

# Lesson 1

## Finding Main Ideas and Details



### Learning Target

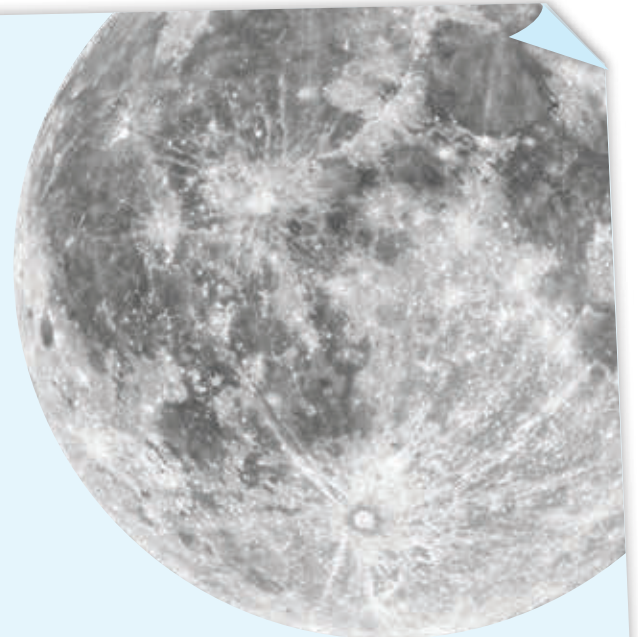
**Figuring out the main ideas of a text and the key details supporting them is necessary for understanding that text.**

- ▶ **Read** A **topic** is what a passage is about. A **main idea** is an important idea about that topic. Short passages usually develop just one main idea. Long passages often have two or more main ideas.

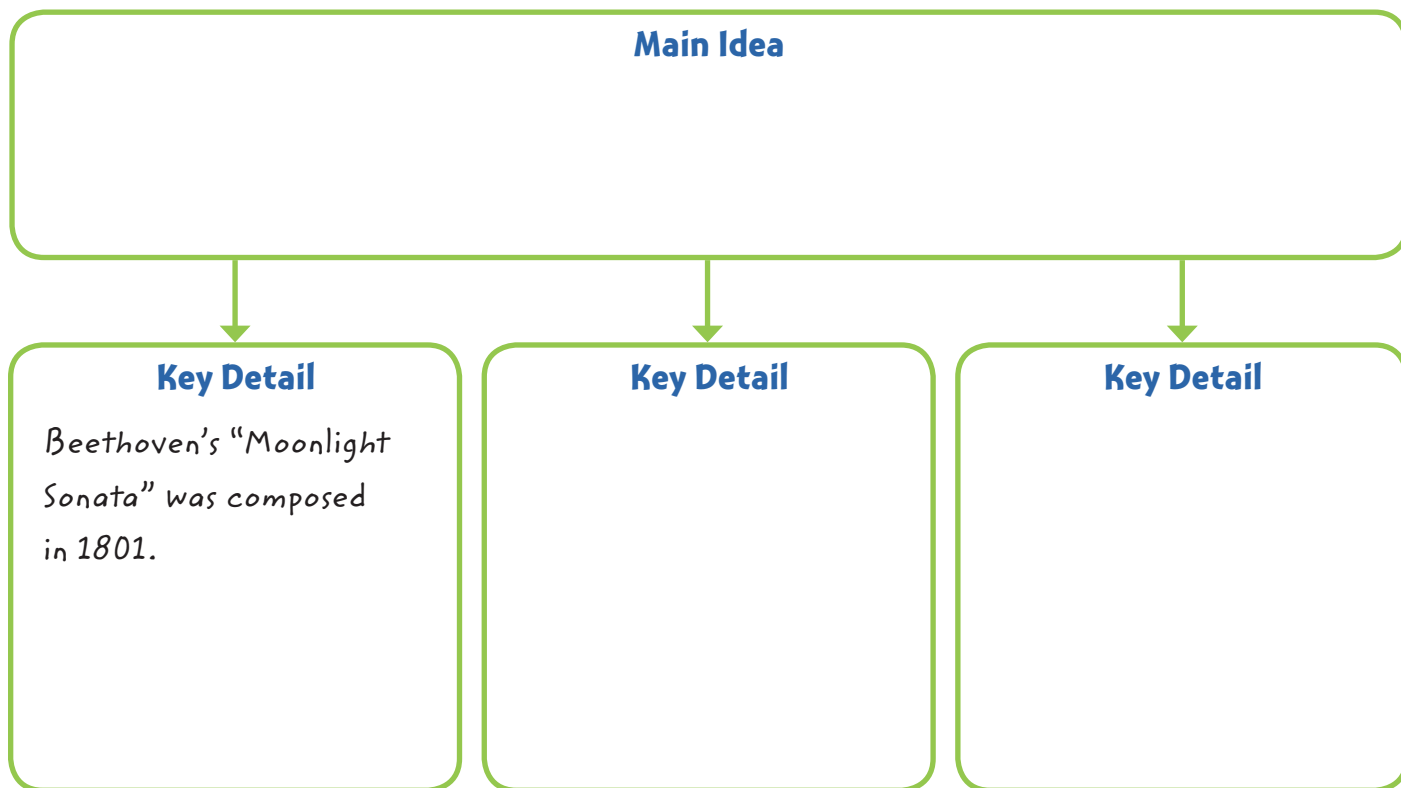
A passage's **details** are the facts, examples, and other information stated in the text. The details that help explain a main idea are called **key details**. We sometimes say that key details **support** main ideas.

