

UNIT 8

Complete the sentences with the correct words.

recovery	remarkable	researchers	surgery	version
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- The _____ time after the operation is about two to four weeks.
- You need to download the latest _____ of the app.
- The team of _____ at the university are conducting experiments and will share their findings later this year.
- He is having _____ to replace his hip joint after he fell over last month.
- My sister has a _____ ability to handle anything that comes her way—she is amazing!

Match the words to the definitions.

- | | | |
|---------------|---|---|
| 6. device | ● | ● a. an object or machine that has been invented for a specific purpose |
| 7. specific | ● | ● b. physical harm, or damage, to someone |
| 8. impressive | ● | ● c. what you do to find out the size of something, e.g., its height, weight, or length |
| 9. injury | ● | ● d. something that relates to one thing and not another |
| 10. measure | ● | ● e. exciting or amazing because of one's skills or abilities |

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Match the words to their synonyms.

- | | | | |
|--------------|---|---|---------------|
| 11. constant | ● | ● | a. monitor |
| 12. affect | ● | ● | b. continuous |
| 13. track | ● | ● | c. impact |

Complete the sentences with the correct, full words for the acronyms.

AI	ATM	PIN
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14. The bank told me I need to change my _____ before I can use this new card.
15. I haven't used a(n) _____ in so long—I tend to use my card nowadays rather than cash.
16. I'd love to work in _____ when I leave university, building products and solutions that can help teachers to reduce the time they spend marking.

Read the passage.

A World of Pain

On a sunny Saturday in June 2019, 56-year-old Brent Bauer was standing on top of his summer home, power washing his roof. Just as he went to spray the last part, he was pushed back by the force of the water and fell off of the roof. Bauer fell about 7.5 meters, which gave him just enough time for two thoughts before he hit the concrete: "This is it," and "This is stupid."

Bauer broke several bones in the fall. In addition to breaking his wrist and pelvis, he broke his heels in more than 16 places. These breaks would require ten different surgeries followed by months of painful recovery.

Until recently, pain management has relied on medication and not much else. The problem with this is that some pain medicines can have severe side effects and can even cause addiction. Now, researchers are working to develop more effective and less harmful methods to reduce pain.

Repairing Bauer's broken pelvis was a particular challenge. Fifteen-centimeter pins were put into his bones. Eight weeks later, the pins had to be removed. This is technically simple—a doctor just removes the pins from the bones. However, it's an incredibly painful process since the pins are deep inside the body.

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Normally, the process happens in an operating room while the patient is under anesthesia. For his procedure, though, Bauer was given two options: he could have a breathing tube put into his throat and receive anesthesia again, or he could be part of a research study. That study would involve using virtual reality (VR) in place of pain medication. The VR program that Bauer's doctor suggested was developed by Hunter Hoffman, a research scientist at the University of Washington. He initially developed the program to help burn patients, who experience extreme pain during their wound care. Bauer jumped at the opportunity to avoid another breathing tube.

Before the removal of the first pin, a VR headset was placed on Bauer's head. Suddenly, he was surrounded by virtual penguins and snowmen that he was supposed to hit with snowballs, using a computer mouse. As the first pin was removed, Bauer said, the VR experience probably cut his pain in half. "I was concentrating almost entirely on throwing snowballs at the snowmen and penguins, so it was a very pleasant distraction, and the pain was a lot less," he explained. As required by the study, Bauer did not use the headset for the removal of the second pin. This time, the pain was much more severe. Surprisingly, the VR game helped Bauer even when he wasn't playing it. Bauer described the experience, saying, "That got pretty intense, and so then I started actually trying to make myself think about throwing snowballs and being in the game, and that reduced the discomfort."

Researchers aren't sure why the VR works. Some think it works through distraction—by involving parts of the brain that would otherwise be involved in feeling pain. Others think that it might work by controlling emotions and mood. Or it may be that the entertainment provided by the experience helps relax patients and reduces their anxiety.

Reducing pain with technology seems to be fairly effective. But what if you could not feel it to begin with? It sounds impossible, but a very small percentage of people cannot feel any pain at all. To people like Bauer, this idea might sound amazing. However, pain serves an important purpose. Without it, you wouldn't know that you were burning your hand on a hot stove or cutting yourself on broken glass. Although it causes suffering, pain helps us avoid injuries.

Complete the summary with the correct words.

17. After an accident where he fell off a roof, Brent Bauer broke many bones, including his wrist, pelvis, and his heels. He needed a significant number of _____ and many months of recovery.

Most of the time, pain is managed by _____. However, many people experience side effects to this, so research is being conducted to find new methods of managing pain.

Bauer was offered to be a part of this research, and he accepted.

