# Table of Contents

# Introduction

Each book in the *Power Practice*™ series contains dozens of ready-to-use activity pages to provide students with skill practice. Use the fun activities to supplement and enhance what you are already teaching in your classroom. Give an activity page to students as independent class work, or send the pages home as homework to reinforce skills taught in class. An answer key is provided for quick reference.

*Nonfiction Reading Comprehension 5–6* is filled with grade-level nonfiction reading selections and follow-up activities. The activities include the following skills:

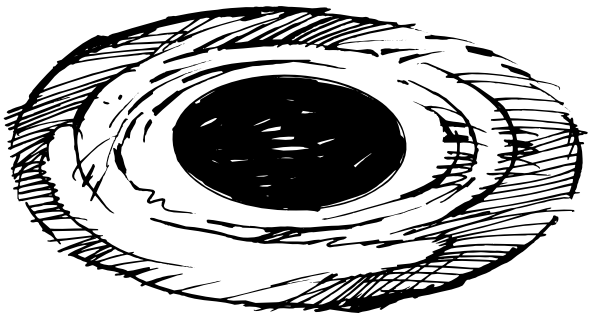
- summarizing and paraphrasing
- making inferences
- determining cause and effect
- sequencing
- recognizing relevant and irrelevant details
- restating
- classifiying
- forming judgements
- recognizing main ideas and details
- using context clues
- using graphic organizers
- accessing prior knowledge
- making personal connections
- questioning

The activities provide entertaining and informative texts that are grounded in the curriculum taught in the fifth and sixth grades. They give information to activate schema for a variety of content area lessons that a student may encounter in his or her textbooks. The reading selections also aim to appeal to fifth and sixth graders' interest in odd facts and lurid details.

Higher-level thinking skills are stressed throughout the book with at least one activity per text selection. There are also a number of activities that are appropriate for or can be easily adapted for struggling readers. There is a focus on writing activities with opportunities to write formal and informal letters, paragraphs, comparison and persuasive essays, and newspaper articles. These provide ample ways for students to demonstrate mastery of standards in writing.

Use these ready-to-go activities to "recharge" skill review and give students the power to succeed!

# Black Holes



They come in all sizes, from the size of an atom to a weight equivalent to a billion of our suns. Many came into being 15 billion years ago when our universe was created. Others are created whenever a star explodes in a supernova. Scientists know they exist even though they have never seen one. Scientists had theories about them for many years before Archibald Wheeler gave them the name "black hole" in 1967.

A black hole begins its life as a star, but not just any star. Our own sun will never have what it takes to be a black hole. It takes a star at least ten times heavier and more often hundreds of times bigger than our sun to create a black hole. These stars are called red supergiants. They burn their fuel more quickly than other kinds of stars. This creates intense heat and pressure, which cause an iron core to develop. The iron core cannot be compressed further, so no energy can be gained from its fusion. Eventually, the imbalance of energy causes the star to explode in a supernova.

After the supernova, one of two things happens in just a few seconds. Both are the result of the collapse of the supernova's core. One result could be the creation of a neutron star, called a pulsar. Like the revolving light on a police car, these neutron stars give off bursts of radiation from their two poles as they rotate in space. The second result occurs if the supernova is too heavy to become a pulsar. The gravity is so great that it keeps collapsing and collapsing until it becomes a black hole.

Gravity is the key to a black hole. It is what creates one and it is what lets us know a black hole exists. The gravity of a black hole has strange effects on the other light in space. If a black hole is between Earth and another galaxy, that galaxy will seem to be split into two pieces. It also appears brighter and fools us into thinking the galaxy is closer than it is. We cannot see a black hole itself, but its gravity captures light, which forms a faint ring—an accretion disk—around the hole, giving a clue that it is there.

Light is not the only kind of radiation affected by black holes, however. The first black hole was detected around 1970, because the satellite *Uhuru* was able to measure x-ray signals that were caused by gas being sucked from a supergiant star into the nearby black hole. More recent observations in February of 2004 show that black holes rip apart stars that get too close, devouring some parts and allowing the rest of the matter to escape into the universe. Scientists believe this is the way black holes grow.

Some scientists had theories that it might be possible to travel through black holes to other universes or even to travel through time. Recent developments in the science of black holes have changed these theories, and this kind of travel no longer seems possible.

