



1 How much does an average adult heart weigh?
a 225 grams b 450 grams c 900 grams

2 Which heart rate is normal for a resting newborn baby?
a 80 bpm b 140 bpm c 180 bpm

3 How much blood do we have in our bodies?
a 5 litres b 7 litres c 9 litres

4 How long does it take blood to get round the body?
a 20 seconds b 60 seconds c 120 seconds

5 What percentage of blood is water?
a 62% b 78% c 88%

6 What causes the 'lub DUB lub DUB' sounds that you hear through the stethoscope?
a blood leaving the ventricles
b electrical impulses
c opening and closing valves

7 What should the maximum heart rate be for a twenty-year-old when exercising?
a 160 bpm b 200 bpm c 240 bpm

8 Whose hearts beat faster?
a women's b men's c both the same

9 When was the first successful heart transplant carried out?
a 1947 b 1967 c 1987

10 What percentage of the body's blood is held in the heart at any moment?
a 7% b 17% c 70%

1-a, 2-b, 3-a, 4-a, 5-b, 6-c, 7-b, 8-a, 9-b, 10-a

The most (1) important muscle in the body is the heart. Without the heart and its cardiovascular (circulatory) system, human life would (2) not be possible. The heart is roughly the size (3) of a fist. It contracts at (4) an average rate of 72 times per minute or nearly 38,000,000 times a (5) year. These rhythmic contractions are called (6) the pulse rate and can be (7) felt in the radial artery of the wrist.

The human heart consists of four chambers (8), two atria (or auricles) and two ventricles (9). Each is made up (10) of several layers of cardiac muscle arranged in circles and spirals. During the contraction phase, called the systole, oxygenated blood is (11) pumped out of the left part of the heart into the aorta and from there through the arteries to all organs of the body. Carbon dioxide (12), a waste product of this process, is collected in the blood.

The rest of the system consists of arterioles (13) (small arteries), venules (small veins (14), and capillaries, the smallest of blood vessels (15). In total, there (16) are more than 70,000 miles of them in the human body.

The blood is made up of two parts - plasma and blood cells (17). The plasma is a clear, yellowish liquid which (18) transports the 25 trillion erythrocytes and the many fewer leukocytes. The leukocytes are important in (19) fighting disease. Platelets/thrombocytes (20) in the blood permit clotting to take place at the site of a wound, thus preventing excessive bleeding.

1. Match the words with their synonyms or definitions

1-i, 2-m, 3-l, 4-c, 5-a, 6-d, 7-b, 8-e, 9-j, 10g, 11-h, 12-f, 13-k

2. Listen and answer the questions:

The contraction of the heart muscle is caused by Action potentials/electrical signals.

The abbreviation for electrocardiogram is ECG or EKG.

What are the individual phases of electrocardiogram and what happens during them? see the video

Patient care

correct order 4, 5, 2, 7, 1, 3, 6

1d, 2c, 3g, 4e, 5a, 6f, 7b

3. and 4. Listening – see the transcript

W = Patient's wife, D = Doctor

W He's not very well at all, is he doctor?

D He's actually OK. He's a bit more stable.

W That's a relief.

D I just need to ask you a few quick questions. Can you tell me what happened?

W We were sitting at home and he started getting this pain in the centre of his chest. He'd had it several times before and he used the spray thing he's got.

D The GTN spray?

W Yeah ... yeah that's it. And so he gave himself a few puffs but the pain wouldn't go and I could see that he was getting breathless and agitated and he said he felt sick. He started vomiting a little ... and he was beginning to sweat. And he said he thought he was going to die.

D OK. So can you tell me what time that was?

W Well, I called for an ambulance at sevenish and it came like a shot, ... so it was less than an hour ago in total.

D So has he had any other pain?

W He said the pain was in both arms.

...

D Your husband is doing very well.

It's good you got him straight into hospital, but I need to ask you a few quick questions.

W OK.

D Has your husband had any injuries or any other major illness?

W No.

D Any bleeding?

W No.

D Any major surgery?

W No, nothing like that.

D Anything else you can think of?

W No. Nothing.

D OK. What we're going to need to do, with your consent, is to give your husband something to help get rid of any blood clots. There is a risk of stroke with the procedure, and ...
... but the benefit can be dramatic if we get it down quickly. It can have a considerable effect. There doesn't seem to be any reason why he shouldn't have the medication, but we need to give it as soon as possible and we need your consent.

W OK. Can I just ask ...

...

D By the looks of it, it's all gone very well and he'll be up and about in no time. For the moment he just needs a bit of rest.

