**Topic 4 Activity 1**

content obligatory vocabulary

**easy verbs**

**Wh-words**

**Signposting**

**Repetition**

**Language objective**

**Transcript**

**T:** Now… class, last time we talked about the structure of the heart, and today we will look at~~the action of heartbeat~~ how the heart beats [Pointing at the words she has written on the board]. Now, first of all, can you all put your hand over your heart? [Putting her hand over her heart and keeping her hand there as she talks] Try to feel for your heartbeat. Alright? Can you feel it? How many of you can feel the heartbeat? [Students laughing] So put up your hand [raising her hand], those of you {who} can feel the heartbeat. Very good… I think most of the class can [Putting her hand back on your heart]. Those who can’t can press harder. Okay? [Students laughing] Now you can feel the ~~action~~ heartbeat, but **how** ~~is the action produced~~ **does the heart beat? How does it happen?** [Keeping her hand on the heart] **And why is it important to us?** [Hand gesture on ‘why’] Now, you know that the heart needs to beat all the time to keep us alive, right? **And why is it important?** When the heart beats, it helps to push the blood around the body. But **how ~~is the action produced~~ does the heart beat? How does it happen?** Now, you have learnt about the structure of the heart, and you know that the wall of the heart is made of muscles. [Gestures to mime the wall of the heart] Alright? What can muscles do to make the heart beat? And idea?

**Ss:** Contract.

**T:** Contract.Very good. If this is the heart [Making the shape of a heart], right, the heart actually ~~would~~ will contract [Making the shape of the heart smaller], and would it contract all the time? So what happens after contraction, after it contracts? [Keeping the small shape of the heart] The muscles…

**Ss:** Relax.

**T:** Relaxes [Making the shape of the heart larger], very good. So, the heart will keep **contracting, relaxing, contracting and relaxing** [Making the shape of the heart smaller and larger, smaller and larger]. And to demonstrate ~~this action,~~ how this happens, I have brought here a simple setup [Taking up the bulb and the tube], but I need a helper to help me with the demonstration. So, any volunteer, volunteer? [Looking at the students with an enquiring gesture] Okay, Eliza [Pointing at Eliza], you are the monitor, so come out please. [Gesturing her to come out] Alright, first of all, I will show you what these setups are [Raising the bulb and the tube for students to see]. **This is a rubber bulb.** [Raising the rubber bulb] **Alright, a rubber bulb**. [Writing the words on the board] **And inside the bulb** [Pointing at the bulb], I have put some red liquid, **so the bulb stands for**… [Pointing at the bulb and gesturing ‘what’] **What do you think the bulb stand for?** [Gesturing students to answer]

**Ss:** The heart.

**T:** The heart, very good. Now, **this will stand for** the… one of the chambers of the heart. [Pointing at the bulb] And inside the red liquid **will stand for**… [Raising the tone to signal students to answer]

**Ss:** Blood.

**T:** Blood, very good. Alright, now, first of all, can you… ah…put this [Raising the tube] over the rubber bulb… [Letting the student have the tube and holding it together with the student] Okay… Alright, now I connect a glass tube to the rubber bulb, like this. [Connecting the tube to the bulb and show the class] Can you hold the bulb itself? [Giving the setup to the student to hold] Alright? Okay… Now, watch this student, do the demonstration… **Observe carefully, watch carefully**, what will happen? [Pointing to the setup, helping the student to get the setup right] When she starts to squeeze onto the rubber bulb slowly… [The student squeezes too much] Slowly… [Students laughing] slowly, slowly, slowly, alright? [Putting her hand beside the setup and moving her hand to model a slower action] And hold it like this… thank you. And you can squeeze it harder. Alright, try again? Okay, what can you see? Now, this action actually demonstrates, shows one of the stages of the muscles. [Gesturing her hand to show movement of the muscles] Just now you mentioned that the muscle will contract and relax, is that right? [Gesturing her hand to show the movement of contraction and relaxation] So, is it contraction or relaxation here? Is it contracting or relaxing? The heart muscles… [Holding her fist to signal contraction]

**Ss:** Contract.

**T:** Contract, all agree, alright? Now, show the class again please. [Gesturing the student to show the class the setup again] Alright, now, hold it like this. [Pointing at the rubber bulb] When the chamber contracts, when the muscles contract, what happens to the size of the chamber? [Pointing at the rubber bulb and then looking at the students to elicit a response] Can you see that actually the size changes? What is the change?

