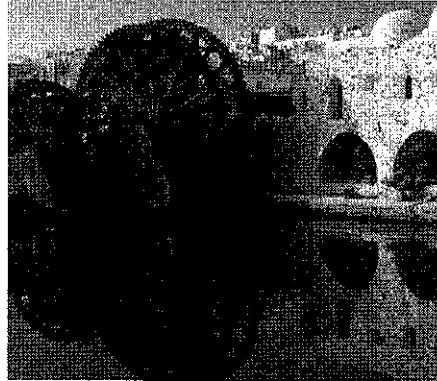


## Unit 3 Formative Assessment 2

## ANSWER KEY

Muslim Advances in Science and Technology

Muslims showed an endless curiosity about the world. In fact, the Qur'an instructed them to learn more about the world God had made:

*Have they not looked at the camel—how it was created? And at the sky—how it was raised up?*

As a result, Muslims made advances in science and technology. They were particularly interested to learn how things worked.

Muslim scholars did much work in the field of astronomy, the study of objects in the universe. Astronomy had many practical uses for Muslims. For example, navigational tools were improved to locate the direction of Makkah. These instruments allowed worshippers far from the holy city to pray facing in the right direction. Astronomers also figured out exact times for prayer and the length of the month of Ramadan.

Beyond such practical matters, Muslim astronomers simply wanted to learn about the universe. Some realized that Earth rotates, or turns, like a spinning top. Many questioned the accepted idea that Earth was the center of the universe, with the sun and stars traveling around it. In fact, as later astronomers proved, Earth does travel around the sun.

Muslims made technological advances to make the most of **scarce** water resources. Much of the land under Muslim rule was hot and dry. Muslims restored old irrigation systems and designed new ones. They built dams and aqueducts to provide water for households, mills, and fields. They improved existing systems of canals and underground wells. Some wells reached down 50 feet into the ground. Muslims also used water wheels to bring water up from canals and reservoirs.

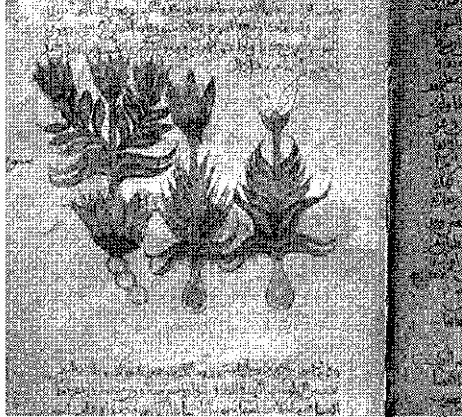
1. What is the most likely meaning of the word **scarce** as it is used in the passage?

*Muslims made technological advances to make the most of **scarce** water resources. Much of the land under Muslim rule was hot and dry.*

- a. something that is growing bigger  
b. plentiful, more than enough  
c. unclean  
d. a very small amount of something

- \_\_\_\_\_ 2. How did the Qur'an help cause new discoveries by Muslims?
- a. The Qur'an encouraged Muslims to study other religions
  - b. The Qur'an encouraged Muslims to travel and explore new places
  - c. The Qur'an encouraged Muslims to study the world around them
  - d. The Qur'an encouraged Muslims to follow in Muhammad's footsteps
- \_\_\_\_\_ 3. What geographic factor caused Muslims to develop technological advances such as wells, dams, and irrigation systems?
- a. The dry climate of the Middle East
  - b. The ideal location of Makkah as a trading center
  - c. The easy access to oceans
  - d. The extended summer season
- \_\_\_\_\_ 4. How did the Muslim study of astronomy make it easier for Muslims to practice their religion? **Select ALL that apply.**
- a. Improved navigational tools helped Muslims face Makkah during prayer
  - b. Astronomers determined the exact times for prayer each day
  - c. Astronomers proved that earth travels around the sun.
  - d. Astronomers determined the length of the month of Ramadan.
- \_\_\_\_\_ 5. According to "Muslim Advances in Science and Technolog" Muslims made various significant innovations and advances. During the time of exploring new innovation and advances, there were several perspectives from Muslims on the matter.
- Which of the following perspectives was not likely the perspective of a Muslim?
- a. Some Muslims felt skeptical of scientific advances.
  - b. Some Muslims felt thankful for scientific advances helping provide more resources.
  - c. Some Muslims felt the innovations were efficient and convenient for practical matters.
  - d. Some Muslims felt upset about the changes in their daily life.

## Muslim Advances in Medicine



Muslims made some of their most important innovations in the field of medicine. They learned a great deal from the work of ancient Greeks, Mesopotamians, and Egyptians. Then, as in other fields of study, they improved upon this earlier knowledge.

Muslim doctors established the world's first hospitals. By the 10th century, Baghdad had at least five hospitals. Most cities and towns also had one or two. Many hospitals served as teaching centers for doctors in training. Anyone who needed treatment could get it at these centers. There were also hospital caravans that brought medical care to people in remote villages.

Muslim hospitals had separate wards for men and women, surgical patients, and people with diseases that others could catch. Doctors treated ailments with drugs, diet, and exercise. They gave patients remedies made from herbs and other plants, animals, and minerals. Pharmacists made hundreds of medications. Some drugs dulled patients' pain. Antiseptics (medications that fight infection) cleaned wounds. Ointments helped to heal the wounds.

For some problems, surgeons performed delicate operations as a last resort. Drugs, such as opium and hemlock, put patients to sleep before operations. Muslim surgeons removed limbs, took out tumors, and cleared cataracts (cloudy spots) from the eye. After surgery, doctors used thread made from animal gut to stitch the wounds.