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The trial involved Bauer wearing a _____ instead of receiving anesthesia for his operation. He entered a virtual world and was playing games and said that he felt his _____ was halved, as he was concentrating on something else. For the second part of his operation, he didn't wear the device, but says he imagined he was wearing it, and it helped him manage his pain, although it felt a lot more severe.

Although researchers are unsure how VR works in pain management, they believe it may be due to _____.

Read the passage.**Al-Zahrawi: The Pioneering Surgeon of the Medieval Era**

How Al-Zahrawi helped the world of medicine in the 10th century continues to impact it today. He is often called the "Father of Modern Surgery," as Al-Zahrawi's works have influenced many medical practices, instruments, and techniques that are still used today.

The Life of Al-Zahrawi

Born in 936 AD in Al-Zahra, near today's Córdoba, in Spain, Al-Zahrawi was the medical expert to the Spanish king during the Islamic Golden Age. This era saw numerous Islamic doctors, scientists, and experts using new techniques in various subjects, including science, math, and medicine.

Al-Zahrawi spent his life practicing medicine and doing surgeries on his patients. He came across many new situations, which he had to find solutions for. This led him to make new discoveries in the world of medicine. He was different from other doctors because he saw and helped all patients, regardless of their financial situation, which was highly unusual at the time. This helped him gain a lot of knowledge and experience.

Al-Zahrawi wrote an important medical encyclopedia, over 1500 pages, called *Kitab al-Tasrif*, which changed the medical field. The book included descriptions of medical equipment, techniques of different surgeries, illnesses, symptoms, and ways to determine health issues. These books were used by other medical professionals to help them learn and improve their knowledge. Particularly significant in the *Kitab al-Tasrif* is its last part dedicated to surgery. This section, filled with drawings and explanations, became an important resource for European doctors for over 500 years. The book was translated into Latin in the 12th century and called *Liber Servitoris*.

The *Kitab al-Tasrif*

Surgical Instruments: Al-Zahrawi's encyclopedia showed over 200 tools for surgery, many of which are

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important to different types of surgeries today. Instruments, like the modern-day syringe (for injections and taking blood), were first used by Al-Zahrawi.

Innovative Techniques: Al-Zahrawi provided a detailed amount of information about how to carry out surgeries. He also wrote about how to use the tools and instruments in these surgeries.

Medical Firsts: He discovered many new treatment methods for things, such as hemophilia, where someone bleeds more than usual, even from minor injuries.

Dentistry: Al-Zahrawi also worked in dentistry, where he introduced the idea of adding fillings to teeth and making artificial teeth. He talked about how to use silver and gold wires to loosen and take out teeth—things that no other medical expert was talking about at the time.

Al-Zahrawi's medical knowledge went beyond surgeries. He wrote about beauty and skincare and came up with recipes for different beauty products. He wrote about make-up, giving recipes for lotions and hair dyes. This made him an early expert in cosmetology—the study and practice of looking after your hair, skin, and nails. Furthermore, he also recommended the use of natural ingredients, which made him an early pharmacist. He recommended using simply, everyday ingredients such as olive oil, wax from bees, and rose water.

Al-Zahrawi was an influential person. In his home city of Córdoba, there is a street named after him. His medical instruments are shown at the Calla Hurra Museum in the city. Especially for his time, Al-Zahrawi saw the need for clear, detailed medical knowledge, and he provided it. Medicine as we know it today owes a significant amount to the early work of Al-Zahrawi. His detailed work and innovative ideas have helped inspire many surgical techniques and tools used in current medicine.

Choose the correct answer to each question.

18. What is the purpose of the text?
 - a. to explain the development of medicine since Al-Zahrawi's time
 - b. to explain Al-Zahrawi's effect on medicine and medical practices
19. Which is true of Al-Zahrawi?
 - a. He worked for important people and was an expert in his subjects.
 - b. Although he worked for important people, his knowledge of medicine wasn't discovered until much later on.
20. What information, among others, did Al-Zahrawi include in his book?
 - a. how to deal with difficult surgeries using new tools
 - b. how to stop continuous bleeding

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21. What other information did Al-Zahrawi include?
 - a. how everyday ingredients can help in surgery
 - b. how everyday ingredients can help someone look after their physical appearance
22. What is the purpose of the final paragraph?
 - a. to describe how his book is still important and read worldwide today
 - b. to explain how his suggestions have lived on and how he is remembered

Decide whether each sentence from the passage is active or passive.
Choose *Active* or *Passive*.

23. These books were used by other medical professionals to help them learn and improve their knowledge.
 - a. Active
 - b. Passive
24. Al-Zahrawi spent his life practicing medicine and doing surgeries on his patients.
 - a. Active
 - b. Passive

Read each sentence. Choose *True* or *False*.

