



December 23

**SUMMATIVE
ASSESSMENT**



Reading

Task. Read the article and complete the tasks below.

**Before clocks, phones and Fitbits,
there was sunlight and mathematics**

How do you tell the time on a cloudy day? Easy. You look at your phone or your watch.

That works today — but let's go back several thousand years to when watches did not exist. A glance at the sun would give some idea of time. The sundial was in use in Egypt by 1500 B.C. Its principle was simple: As the sun moved across the sky, the shadows it cast also moved. By marking equal divisions around a rock, tree or stick, people could track the passage of time. Seasonal changes brought their own challenges as the angle of the sun shifted. But over time, sundials improved and gained greater accuracy.

An overcast sky, though, could render a sundial useless. Yet, people still had to be at work on time and know when to meet friends for lunch. As a result, many clever ways to tell time were invented.



One was the water clock, which was invented by the Egyptians. A container was filled with water, which steadily drained through a hole of a specific size. Markings on the side of the container showed the passage of time. The water clock was also called the clepsydra, from the Greek words "to steal water." Gradually, the water clock became more sophisticated.

Al-Jazari is remembered as a famous 12th century Arab scholar. He used water to power his 20-foot-tall clock. The device was large and very complicated. Early scientists, like their modern counterparts, were brilliant people. Arab scholars may not have had battery-powered calculators or computers, but they made incredible scientific advances. They were making major advancements long before Europe moved out of the so-called Dark Ages.

When The Candle Is Spent ...

In China, people used candles to tell time. Around the year A.D. 520, You Jiangu and a few colleagues figured out that similar candles burn at the same rate. For example, they took six candles, each marked in 12 sections. They knew each candle took four hours to burn away. Simple math will tell you that each section took 20 minutes to burn.

About 300 years later, England's King Alfred used a similar candle clock. Did it take three centuries for the idea to cross Asia and Europe? Or did Alfred come up with the idea on his own? We do not know, but historians and archaeologists may someday figure out the answer.

Not surprisingly, candle clocks needed protection from the wind. A gentle breeze caused them to burn more quickly. A strong puff would blow them out. Maybe then time stood still! Glass wasn't easily available, so people put the candles in wooden lanterns. The lanterns were fitted with transparent panels made out of horn, so the flame was still visible but protected.

Hurry! Hurry! The Hourglass Is Almost Empty!

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The hourglass was another effort to measure time. The concept was simple. Two glass bulbs, one filled with a specific amount of sand, were joined by a narrow neck. It took one hour for the sand to flow from the top bulb to the bottom one. For many centuries, they were popular on sailing ships. However, the crew member responsible for turning the glass each hour dared not fall asleep at the wrong moment.

Small hourglasses were popular in kitchens to help boil eggs correctly. The sand ran through in three minutes. Today, electronic egg timers are available. Still, your grandma or grandpa may have an old hourglass tucked away in their cupboards.

Watch Out!

Reliable chronometers — timepieces like we think of them today — finally came along in the 1700s. At last, telling time was no longer at the mercy of sun, wind or sand.

Answer the questions

1. Read the section "When The Candle Is Spent" *and explain what a solution to the problem with candle clocks people found out.*

[1]

2. Read the following paragraph from the section "When The Candle Is Spent"

Not surprisingly, candle clocks needed protection from the wind. A gentle breeze caused them to burn more quickly. A strong puff would blow them out. Maybe then, time stood still! Glass wasn't easily available, so people put the candles in wooden lanterns. The lanterns were fitted with transparent panels made out of horn, so the flame was still visible but protected.

Which answer choice is the BEST definition of the word "available" as used in the sentence?

- A) awkward
- B) occupied
- C) obtainable
- D) scarce

[1]

3. Read the paragraph below from the section "Hurry! Hurry! The Hourglass Is Almost Empty!"

The hourglass was another effort to measure time. The concept was simple. Two glass bulbs, one filled with a specific amount of sand, were joined by a narrow neck. It took one hour for the sand to flow from the top bulb to the bottom one. For many centuries, they were popular on sailing ships. However, the crew member responsible for turning the glass each hour dared not fall asleep at the wrong moment.

What inference can the reader make based on this paragraph?

- A) In order to tell time past one hour, two hourglasses are needed to pour out sand at the exact same time.
- B) In order to tell time past one hour, the hourglass makes the sand travel from the top bulb to the bottom bulb.
- C) In order to tell time past one hour, the hourglass turns itself over after the bottom becomes heavy enough.
- D) In order to tell time past one hour, someone must turn over the hourglass when all of the sand flows to the bottom.

4. Read the article's introduction [paragraphs 1-5] and the final section "Watch Out!"
What is the connection between those two sections?

