LESSON 6:
GEO-BOARD CONSTELLATIONS

SUPPLIES

LESSON KIT #6
- Star Stickers (200)
- Dot Stickers (200)
- String (1 roll)

HANDOUTS FOLDER
- Constellation Template #1 (20)
- Constellation Template #2 (20)
- Tracing Paper (40)
- Paper (20)

PENCIL BOX
- Markers
- Rulers
- Scissors
- Clear Tape

OBJECTIVES
- ☑ Understand what constellations are and how they have been used throughout history.
- ☑ Identify and recreate 8 different constellations using star stickers and string.

HOOK
3-5 min

Ask students to imagine they are outside on a clear night with no streetlights, looking up at thousands of stars. Then ask, "If you connected some of those stars with imaginary lines, what shape or picture do you think you could make?" Allow a few students to share their ideas. Explain that for thousands of years, people have connected stars to create constellations, using them to navigate, mark the seasons, and tell stories. Today, students will create some of these famous star patterns!

INTRODUCTION
3-5 min

Have you ever looked up at the night sky and noticed patterns of stars? Some stars seem to form pictures of animals, people, or familiar objects! These patterns have fascinated people for thousands of years and have inspired wonderful stories passed down through generations.

But did you know that these patterns have a special name? They are called constellations! Today, we'll explore what constellations are, discover some famous examples, and learn how they help people study and understand the night sky.

LET'S LEARN ABOUT CONSTELLATIONS

A constellation is a region of the sky where stars appear to form shapes or pictures. Throughout history, people have imagined patterns of animals, people, and mythical creatures, creating stories about them. Famous constellations include Ursa Major (the Great Bear), Cygnus (the Swan), Draco (the Dragon), and Orion (the Hunter). Constellations have helped people navigate, track seasons, and tell stories. Today, astronomers use them to locate stars, planets, and distant galaxies. Although stars may appear close together, they are often far apart in space.

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GEO-BOARD CONSTELLATIONS

PRE-ACTIVITY

3-5 min

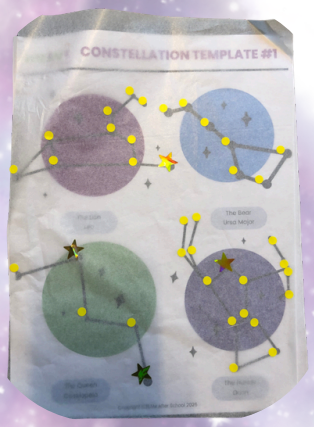
Throughout history, people have used constellations for navigation, to mark the seasons, and to tell stories that were passed down through generations. Before maps and GPS, travelers used the stars to find their way, and many cultures used constellations as calendars to know when to plant or harvest crops. Although everyone sees the same stars, different cultures often imagined different shapes and stories from the same star patterns.

Ask students, "Do you think everyone sees the same picture when they look at the stars? Why or why not?" Then, show Constellation Template #1, asking students to first guess what figure the stars create before revealing the illustration on Constellation Template #2 and reading the constellation information on all four Constellation sections at the end of the lesson.

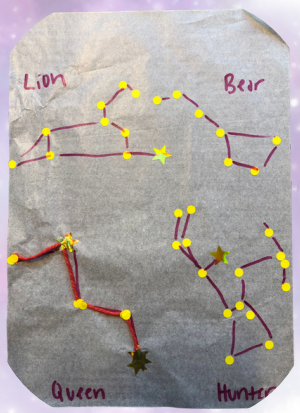
ACTIVITY DIRECTIONS:

30-40 min

1. Preparing the Materials
   - Give each student 1 sheet of tracing paper, string, star and dot stickers, and one of each constellation handout. Students should also have access to scissors, tape, and markers.
2. Aligning the Template:
   - Students will place one sheet of tracing paper on top of a constellation handout, making sure the tracing paper is lined up so all four constellations are visible. Of the two handouts, students will select 4 total constellations to recreate. Cut and align as needed.



3. Placing the Stars:
   - Students will recreate each constellation by placing a star or dot sticker directly over every star shown on the handout.
4. Creating the Constellations:
   - Students will cut pieces of string to match the lines connecting the stars in each constellation. They can either place the string underneath the edge of each sticker or secure the string on top using a small piece of tape. Students will repeat this process for four total constellations between the two handouts.



5. Adding the Constellation Artwork
   - Students can use markers to color in the surrounding constellation illustrations. Remind students to use short, thin marker strokes and allow the marker to dry for about 10 minutes before handling the tracing paper to prevent smudging. Allow students to label each constellation and discuss it's shape.
6. Challenge:
   - For older or more advanced students, have them recreate the constellations without placing the tracing paper over the handout. Instead, students should look at the handout and recreate each constellation from observation, placing the star stickers and string as accurately as possible.

