

Lesson Plan: Introduction to Constellations

Grade Level: 6

Duration: 1 hour

Standard: 3.3.6.A4 - Describe patterns of Earth's features, including the location of constellations.

Lesson Objective

Students will learn to identify key constellations in the Northern Hemisphere and create their own constellation maps. They will understand spatial patterns by mapping real constellations and designing their own star configurations.

Materials Needed

- **Sega Homestar Flux Solar System Projector** with disks for:
 - **Northern Hemisphere**
 - **Northern Hemisphere with Constellations**
 - **Star charts** of the Northern Hemisphere constellations
 - **Graph paper** for mapping constellations
 - **Stickers** or **small adhesive stars** to create constellation maps
 - **Colored pencils** or **markers** for designing unique star configurations
 - **Worksheets** for students to record constellation names, locations, and patterns
 - **Chart paper** and **markers** for group discussion
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Procedures

1. **Introduction to Constellations (10 minutes)**
 - Begin by discussing what constellations are and their significance in history, such as how people used them for navigation and storytelling.
 - Explain that constellations are groups of stars that form recognizable patterns in the night sky, and today, students will explore constellations in the Northern Hemisphere.
 - Introduce the objective: Students will learn to identify and map constellations in the Northern Hemisphere and design their own star configurations.
2. **Projecting Constellations (10 minutes)**
 - In a dimmed room, use the **Northern Hemisphere** disk on the **Sega Homestar Flux Solar System Projector** to display constellations on the ceiling.

- Allow students to observe the constellations and point out some well-known examples such as the Big Dipper, Cassiopeia, and Orion.
 - Using the **Northern Hemisphere with Constellations** disk, overlay constellation lines and names to help students identify patterns and shapes in the star arrangements.
3. **Creating Constellation Maps (15 minutes)**
- Distribute star charts and worksheets to each student, along with graph paper and stickers or small stars.
 - Guide students in creating their own constellation maps of the Northern Hemisphere:
 - Have students choose 3-5 constellations to map, marking the locations of stars on their graph paper and drawing connecting lines as seen on the star chart.
 - Encourage them to label each constellation, noting its shape and any interesting facts they know or learned.
4. **Designing Unique Star Configurations (15 minutes)**
- After mapping constellations, ask students to design their own star configuration on a fresh sheet of graph paper.
 - Students place stickers or draw stars in unique patterns and connect them to create a “new” constellation.
 - They can name their constellation, describe its shape, and create a short story about its significance (mythological or otherwise).
5. **Class Discussion and Sharing (5 minutes)**
- Bring the class together to share their constellation maps and unique star configurations.
 - Ask questions like:
 - "What did you learn about the patterns in the sky from mapping real constellations?"
 - "How did you decide on the pattern for your own constellation, and what does it represent?"
 - Record insights and key points on chart paper to summarize what students observed about star patterns and spatial relationships.
6. **Conclusion and Reflection (5 minutes)**
- Distribute reflection questions for students to answer on their worksheets:
 - Which constellations did you find easiest to recognize, and why?
 - How do constellations help us understand patterns in the sky?
 - Describe the story behind the constellation you created.
 - Allow students a few minutes to complete their answers individually.
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Assessment

- **Constellation Maps:** Review students’ constellation maps to assess accuracy and effort in identifying and replicating Northern Hemisphere constellations.

- **Creative Star Configurations:** Evaluate each student's unique constellation design for creativity and understanding of spatial patterns.
 - **Worksheet and Reflection:** Collect worksheets to assess comprehension of constellation patterns and their significance.
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Extensions and Adaptations

- **Extension:** Have students research the mythology behind one of the constellations they mapped, creating a short presentation on its historical or cultural background.
- **Adaptation:** For younger students or those needing additional support, focus on a single, well-known constellation (like the Big Dipper) and provide step-by-step guidance on mapping.

This lesson plan incorporates hands-on mapping, creativity, and reflection to help students understand constellations as patterns and develop spatial awareness of star arrangements in the night sky.