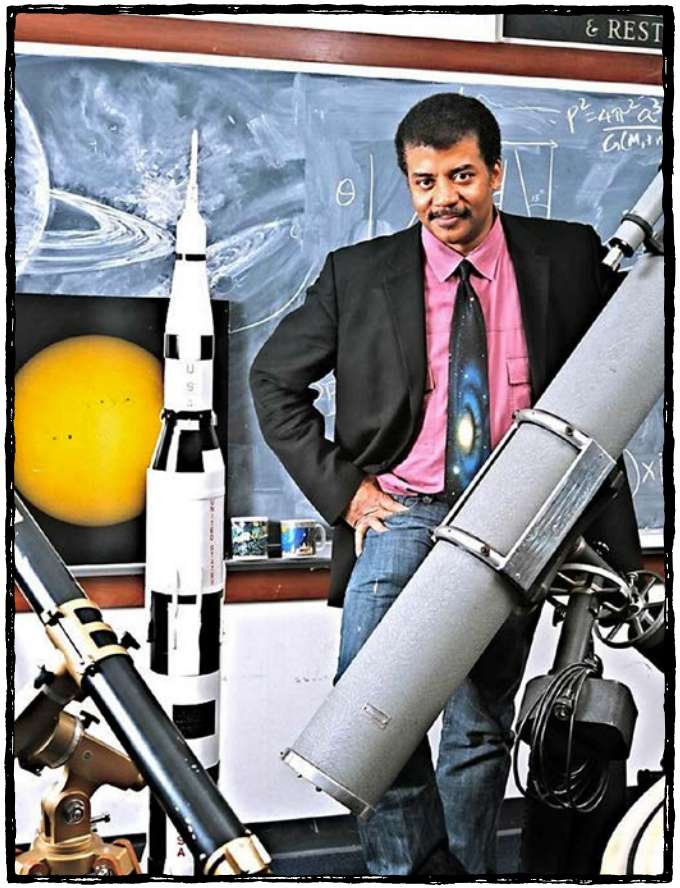
Neil deGrasse Tyson: Star Man

A Reading A–Z Level Y Leveled Book
Word Count: 1,588



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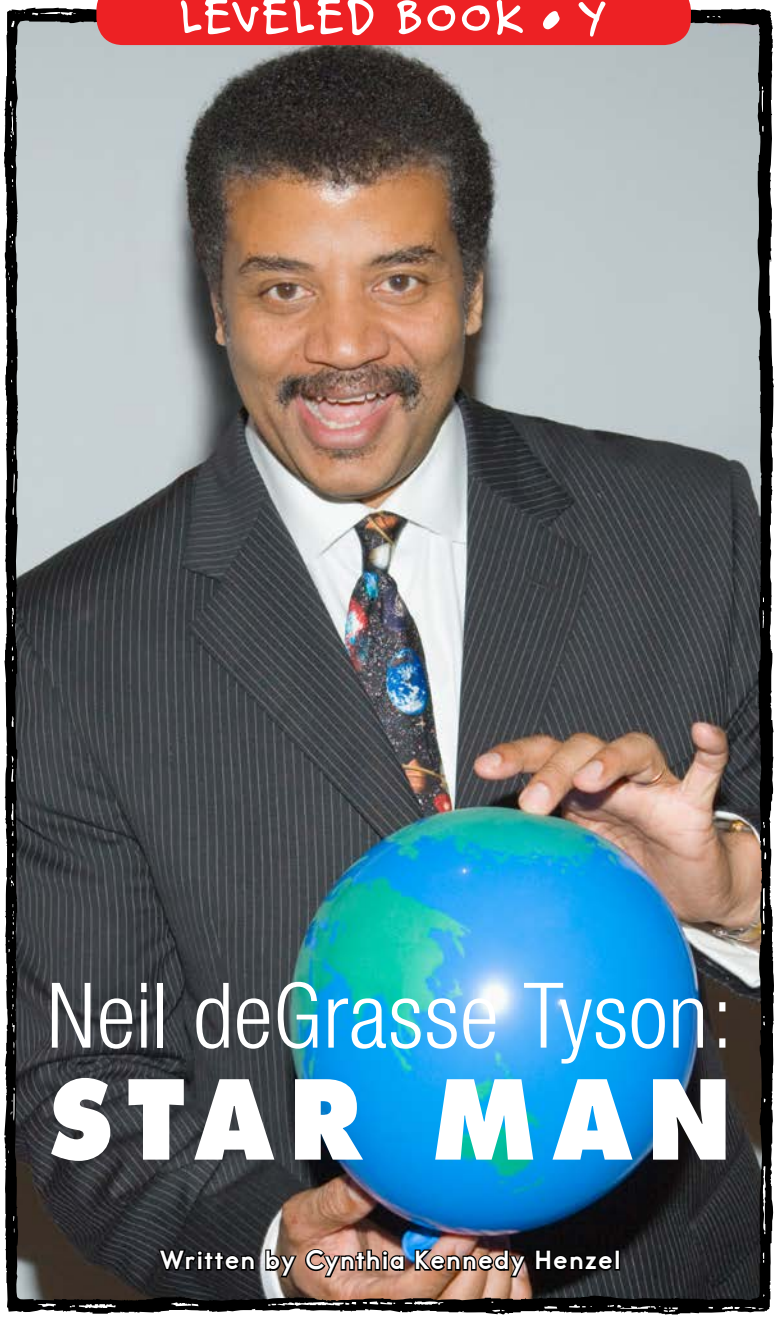