25. You can use a quote in an essay to help you explain something or to give factual information.
 - a. True
 - b. False
26. Your quote doesn't have to fit grammatically into a sentence.
 - a. True
 - b. False
27. If you include a quote, you need a references section at the end of your essay.
 - a. True
 - b. False
28. The following is a good example of an in-text citation: According to Meltzer (1921), "the fact that your patient gets well does not prove that your diagnosis was correct" (para.11).
 - a. True
 - b. False

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29. If you use an in-text citation with no author, you can use the research, or book, you found the quote in as well as the year and paragraph.
- True
 - False

Match the question to the correct category for evaluating information online.

- | | | |
|---|---|----------------|
| 30. Is the information thorough? | ● | ● a. purpose |
| 31. Is the author an expert on the topic? | ● | ● b. authority |
| 32. Is the purpose of the website to deliver information in a factual or objective way? | ● | ● c. accuracy |
| 33. Is the information correct? | ● | ● d. currency |
| 34. When was the content written? | ● | ● e. coverage |

Read each description. Evaluate whether the information sounds reliable or unreliable. Choose the correct answer.

35. Information is provided about a recent medical breakthrough on a science website run by a university. There are quotes from researchers, with information about the study from the last two years.
- reliable information
 - unreliable information
36. A .gov website has just published its latest findings on space research it has been conducting over the past 10 years. The contributors to the report work at international space agencies. The latest information is a month old.
- reliable information
 - unreliable information

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37. A .com site has just published an article about a new vitamin that many famous people take regularly. Although there is no scientific research to support the article, there are celebrities who have given their opinion on it.
- a. reliable information
 - b. unreliable information
38. A .org website article that focuses on areas of the world that have limited access to water. They talk about what their organization is doing to provide access to clean water and update the website every month.
- a. reliable information
 - b. unreliable information
39. A blog that discusses nutrition. The blog also has a YouTube channel where the blog writer, who used to work as a personal trainer in a gym, discusses his daily eating habits and gives advice for people who comment and ask questions on his videos. He updates his blog and video channel every week.
- a. reliable information
 - b. unreliable information

You are going to write a research-based essay on the following topic.

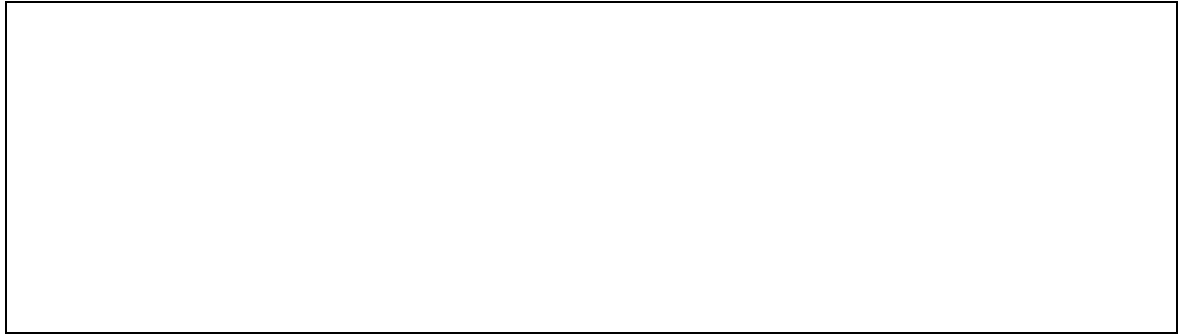
40. **Discuss your own experiences with one of these two topics.**

Topic 1: A technological advancement that has helped the field of medicine or health in the last decade.

Topic 2: A technological advancement or study that will help the future of medicine or health.

A. OUTLINE Plan an outline for your research-based essay.


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**B. Think of some words and phrases you can use in your research-based essay. Write them in the box.**

The words and phrases below can be useful when supporting your argument in an essay.

- author, date, title of article – Smith (2017) says “language ...” (para. 3)
- no date – Smith (n.d) says “language ...” (para. 3)
- no author – According to Medical Innovations (2017), “language ...” (para. 3)
- no author and no date – According to Medical Innovations (n.d.) “language ...” (para. 3)

Remember to add a references box at the end of your essay.

**C. Write your research-based essay based on your outline. Use the model to help you. Remember to use the vocabulary you wrote down.****Model:**

Healthcare is different around the world, as are waiting times to see a doctor or a surgeon for an operation. In some countries, people wait longer than others, which can cause a person’s situation to get worse, or cause a person to worry about having to wait. However, technological innovations are now changing this, with the rise of virtual doctors and online consultations.

