

# FOSS EARTH AND SUN MODULE—WEEK 2

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Hello Students, Teachers, and Families,

FOSS students and families gain access to resources on FOSSweb through the class pages set up by the teacher (<https://www.fossweb.com>). Login using the user name and password provided by your teacher, and click on a module. You will have access to the **Home/School Connection** for that module as well as digital resources—online readings, videos, and multimedia experiences. To facilitate science teaching and learning during school closures, the FOSS team has provided **additional** Home/School Connections that engage students with firsthand experiences at home. Look for new downloadable activities every other Friday.

**For teachers and students who have not registered for FOSSweb**, you can use a direct link to get to the **Home/School Connection Center** from the home page without logging in. Select the appropriate module from the scope and sequence download the Home/School Connection and Math Extensions. Access is limited to the Home/School Connection Center for non registered users.

**For Students and Families:** To sign in to FOSSweb, use the student user name and password provided by your teacher. Here's a short video to get you started on FOSSweb

**For Student Sign in Video:** <https://youtu.be/Fcfjbt7Li2k>

**For FOSSweb help:** <https://www.fossweb.com/student-parent-help>

**For Self-registered Teachers:** For help in setting up and using Class Pages, use the Walk-through Videos on FOSSweb: <https://www.fossweb.com/fossweb-walkthrough-videos>

You can add Manage your Class pages and add notes for the students. If your district does not have access, use the access code FOSSK8CVHS, valid through May 2020. For self-registered teachers only, enter this code from the green “Activate Your Access Code” button on the upper right corner of your Teacher page.

**For District-registered Teachers:** Your students automatically have access to the student pages on FOSSweb. You can add Manage your Class pages and add notes for the students. Content for rostered schools and districts is enabled and assigned during the onboarding process. If your students do not have access to eBooks, please contact your District IT Administrator or your Curriculum Coordinator.

**Tech support on FOSSweb:** <https://www.fossweb.com/contact-us#jotform>

Together we will continue to make progress in science teaching and learning during school closures. Now, more than ever, we appreciate the role that science plays in our lives, and how important it is for citizens of all ages to understand and act based on scientific evidence.

Sincerely, The FOSS Team at the Lawrence Hall of Science

# HOME/SCHOOL CONNECTION—WEEK 2, A

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## Investigation 1: The Sun and Investigation 2: Planetary Systems

**Online Resources on FOSSweb** (Must log in to FOSSweb with a username and password)

Use these online resources to help review content from Investigation 1 and Investigation 2 of Earth and Sun. The **tutorials and virtual investigations** provide interactive resources that review concepts from the FOSS active investigations. The virtual investigations often mimic the active investigations that were done in class.

For the articles in *FOSS Science Resources*, access the **interactive eBook** and make sure to click on the interactive links within the readings. Take notes on what you learn from the online resources and respond to the questions from the articles in your science notebook.

### Investigation 1 Digital Resources

#### Online activities

- Shadow Tracker
- Seasons

#### Tutorial: Sun Tracking

#### FOSS eBook Readings

- Changing Shadows
- Sunrise and Sunset

### Investigation 2 Digital Resources

#### Online activities:

- Lunar Calendar
- Star Maps
- Stellar Motions

#### Streaming Video:

- All about the Moon
- The Planets and the Solar System
- All about Stars

#### FOSS eBook Readings

- The Night Sky
- Looking through Telescopes
- Comparing the Size of Earth and the Moon
- Apollo 11 Space Mission
- How Did Earth's Moon Form?
- Changing Moon
- Lunar Cycle
- Eclipses
- Exploring the Solar System
- Planets of the Solar System
- Why Doesn't Earth Fly Off into Space?
- Stargazing
- Star Scientists
- Our Galaxy

# HOME/SCHOOL CONNECTION—WEEK 2, B

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## Investigation 2: Planetary Systems

### **Focus Question: How can you build your own telescope?**

Astronomers use a tool, called a telescope, to see objects far away in space. With a telescope, far away objects can appear closer and larger. Make your own telescope and see how it can help you see things that are far away.