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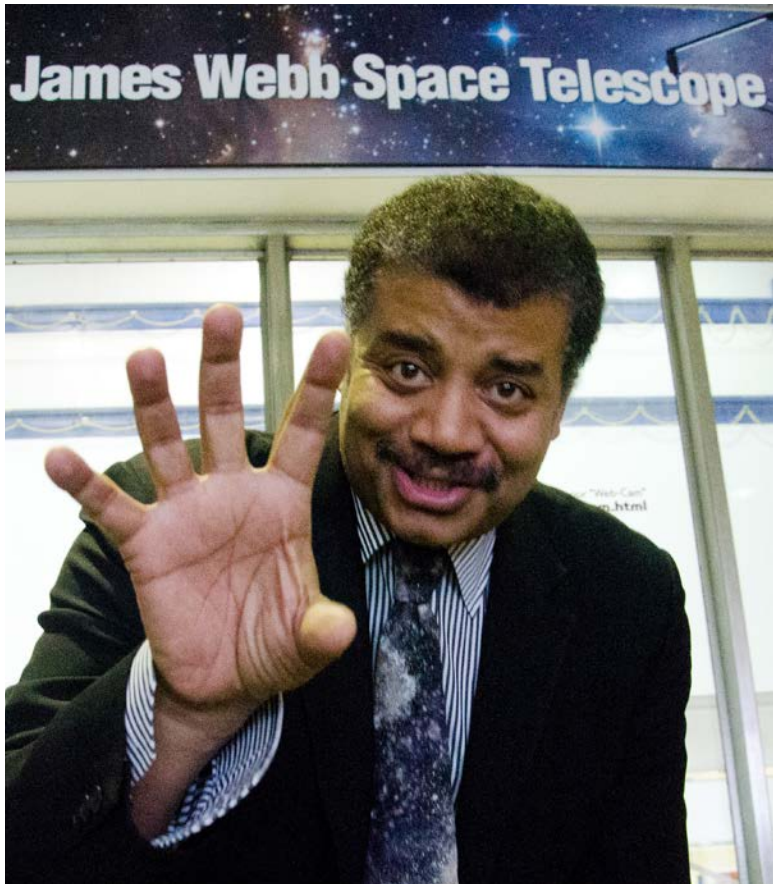
STAR MAN



Written by Cynthia Kennedy Henzel

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Front cover: Neil deGrasse Tyson holds a globe at the opening gala of the World Science Festival in New York in 2009.

Back cover: Neil deGrasse Tyson visits a science classroom with telescopes and models of rockets and planets.

Title page: Neil deGrasse Tyson visits NASA's Goddard Space Flight Center.

Page 3: Neil deGrasse Tyson talks about the small but powerful telescope at the opening of a new observatory at Southern Illinois University in Edwardsville, Illinois, in 2011.

