



THOSE WHO HAVE COME BEFORE ME

Student Section _____

Student Name _____

Lesson Objective

This lesson demonstrates the benefits of learning from the experiences of past explorers.

During this lesson, you will

- gather data through careful observations.
- create a map based upon observations.
- develop a conclusion based upon the results of this activity.

Problem

How can I learn from past explorations?

Observation

Explorers are the people who, through trial and error, create new ways of doing things and going places. Sometimes explorers fail during their journeys, but, they learn through their mistakes, so that those who come after them will not make the same errors. Whether they are searching the ocean, the rain forest, a desert, or space, exploration ties them all together.

Explorers expand our world. Portugal's Vasco da Gama succeeded in reaching India and returned with jewels and spices. Ferdinand Magellan, another Portuguese explorer, was the first to sail around the globe. In the name of Spain, the Italian explorer Christopher Columbus was the first to sail to the "New World". While searching for the "Fountain of Youth" the Spanish explorer, Juan Ponce de Leon reached Florida. Years later, Alvar Núñez Cabeza de Vaca landed on the west coast of Florida, claiming that land for Spain. His travels then took him across what are now Texas, New Mexico, and Arizona.

In our exploration into space, we have made many discoveries and we have learned many things. Even though we have only been traveling in space for a short time, our technology, our knowledge, and our world have improved drastically. Sending men and women into space does more than just explore the unknown; it brings a new understanding to our world and society.

"This cause of exploration and discovery is not an option we choose; it is a desire written in the human heart. We are that part of creation which seeks to understand all creation."

– U.S. President George W. Bush

In 1969, Apollo 11 astronauts Neil Armstrong and Buzz Aldrin earned their place on the roll of explorers when they became the first men to set foot on the moon. Today, crews of the space shuttle and the International Space Station are learning to live the unfamiliar environment of space. Soon, NASA will once again be sending explorers into uncharted territory as the Vision for Space Exploration sends humans back to the moon, on to Mars, and beyond.

In this activity, your group will be required to finish an exploration as quickly and efficiently as possible. You will also leave information so that those who follow you will complete the journey faster and not make the same mistakes that you might have made.

Brainstorm: Make a list of people that you think are explorers. What traits do these explorers share?

Use the first column of this KWL chart to organize your observations about exploration.

Brainstorm with your group what you want to know about exploration, then list in the second column of this KWL chart.

KNOW	WANT TO KNOW	LEARNED

Hypothesis

Based on your observations, answer the “problem question” with your best guess. (How can I learn from past explorations?) Your hypothesis should be written as a statement.

My hypothesis: _____

Materials

Per group

- section to explore (assigned by your teacher)
 - There will be five hidden items marked 1-5 in your section.
- 1 envelope
- 4 sheets of blank paper
- colored pencils or markers
- stopwatch, watch or clock

Safety

Review your classroom and lab safety rules.

Test Procedure

1. As a group, go to your assigned exploration section.
2. Decide on a group name. Write the group name on the back of your envelope. This envelope will stay in this starting section.
3. Your teacher will assign each group member a role to play in the exploration. Roles include map maker, time keeper, recorder, and lead explorer.
4. The map maker will draw a map of your section. Your map should include a compass rose, a scale and a legend. Draw the large items in the section and include them in the legend, for example: chairs, computers, tables, etc.
5. Title your map “Exploration 1”.

6. You and your group members are on an exploration for 5 items. These items are numbered 1-5.
 - The lead explorer must find the items in the correct number order. If the lead explorer finds an item out of order, your group cannot count it as “found” until the lead explorer has found the items numbered before it. For instance, the lead explorer can not count item #3 as “found” until he/she finds #1 and then #2.
 - When an item is “found” in order, leave it in its location and have the recorder mark it on your map.
7. The time keeper will use the stopwatch to time the exploration.
8. During the exploration, the recorder will mark the exploration route on your map.
 - The recorder will draw on the map with a colored pencil or marker to show the route that was taken to find the items. The map should reflect the route of the lead explorer.
 - Mark the starting point, where each item was found, and the ending point. Draw one continuous line to show the exploration “path”.
 - All “wrong turns” should be tracked on the map. This means your map may be a bit messy.
9. Once all 5 items have been found in order and recorded, the recorder should write on the front of the envelope the time your group took to complete the exploration.
10. On the front of the envelope, beside your recorded time, have the recorder write one sentence from the group, to give the next group a clue for completing the exploration more quickly.
11. Fold the map and put it inside the envelope. Then leave the envelope in your section.
12. Your teacher will have your group trade sections with another group.
13. Everyone in your group should choose a new role for each exploration.
14. Read the clue written on the envelope from the group before you. Do not look at the map inside the envelope.
15. Repeat steps 3-14 in order, until your group has completed four explorations. (Be sure to title your map with the correct exploration number.)
16. When all 4 explorations are complete, go back to your starting section and get the envelope that your group started with.
17. Record the data from all four explorations from the front of the envelope onto your Exploration Data Sheet.
18. With your group, compare the maps that were placed inside your envelope.
19. After collecting the data, study the data and draw conclusions by answering the questions following the Exploration Data Sheet.

Record Data

Exploration Data Sheet

Group Name:	
Student Name:	

This section should be filled in with the data from the outside of your group envelope.

Exploration	Time
1 st Exploration	
2 nd Exploration	
3 rd Exploration	
4 th Exploration	

Study Data

1. What was the most difficult part of your first exploration? Was this still a problem for you and your team when you started your last exploration?
2. Compare the maps inside the envelope. What changes do you see from one map to another?
3. How could we use “clues and maps” when exploring space?
4. Did your group perform the last exploration more efficiently than the first? Explain how you could have improved your time.

5. Why are maps of previous space explorations important to future explorers?

6. Explain how maps improve over time.

Conclusion

- Update the LEARNED column in your KWL chart.
- Restate your hypothesis and explain what happened during testing.