

When scientists looked at the stars long ago, they saw patterns. They did not understand everything about what they saw, so they kept looking in order to learn more. That is what scientists do. They ask questions and search for information to answer their questions. They are similar to explorers. While they do not travel far the way explorers do, they do make a kind of journey. Scientists want to learn more, so their journey is to travel from what they know to what they discover.

Scientists have learned many facts about our planet. They've discovered that it is incredibly diverse, with many different kinds of environments. There are both places that are extremely hot and spots that are freezing. There are mountains and plains, hills and valleys. There are deep oceans and there are great rivers and waterfalls. There are tropical rainforests and arid deserts. Those are all various parts of our planet. Still, there is much more to learn about what is here on Earth, particularly what is under the oceans. Scientists still are exploring this planet. A scientist dedicates much time to learning, first how to research, then using those skills to learn about the world. The scientist works hard to help us all become more knowledgeable about our world. Research is the key to learning more.

Our planet is in a galaxy called the Milky Way. The sun is a big star in our part of this giant galaxy, but our galaxy holds millions of other stars. The sun is very important to our planet because it provides light during the day, and gives us heat, too. Two other planets are closer to the sun than Earth: Mercury and Venus. Each planet has its own characteristics. We have learned more about them by studying the solar system with telescopes and spacecraft. Unmanned spacecraft have taken scientific instruments as far away as the planet Mars. There they found similarities to Earth, including kinds of land formations such as mountains as well as other features, and a landscape that seems to be the same rocky surface on most of that red planet, but they have not found any life forms on that barren planet.

Scientists figured out how the Earth changes. Earth orbits the sun once each year, which means it travels once around the sun every 365 days. The other eight planets in our solar system also orbit around the sun. All travel in a pattern called an ellipse, which is a type of oval. Therefore, at times, Earth is farther from the sun. Scientists figured out that the farther Earth was from the sun, the cooler the planet was. They also figured out that it is the tilt of the Earth's axis, however, that has the greatest effect on temperatures.

Scientists are still learning about our galaxy. There will always be new things to discover. Today astronauts travel into space; they are explorers. Long ago, explorers used to travel the sea and map places no one had been before. Now, astronauts travel in ships—spacecraft--thousands of miles in space, where still much is unknown. While it is dangerous to travel in space, astronauts are dauntless and bravely travel thousands of miles just to learn. They bring skills with technology and research and courage to their work.

Compare and Contrast Nonfiction

Questions developed by Center for Urban Education for use by Chicago Public Schools 2008-2009.

Choose the best answer for each question.

1. How is an astronaut different from an early explorer?

- a. Astronauts face more problems.
- b. Explorers have ships.
- c. Astronauts know more science.
- d. Astronauts have to work harder.

2. How is Earth different from Mars

- a. There are sunrises and sunsets on Earth.
- b. There are diverse environments on Earth.
- c. There are no rocky areas on Earth.
- d. There are no unknown areas on Earth.

3. How are scientists like explorers?

- a. They travel long distances.
- b. They focus on what is unknown.
- c. They are brave.
- d. They have to study hard.

4. How is the sun like a planet?

- a. It rotates each year.
- b. It is part of a system.
- c. It is the biggest place in space.
- d. It changes all the time.

5. *Write your own answer to this question. How are today's astronauts like early explorers?*

TEACHER NOTES: Develop Students' Skills: Exercise Thinking

These questions have not been validated, so decisions about student's achievement should not be made based on their responses. They are intended to exercise skills. Recommended activities include: students work in pairs to choose the best response; give students the questions without the responses so they generate their own answers; students make up additional questions; students make up questions like these for another passage.

Answers: *You can remove this answer key and then give it to students and ask them to figure out the basis for the correct response.*

Item	1	2	3	4
Answer	c	b	b	b

Question 5 is open-ended. Here is a suggested response.

Answers will vary but may include that astronauts and explorers both need skills and tools.