### **Materials:**

- 2 empty paper-towel tubes
- 2 convex lenses (you can order convex lenses online, or if your family has an old pair of reading glasses they aren't using, you can use the lenses from the glasses)
- Masking tape
- Scissors
- Art supplies

### **Instructions:**

1. Use the scissors to cut one of the cardboard tubes from top to bottom lengthwise on one side.
2. Squeeze the tube tighter (to make it smaller) and insert it into the other cardboard tube.
3. Release the inner tube and test to see if it can move smoothly inside the outer tube. If not, remove the inner tube, and wrap it tighter before inserting into the outer tube again.
4. If you are using old reading glasses as your lenses, carefully remove the lenses from the frame. Your family may need to help you with this step.
5. Use the masking tape to attach one lens to the outer edge of the inner tube. Set the lens so that the curve faces inside the tube. Use the tape around the rim of the lens so you don't block the path for light to go through the lens.
6. Attach the second lens to the outer edge of the outer tube. The curve of this lens should point away from the tube.
7. Use the art supplies to decorate your telescope.
8. Place your eye against the lens of the inner tube.
9. Aim your telescope at a far away object such as a tree or animal. Never point it directly at the Sun.
10. Focus on the object by sliding the inner tube in and out of the outer tube until the image becomes clear.
11. How does the telescope help you focus on far away objects? Research how telescopes work and draw a model to explain how a telescope helps you see things far away.

# HOME/SCHOOL CONNECTION—WEEK 2, C CONTINUED

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## Investigation 2: Planetary Systems

### **Focus Question: How can a star map help you identify night-sky constellations?**

A constellation is a group of stars that appear to make an image in the night sky. Constellations change their orientation and location based on the time of year and time of night. Having a tool to help you find constellations at any time of year can be helpful.

### **Materials:**

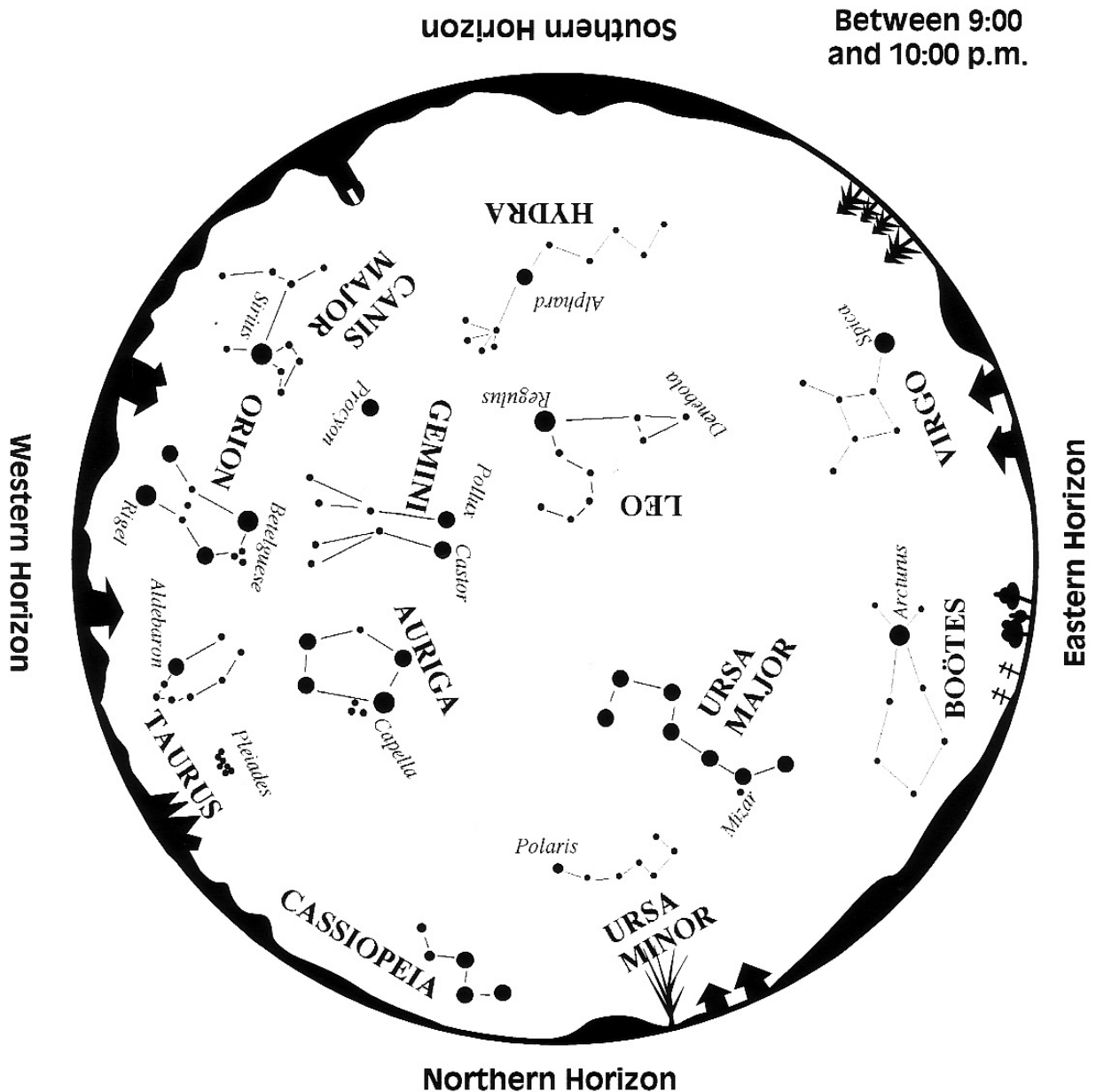
- A clear, dark night
- Seasonal star map for this time of year