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GEO-BOARD CONSTELLATIONS

ACTIVITY DIRECTIONS (CONT.):

Creating Your Own Constellation

1. Brainstorm Ideas:
   - Ask students to think of an animal, person, or object they want to turn into a constellation. Encourage creativity and originality.
2. Draw the Shape:
   - On the piece of paper, have students draw a simple outline of their chosen animal, person, or object. This will serve as their template.
3. Identify Key Points:
   - Ask students to identify and mark key points (dots) on their drawing where they think stars could be. These points should be where lines (string) will connect to form the shape. They should aim for 5-10 points. If time allows, allow students to share their constellations with the class.

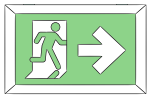
Zodiac Facts:

- Many cultures have their own traditions around the stars. In ancient Greece, each constellation was associated with a specific mythological story featuring gods, heroes, and mythical creatures. These stories became a part of Greek culture, shaping their religious beliefs, moral values, and societal norms.
- The zodiac is made up of constellations, some that represent beasts defeated by Heracles, such as Leo the Nemean Lion, Taurus the Cretan Bull, and Cancer the Crab.
- The Aries constellation features a ram, Pisces a fish, Sagittarius an archer, and Capricorn a goat. Can you guess the constellation for the zodiac sign Scorpio? A scorpion!

CONCLUSION

3-5 min

Today, we explored how constellations are patterns of stars that have been studied and used by people throughout history. We learned that constellations have helped civilizations navigate journeys, track seasons, and share cultural stories. Although people around the world observe the same stars, different cultures have created different interpretations and meanings for the patterns they see. Let's reflect on the constellations you recreated. What did you notice about the patterns of stars? What strategies did you use to accurately map the constellations with star stickers and string? What challenges did you encounter, and how did you solve them? As you continue to observe the night sky, remember that constellations are not just groups of stars, they are also connections between science, history, and human imagination. Consider how people from different cultures have looked at the same stars throughout history and created unique stories, meanings, and connections based on their unique experiences, traditions and beliefs.



Exit Ticket



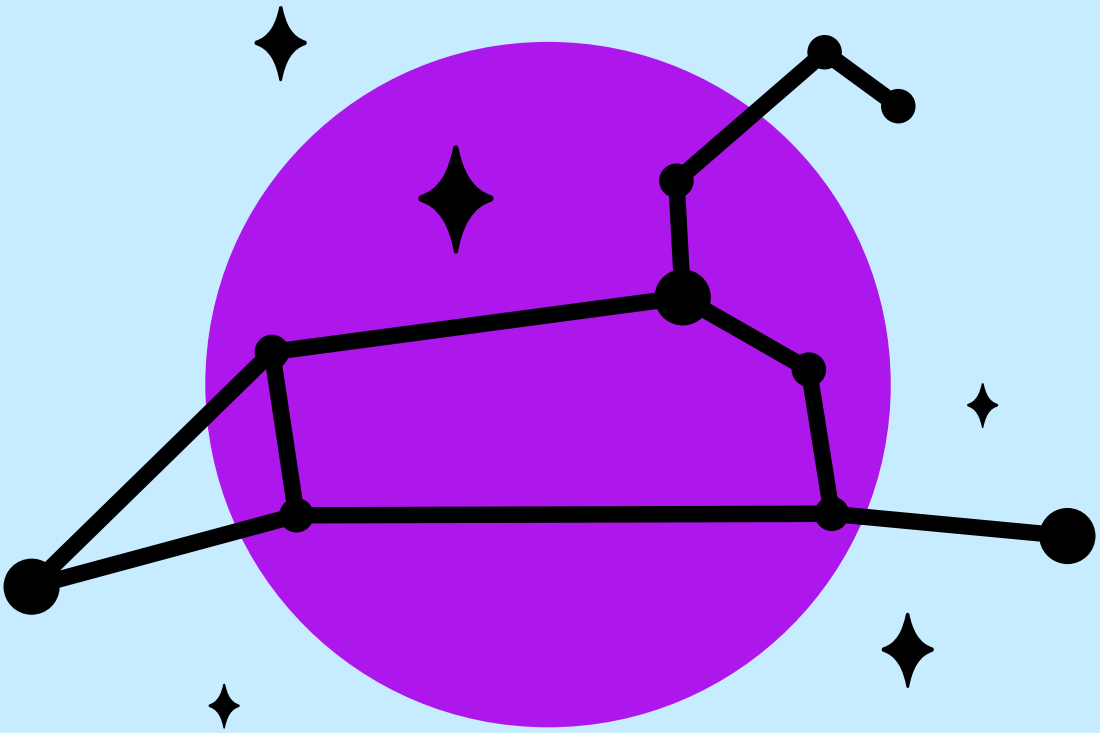
Ask each student one of the following questions as they walk out the door.