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Correlation

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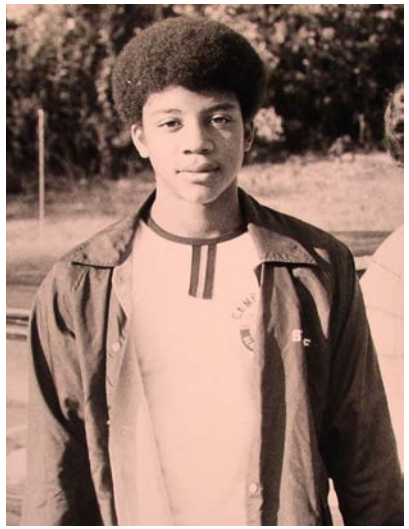
Table of Contents

A Star Summer

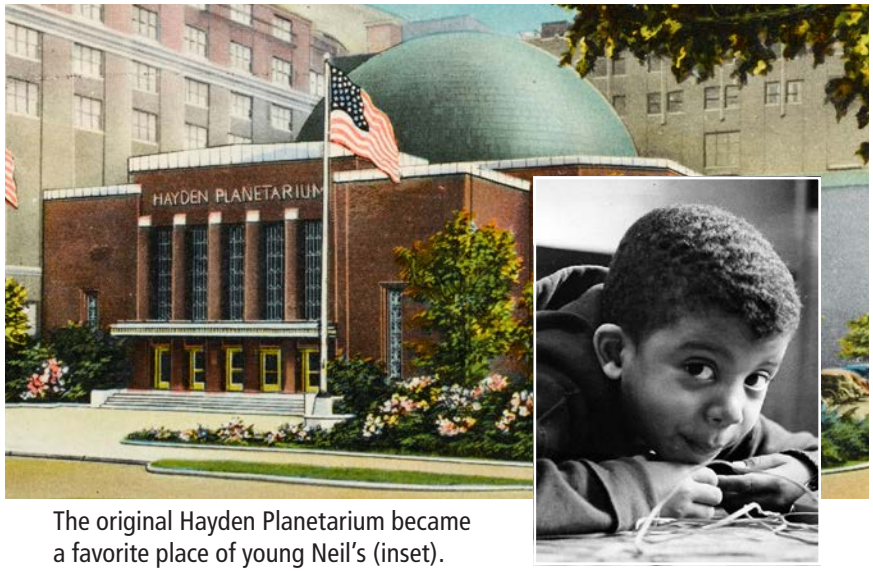
It was a fantastic summer. Neil deGrasse Tyson went to his junior high graduation, said goodbye to his family, and boarded the SS *Canberra.* Onboard, he met Neil Armstrong—the first man to walk on the Moon—as well as the famous science fiction writer Isaac Asimov, and hundreds of top scientists. They sailed to the coast of West Africa to see a solar eclipse—an event so rare that most people never see one in their lifetime.



At age fourteen, Neil traveled to Africa by ship to watch a rare solar eclipse.

Later that summer, Neil rode a bus for fifty-three hours from his home in New York to California to attend **astronomy** camp. He had been born in 1958 in New York City, where bright lights, tall buildings, and smog hid most of the stars. In the darkness of the Mojave Desert, he saw thousands of stars clearly for the first time in his life.

Neil was only fourteen, but his dream of studying stars was coming true. He had no idea that he would become a star himself.



The original Hayden Planetarium became a favorite place of young Neil's (inset).