### **Instructions:**

1. Choose the star map for the current time of year.
2. Go outdoors on a clear, dark night where you can look up at the sky without obstacles in the way (such as trees).
3. In the Northern Hemisphere, the Big Dipper constellation can always be seen. Find the Big Dipper.
4. Orient your star map so that the Big Dipper is in the same orientation as it is in the sky. Match the map to the Big Dipper and North Star.
5. Based on the map, find other constellations in the night sky.

# HOME/SCHOOL CONNECTION—WEEK 2, C CONTINUED

## Evening Star Map for March–April



**To use map:**

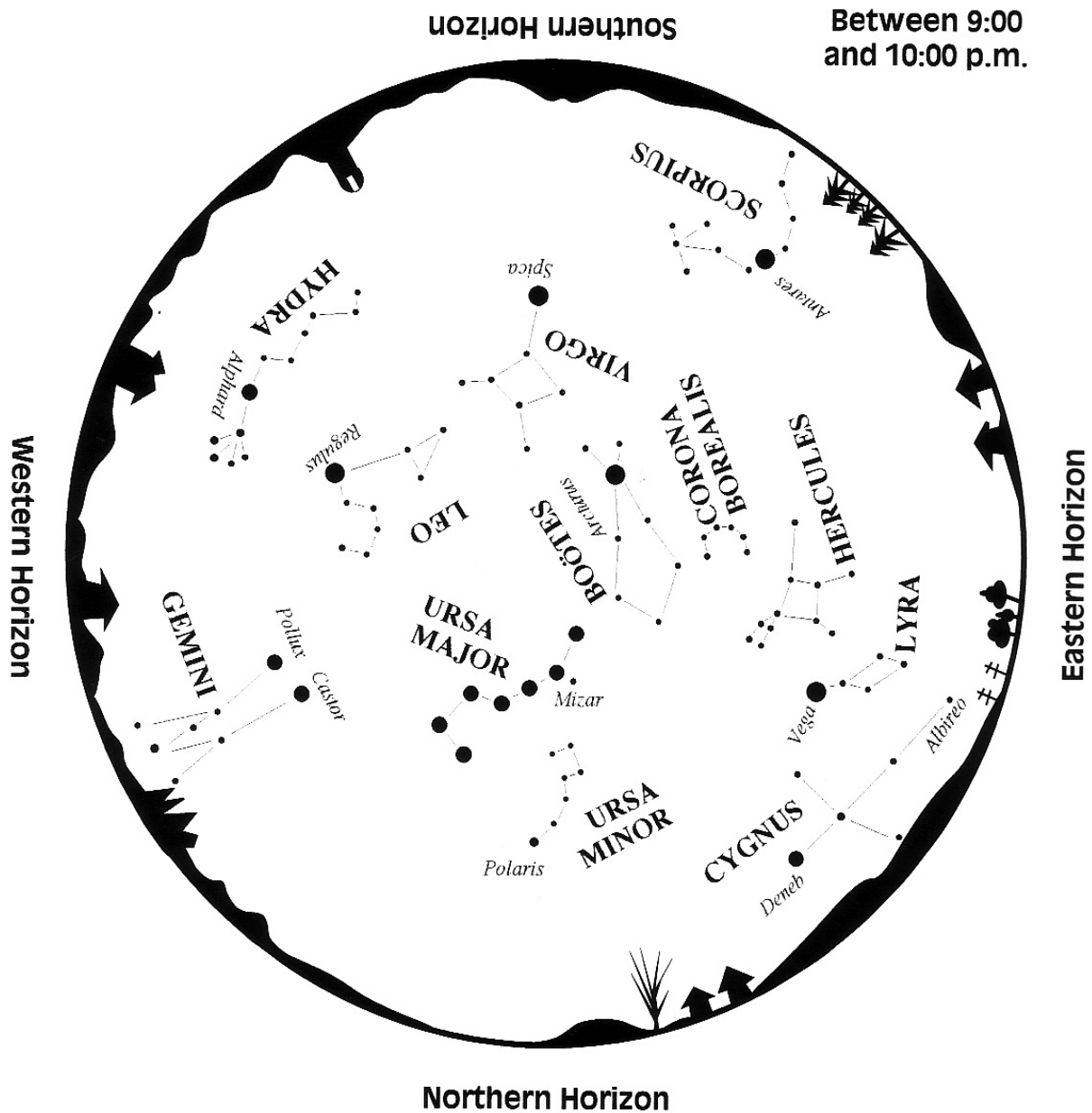
Turn the map so the direction you are facing is on the bottom.

