Take the quiz below to test your knowledge of technology. Circle the correct answers.

1. **When was the first iPhone released?**
   a. 1999
   (b.) 2007

2. **'Apps' are also known as:**
   (a.) Digital applications
   b. Apples

3. **The first social media site was created in:**
   (a.) 1997
   b. 2010

4. **What does AI stand for?**
   a. Academic intelligence
   (b.) Artificial intelligence

5. **Which came first?**
   (a.) The X-ray (takes pictures inside the body)
   b. The television

6. **Robots can now be used to perform some operations.**
   (a.) True
   b. False

7. **The UAE has smart ambulances. They can make traffic lights turn from re to green.**
   (a.) True
   b. False

8. **Which of the following can be a type of personal medical technology?**
   a. Mobile phone app
   (b.) Heart rate monitor
   c. Both

Discussion: Technology in healthcare

In pairs, answer the questions below and then discuss your answers with the class.

How do you think technology is being used in healthcare?

1★ In health care, medical technology includes all the devices, machines, vaccins, procedures & systems that improve patient care. Technology is used in patient diagnosis & in patient treatment and recovery.

2★ Medical technology is also used to prevent diseases before they happen. They have the ability to carry out more advansed medical research.

Can you think of any devices that are used to diagnose and treat people?

☞ ① Stethoscopes.

☞ ② Hypodermic needles.

☞ ③ Blood pressure cuffas.

☞ ④ MRI Scanners.

☞ ⑤ Heart monitors.

Activity 1 True or false

Decide if the following statements are true or false.

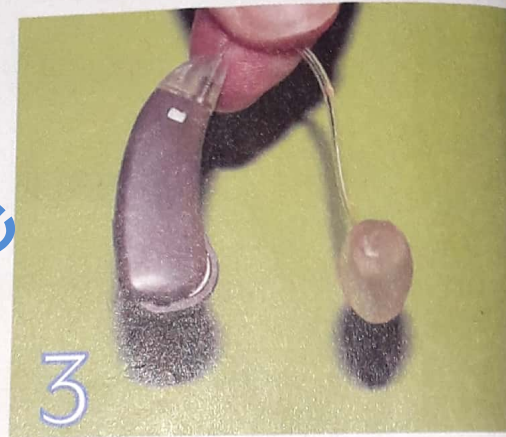|	True	False
Medical technology includes medicines and vaccines.	✓	
Medical technology helps people to live a healthy lifestyle.	✓	
Medical technology is only used in patient treatment.		✓
Medical technology is raising healthcare costs.	✓	

11.1 Technology in healthcare

What are they?

Look at the pictures of medical inventions from the past. Do you know what any of them are or what they might be used for? Write your answers in the spaces provided.

1. **This was invented in 1816. What is it?**

   Stethoscope.

   What do you think it is used for?

   It is used for listening to the action of someone's heart or breathing

2. This was invented in 1895. What is it?

X-ray. ((Medical Imaging))

What do you think it is used for?

The most familiar use of it is for checking fractures. But it can also detect if there is any disorder in the body internal organs.

3. This was invented in 1898. What is it?

Hearing aid.

What do you think it is used for?

It is used for improving hearing by making sound audible to a Person with hearing loss.

4. This was invented in 1965. What is it?

Portable defibrillator ((AED))

What do you think it is used for?

It is used for as a quick & simple treatment of sudden cardiac arrest.

5. This was invented in 1956. What is it?

Metered Dose Inhaler.

What do you think it is used for?

It is used for helping People in delivering a specific amount of medication to the lungs.

6. This was invented in 1714. What is it?

Thermometer.

What do you think it is used for?

It is used for checking or testing someones from someone's fever.

11.1 Technology in healthcare

Medical advances timeline

Write the date next to each of the medical advances. Then put them in the correct order from 1-10. Number 1 should be the oldest and number 10 the most recent.

	Date	Order
Insulin is first used to treat diabetes	((1922))	1
MRI body scanner is created	((1973))	7
Chemotherapy is first used	((1946))	3
First remote 'telesurgery' is performed	((2001))	9
First cancer vaccine is created	((1970))	6
Stem-cell therapy is created	((1998))	8
3D printer is used for a skull transplant	((2014))	10
Discovery of penicillin	((1928))	2
First human organ transplant	((1954))	4
CPR is first used	((1960))	5

Healthcare in the past

Look at the statements below about healthcare 100 years ago. Which one surprises you the most? Choose the one that is most surprising to you and then write how it is different from what happens in healthcare today.

1. 1Babies were born at home.

2. Doctors made house calls instead of patients visiting them in clinics or hospitals.

3. Surgery was usually carried out in people's houses.

4. People did not have access to specialist scans, medicines and vaccinations.

I was most surprised by:

1# Surgery was usually carried out in people's houses.