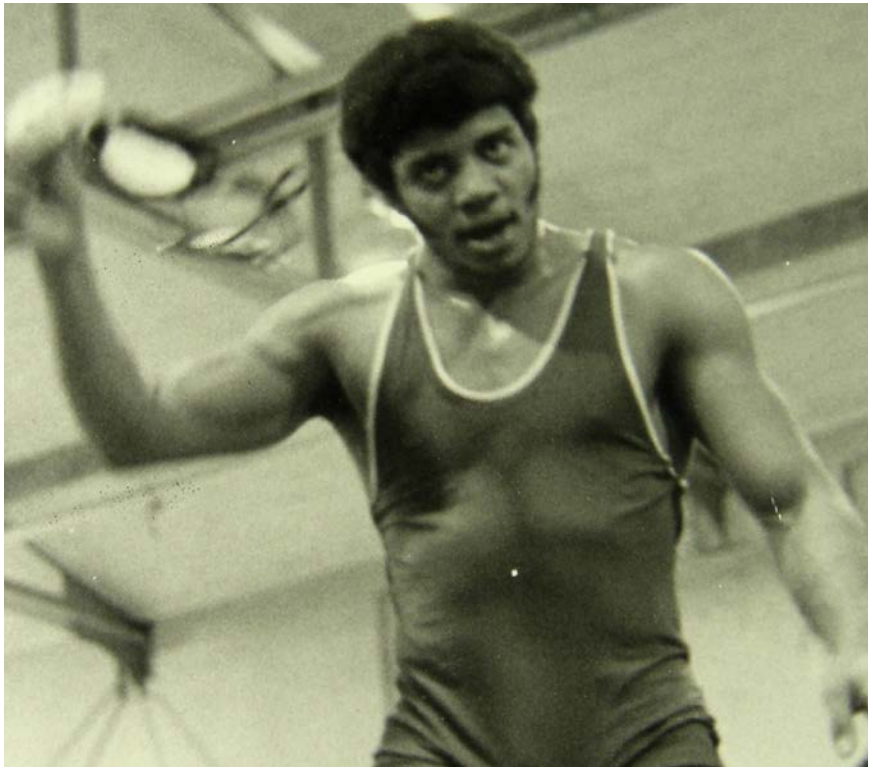
Falling for Stars

Neil's dream of becoming an **astrophysicist** began at the Hayden **Planetarium** in New York City when he was nine. He had a hard time believing that the stars and planets projected above him represented the real night sky, but he knew he wanted to learn more about them.

Two years later, the young boy got his first look at the night sky through binoculars. He saw distant planets and could make out craters on the Moon! His parents bought him a small telescope, and he spent hours at night on the top of his apartment building studying the sky. Soon, he wanted a bigger, more expensive telescope. He walked dogs, at fifty cents per walk, all during junior high school to earn money to buy one.

Neil was good at many sports, winning medals in swimming and track, and playing on the all-star baseball team. In class, his teachers complained that he liked to talk with his friends too much. He was an average student.

That changed when his sixth-grade teacher told him about astronomy classes at the Hayden Planetarium. He started taking classes on his own. The more he learned about stars, the more he wanted to learn.



Neil competed as a wrestler in both high school and college.

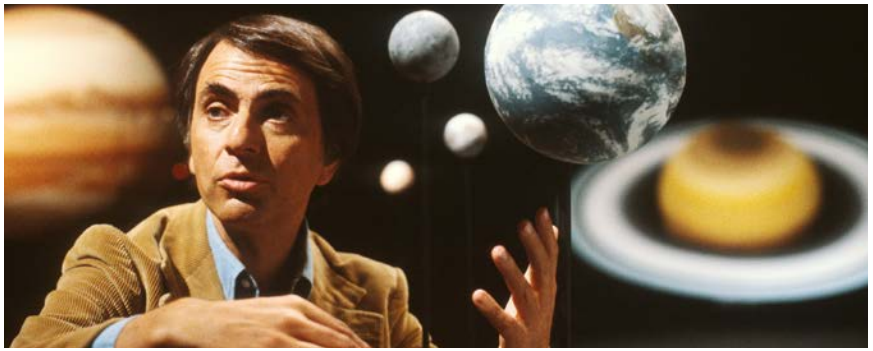
Do You Know?

When neighbors called the police about a young man with a telescope fooling around on the apartment roof, Tyson responded by teaching the officers about the planets.

High School Star

Tyson went to the Bronx High School of Science. He was captain of the wrestling team but still found time to attend talks at the Hayden Planetarium and to study stars. Word of his expertise in astronomy spread among family and friends. When the appearance of a rare comet made the news in 1973, he accepted an invitation to speak about the event at the City College of New York, using the photos of space that he had taken at astronomy camp. He was fifteen, but he wasn't nervous speaking to adults because he was talking about what he loved—stars. Plus, he earned fifty dollars for the speech, which was a lot easier than walking a hundred dogs.

Tyson needed good grades to attend a top college. He earned the highest score in a statewide mathematics exam and, by his senior year, he was editor in chief of the physical science journal that the school produced each year. The U.S. Department of Education designated him as "gifted and talented," but Tyson didn't like the label because he felt his success was the result of hard work, not just a "gift."



Carl Sagan was a scientist who was very good at explaining difficult ideas.

Tyson applied to the best universities in the United States. Carl Sagan, a famous scientist and writer, personally answered his application to Cornell University. Tyson met with Sagan and was impressed with the scientist's willingness to help a seventeen-year-old kid and his ability to explain complicated scientific ideas to the public. This was the man he wanted to be like! Still, Tyson decided to go to Harvard University. In 1980, he graduated from Harvard with a bachelor's degree in **physics**. Then he attended the University of Texas at Austin, where he earned a master's degree in astronomy three years later.