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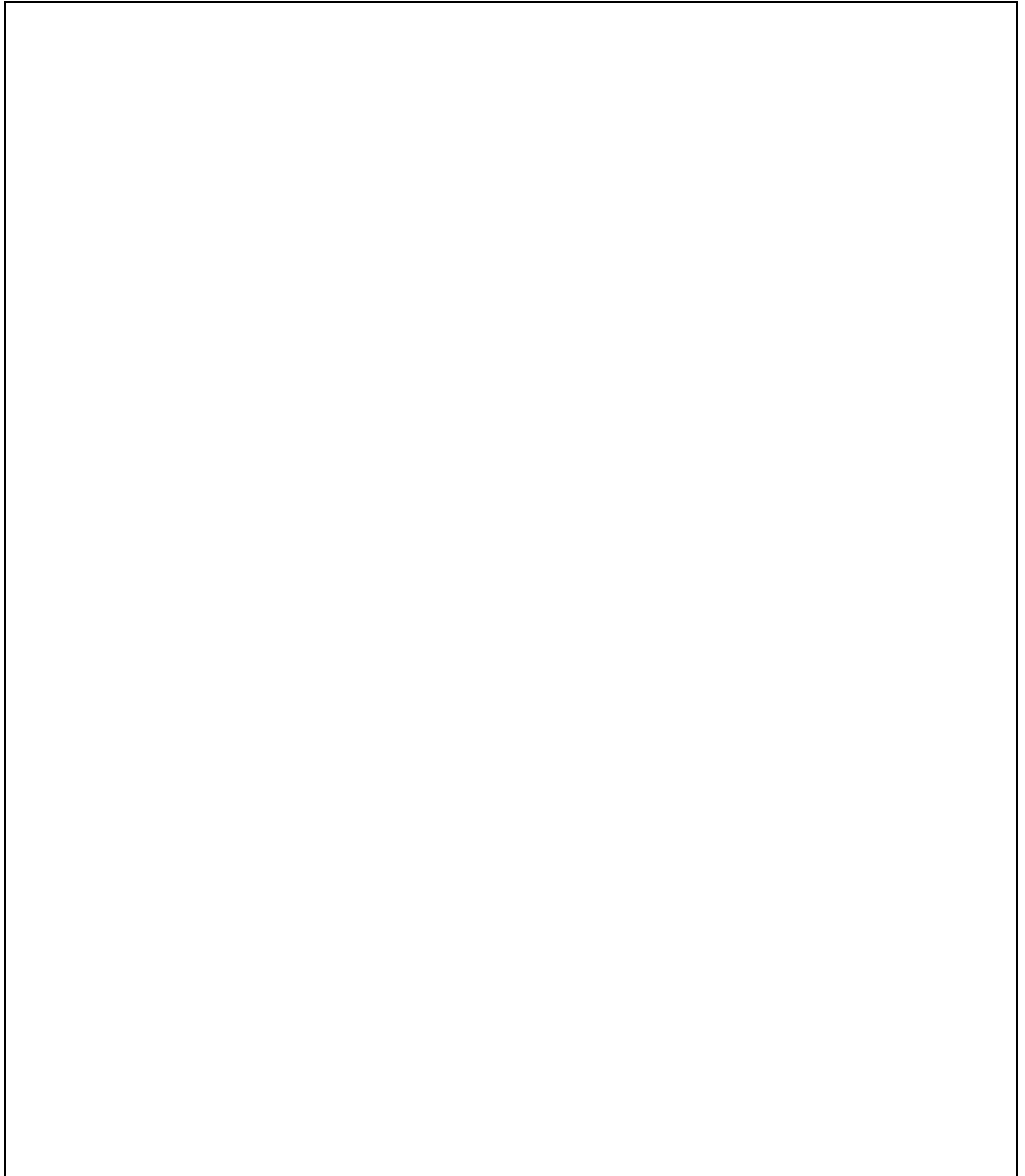
Video conferencing software allows people to check in with their healthcare specialist or online doctor. On some sites, people can take photos of their issue, upload it, and have a doctor reply with a diagnosis or suggested course of action to tackle the problem. Although online appointments are different in the fact that the healthcare specialist cannot examine you face-to-face, some virtual doctors do have the option to video call, so they can do an online, videoed examination to look at the issue.

There are many benefits to online healthcare. Xu (2022) says that online health appointments “can improve the efficiency of medical services and reduce time costs” for in-person appointments (para. 6). Not only this, but it is “favored by a large number of users based on its convenience” (para. 6). It is accessible for people who cannot leave the house for a specific reason and allows you to see a specialist much quicker than it might be to call and arrange an appointment. Many people may also be worried about leaving the house if they have an illness, so an online consultation can make a person more comfortable, knowing that they won’t give or catch any other illness during their journey to the doctor’s and eliminating the need to travel.

References

Xu, Yongxun (2022, Sept 9). Research on patients’ willingness to conduct online health consultations from the perspective of web trust model. National Library of Medicine.

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(12 points)