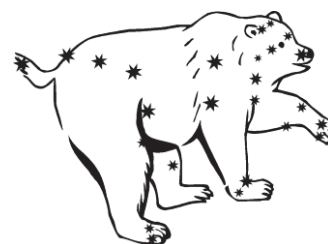
Congratulate students on finding and drawing two real star pictures that can be seen in the night sky. The constellations Cassiopeia and Cepheus can be seen all throughout the year, but they will not be seen at the same time in the same location every month because the Earth is spinning and moving around the Sun. In the fall, particularly in November, look for these constellations to be almost directly overhead between 7:00 and 8:00 at night.

7. Ask students what colors stars are. Explain to students that stars actually come in a variety of colors! What determines what color they are? Their temperature determines their color. Stars are huge burning balls of gas, and they are extremely hot and give off lots of heat! The coolest stars are actually red, hotter stars are yellow, even hotter stars are white, and the hottest stars are blue! Sometimes, stars that appear white in our sky would actually look red if we could get close enough to them. They are very far away! The reason many stars appear white to us is because of the way our eyes work. There is a special part in our eyes whose special job is to detect color. If a light appears dim because it is so far away, that special part of our eyes doesn't "turn on." So, we may see a star that looks white, but could actually be another color.

Tell the students that if they are in a very dark area at night, if they look very closely, they can see some blue and red stars. Tell students that there is one bright yellow star that they see during the day - the Sun!

8. Allow students to either use crayons or star stickers to color the stars that are part of the "w" and the "house" to emphasize these stars that help make the constellations of Cassiopeia and Cepheus.
9. Ask students if they have heard of a constellation named the Big Dipper. Ask students to turn their paper over and connect the stars to form the Big Dipper as shown in the small example to the left. Have students use their crayons or star stickers to color the stars that make up the Big Dipper.

10. Share the following simple, child-friendly, story of the Big Dipper, which is part of the constellation known as Ursa Major, better known as The Great Bear. Tell students that people who imagined star pictures liked to tell stories about the pictures. Tell students that the Big Dipper is part of a constellation that is actually called The Great Bear. The Big Dipper makes up part of the body and tail of the bear.



One time a long time ago, there was a mother named Callisto who had a son named Arcturus. One day while Callisto was out hunting, she magically got turned into a big bear! Her son, Arcturus was a great hunter. When his mother had not returned home, he went to look for her. To his surprise, he came upon a bear. Not knowing it was his mother, he had drawn back his bow and arrow and was about to shoot the bear. All of a sudden, Arcturus was turned into a little bear, and both of them were sent to live in the sky. The son is also part of a constellation known as The Little Bear, and it has a little dipper as part of the picture. We usually call the constellation, "The Little Dipper," just like we associate The Great Bear with the "Big Dipper."

Remind students that stories that are not written but told over and over by different people can get told differently each time a different person tells the story. There are different versions of the stories about constellations, so they should not be surprised if they hear a story about a constellation that sounds different than one they have read or heard.

11. Provide students with the "Mystery Constellation" page. Instruct them to use a pencil to connect the stars to make their own star picture. Then, they should give it a name. On the back of the paper, they may tell a story about how it became a picture in the sky. (If using star stickers and/or neon-colored pens or markers, students may use those after they have drawn their constellation using their pencil.)

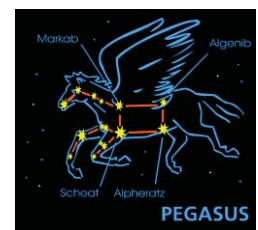
Summarization:

Ask students to share what they learned today. Allow students to share their star pictures (constellations) and stories. Ask them to go home tonight and take special notice of the stars and the constellations they may see in the night sky. It might be helpful to send the students back to their science journals and ask them to write the answer to the question: **"What star patterns can you see in our night sky?" Explain.** Possible answers include, "The stars are in constellations. Constellations are groups of stars that are arranged in pictures in the night sky."