- A) The introduction describes some of the earliest ways people told time, while the final section explains that we no longer need those methods because of the chronometer.
- B) The introduction describes the most recent timepiece inventions, while the final section describes the different ways people used to tell time before the invention of the chronometer.
- C) The introduction describes the most important ways to tell time that people have used, while the final section introduces the chronometer, which is new, but not commonly used to tell time.
- D) The introduction describes popular ways to tell time that are used around the world today, while the final section describes the chronometer, a unique timepiece that is not as popular.

5. This article is organized using chronological order. Why do you think the author chose to organize the information this way?

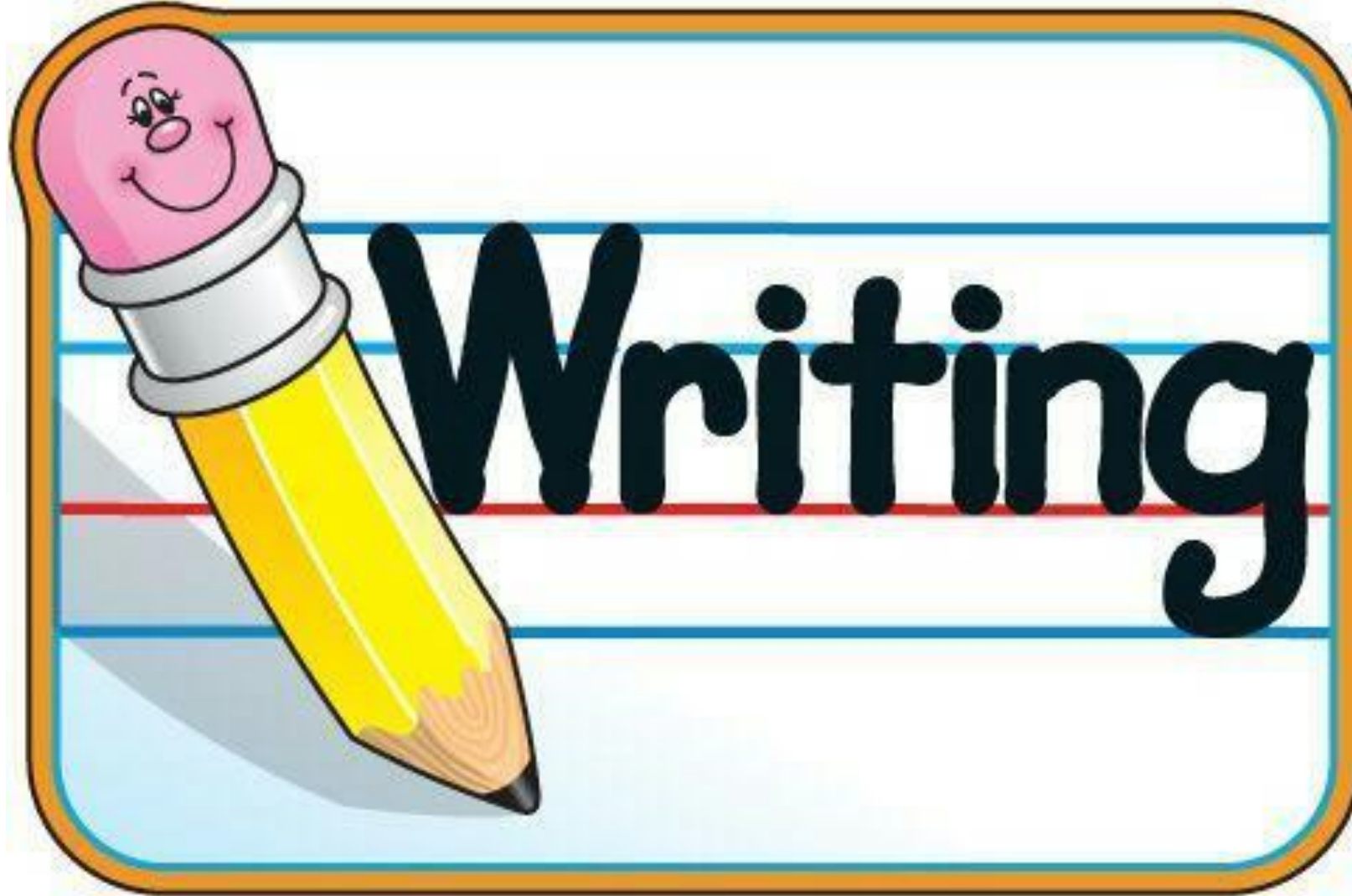
- A) to show the similarities and differences between timepieces used in different parts of the world
- B) to list different timepieces in order of least importance to greatest importance
- C) to describe the different timepieces that were invented throughout history in a logical way
- D) to explain how people were able to solve the different problems that were unique to each timepiece described

[1]

6. What is the purpose of this article?

- A) to share feelings
- B) to inform
- C) to entertain
- D) to persuade

[1]



“Advantages and disadvantages of using slideshow presentations”

(140 – 190 words)