**Read the passage below. Underline what you think is the main idea. Then look for key details that help explain it.**

At some point in your life you've probably looked up, gazed at the moon, and studied it in wonder. Throughout time, the moon has inspired many people. In 1801, Ludwig van Beethoven composed a piano piece called "Moonlight Sonata." Later, in 1889, Vincent van Gogh painted *The Starry Night*. In this painting, swirls of white and yellow create a halo around the moon. In 2011, Marilyn Singer wrote a book called *A Full Moon Is Rising* about how people all over the world celebrate the moon. The next time you gaze upon the moon, maybe you'll be inspired by it, too!



► **Think** Consider what you have read about main ideas and key details. In the *main idea organizer* below, write down one sentence from the passage you think states the main idea. Then write down two key details that develop the main idea.



- **Talk** Share your organizer with a partner.
- Did you both choose the same sentence for your main idea?
  - Why do you think the sentence you chose, and not some other sentence, is the main idea?
  - Do all three key details support the sentence you believe is the main idea? How do you know?



**Academic Talk**

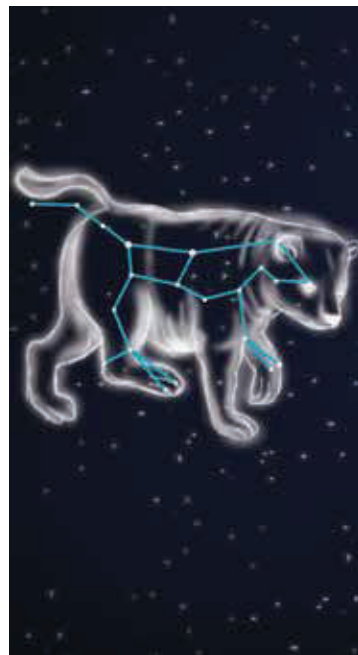
Use these words and phrases to talk about the text.

- **main idea**
- **detail**
- **topic**
- **key detail**
- **support**

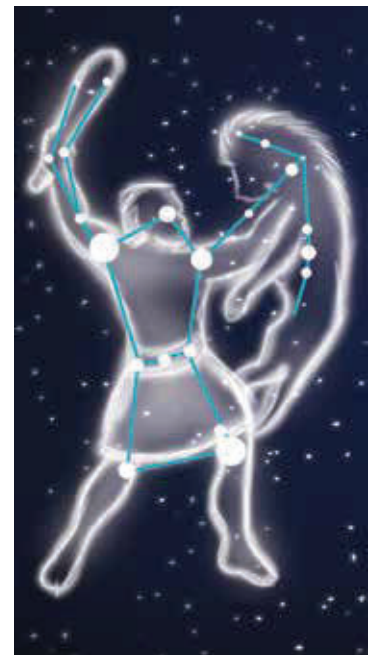
# Identifying Constellations

by Allen James

1 For thousands of years, people have come up with ways of identifying and keeping track of the stars in the night sky. One way that ancient cultures made sense of the stars was by grouping them into recognizable shapes. Sometimes these shapes were based on elements of everyday life—animals such as birds or bears, people such as hunters, and so on. Other times, the shapes took the forms of mythic heroes and monsters. These shapes, called *constellations*, helped ancient people make sense of the sky. They also gave rise to some amazing stories.



