Module 3, Investigation 4: Figure 1
Nighttime lights of the continental United States

Module 3, Investigation 4: Log 1

Understanding the nighttime lights

1. Draw a blue line on the outline map where the Mississippi River is located. (Find the location in the atlas.)

2. Figure out where the Mississippi River is on the image and draw a blue line there, too. Are there more cities to the east or west of the Mississippi River?

3. Color the two brightest lights along the Mississippi River red. Use the atlas to find out which two cities you picked.

4. Make a small circle to show each city on the outline map and label them.

5. Color the Great Lakes blue on the outline map and label them. Use the atlas to find the big cities on each lake. Mark and label them on the map. Circle these cities in Figure 1. Why do you think cities developed along the Great Lakes?

6. Find the Rocky Mountains, the Appalachian Mountains, the Sierra Nevada Mountains, the Cascades Range, and the Coastal Ranges in the atlas. Label them on the outline map.

7. Find the desert areas of the west and southwest in the atlas. Mark and label them on the outline map.

8. Can you find the mountains and the dry areas in the nighttime image? Circle them with the blue crayon.

9. A megalopolis is a giant city. It occurs when individual cities grow so big that they merge together. Locate Boston, New York City, Philadelphia, Baltimore, and Washington, D.C., in the atlas. Mark and label them on the map and color them red on the image. What pattern do you see on the image?

10. Find another megalopolis on the image at the south end of Lake Michigan and color it red. Mark and label two cities in this megalopolis on the map.
Geographers, scientists, and planners are just a few of the people who look at population and ask, “Where are people? Where are the cities?” Now it’s your turn to look at a map that shows us many cities and decide what makes some places good for large and dense settlements. To do this, complete the investigation below:

1. Images on Log 3 are of the following cities:
   - Boston, Massachusetts
   - Detroit, Michigan
   - Pittsburgh, Pennsylvania
   - San Francisco, California
   - Minneapolis, Minnesota
   - Miami, Florida

2. Locate these cities in the atlas. Then mark and label them on your outline map. Circle them on the nighttime image (Figure 1).

3. Look at the NASA images of these cities in Log 3 and see if you can identify them. Use the atlas and the clues below to help you match the cities and the images. Write the name of each city in the space next to the image.
   a. This city is on a bay on the Pacific Ocean.
   b. This city is in New England, on Massachusetts Bay.
   c. This city is on a river between Lake Huron and Lake Erie.
   d. This city is in the southeastern United States on the Atlantic Ocean.
   e. This city is located west of the Appalachian Mountains where the Ohio and Allegheny Rivers meet to form the Monongahela River.
   f. This city is the northernmost port on the Mississippi River.
Module 3, Investigation 4: Log 3
Where are these cities?—Space Shuttle photographs

a. 

b. 

c. 

d. 

e. 

f. 