Muslim doctors made many discoveries and helped spread medical knowledge. For example, al-Razi, a Persian doctor, realized that infections were caused by bacteria. He also studied smallpox and measles. His work helped other doctors diagnose and treat these deadly diseases.

6. What was the purpose of hospital caravans?

- a. To keep contagious patients separate from others
- b. To provide care for people who did not live near a city
- c. To train new doctors
- d. To perform dangerous surgeries

7. Which of the following quotes from the passage BEST demonstrates cultural diffusion?
- a. "Muslims made some of their most important innovations in the field of medicine. They learned a great deal from the work of ancient Greeks, Mesopotamians, and Egyptians. Then... they improved upon this earlier knowledge."
  - b. "Muslim doctors established the world's first hospitals. By the 10th century, Baghdad had at least five hospitals."
  - c. "For some problems, surgeons performed delicate operations as a last resort. Drugs, such as opium and hemlock, put patients to sleep before operations. Muslim surgeons removed limbs, took out tumors, and cleared cataracts (cloudy spots) from the eye."
  - d. "Doctors treated ailments with drugs, diet, and exercise. They gave patients remedies made from herbs and other plants, animals, and minerals."
8. Which of the following developments in medicine were caused by Muslims? **Select ALL that apply.**
- a. Use of hemlock in surgery
  - b. Hospitals
  - c. Discovery of bacterial infections
  - d. Cataracts

## Preservation of Knowledge

During the first few centuries of the Arab Empire, the ancient Greek philosophers were largely unknown in Europe. The Arabs, however, were not only aware of Greek philosophy, they were translating works by Plato and Aristotle into Arabic. The translations were then put in a library called the House of Wisdom in Baghdad, where they were read and studied by Muslim scholars. Similarly, texts on mathematics were brought to Baghdad from India.

The process of translating works and making them available to scholars was aided by the making of paper, which was introduced from China in the eighth century. By the end of the century, paper factories had been established in Baghdad. Booksellers and libraries soon followed.

It was through the Muslim world that Europeans recovered the works of Aristotle and other Greek philosophers. In the twelfth century, the Arabic translations were translated into Latin, making them available to the West.

9. What is the main idea of this text?

- a. Cultural diffusion caused Chinese innovations to spread to Greece and the Arab Empire.
- b. Knowledge of ancient Greek philosophers spread to Europe because of Chinese and Muslim advances.
- c. Arabs took knowledge from ancient Greek philosophers and claimed it as their own.
- d. Ancient Greek philosophers spent time in the Arab Empire, allowing them to translate their writings into Arabic.

10. Which of the following quotes from the text BEST supports the main idea?

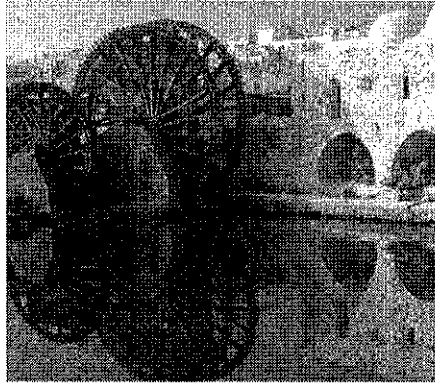
- a. "Texts on mathematics were brought to Baghdad from India."
- c. "The process of translating works and making them available to scholars was aided by the making of paper, which was introduced from China..."
- b. "The translations were then put in a library called the House of Wisdom in Baghdad, where they were read and studied by Muslim scholars."
- d. "By the end of the century, paper factories had been established in Baghdad."

Name: \_\_\_\_\_

ID: A

- \_\_\_\_\_ 11. Which of the following developments were necessary so that Europeans could “recover the works of Aristotle and other Greek philosophers? **Select ALL that apply.**
- a. Muslims translated works by Plato and Aristotle into Arabic.
  - b. Translated works of Greek philosophers were preserved in libraries.
  - c. Paper was introduced from China.
  - d. Arabic translations of Greek philosophy were translated into Latin.
- \_\_\_\_\_ 12. If you were a European in the 12th century, what might your reaction have been to the Latin translations of the works of Greek philosophers?
- a. You would have thought the text was foreign and would not have been able to understand it.
  - b. You would have been grateful to Arabs for having translated the works, which aided in their preservation.
  - c. You would have been grateful to the Chinese for creating paper that Greek philosophers were able to write on.
  - d. You would have been upset that Baghdad did not save mathematic work from India.

## Document 1: Muslim Advances in Science and Technology



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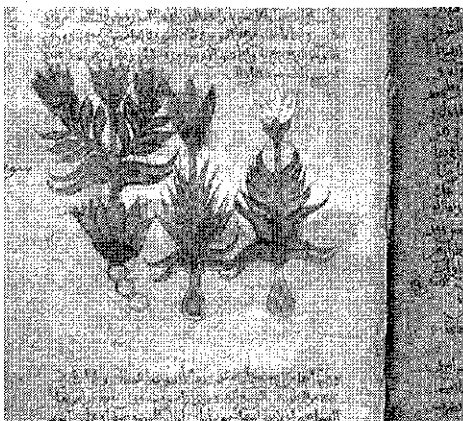
As a result, Muslims made advances in science and technology. They were particularly interested to learn how things worked.

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13. How do these two sources differ in their perspectives of how religion influenced innovations?
- a. Document 1 talked about the limitations that Islam played on innovations, where Document 2 talks about how Islam sparked curiosity about the world.
  - b. Neither document directly stated how religion influenced innovations from Muslims.
  - c. Both show that the faith of Muslims caused the motivation for new advances in the world.
  - d. Document 1 highlights that Islam encouraged Muslims to learn more about the world God made, while Document 2 doesn't explicitly mention the influence of religion on Muslim innovations.