

## From the Internet to Outer Space

*Parent Guide*, page 1 of 2

*Read the “Directions” sheets for step-by-step instructions.*

### SUMMARY

In this activity, children and adults will use Google Sky to observe features of the night sky and share their observations.

### WHY

Looking carefully is an important skill for research, and tasks like drawing sketches and writing short descriptions help children look carefully at images. Children can also experience some of the challenge that scientists would have had in sharing their findings with others without photographs.

### TIME

- 10–30 minutes, depending on interest

### RECOMMENDED AGE GROUP

This activity will work best for children in kindergarten through 4th grade.

### GET READY

- Read *Maria’s Comet* together. *Maria’s Comet* is a work of historical fiction about the childhood of Maria Mitchell, America’s first female professional astronomer. For tips on reading this book together, check out the Guided Reading Activity ([http://americanhistory.si.edu/ourstory/pdf/telescope/telescope\\_comet.pdf](http://americanhistory.si.edu/ourstory/pdf/telescope/telescope_comet.pdf)).
- Read the [Step Back in Time](#) sheet.

### CHALLENGE WORDS

- **astronomy:** the science of the stars, planets, sun, moon, and sky
- **caption:** words that describe or explain a picture
- **constellation:** a pattern of stars, like connect-the-dot pictures
- **galaxy:** a very large group of stars, planets, and other parts of the sky
- **photograph:** a picture made by recording the way light hits a surface (like film)
- **simile:** an expression that describes something by comparing it with something else
- **telescope:** a tool for viewing far-off objects

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### YOU NEED

- Directions sheets (*attached*)
- ThinkAbouts sheet (*attached*)
- Step Back in Time sheet (*attached*)
- Computer with Internet access
- Pen or pencil

More information at <http://americanhistory.si.edu/ourstory/activities/telescope/>.



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## From the Internet to Outer Space

### Step Back in Time

For more information, visit the National Museum of American History Web site <http://americanhistory.si.edu/ourstory/activities/telescope/>.

**M**aria (Mar-AYE-ah) Mitchell was America's first woman professional astronomer. She was the first American woman to discover a new comet, and won a gold medal from the king of Denmark as an award for her discovery. After Maria became famous she continued to work as an astronomer, and also taught astronomy to younger women at Vassar College. She used a telescope that is now part of the collection of the National Museum of American History. Maria not only helped her students at Vassar College, but brought attention to other American scientists, schools for girls, and the women's rights movement.

Maria's father was an astronomer, too, and taught Maria about astronomy. He allowed Maria to use his tools, and also helped her meet other astronomers.

Astronomy was very useful and important to everyday life for many people in the 1800s. Sailors, like the ones in Maria's hometown of Nantucket, Massachusetts, used astronomy to find directions while out at sea. Maria was very good at math, making careful notes of what she saw, and was a very patient observer, which helped her become an astronomer, or expert in astronomy.

**astronomer:** scientist who studies the stars, planets, sun, moon and sky

**astronomy:** the science of learning about the stars, planets, sun, moon, and sky

**comet:** a ball of frozen gases, frozen water, and dust

**observer:** a person who looks at things very carefully



A photograph of the moon taken in March 6, 1865

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*For adults and kids to follow together.*

1. Take a look at the image on the [Step Back in Time](#) sheet. The photograph of the moon was taken in 1865. How long ago was 1865?
2. Open GoogleSky online by visiting <http://www.google.com/sky/>.
3. Click on the “planets” layer at the bottom of the screen. Click on the moon to see a picture of the moon.

**Tip** For help using Google Sky, check out the instructional video online at <http://americanhistory.si.edu/ourstory/v/googlesky.html>.

4. Compare the image of the moon on Google Sky to the image from 1865. Can you tell some ways they are different? How are they the same?
5. In 1865 and earlier, when Maria Mitchell was an astronomer, it was hard to take photographs of things seen in telescopes, so not many people could see details of the planets, stars, or other things in the sky. Today, any person with the Internet can get really great pictures of planets, stars, and other things in the sky.
6. Explore Google Sky using the [Telescope Treasure Hunt](#).

