

Investigating heart rate

Outstanding Science Year 6 - Animals, including humans - OS6B004

Learning Objective



I can investigate the effect of exercise on heart rate.

Me:   

Teacher:   

In humans, as in many other animals, the **heart** pumps **blood** around the body. The function of blood is to provide all parts of the body with **oxygen** and nutrients, and to remove waste products such as carbon dioxide.

Because the human body can have different oxygen requirements at different times, the heart can change the speed at which it beats. **Heart rate** is the rate at which the heart pumps blood around the body. Heart rate is usually provided as **beats per minute (bpm)**, or the number of times the heart beats in one minute.

Measuring your heart rate

There are several ways of measuring your heart rate. One simple way is to locate the **radial artery**. Use two fingers from one hand to follow the line of the thumb on the other hand to just below the wrist. Count the **number of beats in 15**



Taking the radial pulse

National Curriculum Statutory Requirements

6B2 - recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function; **UKS2W2** - taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; **UKS2W3** - recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

Scientific question

How does heart rate change during and after exercise?

You will need:

- PE kits (if possible)
- A stopwatch or timer



Method

Measure your **resting heart rate**. Sit on a chair and then measure the number of times your heart beats over 15 seconds.

Perform a **vigorous exercise** for 1 minute, such as running on the spot as fast as you can. Immediately afterwards, measure how many times your heart beats in 15 seconds. Wait 45 seconds, then measure your heart rate again. Repeat this until you have measured your heart rate 9 times.

Multiply each measurement by 4 to convert them into beats per minute. Use this measurement to complete the line graph.

Discussion

How did your heart rate change over time?

Can you describe this change? What caused it?

Can you compare your results to those of the other children in your class?

Table showing resting heart rate

Number of heart beats in 15 seconds	Beats per minute (bpm)

Table showing heart rate after exercise

Time after exercise (minutes)	Number of heart beats in 15 seconds	Beats per minute (bpm)
0		
1		
2		
3		
4		
5		
6		
7		
8		

Line graph showing heart rate after exercise