**Ursa Major**



**Orion**

- 2 One constellation that most people can identify is the Big Dipper. The Big Dipper is a constellation of seven stars that looks like a long-handled cup, or dipper, for water. Three stars form the handle and connect to the four stars that form the cup. The Big Dipper is part of the larger constellation called Ursa Major, or the Great Bear. The Big Dipper also points to Polaris, the North Star.
- 3 Another easy constellation to spot is Orion, the Hunter. To see Orion, look for three stars that are close together in a slightly diagonal line. That's Orion's belt. Other stars above and below the belt form Orion's upper and lower body.

## Close Reader Habits

When you reread the science text, **underline** the sentence that states the main idea of paragraph 1 only. Then **circle** key details that support that main idea.

**Explore**

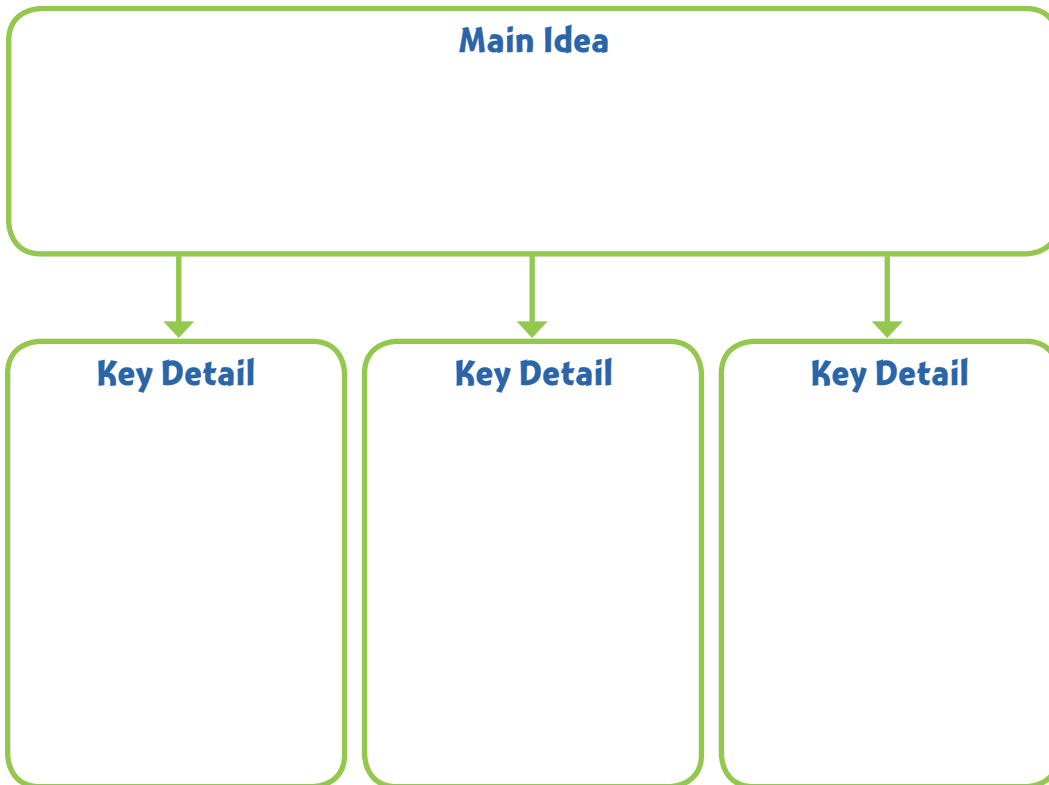
What is the main idea of paragraph 1? What key details support that main idea?