Tyson was on the wrestling and rowing teams at Harvard and performed with a dance group at the University of Texas. He wrote articles for popular astronomy magazines and gave talks. He earned his **doctorate** at Columbia University in 1991, finally reaching his childhood goal of becoming an astrophysicist.

Rising Star

Tyson went to work at Princeton University in New Jersey to research **supernovas** and galactic bulges, which are tightly packed stars at the center of galaxies. His observations were part of the research that led to a method of measuring distance in space and the discovery of dark energy, a mysterious force that fills much of the universe. In 1995, he accepted an offer to become director of the Hayden Planetarium and returned to the place where he had first fallen in love with stars.

The first Hayden Planetarium had been built in 1935. Since that time, scientists had learned much more about the universe, and Tyson convinced people that they needed a new planetarium. The old building was torn down, and construction began on a new Hayden Planetarium as part of the Rose Center for Earth and Space.

The new Hayden Planetarium opened in 2000 and cost $210 million to build.

Tyson continued writing popular books and articles. He appeared on TV as an expert on space. Yet, what would make him famous, or **infamous**, was the smallest planet in our solar system.

Kids explore the exhibits inside the Hayden Planetarium.

A Planet Falls, a Star Is Born

Pluto was discovered in 1930 and **classified** by the International Astronomical Union (IAU) as the ninth planet from the Sun. In 1978, with the discovery of Pluto's moon, scientists found that Pluto was much smaller than they had thought—smaller than Earth's moon.

By the 1990s, scientists were discovering objects similar to Pluto in the Kuiper Belt, an area of orbiting, icy **debris** beyond Neptune. Many scientists thought that Pluto was more similar to these objects than to the other planets. Was Pluto really a planet? The IAU had never defined a planet, so no one knew.

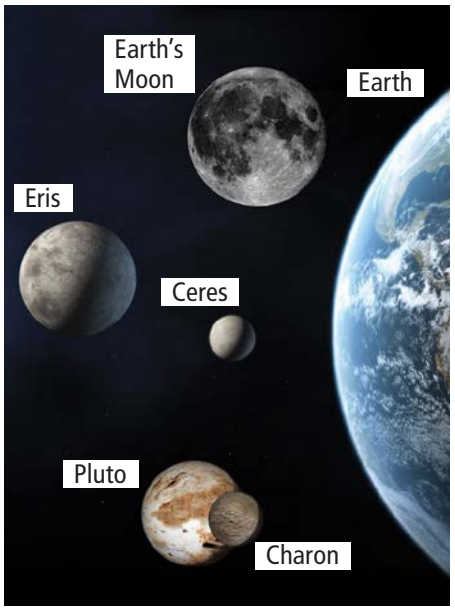
Pluto was a big problem for Tyson. He wanted the Rose Center to educate people on the newest science, but he did not want to have to change expensive, permanent displays. Should they display tiny, icy Pluto as a planet or not?

Tyson decided it was more educational to group space objects that were similar. When the new Rose Center opened in 2000, the rocky planets—Mercury, Venus, Earth, and Mars—were displayed together. The giant gas planets—Jupiter, Saturn, Uranus, and Neptune—were displayed together. Pluto was grouped with similar objects in the Kuiper Belt.

Soon, Tyson's mailbox was flooded with demands that he show Pluto as a planet. He received up to two hundred emails a day. People loved Pluto. Schoolchildren around the country wrote letters telling Tyson that Pluto was a planet, even if it was small. Tyson became the man who **demoted** Pluto.

Many people were upset when scientists began saying that Pluto might not be a planet. Chris Spurgeon, a computer programmer in Los Angeles, California, designed this bumper sticker to protest the change.

During the next few years, scientists discovered more objects in the Solar System, such as Eris, an object in the Kuiper Belt that is larger than Pluto. Was it a planet? Other similar objects, like Ceres, which orbits in the Asteroid Belt between Mars and Jupiter, were called asteroids. Was Ceres actually a planet, too? The IAU realized that our solar system might soon have hundreds of planets if they did not decide on the definition of a planet.