Stephen Hawking is probably the most well-known scientist who studies black holes. In July of 2004, he reevaluated an idea about black holes that he had held since the 1970s. Originally, Hawking thought that everything that fell into a black hole was destroyed or shot out into another universe. Other scientists disagreed, however, because this destruction of matter doesn't agree with Einstein's famous equation $E=mc^2$, which basically means that nothing is ever really destroyed. Hawking now says, "If you jump into a black hole, your mass energy will be returned to our universe, but in a mangled form which contains the information about what you were like, but in an unrecognizable state." At least, that is the theory for now. Maybe you will come up with something new in the future.

Name _____ Date _____

# Out of This World

Use words from the passage to fill in the blanks. Then write the correct letter for each number to reveal the answer to the riddle.

1. a group of stars, planets, and other matter ___ ___ ___ ___ ___ ___ (1 2 3 4 5 6)
2. waves of energy ___ ___ ___ ___ ___ ___ ___ ___ ___ (7 8 9 10 11 12 13 14 15)
3. the center ___ ___ ___ ___ (16 17 18 19)
4. another name for the Milky Way galaxy ___ ___ ___ ___ ___ ___ ___ ___ (20 21 22 23 24 25 26 27)
5. opposite ends of the axis ___ ___ ___ ___ ___ (28 29 30 31 32)
6. the explosion of a large star ___ ___ ___ ___ ___ ___ ___ ___ ___ (33 34 35 36 37 38 39 40 41)
7. short wavelength radiation ___ - ___ ___ ___ (42 43 44 45)
8. a young neutron star that gives off radiation ___ ___ ___ ___ ___ ___ (46 47 48 49 50 51)
9. the smallest portion of an element ___ ___ ___ ___ (52 53 54 55)
10. a very massive star ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ (56 57 58 59 60 61 62 63 64 65)
11. one kind of atom turns into another and releases energy ___ ___ ___ ___ ___ ___ (66 67 68 69 70 71)
12. a collapsed star ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ (72 73 74 75 76 77 78 79 80 81 82)
13. an idea based on science ___ ___ ___ ___ ___ ___ (83 84 85 86 87 88)
14. pushing force ___ ___ ___ ___ ___ ___ ___ ___ (89 90 91 92 93 94 95 96)
15. glow around hole ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ (97 98 99 100 101 102 103 104 105 106 107 108 109)

**What songs do planets like to sing?** ___ ___ ___ ___ ___ ___ ___ ___ (21 36 46 65 74 78 101 108)

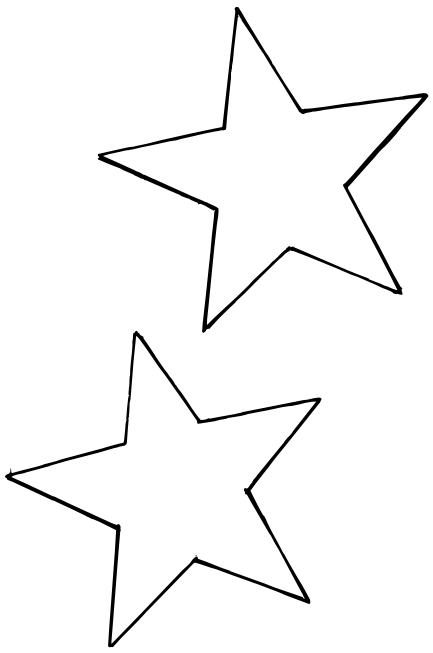
Name _____ Date _____

# Name That Star

Match each star with its description. You may want to use a reference book for help or read each description carefully for clues.
Here are some hints:

- A star the size of our sun or smaller is a dwarf.
- A star ten to one hundred times the size of the sun is a giant.
- Cool stars are red.
- Hot stars are blue.

1. _____ red giant
2. _____ red supergiant
3. _____ blue giant
4. _____ blue supergiant
5. _____ white dwarf
6. _____ brown dwarf
7. _____ red dwarf
8. _____ neutron star
9. _____ protostar



**a.** a collapsed cloud of gas and dust that did not have enough mass to start nuclear fusion in its core; it is more dense than a planet and produces its own dim light

**b.** the type of star that may create a black hole after it explodes into a supernova

**c.** a star bigger than Earth that has a low temperature

**d.** a bright star that is bigger than Earth and has a high temperature

**e.** a star near the end of its life that has run out of nuclear fuel; it has collapsed and is very small and light-colored

**f.** small stars that only give off faint light and are cool

**g.** clouds of glowing gas and dust that will eventually come together to become stars

**h.** the brightest, hottest, largest star

**i.** the result of a supernova; a star that is made up mostly of neutrons

Name _____ Date _____

# How Does It Happen?

Cut out the steps in the creation of a black hole. Glue them in order below.