The constellations in the sky will match the constellations on the map.

Holt Planetarium, Lawrence Hall of Science, University of California, Berkeley, CA 94720  
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# HOME/SCHOOL CONNECTION—WEEK 2, C CONTINUED

## Evening Star Map for May–June



**To use map:**

Turn the map so the direction you are facing is on the bottom.

The constellations in the sky will match the constellations on the map.

Holt Planetarium, Lawrence Hall of Science, University of California, Berkeley, CA 94720  
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# HOME/SCHOOL CONNECTION—WEEK 2, D

## Investigation 2: Planetary Systems

### **Focus Question: What is a constellation?**

Constellations are groups of stars that appear to make an image in the night sky, like a “connect-the-dots” activity. The light from the stars creates the “dots” of the image. Create a constellation tube to see how light makes the image.

### **Materials:**

- Empty paper-towel tube
- Black construction paper
- Push pin
- Darkened room
- Lamp
- Transparent tape
- Flashlight (optional)

### **Instructions:**

1. Draw circles on a piece of black construction paper. Use the end of the paper-towel tube as the template for your circle.
2. Cut the circles out. Be sure to cut carefully so that the circle will completely fit over the end of the tube.
3. Research different constellations. Find images of ones you find interesting.
4. Use the push pin to poke holes in your black-circle pieces to represent the stars in the constellation. Use a new paper circle for each constellation you wish to make.
5. Use the transparent tape to tape a constellation circle at one end of the tube. Arrange the circle so no stray light comes in from the sides.
6. Darken the room and turn on a table lamp.
7. Hold the constellation tube to your eye and look toward the light. What do you see?
8. You can also shine a flashlight through the tube onto a table in a darkened room. Do you see the same image here?

# HOME/SCHOOL CONNECTION—WEEK 2, E

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## Investigation 2: Planetary Systems

### **Focus Question: How does the Moon appear to change over time?**

Is the Moon the same every night? Does it always look the same? Can you find it in the same location in the sky every night? Keep track of the Moon for a month or longer. What do you observe?

### **Materials:**

- Clear night
- Calendar
- Pen or pencil

### **Instructions:**

1. Go out at night and look for the Moon.
2. Record observations in your Science Notebook. Can you see the Moon that night? Where is it in the night sky? What does it look like?
3. On your calendar, draw what the Moon looks like that night.
4. Repeat at the same time each night for a month or more.
5. Look for patterns in how the Moon appears to change over time. How would you describe that pattern to your family?
6. Can you predict what the Moon will look like tomorrow night? Next week? Next month?