**Ss:** Smaller.

**T:** Smaller, very good. [Leaning her head forward to signal a response to the students] Now, when the chamber becomes smaller in size, what happens to the liquid inside? [Pointing at the red liquid in the tube] You can see that the liquid goes… up. [With her hand going up along the liquid] Because you can see the liquid level rising on the glass tube. Now, very good… Now, what hap… what, what, ~~what is the action of the liquid then~~ where does the liquid go? [Running her hand along the glass tube in an upward direction] It flows, goes… When you squeeze, right, when the heart contracts, it goes out of the heart. Very good. Now, this is a very important action of the heart, alright? We call this systole… [Writing the word on the board] systole. Systole… what does it mean? It means that when the heart muscle contracts… [Writing the phrase on the board] when the heart muscle contracts, the size of the chamber becomes smaller… good. [Drawing an error and writing the second phrase after the arrow] And then, therefore [drawing another arrow], it leads to… blood flows [signalling the blood flow to the students], is that right? So what is the direction of blood flow? Blood flows… [Writing the words on the board] into the heart or out of the heart?

**Ss:** Out.

**T:** Very good. Blood flows out of the heart. [Writing the full phrase on the board] Now, can you get it? Alright? So, this is the first stage of the heartbeat. When the chamber contracts, it forces blood out of the heart [Gesturing the movement as she talks], and this is called systole [Pointing at the writing on the board]. Alright? Now, we go to the next step… [Going towards the student with the setup] So can you squeeze on the heart again? [Helping the student with the setup] And hold it like this. Alright, now, the student is going to show you the next step. [Looking at the class] When she starts to release the rubber bulb slowly [With gesture], you can see that… [Pointing at the liquid in the tube, with her hand going down the tube] Yes, you can now start the demonstration, release the bulb slowly… So what happens to the liquid level inside? [Pointing at the liquid level] Very simple, right? Yes…

**Ss:** Liquid level drops.

**T:** Very good, so ~~complete sentence, right~~? **The liquid level drops back into the rubber bulb**. [Gesturing the drop of the level along the tube] And what causes **the drop of the liquid into the rubber bulb**? [Pointing at the rubber bulb] ~~It’s~~ because of the change in size of the rubber bulb, remember? [Gesturing the changes of size with her hand] So what is the change~~s~~ in size of the rubber bulb this time? [Pointing at the rubber bulb]. It becomes… expand, very good. It becomes… bigger. [With her hand showing a bigger size] Here comes another term. After systole, what happens to the heart chamber? [Pointing at the words on the board] The heart will then undergo the next stage, which is called diastole. [Rubbing off ‘rubber bulb’ and writing ‘diastole’ on] Diastole. Now, during diastole, actually the opposite would occur. Now we can make use of the same paragraph here to describe diastole by changing the words underlined. [Pointing at the words on the board] So can anyone do it? Try. How do you describe diastole? Yes… [Looking at the class and signalling a student to answer]

**Ss:** Ah**…** heart muscles expand…

**T:**  The heart muscles… Now, I put it down first, right? And then? [Writing on the board]

**Ss:** Size of chamber becomes bigger…

**T:** Good, go on? [Writing on the board]

**Ss:** Ah… blood flows into the heart…

**T:** Blood flows…

**Ss:** …into the heart.

**T:** Very good.Alright, now, take a look at the… the… ah… suggestion of this student. She got it mostly right. However, let us go to the first part. [Pointing at the first line of the writing] Now, remember that just now we mentioned that muscles ~~have two actions~~, act in two different ways, muscles do two different things, right? [Holding up two fingers] Contract [Hands holding together]… and… **instead of expand** [Hands moving apart], we say… any suggestion? [Gesturing a student to answer] We use the word… re-, re-

**Ss:** Relax.

**T:** Relaxes. Good. So, **instead of expand**……Expand will be in fact similar to this one. [Pointing at the board] You say that the chamber becomes… larger, bigger, or the chamber expand. So let us put expand here as well, alright? So we can say expand here or bigger. [Writing the word down] But for the action of the muscle, now it is important, because it is a specific term as well. Muscle can only contract and… relax~~es~~. [Writing the word on the board] Is that clear? Alright?