- Q: What is a constellation?
  - A: A constellation is a group of stars that form a pattern or shape in the night sky.
- Q: Why were constellations important to ancient civilizations?
  - A: Constellations helped with navigation and marking the seasons for farming.

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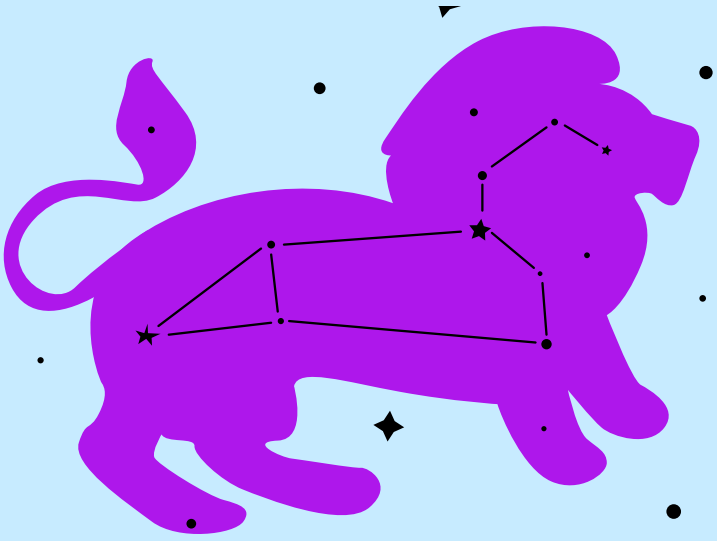
CONSTELLATIONS

Leo



The Lion

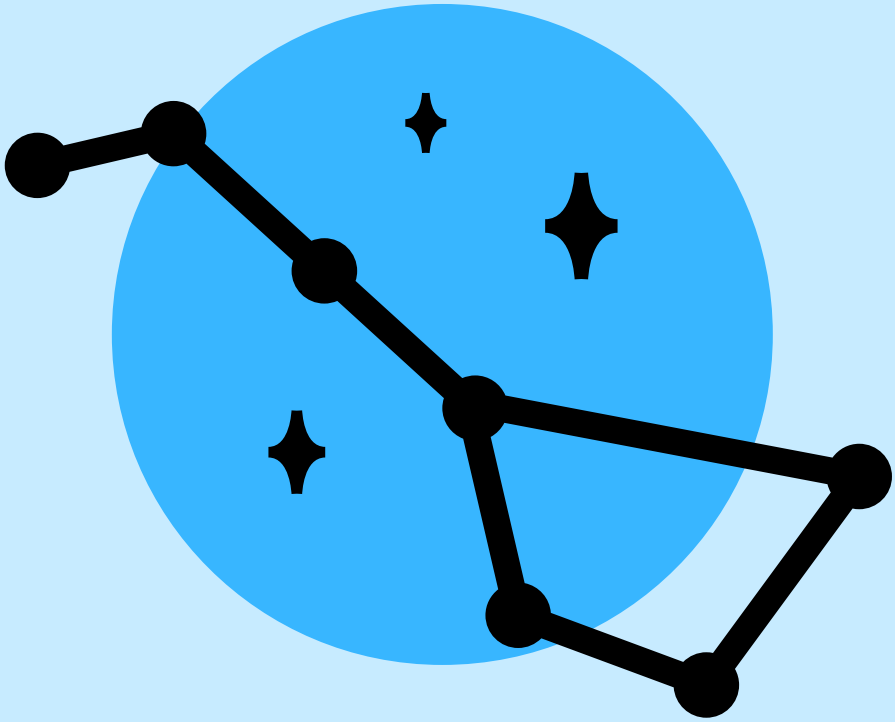
In Greek mythology, Leo represents the Nemean Lion, a fierce creature that Hercules was tasked with defeating as one of his twelve labors. The Nemean Lion's skin was so tough that it could not be pierced by weapons, so Hercules had to use his great strength to strangle it. After his victory, Hercules placed the lion in the sky to honor it.



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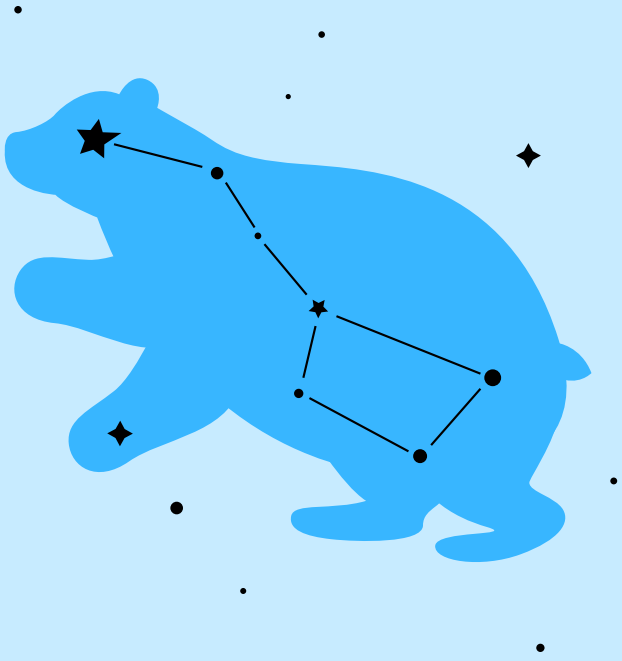
CONSTELLATIONS