**Tip** The images on Google Sky were sent by nationally respected astronomical institutions. Check the caption bubbles to see where the images you’re looking at come from.

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7. Fold up the “secret answers” part of your **Treasure Hunt**.
8. Share your **Treasure Hunt** with someone else and see if they can find the same things you described.

For more activities and information about *Maria’s Comet* and astronomy in American history, visit <http://americanhistory.si.edu/ourstory/activities/telescope/>.

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### ThinkAbout: Telescope Treasure Hunt

If you lived in 1847, you would probably not be able to take a photograph of the things you saw through your telescope. Become a scientist and try this Telescope Treasure Hunt to share your research without photographs.

First, complete one or more of the missions below. Each mission has two “Describe it!” questions and one “Secret Answer.”

Before sharing your Treasure Hunt with your friend, fold up the secret answers.

See if your friend can use your “Describe it” answers to find the same picture on GoogleSky.

<i>Describe It!</i>	<i>Secret Answers</i>
<p><b>Mission One:</b> Find a picture from the Spitzer telescope that has more than one color.</p> <ul style="list-style-type: none"><li>- What colors are included? Describe its colors using a simile.*</li><li>- Sketch it.</li></ul>	<p><b>Mission One:</b> What is it a picture of? Look in the caption.</p>
<p><b>Mission Two:</b> Find a picture from the Hubble telescope that shows a galaxy from the side. (It will look like a flat line runs through the middle of it.)</p> <ul style="list-style-type: none"><li>- Sketch it.</li><li>- Describe its shape using a simile.*</li></ul>	<p><b>Mission Two:</b> What is it a picture of? Look in the caption.</p>
<p><b>Mission Three:</b> Find a drawing of a constellation that shows an animal.</p> <ul style="list-style-type: none"><li>- Sketch it.</li><li>- Make up a short story including that animal.</li></ul>	<p><b>Mission Three:</b> What is your constellation’s name? Look in the caption.</p>

\*- Similes are expressions that describe something by comparing it with something else. Similes use the words “like” or “as” to make the comparison between things. Some examples are “my needle sometimes feels as heavy as the anchor of my uncle’s whaling boat” and “the Milky Way spreads before me like a crazy, luminous quilt.”

## From the Internet to Outer Space

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*Read the “Parent Guide” and “Directions” sheets for step-by-step instructions.*

### OBJECTIVES

Students will be better able to:

- Describe astronomical features.
- Use descriptive language.
- Sketch from observations of images.

### STUDENT PERFORMANCE CRITERIA

- Compare the 1865 and modern photographs of the moon.
- Identify and describe features of the night sky.

### STANDARDS

#### *NCHS History Standards*

##### *K-4 Historical Content Standards*

8A: The student understands the development of technological innovations, the major scientists and inventors associated with them, and their social and economic effects.

##### *K-4 Historical Thinking Standards*

1G: Explain change and continuity over time.

2H: Draw upon the visual data presented in photographs, paintings, cartoons, and architectural drawings.

4B: Obtain historical data.

#### *IRA/NCTE Standards for the English Language Arts*

6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts.

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### *21st-Century Skills*

#### *Information, Media, and Technology Skills*

- Media Literacy

### *Benchmarks for Science Literacy*

#### *Grades K-2*

- 1-C-1: Everybody can do science and invent things and ideas.
- 12-D-1: Describe and compare things in terms of number, shape, texture, size, weight, color, and motion.
- 12-D-2: Draw pictures that correctly portray at least some features of the thing being described.

#### *Grades 3-5*

- 1-C-3: Doing science involves many different kinds of work and engages men and women of all ages and backgrounds.
- 4-A-2: Telescopes magnify the appearance of some distant objects in the sky, including the moon and the planets.
- 4-B-2: Like all planets and stars, the earth is approximately spherical in shape.
- 12-D-1: Make sketches to aid in explaining procedures or ideas.