The main idea of a paragraph isn't always the first sentence. Sometimes the main idea appears later in the paragraph.

**Think**

**1** Complete this main idea organizer for paragraph 1 only.



**Talk**

**2** Share your organizers. Do you agree about the main idea of paragraph 1? What did you write for your key details? If necessary, revise your organizers.

**Write**

**3 Short Response** What is the main idea of paragraph 1? How do the key details support that main idea? Use the space provided on page 16 to write your answer.

**HINT** Include the name of the passage, and remember that you're writing only about paragraph 1.



# How Pluto Stopped Being a Planet

by Tyrone Nielson



- 1 For decades, people believed our solar system had nine planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. But in 2006, a group of astronomers decided that Pluto was not a true planet but something else: a dwarf planet.
- 2 The term “dwarf planet” might make you think that Pluto was kicked out of the planet club solely because of its size. And it’s true that Pluto is small compared with the planets. If Earth were the size of a basketball, Pluto would be the size of a golf ball. But Pluto’s size isn’t why most astronomers now call it a dwarf planet. So why the change to Pluto’s status?
- 3 Here’s why. In August 2006, astronomers came up with a new definition of *planet*. To be a planet, they said, an object has to meet three conditions.
  - It has to orbit the Sun directly. It can’t be a moon orbiting a planet.
  - It has to be massive enough for its own gravity to pull it into the shape of a ball.
  - It has to have cleared its neighborhood of smaller objects around its orbit. In other words, during its trips around the Sun, a planet must draw smaller objects into itself, or pull them into its orbit, or fling them off into space.
- 4 Pluto does not meet the third condition. It hasn’t cleared its neighborhood the way the planets have. It moves within a field of rock-and-ice objects that it cannot clear away. That’s why most astronomers now call Pluto a dwarf planet.
- 5 Not all astronomers accept the change to Pluto’s status. Among other reasons, they feel that “clearing the neighborhood” isn’t a well-defined concept. But most astronomers (and museums and textbooks and teachers) feel the new definition is clear enough to be useful. So long, Pluto—at least you’re still with us as a dwarf planet.

## Close Reader Habits

How does the article explain why astronomers reclassified Pluto? Reread the text. **Underline** key details explaining why the astronomers changed Pluto’s status.

**Think** Use what you learned from reading the science article to respond to the following questions.



Many science articles are about new discoveries or changes to old ideas. Like any informational text, a science article has one or more main ideas supported by key details.

- 1** This question has two parts. Answer Part A. Then answer Part B.

**Part A**

What is the main idea of the science article by Tyrone Nielson?

- A** A group of astronomers decided that Pluto is a dwarf planet.
- B** Pluto is large enough to be a moon but too small to be a planet.
- C** Many astronomers are pleased that Pluto is not a planet anymore.
- D** Some astronomers still believe Pluto should be called a planet.

**Part B**

Which statement from the text **best** supports the answer to Part A?

- A** "For decades, people believed our solar system had nine planets. . . ."
- B** "And it's true that Pluto is small compared with the planets."
- C** "In August 2006, astronomers came up with a new definition of *planet*."
- D** "It has to be massive enough for its own gravity to pull it into the shape of a ball."

- 2** Which of these is **most clearly** a key detail of the passage?

- A** "And it's true that Pluto is small compared with the planets."
- B** "If Earth were the size of a basketball, Pluto would be the size of a golf ball."
- C** "It hasn't cleared its neighborhood the way the planets have."
- D** "Not all astronomers accept the change to Pluto's status."

**Talk**

- 3** What is the main idea of paragraph 3? What key details support it? Use the organizer on page 17 to organize your information.

**Write**

- 4 Short Response** Use the information in your organizer to explain how the key details you identified support the main idea of paragraph 3. Use the space provided on page 17 to write your answer.