Ursa Major



The Bear

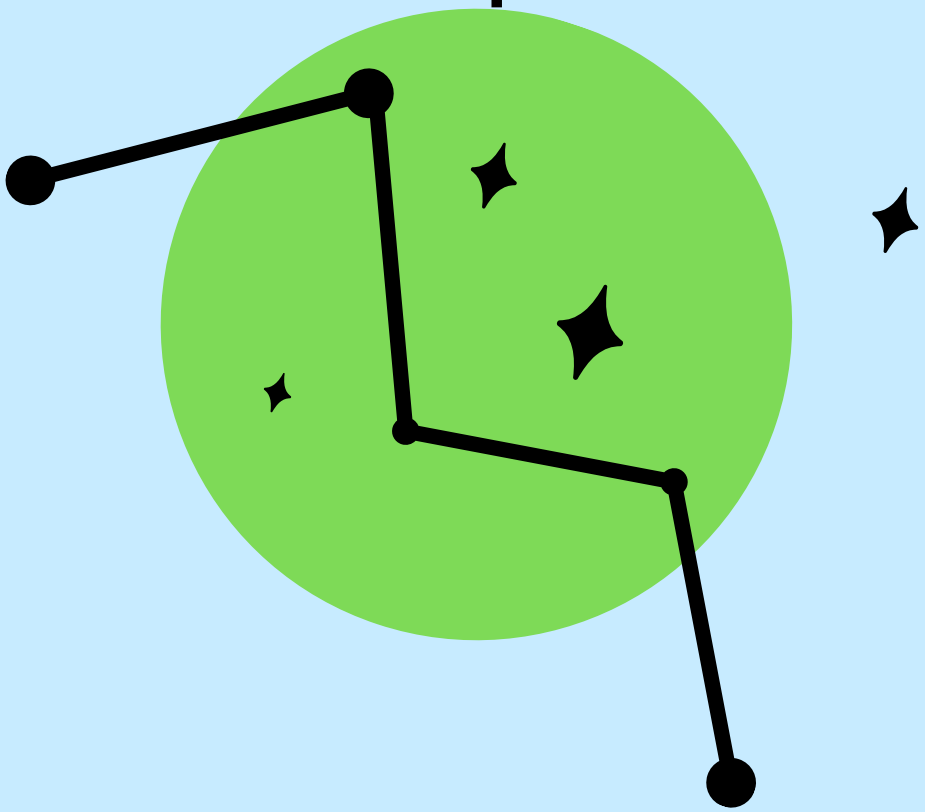
In Greek mythology, Ursa Major represents Callisto, a beautiful nymph who was turned into a bear by the goddess Hera. To protect her, Zeus placed Callisto in the sky as a constellation. Different cultures see different animals in this constellation. Some Native American tribes see it as a bear being chased by hunters.



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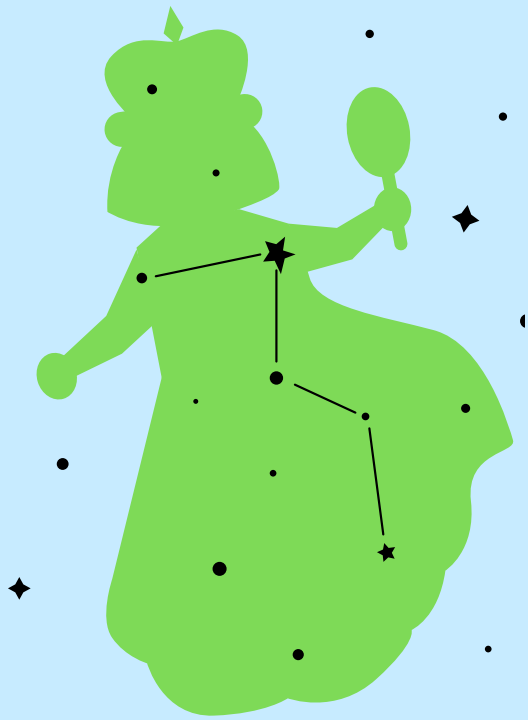
CONSTELLATIONS