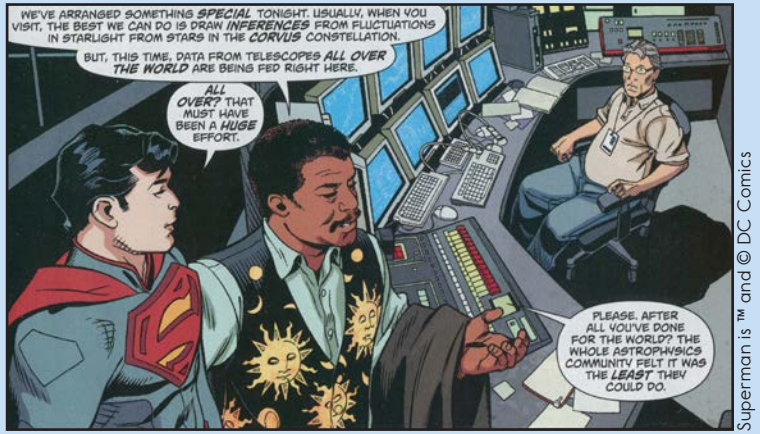


Many dwarf planets are smaller than Earth's moon. Charon (KARE-on) is the largest of Pluto's moons.

In 2006, the IAU decided that a planet must: 1) orbit the Sun, 2) have enough mass to crush itself into a sphere, 3) have enough gravity to clear most of the other objects from its orbit.

Pluto did not meet the third requirement, so it was not a planet. It was classified in a new category, a dwarf planet. Tyson's position, though unpopular, turned out to be correct.

A Friend to Superman



Neil helped Superman discover the location of his home planet of Krypton in *Action Comics #14* in November 2012.

Star Power

Tyson became the face of space science during the Pluto **debate**. His knowledge, humor, and enthusiasm for space make him a popular guest on news and talk shows. He has served on science **commissions** for the U.S. space agency (NASA) and the White House to help decide the United States' next goals for space exploration.

He still writes science articles and books, has hosted science shows for public television (PBS) and the History Channel, and has a popular radio show called *StarTalk*. His Twitter site became one of the top 140 sites in the world, and he appeared in a Superman comic book and on the television comedy *The Big Bang Theory.*

Tyson uses his fame to encourage better science and math education in schools, saying, "Kids are never the problem. They are born scientists. The problem is always the adults . . . That's why my public focus is primarily adults."

He calls for more funding for space research, saying space gets people excited about science and that research and technology drive our economy. He points out that less than half a penny of each tax dollar goes to NASA—a small price to pay for keeping the United States a world leader in technology.

Neil talks with two young boys during a visit to the University of Iowa campus.

Neil deGrasse Tyson (right) poses for a photo with Bill Nye, "The Science Guy," (left) and U.S. President Barack Obama (center).

The Stars Align

In 2014, Tyson hosted a new TV series called *Cosmos: A Spacetime Odyssey.* The original *Cosmos* series—the most watched program ever on PBS—aired in 1980 and was hosted by Carl Sagan, the man who had inspired the young Tyson.

The new series included new and exciting discoveries made since that time and told people not just what we know but how we know it. The show was nominated for twelve Emmy awards.

What is next for Neil deGrasse Tyson? He would like to do more research, but, for now, communicating with the public about science keeps him busy. No matter what his next direction is, the boy who loved stars has become a star himself.

Glossary

astronomy *(n.)*	a field of science involving the study of stars, planets, comets, and other things found in space (p. 4)
astrophysicist *(n.)*	a scientist who studies the physical nature of stars and other bodies in space (p. 5)
classified *(v.)*	sorted; assigned to a category (p. 10)
commissions *(n.)*	groups of people authorized to carry out tasks (p. 13)
debate *(n.)*	a discussion between people or groups who have different opinions on an issue (p. 13)
debris *(n.)*	scattered pieces of something that are left after the rest has been destroyed or is gone (p. 10)
demoted *(v.)*	lowered the rank or position of someone or something (p. 11)
doctorate *(n.)*	the highest degree a university can award; a Ph.D. (p. 8)
infamous *(adj.)*	famous for being evil, bad, or dangerous (p. 9)
physics *(n.)*	the scientific study of matter, motion, and energy (p. 8)
planetarium *(n.)*	a building in which the image of the night sky is projected onto a curved ceiling (p. 5)
supernovas *(n.)*	explosions of stars, resulting in a sharp increase in brightness followed by a gradual fading (p. 9)