**HINT** Don't just identify the key details. Also say how they support the main idea.



**Write** Use the space below to write your answer to the question on page 13.

# Identifying Constellations

**HINT** Include the name of the passage, and remember that you're writing only about paragraph 1.

**3 Short Response** What is the main idea of paragraph 1? How do the key details support that main idea?

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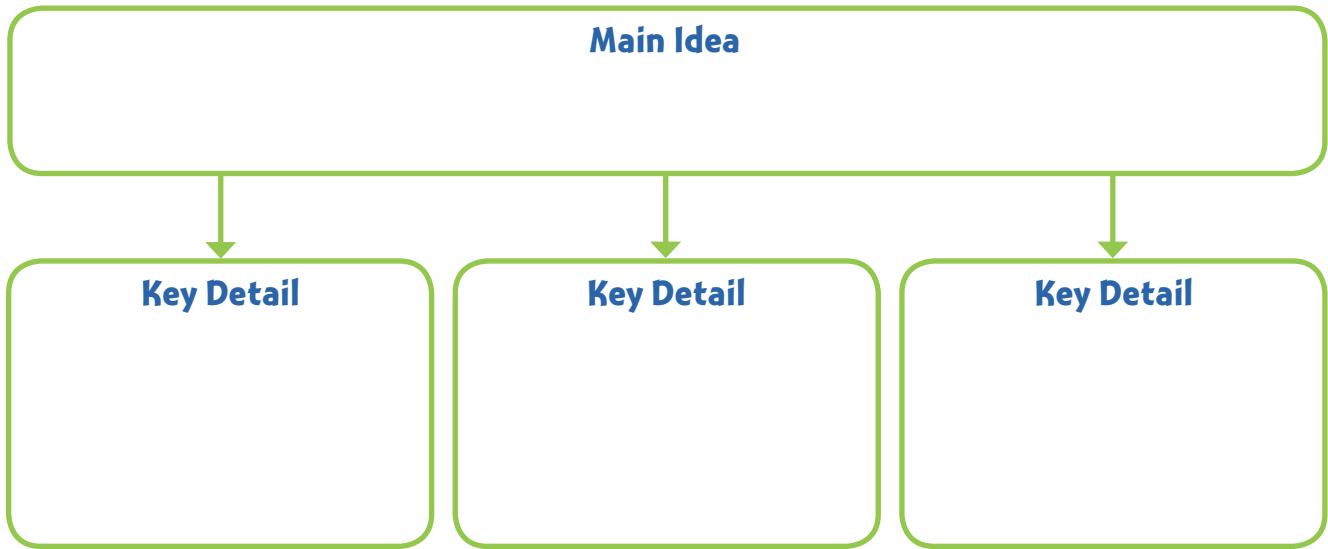
Don't forget to check your writing.

## Check Your Writing

- Did you read the prompt carefully?
- Did you put the prompt in your own words?
- Did you use the best evidence from the text to support your ideas?
- Are your ideas clearly organized?
- Did you write in clear and complete sentences?
- Did you check your spelling and punctuation?

# How Pluto Stopped Being a Planet

**3** Use the main idea organizer below to organize your information.



**Write** Use the space below to write your answer to the question on page 15.

**4 Short Response** Use the information in your organizer to explain how the key details you identified support the main idea of paragraph 3.

**HINT** Don't just identify the key details. Also say how they support the main idea.

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**WORDS TO KNOW**


As you read, look inside, around, and beyond these words to figure out what they mean.

- **observe**
- **inward**
- **reactions**

# from **When Stars EXPLODE**

by Ken Crowell, PhD, *Highlights*

- 1 [A supernova is] the spectacular death of a star. The last time people saw a supernova in our galaxy was 1604. That was before astronomers were using telescopes. However, every year astronomers see supernovae exploding in other galaxies. Astronomers can often observe such supernovae for months before they fade from view.
- 2 Most supernovae—that's the plural of supernova and pronounced SOO-per-NOO-vee—come from massive stars. Antares is a massive star. Such a star is born with more than eight times the mass of the Sun.
- 3 When a massive star is young, it is hot, bright, and blue. Its center makes energy the same way the Sun does: by changing hydrogen, the lightest element, into helium, the second-lightest element. This nuclear reaction creates energy that heats the star and makes it shine.



The exploding star that people saw in 1604 produced a glowing cloud of gas and dust called a *nebula*. The nebula at the left is all that remains of that star.

