

Informative and Explanatory Writing

Name: _____

Date: _____

Score: _____ / 10



Quick Review

A Grade 7 informative piece **TEACHES** the reader and (1) introduces the topic with a **CLEAR THESIS**, (2) **ORGANIZES** ideas using strategies such as classification, comparison, or cause/effect, (3) develops the topic with **CONCRETE DETAILS, FACTS, DEFINITIONS, QUOTATIONS, and EXAMPLES**, (4) uses **APPROPRIATE TRANSITIONS** to clarify the relationships among ideas, (5) employs **PRECISE, DOMAIN-SPECIFIC** vocabulary, and (6) ends with a conclusion that follows from the explanation.

PART 1 — READ

Read the passage. Then answer the questions.

Student draft - How Earthquakes Send Two Kinds of Waves Through the Ground

Most people picture an earthquake as a single shake, but an earthquake actually sends out at least **TWO** different kinds of waves at different speeds. Understanding the difference between these waves - called **P-waves** and **S-waves** - is the reason seismologists can warn cities seconds before the strongest shaking arrives.

P-waves, or **PRIMARY** waves, are the fastest seismic waves. They travel through rock at about 5 to 8 kilometers per second by pushing and pulling the rock in the same direction the wave is moving - similar to the way a spring stretches and compresses when you tap one end. Because **P-waves** are fast, they always reach a recording station first. However, they carry relatively little destructive energy, so people on the surface often feel only a small jolt when **P-waves** arrive.

S-waves, or **SECONDARY** waves, are slower. They travel at about 3 to 4 kilometers per second and move the rock **SIDE TO SIDE**, perpendicular to the wave's direction of travel. This sideways motion is what cracks walls and topples chimneys. **S-waves** cannot pass through liquids, which is one of the ways scientists learned that Earth's outer core is liquid - the **S-waves** simply stop when they hit it.

Because **P-waves** outrun **S-waves**, the gap between the two is the basis of every modern earthquake early-warning system. When a sensor near the epicenter records the first **P-wave**, software can estimate the location and strength of the quake and send an alert before the slower, more destructive **S-waves** arrive. In Japan, this kind of system can give a downtown skyscraper 10 to 30 seconds of warning - enough time to stop trains, halt surgeries, and prompt students to take cover.

Two waves, two speeds, two effects. The next time you read that a city felt a small jolt followed seconds later by violent shaking, you'll know what arrived first and why the second arrival did most of the damage.



PART 2 — PRACTICE

Read the student draft. Answer the questions about structure, organization, evidence, vocabulary, and revision.

1. Which sentence is the BEST THESIS for this informative piece?
 - A. I have always thought earthquakes are completely terrifying and unfair.
 - B. Most people picture an earthquake as a single shake, but an earthquake actually sends out at least TWO different kinds of waves at different speeds.
 - C. Did you know the largest earthquake ever recorded was in 1960?
 - D. There are many earthquakes around the world, and some of them are big.
2. How does the writer ORGANIZE the body of this piece (paragraphs 2 and 3)?
 - A. By telling a personal story from start to finish.
 - B. By CLASSIFYING and CONTRASTING two kinds of seismic waves (P-waves vs. S-waves).
 - C. By time order, from morning to evening.
 - D. By listing every kind of natural disaster in alphabetical order.
3. Which sentence from the draft is a DEFINITION (a term + what it means)?
 - A. P-waves are the fastest seismic waves.
 - B. S-waves cannot pass through liquids.
 - C. P-waves, or PRIMARY waves, are the fastest seismic waves.
 - D. Japan can give a downtown skyscraper 10 to 30 seconds of warning.
4. Which transition would BEST CONNECT paragraph 2 (P-waves) to paragraph 3 (S-waves)?
 - A. For instance,
 - B. By the way,
 - C. S-waves, or SECONDARY waves, are slower.
 - D. In summary,
5. The writer wants to add a CONCRETE DETAIL to paragraph 4 about Japan's early-warning system. Which sentence is BEST?
 - A. Japan really cares a lot about earthquakes and is just amazing at them.
 - B. During the 2011 Tohoku earthquake, Japan's nationwide early-warning system delivered alerts to over 50 million people up to 60 seconds before the strongest shaking reached Tokyo.
 - C. Earthquakes are scary and you should think about them often.
 - D. There are many things about Japan that are very interesting to people.