Cassiopeia



The Queen

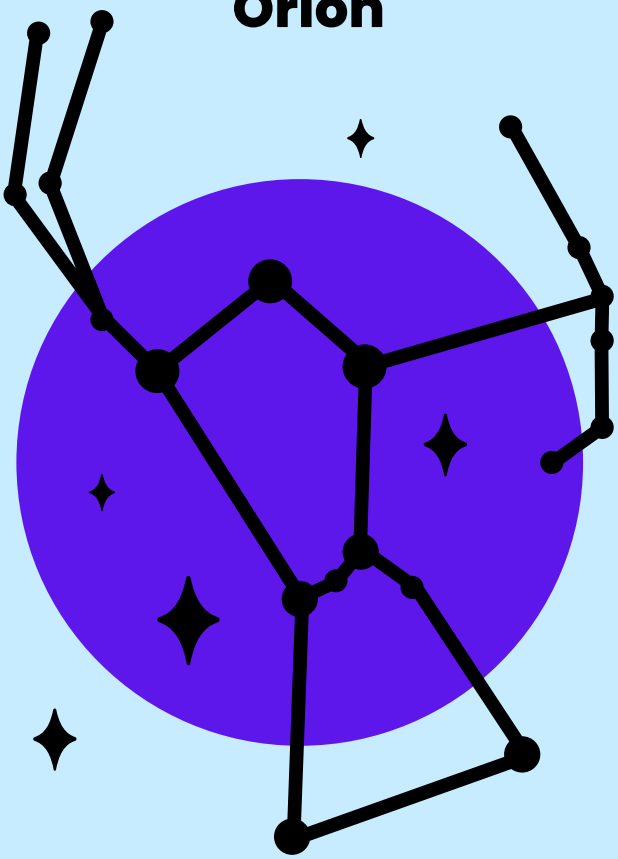
Cassiopeia was a queen in Greek mythology, known for her beauty and vanity. She bragged that she was more beautiful than the sea nymphs, making them very angry. As punishment, the sea god Poseidon placed her in the sky. She is positioned upside down for part of the night to remind everyone of her vanity.



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CONSTELLATIONS

Orion



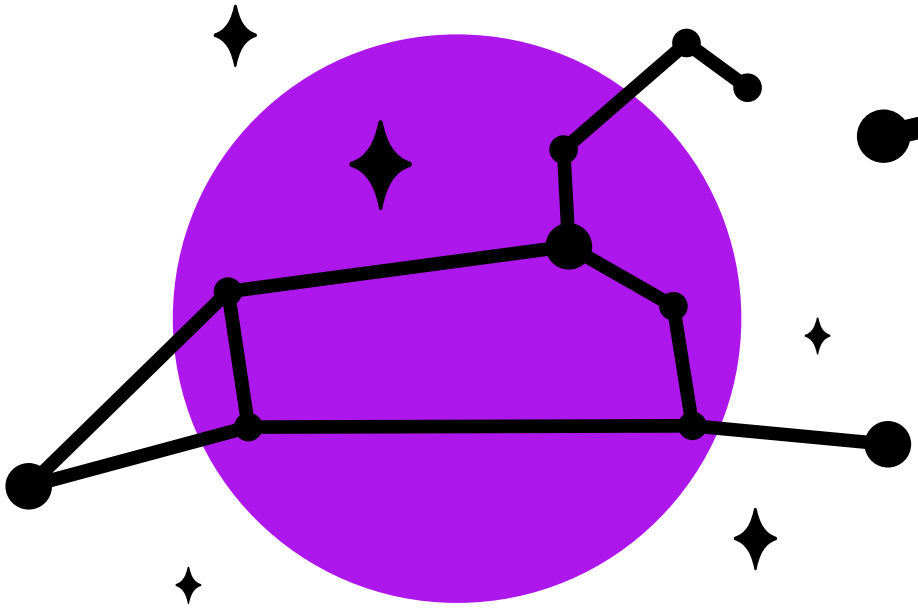
The Hunter

Orion was a great hunter in Greek mythology. He was very strong and handsome. He bragged that he could hunt and defeat any animal on Earth. The goddess Artemis sent a giant scorpion to stop him. They fought, and both were placed in the sky as constellations. When Scorpius rises, Orion sets, so they are never in the sky at the same time.