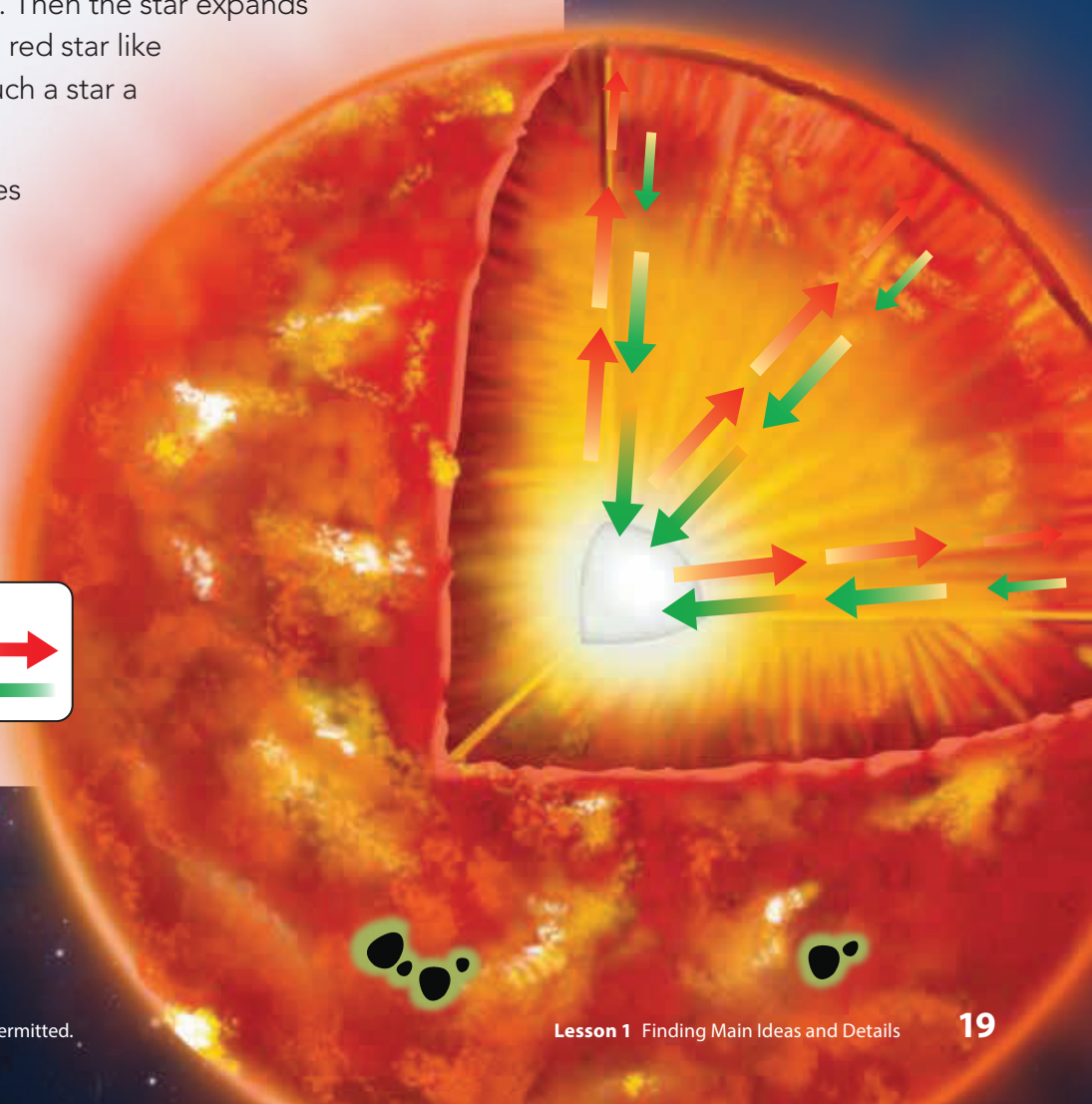
4 The outflow of huge amounts of energy—much of it light—pushes outward from the star’s center. This is good, because the force of gravity pulls inward and tries to make the star collapse. But as long as the star can make energy, it can fight the force of gravity and survive.

