TR: 71 Listen and Read 2 See Student Book pp. 94–95.

TR: 72 3 **Learn new words.**

aspect	Some aspects of the Earth and Mars are similar.
atmosphere	Gases in the air make up the Earth's atmosphere.
degree	Both Earth and Mars tilt on their axes at an angle of about 24 degrees.
detect	Scientists detected signs of water under the surface of Mars.
dust	Wind blows sand and dirt to cause a dust storm.
fundamental	Water is fundamental for all living things.
instrument	Scientific instruments have shown that water exists on Mars.
landscape	The landscapes of Mars and Earth are similar in certain places.
lead to	New technologies will lead to more discoveries on Mars.
plain	A plain is a large, flat area of land.
proof	Scientists are looking for proof that life could exist on Mars.
satellite	Satellites in outer space help us to learn more about the planets.
valley	Mars has tall mountains and deep valleys.
vast	Polar caps are vast areas covered with ice.
wonder	People wonder if there is life beyond Earth.

TR: 73 5 Astronomers have always wondered if there's life beyond Earth. Our neighbor Mars is the most likely place. Advances in technology have allowed scientists to equip robots with a variety of tools, and then send them to explore Mars. These scientific instruments have been able to detect real proof that life is possible there. For example, one of the fundamental requirements for life, the existence of some form of water, has been discovered in several areas of the planet.

TR: 74 5 **Learn new words.**

advance	Technological advances have allowed scientists to study the landscape of Mars.
astronomer	Astronomers are looking for proof of life beyond Earth.
equip with	Scientists equipped the rover with useful instruments to study Mars.
requirement	One of the requirements for life as we know it is water.

TR: 75 Speaking Strategy See Student Book p. 97.

TR: 76 7

S1: Do you think people will ever live on Mars? **S2**: Well, it's likely that people will travel to Mars. Most likely, they would only stay for a little while though. I don't think people will be able to survive there for very long. The atmosphere is too thin—much thinner than Earth's.

S1: It's true, but I'll bet that they'll develop the technology needed to survive in that atmosphere. Maybe scientists will make special suits that we can all buy and wear to live on Mars. **S2**: Possibly, but it's likely that the suits would be very heavy and expensive, and you'd probably never be able to take them off.

S1: Yeah, I guess I'd rather wear jeans and T-shirts here on Earth. But what if they make it possible to travel to Mars? **S2**: I'm pretty sure that only a few people would want to go. It's a big risk and it would take a long time.

S1: Yeah, but would you go? I think I would. **S2**: I don't know. I think I'd rather just follow the Curiosity rover's mission from the safety of my own home!

TR: 77 Grammar See Student Book p. 98.

TR: 78 11 1. If I were president, I would expand space exploration programs. 2. The project would have succeeded if there had been money for new equipment. 3. If it had been my choice, I would have investigated Saturn's moon Titan. 4.They would build a second orbiting space station if they could. 5. We would have repeated the experiment if we had had the time. 6. If I were you, I'd choose some kind of career in space exploration.

TR: 79 13 Of Saturn's 62 moons, the two most habitable for human life are Titan and Enceladus. They are very different from each other. For example, Titan is the second largest moon in our solar system, with a diameter of 2,575 kilometers. Tiny Enceladus has a diameter of only 500 kilometers. The atmosphere on Titan is thick and hazy, hiding surface features from most scientific instruments. Only its seasonal storms are visible. In contrast, the atmosphere on Enceladus is very thin. This means there is no air pressure or weather. However, scientists are better able to see what's happening on its surface.

Each of the moons has a unique feature, as well. Titan is the only other place we know of in our solar system with liquids flowing across its surface. Enceladus doesn't have liquids flowing on the surface, but there are geysers sending icy particles and water vapor into the sky at a speed of nearly 1,300 kilometers per hour.

TR: 80 13 **Learn new words.**

diameter	The diameter of a circle is equal at all points.
geyser	A geyser is a hole in the ground that shoots out water and steam.
habitable	Scientists believe that two of Saturn's moons could be habitable.
hazy	A hazy sky is hidden by clouds and dust.
seasonal	Seasonal changes include variations in temperature and the amount of sunlight.

TR: 81 17 **Learn new words.**

aspiring	An aspiring astronaut wants to travel in space one day.
background	Astronauts need to have a background in math and science.
chance	Alyssa Carson had the chance to go to Space Camp.
leadership	A successful space mission takes patience and strong leadership.
perseverance	If you have perseverance, you're determined to reach your goal.

TR: 82 While you read. 18 See pp. 100–101.

TR: 83 Grammar See Student Book p. 104.

TR: 84 7 See Student Book pp. 108–109.