I was surprised because:

2# It's totally different regarding what is happening nowadays.

It is different from what happens today because:

3# Doctors used to perform surgeries in hospitals now nowadays.

Augmented reality

Write a short paragraph that describes augmented reality.
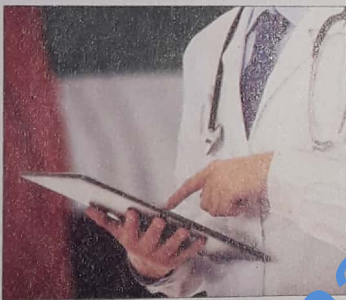
[★ Argumented reality is the technology that allows objects in the real world to be enhanced by computer generated information. It works by combining live video-streaming with state of-the-art AR software ★]

What are the innovations?

Write a short description of each of the medical innovations in the boxes provided.

Electronic health records:
+ They make it easy to gather large amounts of information about Patients & health care Patterns.

Smart ambulances:
+ It is a project for smart connectivity between the national ambulance services & hospitals. Those ambulances can turn red traffic signals green and beam patient's details directly to hospitals.

Augmented reality platforms:
+ They are plaforms that work by combining live video-streaming with state-of-the-art AR software.

11.1 Technology in healthcare

Discussion: The future of healthcare

Think about what you have already learned. What do you think healthcare might look like in the future? Discuss with your class and make notes below.

In the future, there will be more modern medical technologies that can be used in the process of treating people such as Brain-implant therapies, Implanted technology, Nanotechnology and 3D bioprinting.

Activity 9 Innovations

Answer the following questions about innovations.

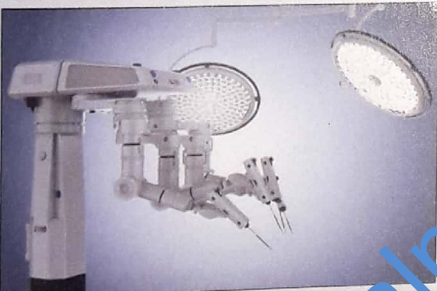| What are innovations?	*They are new ideas, Processes or Products*
Name two innovations in healthcare:	1 Brain-implant therapies. 2 3D bioprinting.
How often are exciting innovations being created?	*Every single day.*

Healthcare innovations

Look at the pictures of some healthcare innovations below. Try to match them with the descriptions.

A robot surgeon; able to assist doctors carry-out precision surgery

Artificial intelligence (AI) hospital receptionist

Nanotechnology; nano-robots carrying out cellular repairs

A magnetic resonance imaging (MRI) scanner; used to create images inside the body

An ECG or heart rate monitor; used in hospitals to monitor a patient's heart rate

11.1 Technology in healthcare

Future healthcare innovations

Write one sentence about each of the following innovations that are being developed now.

⊙ **Brain implant therapies:**

1 ⭐ This technology is being created to help people with spinal cord injuries.

⊙ **Implanted technology:**

2 ⭐ This means that microchips will be inserted into the body to repair physical problems such as eyesight or poor hearing.

⊙ **Nanotechnology:**

3 ⭐ This technology explores the use of tiny robots, smaller than a grain of sand, to deliver medication & treat diseases.

⊙ **3D bioprinting:**

4 ⭐ This is being developed to enable the printing of bone tissue,
• organ tissues and skin.

Which innovation sounds the most exciting to you?

"Nanotechnology".

The goals of AI

Select the **two** goals of AI from the statements below.

Statement	
To build computer programs that can learn, solve problems and think logically	✓
To build technology that can replace human intelligence	
To completely replace humans in the workplace	
To create programs and technologies that are able to do tasks that would normally require a human	✓

11.2 Artificial intelligence in healthcare

AI's benefits in healthcare

Finish the sentences about the benefits of AI in healthcare.

AI improves patient care by:	standardising tests and treatments.
	making tests and treatments more disorganised.
AI minimises medical errors by:	deleting medical records after 30 days.
	analysing patient records.
AI can diagnose diseases:	slower than a human.
	faster and more accurately than a human.

How AI is being used in healthcare?

Look at the descriptions of how AI is being used in healthcare. Write what type of artificial intelligence they are describing.

Description	Type of AI
This artificial intelligence can be used in operations to help guide surgeons' instruments.	1. "AI assisted robotic surgery".
This AI can be used to check patients into hospitals and collect patient information.	2. "Virtual nursing assistant".
This type of artificial intelligence can look at X-rays to detect diseases or small defects.	3. "Image analysis".
This artificial intelligence records the health data of large amounts of patients.	4. "Data & statistics".