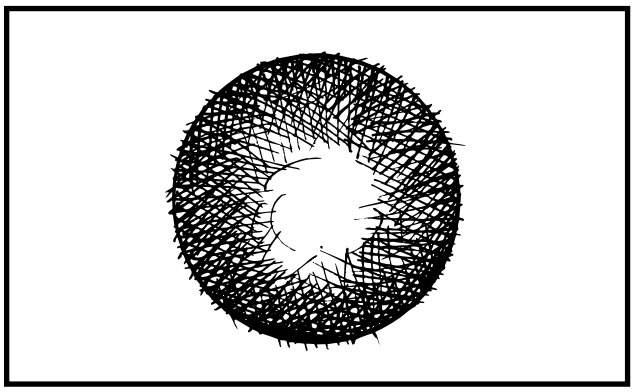
| |
|---|
| |
| |
| |
| |
| |
| |
| |

| |
|---|
| A black hole is formed. |
| The star explodes in a supernova. |
| A massive star begins to run out of fuel. |
| Gravity is so strong that the object keeps collapsing. |
| The star begins to develop a core of iron. |
| The leftovers of the star begin collapsing. |
| The iron cannot be compressed anymore. |

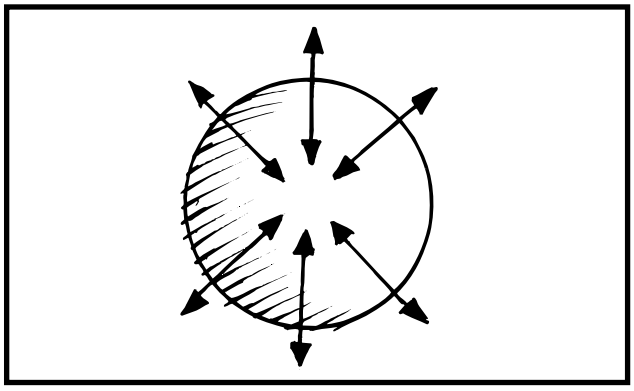
Name _____ Date _____

# A Black Hole

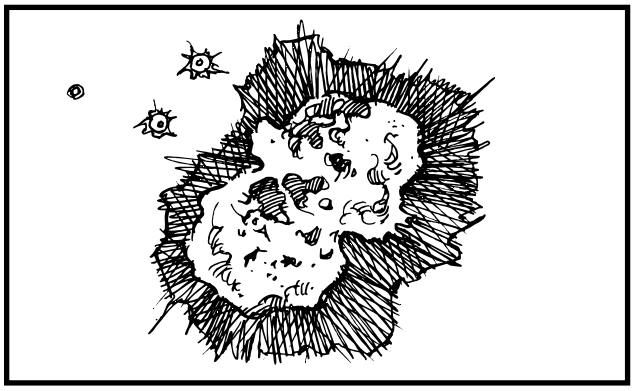
Tell what is happening in each picture as a black hole is created. Write your explanations.



_____
_____
_____
_____
_____
_____
_____



_____
_____
_____
_____
_____
_____
_____



_____
_____
_____
_____
_____
_____
_____

_____
_____
_____
_____
_____
_____
_____

# Space Pioneers

What would it be like to float high above Earth in space? "I marveled at the beauty of our planet. People of the world! Let us safeguard and enhance this beauty—not destroy it!" is what Yuri Gagarin (YUR-ee Ga-GAR-in) said. He was the first person to go beyond Earth's atmosphere. Other Earthlings, however, made it into space before he did.

Almost four years before Yuri Gagarin's flight, a dog named Laika became the first living thing in space. Laika flew aboard *Sputnik 2* in November of 1957. She was the first of thirteen dogs to be part of the Soviet Union's space program. A dog name Zvezdochka, which means "Little Star," went into space on March 25, 1961. Her flight was a chance to see how things would work for the *Vostok 1* flight, which would take the first human into space.

On April 12, 1961, twenty-seven-year-old cosmonaut Yuri Gagarin lifted off from Baiknour, Kazachstan, then part of the Soviet Union. His space flight was only 108 minutes long, but that was a significant accomplishment for space exploration at the time.

Dogs were not the only animals to help prepare for human space flight. Several early flights had rats, mice, and guinea pigs on board. France even launched two cats. The main animals used in the American space program were monkeys. Five were launched between December 13, 1958, and January 21, 1960.