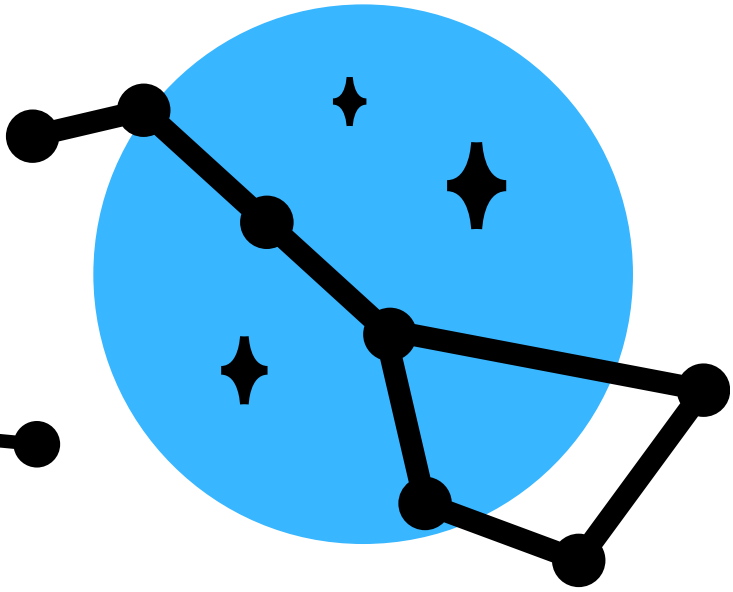


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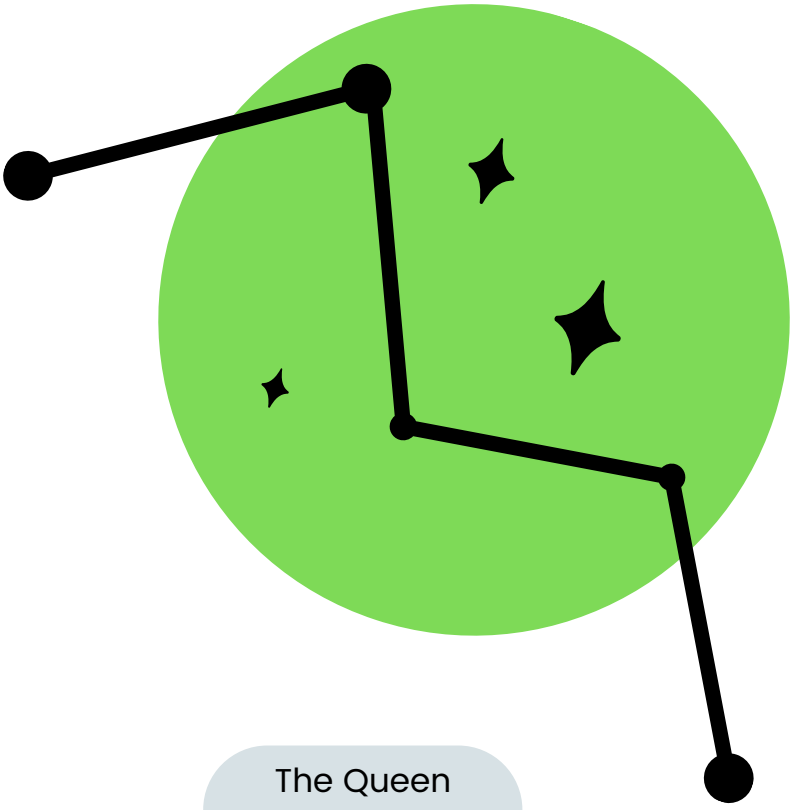
CONSTELLATION TEMPLATE #1