5 However, a massive star must make lots of energy to fight the gravity of its own mass. So the star shines very brightly. As a result, we can easily see the star across hundreds of light-years of space. This is a huge distance, because one light-year is the distance that light speeds through in a year: nearly 6 trillion (6,000,000,000,000) miles.

6 But because the star shines so brightly, it uses up its hydrogen fuel within millions of years—much less time than the billions of years the Sun will take to use up its fuel. Soon the star’s center runs out of hydrogen. Then the star expands and cools, turning into a big red star like Antares. Astronomers call such a star a red supergiant.

7 The red supergiant makes energy by changing helium and other elements into still heavier elements. But these nuclear reactions do not make as much energy as hydrogen did. Within a few million years, the star has no fuel left.

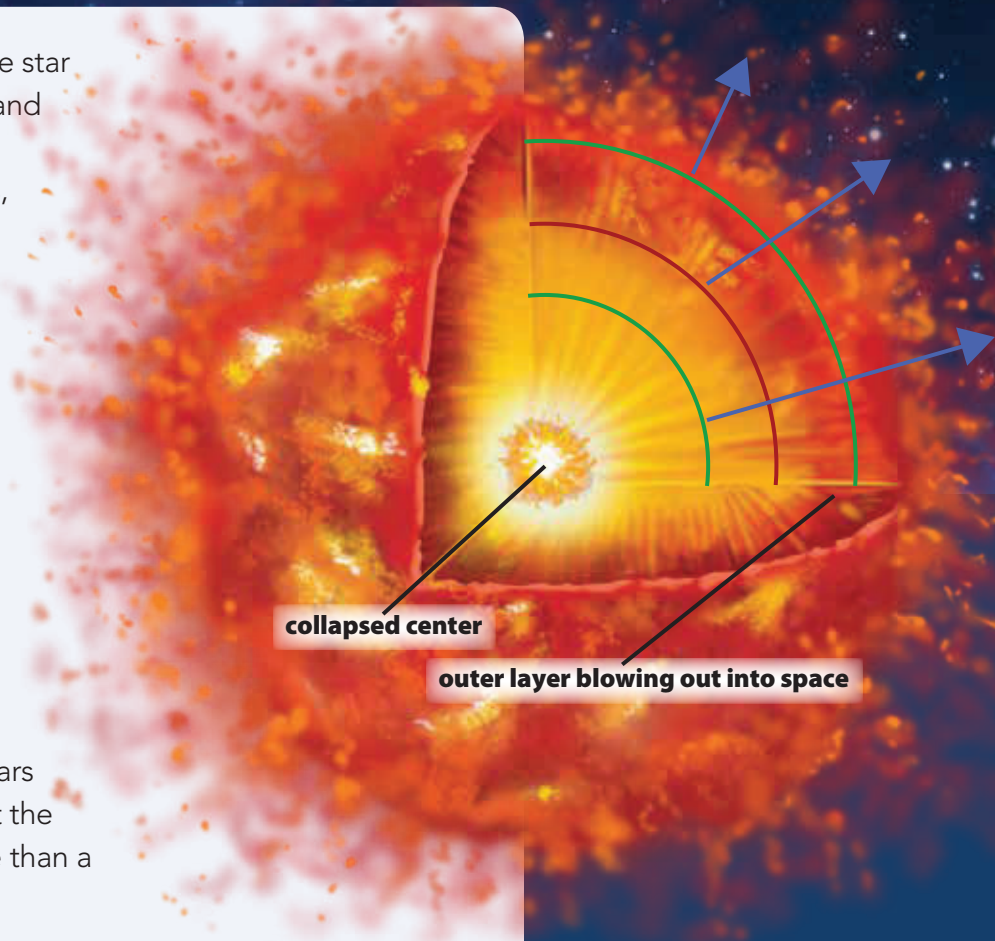
**In a star, two opposing forces are always at work. Gravity pulls the star’s mass toward its center. If no force worked against gravity, the star would collapse. But energy, in the form of heat and light, pushes out from the center and works against gravity. So long as the star can make energy to fight gravity, it stays alive.**



- 8 Now the star is in big trouble. The star can't make energy to hold itself up, and gravity is still trying to pull the star inward. So the star's center collapses, scrunching itself into a small, dense object. Meanwhile, the star's outer layer shoots into space at millions of miles per hour. The star has exploded!