Two chimpanzees, Ham and Enos, also made the trip beyond Earth's boundaries. Ham's flight on January 31, 1961, made it possible for the first American to journey into space.

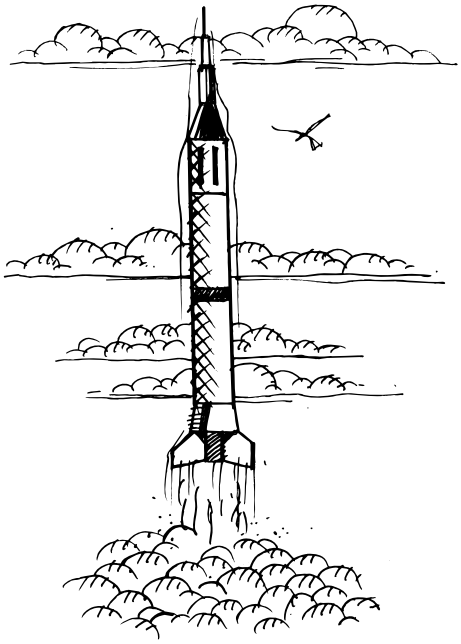
*Freedom 7* launched from Cape Canaveral on May 5, 1961. Astronaut Alan Shepard was on board for a fifteen minute and twenty-two second flight. The difference between Gagarin's flight in April and Shepard's in May is that Shepard was able to control his spacecraft, and Gagarin could not.

Three months later, on August 6, 1961, the Soviet Union launched *Vostok 2*. Cosmonaut Gherman Titov stayed in orbit for twenty-five hours and eighteen minutes. Titov was able to orbit Earth seventeen and a half times.

The first American to orbit Earth was John Glenn. He orbited Earth three times on February 20, 1962, in the spacecraft *Friendship 7*. His flight lasted four hours, fifty-five minutes, and twenty-three seconds. As he watched the Earth speed by below him and the sun set, Glenn said, "That was about the shortest day I've ever run into."

The first woman in space was Valentina Tereshkova. She was launched into space in *Vostok 6* on June 16, 1963. She spent nearly three days making forty-eight orbits of our planet.

There have been many advances in space exploration in the past forty years. Men have walked on the moon, the International Space Station is being constructed, and the space shuttles make regular flights. With the launch of *Spaceship 1* on June 21, 2004, there is now the possibility that anyone who can pay the high cost will be able to travel into space like these pioneers. Perhaps someday you will be the one describing what Earth looks like from space.



Name _____ Date _____

# Astronaut or Cosmonaut?

The Russians called their explorers cosmonauts and the Americans called theirs astronauts. Why did they call them by different names?

The Russians used the prefix "cosmo," which comes from the Greek word *kosmos*, meaning "universe." The Americans used the prefix "astro," which comes from the Latin prefix *astro-*, meaning "star." These prefixes do not have the exact same meaning, but they are similar. You would find other words with these prefixes when studying more about space.

Fill in the chart with prefixes you might find when reading about certain subjects. How many do you know already? Use a dictionary to find the meanings of the rest.

| | | | |
|---|---|---|---|
| acous- | cyto- | hexa- | phyto- |
| aero- | deca- | ichthyo- | rhizo- |
| andro- | dodeca- | luni- | septi- |
| anthropo- | ethno- | oculo- | stelli- |
| atmo- | gluc- | oro- | uni- |
| avi- | helio- | oto- | |
| centi- | hepta- | pedo- | |

| | |
|---|---|
| 1 Prefixes you might find in words when you are studying about space | astro-<br>cosmo- |
| 2 Prefixes you might find in words when you are studying about the five senses | |
| 3 Prefixes you might find in words when you are studying about living things | |
| 4 Prefixes you might find in words when you are studying about people | |
| 5 Prefixes you might find in words when you are studying about numbers | |

Name _____ Date _____

# Dogs or Monkeys?

The United States used monkeys and chimpanzees as space pioneers. The Soviet space program used dogs. Why do you think they chose different animals? Do you think it was better to use dogs or monkeys? Fill in the charts with pros and cons for using each animal. Then complete the paragraph.

**Dogs**

| Good things about using them | Bad things about using them |
|---|---|
| | |

**Monkeys and Chimpanzees**

| Good things about using them | Bad things about using them |
|---|---|
| | |

If I were running a space program, I would use _____ instead of _____.
They are _____
_____
_____
unlike _____, which are _____
_____.
The worst thing about using _____ is _____
_____.