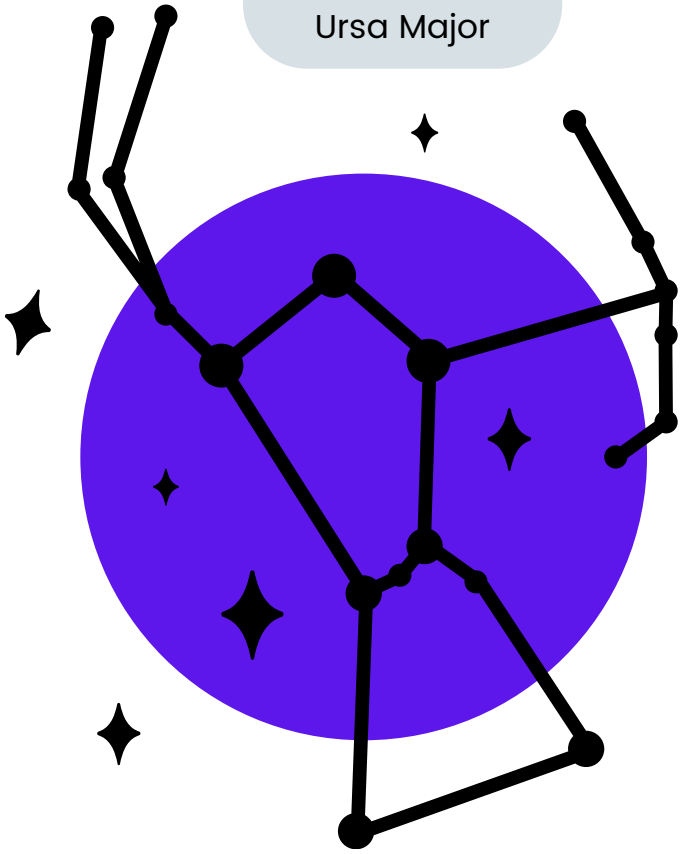
The Lion
Leo



The Bear
Ursa Major



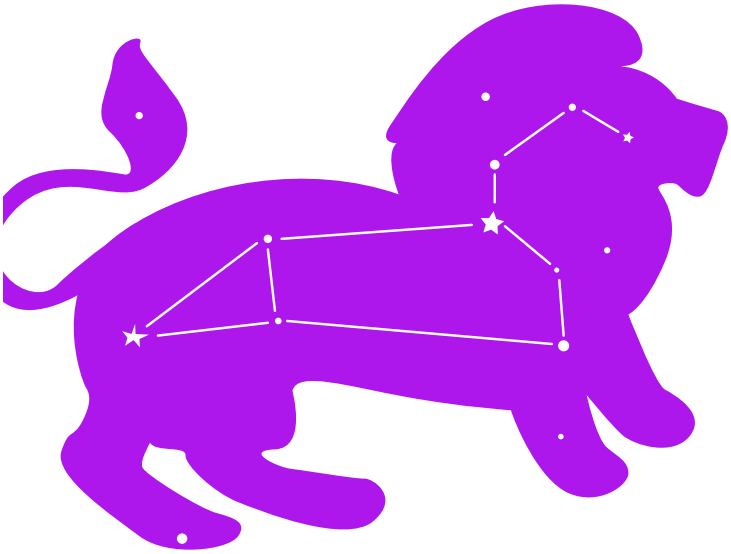
The Queen
Cassiopeia



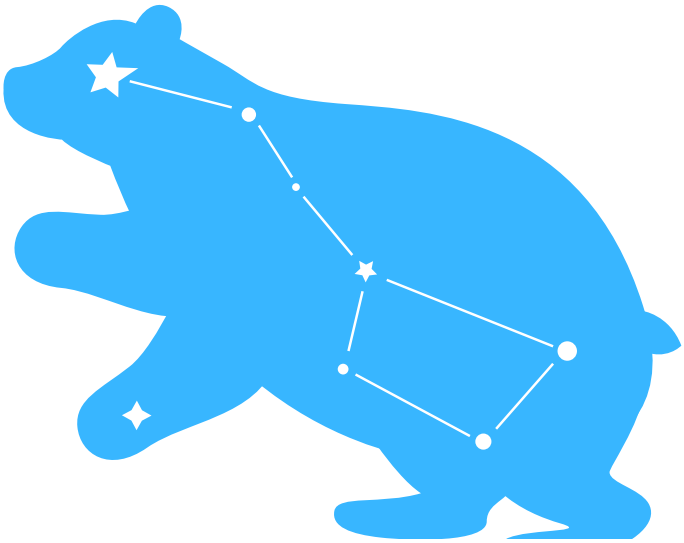
The Hunter
Orion

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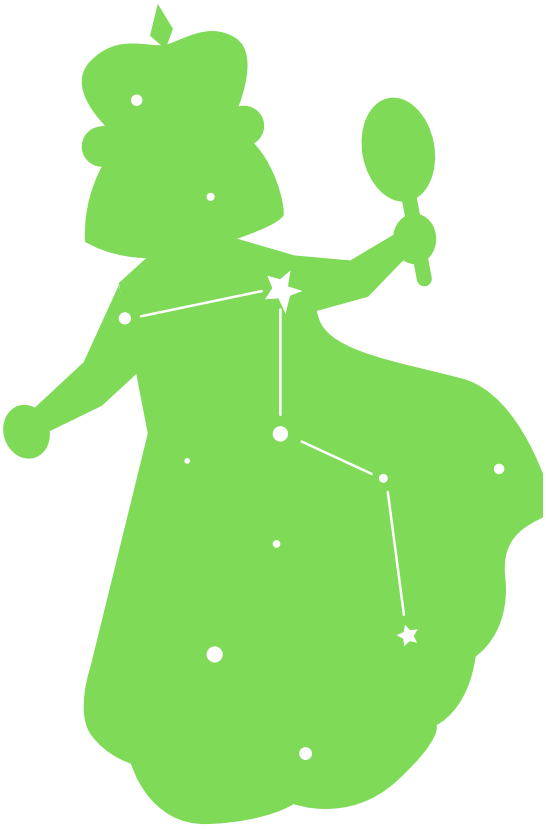
CONSTELLATION TEMPLATE #2