## Our Sun Won't Blow Up

- 9 Supernovae are violent, but we do not have to worry. The Sun will never explode. If a supernova occurred within a few dozen light-years of Earth, we would be in trouble. But the nearest star that will explode is more than a hundred light-years away.
- 10 Believe it or not, supernovae help life. In fact, without them, Earth would not exist. Neither would we.
- 11 Here's why. When the universe began, it had only the three lightest elements: hydrogen, helium, and a little lithium. But life needs heavier elements, such as oxygen, which we breathe, and iron, which is in our blood. And Earth is made mostly of oxygen, silicon, and iron. Almost all oxygen came from massive stars, like Antares. During their lives, massive stars cause helium nuclei to join together to make oxygen. Then, when the stars explode, they cast this oxygen into space. And the explosions themselves make iron. In fact, scientists think supernova explosions made most of the iron in the universe. . . .



**A star needs fuel to make the energy that fights the pull of gravity. Once the star uses up its fuel, gravity wins the fight. The star's center collapses, and its outer layer blasts out into space. The star becomes a supernova.**

**Think** Use what you learned from reading the science article to respond to the following questions.

- 1** This question has two parts. First, answer Part A. Then answer Part B.

**Part A**

What are **two** main ideas of the article by Ken Crowell?

- A** Supernovae are violent explosions of stars.
- B** Astronomers did not always use telescopes.
- C** Astronomers can see supernovae for months.
- D** Stars make energy through nuclear reactions.
- E** Stars produce light that travels across the universe.
- F** Supernovae are interesting for astronomers to study.

**Part B**

Which **two** sentences from the article **best** support the answer to Part A?

- A** "The last time people saw a supernova in our galaxy was 1604."
- B** "That was before astronomers were using telescopes."
- C** "Such a star is born with more than eight times the mass of the Sun."
- D** "Its center makes energy the same way the Sun does: by changing hydrogen, the lightest element, into helium, the second-lightest element."
- E** "As a result, we can easily see the star across hundreds of light-years of space."
- F** "If a supernova occurred within a few dozen light-years of Earth, we would be in trouble."

- 2** Read the following sentence from the text.

But as long as the star can make energy, it can fight the force of gravity and survive.

Which dictionary entry **best** defines energy?

- A** physical strength
- B** hydrogen and helium gas
- C** heavy metals that increase weight
- D** power that comes from heat

- 3** In the chart below, only **two** sentences are actually main ideas of the article. Identify those main ideas. Copy them in the rows titled “Main Idea 1” and “Main Idea 2” in the charts at the bottom of the page.

Possible Main Ideas	
In 1604, a supernova exploded.	Antares is a massive star.
Supernovae make important elements.	Only some stars will become supernovae.
Astronomers did not always use telescopes.	Hydrogen is the lightest element.

Now study this chart. It contains supporting details from the article. Choose **one** detail that **best** supports **each** main idea you chose. In the charts at the bottom of the page, write each detail below the main idea it supports.

Possible Supporting Details	
“The last time people saw a supernova in our galaxy was 1604.”	“And the explosions themselves produce iron.”
“However, every year astronomers see supernovae exploding in other galaxies.”	“The outflow of huge amounts of energy—much of it light—pushes outward from the star’s center.”
“The Sun will never explode.”	“This nuclear reaction creates energy that heats the star and makes it shine.”

<b>Main Idea 1</b>	
<b>Supporting Detail</b>	

<b>Main Idea 2</b>	
<b>Supporting Detail</b>	



**Write**

**4 Short Response** Reread paragraphs 6, 7, and 8. What is the author’s main idea in these paragraphs? Use key details from these paragraphs to support your answer.

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**Learning Target**

**In this lesson, you determined the main ideas of texts and explained how key details supported them. Describe how these skills will help you understand other informational texts.**

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