The future

There are several ways of talking about future:

1. SIMPLE FUTURE will + verb (will go)	A. something that has been planned or arranged
2. PRESENT SIMPLE verb (go, goes)	B. an action which leads up to a given point in the future but is not necessarily finished at that point
3. PRESENT CONTINUOUS be + verb+ing (is going)	C. talking about future after if, before, after, as soon as, when and future timetabled events
4. FUTURE CONTINUOUS will + be + verb+ing (will be going)	D. an action that will have finished at a given point in the future
5. FUTURE PERFECT will + have + verb in PP (will have gone)	E. the future in general and in main clause of a first conditional sentence
6. FUTURE PERFECT CONTINUOUS will + have + been + verb+ing (will have been going)	F. action that will be happening at a given point in the future
7. Going to	G. for talking about personal plan or intention, for making prediction, especially when this has already started to happen; for decision about the future

Can you make an example for each of these possibilities?

1. WILL=SIMPLE FUTURE - the future in general and in main clause of a first conditional sentence

The presentation will finish at about 4 o'clock.

If it finishes earlier, there will be more time for questions.

2. PRESENT SIMPLE - talking about future after **if, before, after, as soon as, when**

- future timetabled events

When he gets here, could you let me know?

Dr Carlin's train leaves London at 1:30 and gets into Oxford at 2:10.

3. PRESENT CONTINUOUS - something that has been planned or arranged

We are sending out invitations over the next couple of weeks.

4. FUTURE CONTINUOUS - an action that will be happening at a given point in the future

This time next week, you will be flying back to the USA.

5. FUTURE PERFECT - an action that will have finished at a given point in the future

By the end of the year you will have learned enough English to be able to work in a hospital.

6. FUTURE PERFECT CONTINUOUS - an action which leads up to a given point in the future but is not necessarily finished at that point

This is a long presentation. By five o'clock, Dr Schwartz will have been talking for an hour and half.

7. Going to + infinitive – for talking about personal plan or intention, for making prediction, especially when this has already started to happen; for decision about the future

Choose the correct form, A, B or C, to complete the sentence.

- a We seem to be completely lost. What A now?
b Just think, this time next week we taking a taxi to the airport.
c As soon as we hear any news, we you know.
d The new film of *Hamlet* starring Johnny Depp next week.
e Some scientists believe that they a cure for most types of cancer by 2050.
f a press conference about our new discovery on Tuesday.
g Look at that helicopter! It on the sports field!
h In a year's time I in the music industry.
i Hold on to the camera. drop it.
j We a new area in the Zoo where visitors will be able to get closer to the animals.

- | | | | |
|---|----------------------|------------------------|-------------------------|
| a | A are we going to do | B are we doing | C will we do |
| b | A are going to take | B take | C will be taking |
| c | A are letting | B will have let | C will let |
| d | A will have come out | B comes out | C will come out |
| e | A discover | B are discovering | C will have discovered |
| f | A We'll have held | B We hold | C We're holding |
| g | A will land | B is going to land | C lands |
| h | A am going to work | B am working | C will be working |
| i | A You drop | B You're going to drop | C You'll be dropping it |
| j | A open | B will have opened | C are going to open |

EXTENSION ACTIVITY

- 1 Look at the explanation page and read the section *future time clauses following time words*. Write seven sentences about yourself, using the time words in the list on the explanation page.
- 2 Make a diary for next week, to remind you what you are doing on each day. Then write a sentence for each day.
*Need more practice? Go to the **Review** on page 192.*

b-c, c-c, d-b, e-c, f-c, g-b, h-c, i-b, j-c

Future:

1) will be (is going to be), 2) will be sent, 3) will soon move, 4) will have been (will be), 5) will be walking, 6) Will he be able, 7) will he have had, 8) is coming/comes, will see/will be seeing

Instructions

suggested answers: 1d, 2b, 3e, 4a, 5c

You are a paramedic and you have just got a call. The person calling, Nina, found someone with a sudden cardiac arrest. Prepare instructions so that you can talk her through the procedure of giving CPR and using AED.

1. Check Responsiveness

- For an adult or older child, shout and shake the person to confirm consciousness. Do not use AED on a conscious person.
- For an infant or young child, pinch skin. Never shake a young child.
- Check breathing and pulse. If absent or irregular, prepare to use AED as soon as possible.

2. Prepare to Use AED

- Make sure the person is in a dry area and away from puddles or water.
- Check for body piercings or outline of an implanted medical device, such as a pacemaker or implantable defibrillator.
- AED pads must be placed at least 1 inch away from piercings or implanted devices.

3. Use AED

For newborns, infants, and children up to age 8, use a pediatric AED, if possible. If not, use an adult AED.

- Turn on the AED.
- Wipe chest dry.
- Attach pads.
- Plug in connector, if necessary.
- Make sure no one is touching the person.
- Push “Analyze” button.
- If a shock is advised, check again to make sure no one is touching the person.
- Push “Shock” button.
- Start or resume chest compressions.

4. Continue CPR After Using AED

- After 2 minutes of CPR, check the person’s heart rhythm. If it’s still absent or irregular, give another shock.
- If a shock isn’t needed, continue CPR until emergency help arrives or the person begins to move.
- Stay with the person until help arrives.