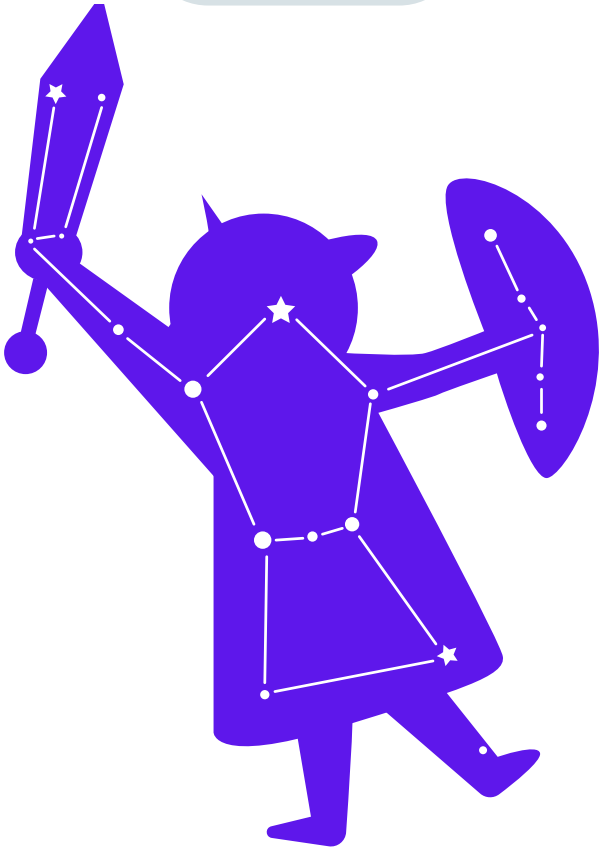
The Lion
Leo



The Bear
Ursa Major



The Queen
Cassiopeia

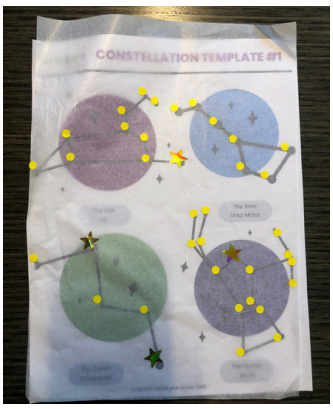


The Hunter
Orion

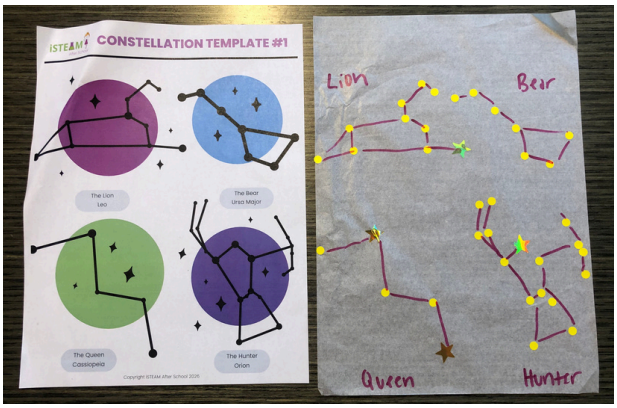
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CONSTELLATIONS: STUDENT DIRECTIONS

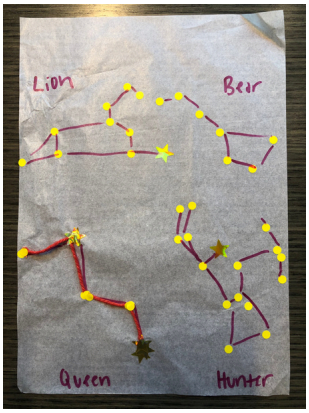
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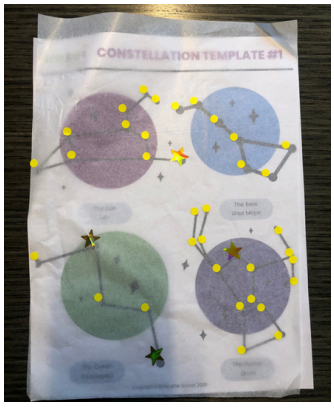


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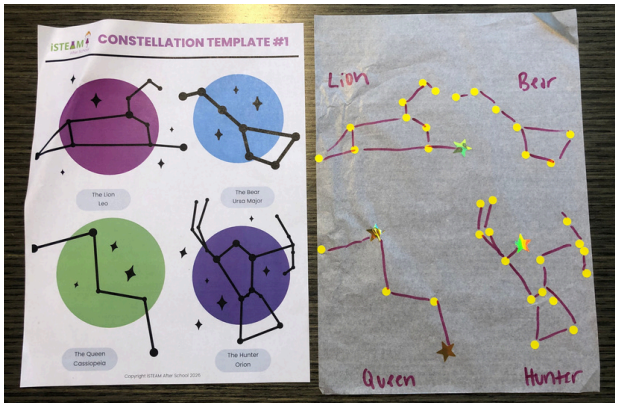


CONSTELLATIONS: STUDENT DIRECTIONS

1



2



3

