ACTIVITY 5 HOW DO MUSCLES WORK?

In the previous activity you learned about bones and joints, now we are going to look at muscles and how they work.

STARTER

Now that we have seen how bones help Sarah move we need to look at her muscles. Check these facts out in pairs and circle the correct answer.

There are over **150 / 450 / 650** muscles in the human body.

They make up **nearly 25% / 40% / 80%** of your body weight.

In your face there are over **10 / 50 / 90** different muscles to help you smile, frown, show that you are cross, surprised or sad.

Eye muscles are the busiest muscles in the body. Scientists estimate they move more than **1,000 / 10,000 / 100,000** times a day.

Q1

How do muscles function? Clench your fist and bend your arms like you are doing weightlifting. Notice how the muscles in your arm change, and now try to complete the sentences below.

Humans and animals have skeletons with __ __ __ __ __ __ __ attached. Each muscle is attached to a different set of __ __ __ __ __ . All muscles work in __ __ __ __ __ . While one muscle tightens up and __ __ __ __ __ __ __ __ __ , the other muscles __ __ __ __ __. When muscles contract they get __ __ __ __ __ __ __ and __ __ __ __ __ __ and when they relax they get __ __ __ __ __ __ and __ __ __ __ __ __ __ .

WORD CHOICES

fatter	**bones**
relax	**thinner**
contracts	**shorter**
longer	**pairs**
muscles	

Q3

Some muscles are called 'voluntary' muscles. This means that they only move when you want them to. Other muscles move automatically without you thinking. These are called 'involuntary' muscles.

Decide if the movements below are 'voluntary' or 'involuntary'.

1. Raising your arm

2. Bending your knee

3. Your heart beating

4. Clapping your hands

5. Blinking your eyes

6. Breathing in and out

Q4

So, you can see that moving maybe isn't as simple as you thought it was. After travelling all those miles, what do you think happens to Sarah's muscles?

ACTIVITY

To see what happens to our muscles after exercise, we are going to shorten all the different activities that Sarah is doing in the 877 days of her expedition into just 5 minutes.

Step 1 As a class think of a different action for kayaking, cycling, resting and rowing.

Step 2 Now do each action for the following amounts of time...

Action	Time (seconds)
Kayak	2
Cycle	62
Kayak	7
Rest	34
Row	68
Cycle	3

You would only have to do this another 105,240 times to complete the same amount of exercise as Sarah will during the entire expedition. Phew!!