Character Connection: Tell students that, like stars in the sky, they are part of a beautiful picture that makes up their family and class. Encourage students to make good choices and be a good example for others so that their lives will shine like a bright star in the sky.

Assessment:

- teachers observation and answers to class discussion questions
- completed constellation pages

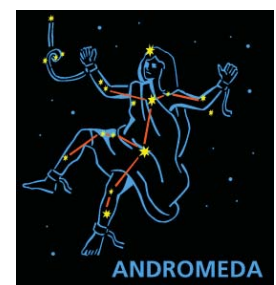


Additional activity ideas to enrich and extend the primary lesson (optional):

- Provide students with a black sheet of construction paper and either white sticky circles or different colored sticky stars. Allow them to create replicas of actual constellations or create their own unique constellations. Consider adding glow-in-the-dark paint to white adhesive circles used to make constellations.
- Allow students to complete the "Draco" worksheet.
- Have students complete the [easy constellation worksheet](#).
- Tell students the story of Cassiopeia and Cepheus.

Cassiopeia was a queen. Her husband Cepheus was a king. They had a daughter named Andromeda. Cassiopeia thought both she and her daughter were very beautiful. In fact, she didn't only think this, but she would say out loud that she and her daughter were more beautiful than anyone! She bragged about how beautiful they were!

Some members of the sea world heard her bragging, and they thought it was very rude. They told the god of the sea, Poseidon, who got very angry and decided to destroy the country that her



husband, Cepheus, ruled. Cepheus found out about this and wanted to know what could be done to save his country. He was told that the only way to save the people in the country was for his daughter, Andromeda, to be attacked by a sea monster. In order to save his country and all of the other people, the king sorrowfully agreed to this. So, Andromeda was chained to a cliff by the sea, but before the monster attacked, a hero named Perseus came riding on a winged horse named Pegasus and saved her!

Eventually, they all became constellations. Parts of the stars in Cassiopeia's constellation make the chair in which she sits. Half of the year, she sits upright in her chair. The other half of the year, she is upside down and has to hold on to stay in her chair. This was part of her punishment for bragging about her beauty.

- Make a nail-sized hole in the bottom of a Styrofoam cup. Trace the open end of the Styrofoam cup onto black construction paper. Make several circles this size. Using the constellation patterns provided in the Inventors of Tomorrow activity guide. Place them onto the black construction paper circles. Use a toothpick to push through the stars on the constellation pattern. Make sure the toothpick hole goes through the black construction paper as well. Tape the black construction circle with the star holes onto the open end of the Styrofoam cup. Look through the peep hole on the other end of the cup to see the constellation.

Alternate idea: Use paper towel tubes. Turn off all of the lights and shine a flashlight through the open end of the paper towel tube. The constellation should appear on the wall.

- Use the "Star Puzzle" page. (included at the end of this lesson plan)

Associated Websites:

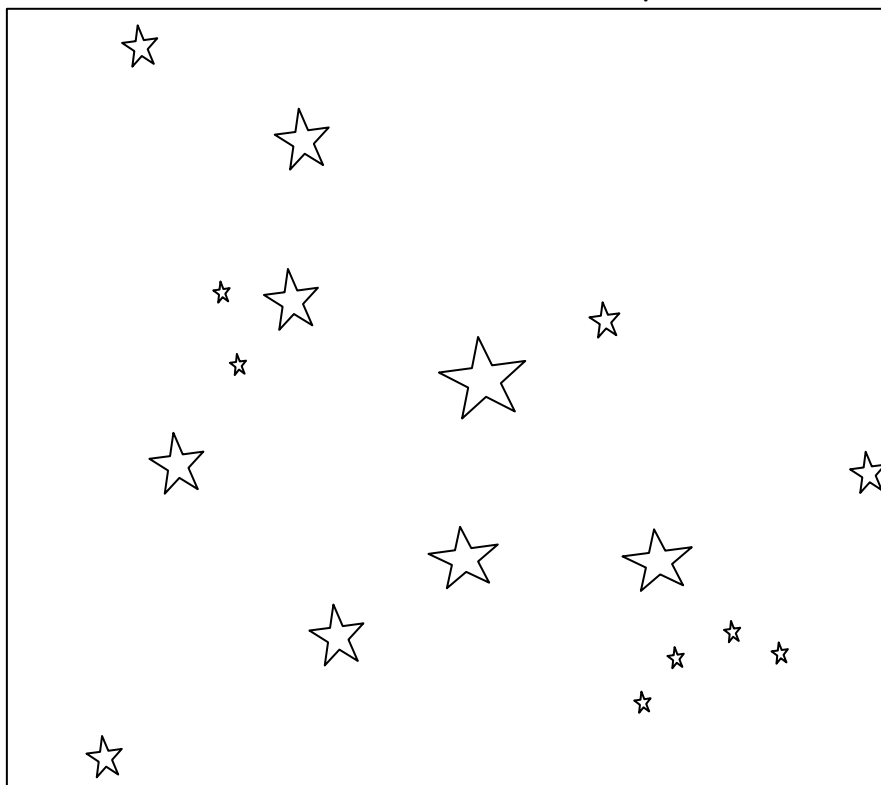
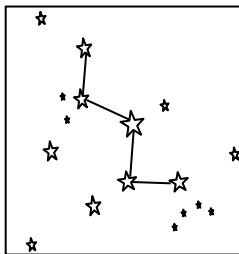
- Read other constellation stories at:
[The Mythology of the Constellations](#)
[Cepheus](#)
[Star Art - An Introduction to Myths of Different Cultures](#)
- Information about the movement of stars:
[SpacePlace: Constellations and the Calendar](#)
- Information about the colors of stars:
[Bad Astronomy: All Stars Are White](#)



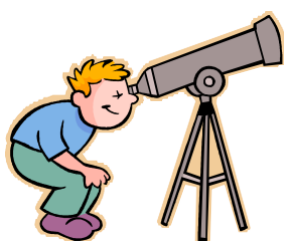
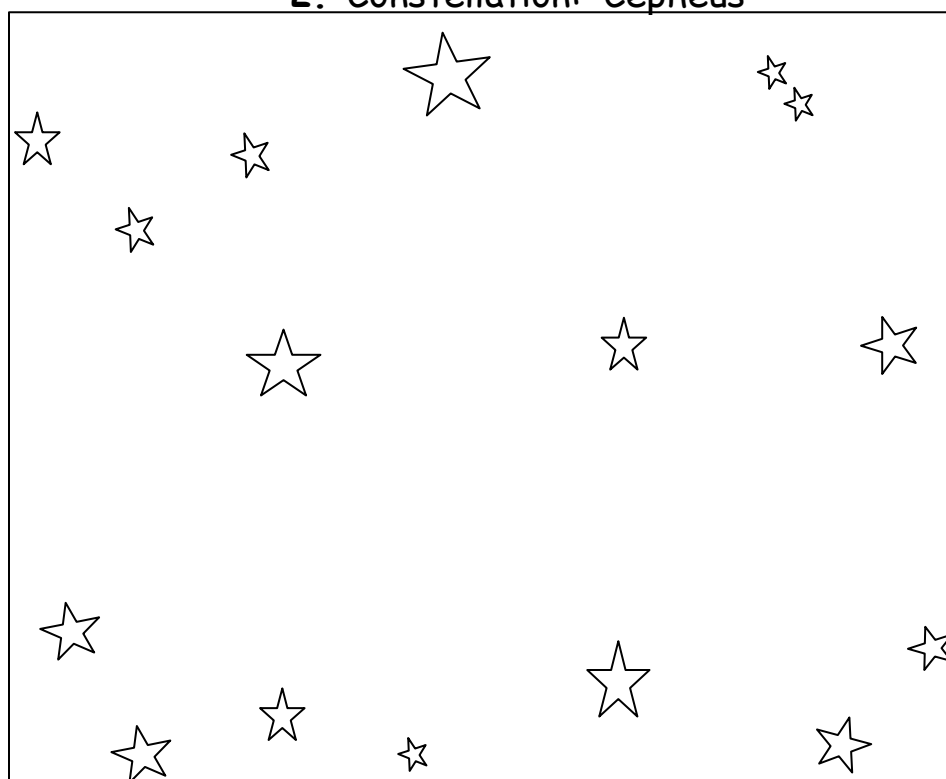
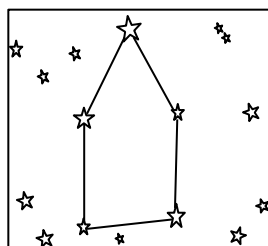
NAME _____