6. Which is the BEST DOMAIN-SPECIFIC vocabulary choice for the underlined word in *A scientist who studies earthquakes is called a scientist.*?
- A. a scientist person
 - B. a seismologist
 - C. an earthquake-feeler
 - D. a person who looks at the ground
7. Which sentence does NOT belong in this informative piece because it is OPINION rather than fact?
- A. P-waves push and pull the rock in the same direction the wave is moving.
 - B. S-waves cannot pass through liquids.
 - C. Honestly, P-waves are obviously the coolest waves and everyone should agree.
 - D. Japan's early-warning system can give Tokyo 10 to 30 seconds of warning.
8. Which sentence would be the STRONGEST CONCLUSION for this informative piece?
- A. P-waves are very fast and S-waves are slower than P-waves are.
 - B. Did you know the first seismograph was invented in China in 132 CE?
 - C. Two waves, two speeds, two effects - the next time you read about an earthquake, you'll know what arrived first and why the second arrival did most of the damage.
 - D. I really, really love earthquakes more than other types of disasters.
9. Read these two transition options. Which BEST signals CAUSE-AND-EFFECT between the speed gap and the warning system?
- A. *However*, P-waves outrun S-waves, so warning systems use the gap.
 - B. *Because* P-waves outrun S-waves, the gap between the two is the basis of every modern earthquake early-warning system.
 - C. *By the way*, P-waves outrun S-waves and warning systems use the gap.
 - D. *For example*, P-waves outrun S-waves and warning systems use the gap.
10. A peer wants to add this sentence to paragraph 3: *I once saw a really wild movie where the ground cracked open in like 30 seconds.* Why does this NOT fit the piece?
- A. The sentence is too long for paragraph 3.
 - B. Informative writing requires sources and facts; an unverified movie image is a PERSONAL EXAMPLE that doesn't explain how S-waves cause damage.
 - C. The sentence does not mention any rocks.
 - D. The writer should never use the word *I*.



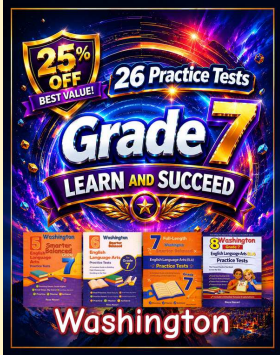
Answer Keys

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Explanations	
1. B	B names the SUBJECT (earthquakes) and the FOCUS (TWO different kinds of waves at different speeds) - the exact thesis the piece will develop. A is opinion. C is an off-topic fact. D is too broad.
2. B	Paragraphs 2 and 3 each name a WAVE TYPE and describe its speed, motion, and effect - classic classification/contrast structure. A is wrong (no narrative). C is wrong (no time order). D is wrong (only seismic waves appear).
3. C	C introduces the term <i>P-waves</i> , glosses it with the full name <i>primary waves</i> , and gives a brief meaning (the fastest seismic waves) - the textbook definition pattern. A states a feature but doesn't gloss the term. B is a property. D is an application.
4. C	Effective informative transitions move the reader from one classified item to its counterpart. C names the next type AND signals contrast with the previous one (<i>slower</i>). <i>For instance</i> introduces an example. <i>By the way</i> signals an aside. <i>In summary</i> belongs at the close.
5. B	B adds a SPECIFIC, measurable, on-topic detail (named 2011 quake, 50 million people, up to 60 seconds) that strengthens the paragraph's point about Japan's system. A is vague praise. C is opinion. D is off-topic filler.
6. B	B uses the precise technical term (<i>seismologist</i>) - exactly right for an informative piece on earthquake science. A repeats the vague word. C is an invented compound. D is a description, not a name.
7. C	C uses judgment words (<i>honestly, obviously, coolest, everyone should agree</i>) and takes a side - that's opinion, not information. A, B, and D are factual statements consistent with an informative piece.
8. C	C echoes the thesis pattern (TWO waves, TWO speeds, TWO effects), ties together the article's main point, and gives the reader a real-world use - exactly what an informative conclusion does. A is mere repetition. B is an off-topic new fact. D is unrelated opinion.
9. B	<i>Because</i> directly signals CAUSE (speed gap) and EFFECT (warning systems use it) - exactly the relationship the paragraph describes. <i>However</i> signals contrast. <i>By the way</i> signals an aside. <i>For example</i> introduces an example, not a cause.
10. B	Informative writing is built from concrete details, facts, and credible sources. A vague movie memory is anecdotal and adds no real explanatory power. A is irrelevant. C is overly narrow. D is a writing myth - first person can appear in informative texts when relevant.



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