1. Constellation: Cassiopeia



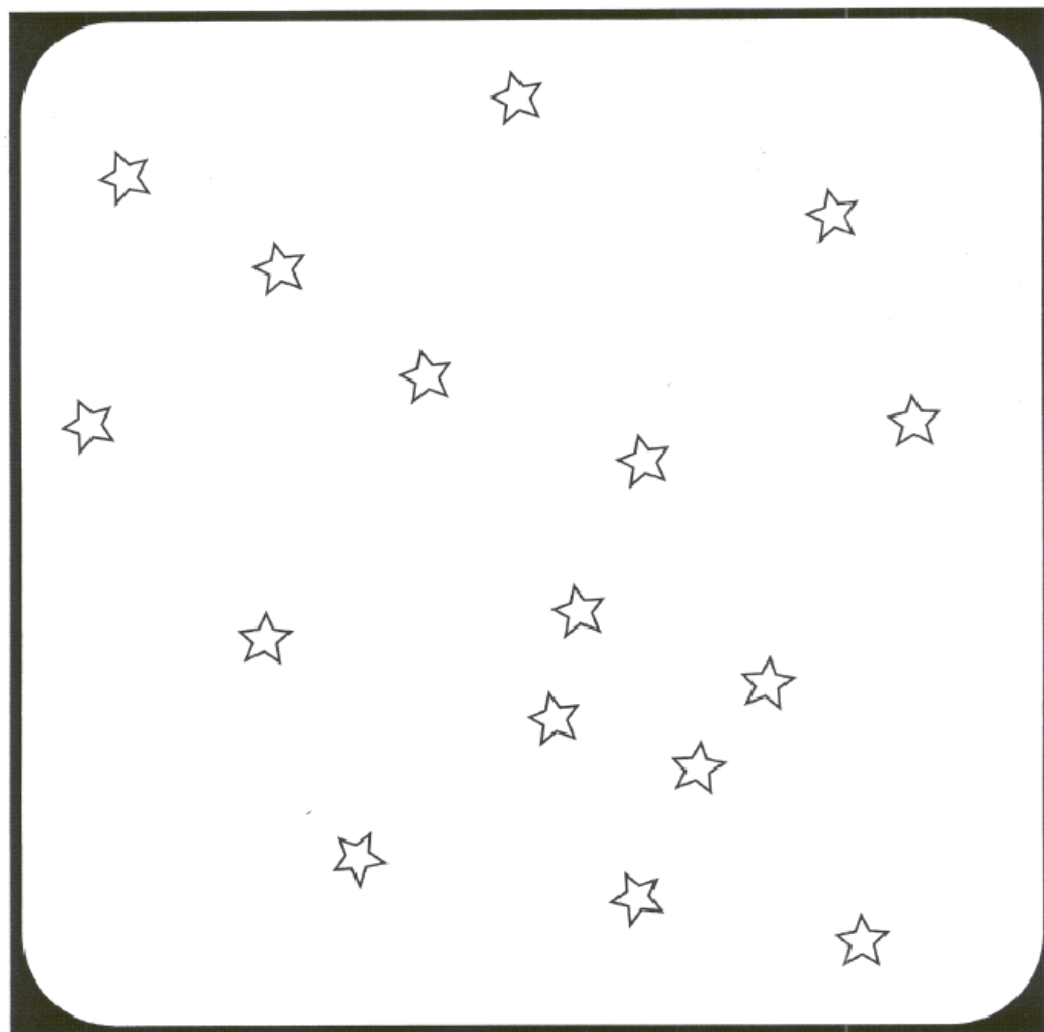
2. Constellation: Cepheus



STAR PICTURES _____

BIG DIPPER

Name _____

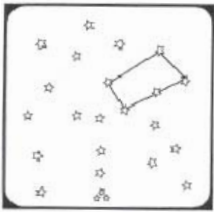


STAR PICTURES _____

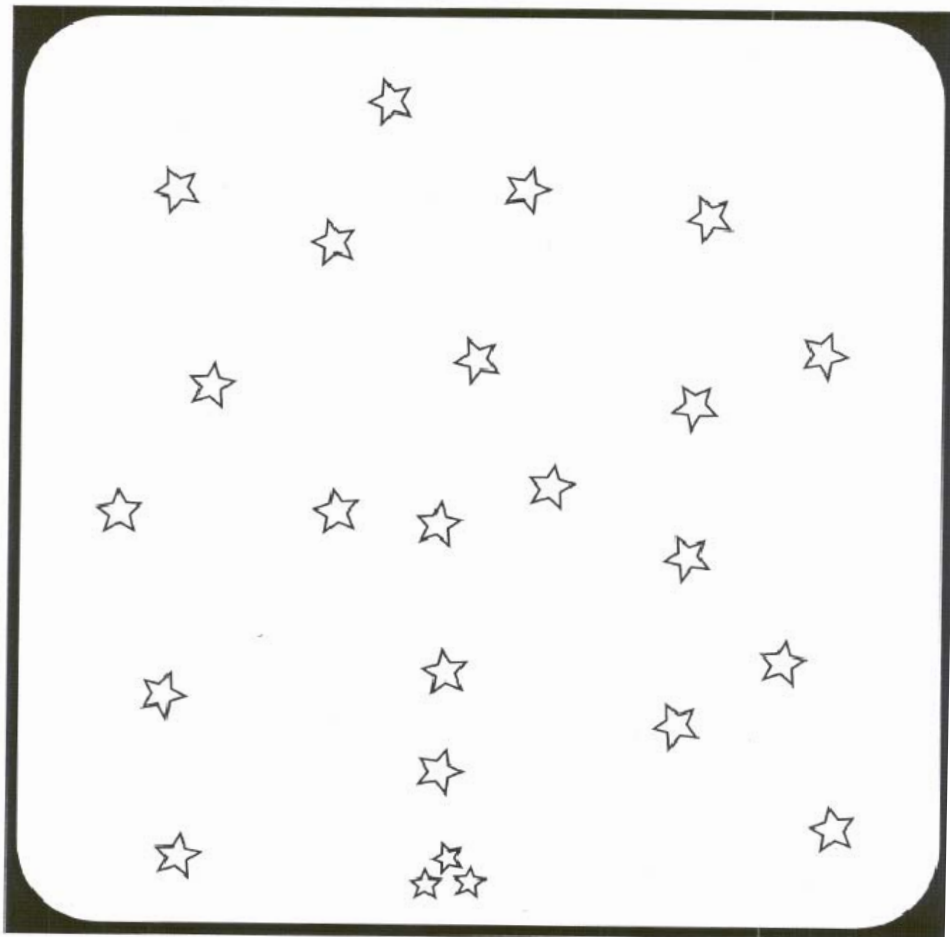
MYSTERY CONSTELLATION

Name _____

Figure name or description: _____



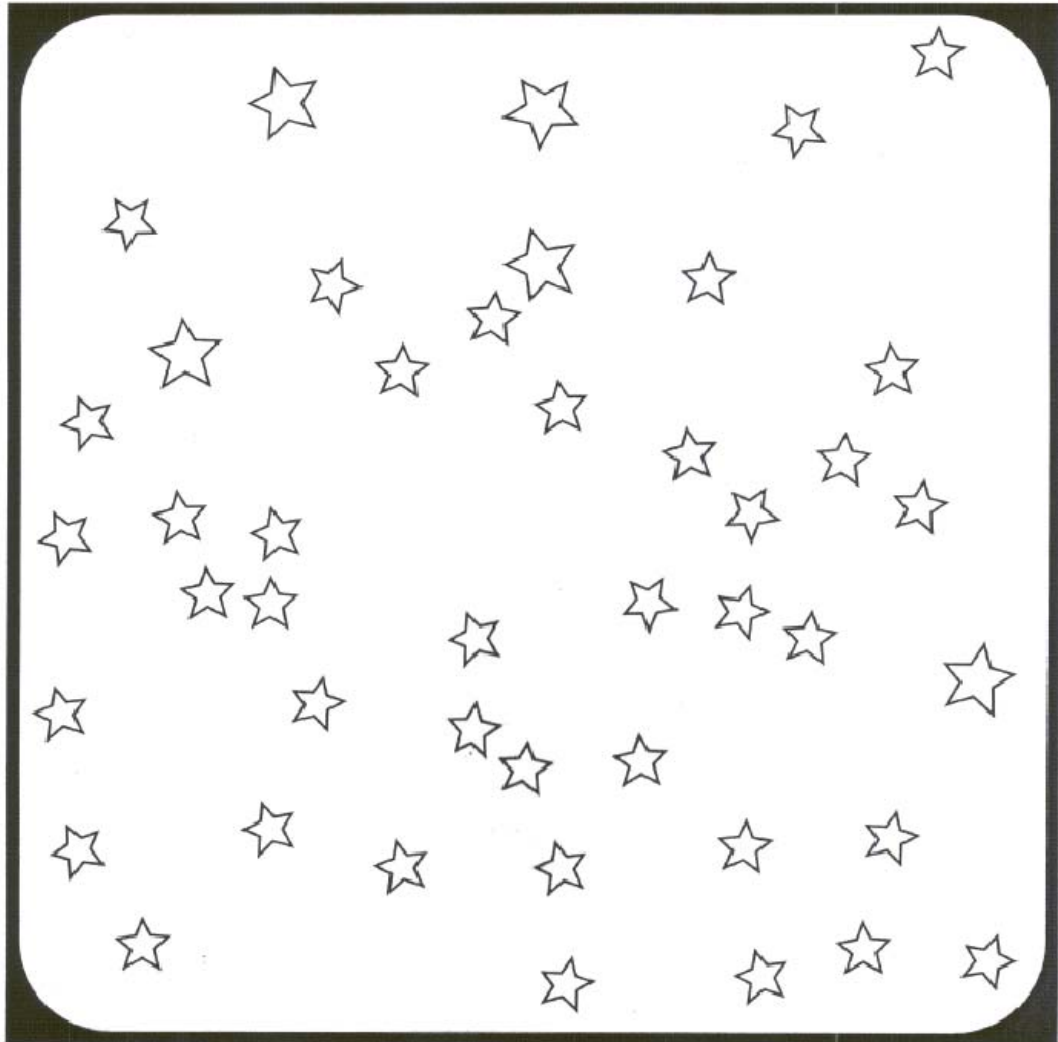
Example



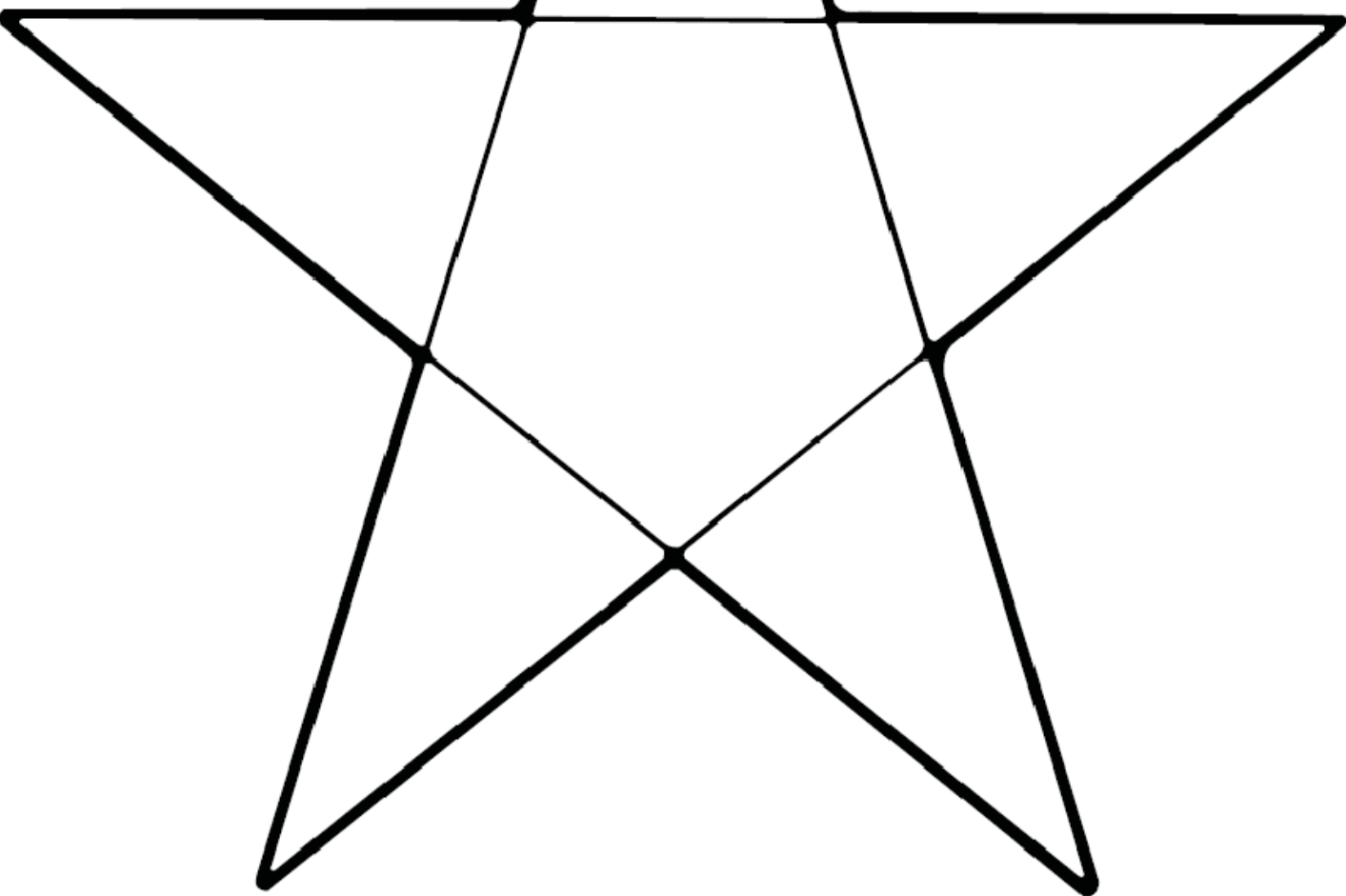
STAR PICTURES _____

DRACO

Name _____



Star Puzzle



Make several copies of this star pattern on index or construction paper. Write your own math problems on each star point, as shown. Write the answers on the center of the star. Cut off all five points of the star and place the star pieces in an envelope. Have the individual students take the envelope to his or her desk and assemble the star, answering the problems correctly. This is a great way to practice multiplication facts.

Create a starry bulletin board by asking the children to pin the completed star puzzles to the classroom board. Add a rocket ship or astronaut character to the board.

Possible use of Star Puzzle: Write the answers to math problems along the inside lines that form the pentagon inside the star. Write associated math problems in the triangles that form the star. Have students cut out the pentagon and triangles. On a piece of construction paper, have students glue the star together in such a way that triangles with the math problems match the answers listed within the pentagon shape of the triangle. You may choose to do the opposite by writing the math problems along the inside of the lines that make up the pentagon shape of the star, and have the answers on the triangle portions that make up the star.

Example:

