



# Knowledge and Skills Mind Map (Science) - Year 6 Autumn Term 2

## Animals, including humans

### 1. Can I identify and describe the main parts of the human circulatory system?

- **Prior Learning (Year 4 - Autumn 2):** main parts of the human digestive system
- **Vocab:** circulatory system, heart, blood, blood vessels, oxygen, nutrients, arteries, veins, capillaries,
- Know that the circulatory system is a body system that transports substances such as oxygen, nutrients and water around the body.
- Know that the main parts of the circulatory system are the heart, blood and blood vessels.
- Know that blood vessels include arteries, veins and capillaries, which carry blood to and from the heart and around the body.
- Know that labelled diagrams can be used to identify and describe the parts of the circulatory system.

**(note for teachers – suggested task:** provide a diagram of the human circulatory system. Children to label the heart, blood vessels and flow of blood, then annotate the diagram to show what is transported around the body.)

- **Recording data and results of increasing complexity using scientific diagrams and labels**

### 2. Can I explain the functions of the heart, blood vessels and blood?

- **Prior Learning (last lesson):** Identified parts of the circulatory system and their structure
- **Vocab:** heart, blood vessel, blood, transport, muscle, cells, scientific evidences
- Know that the heart is a muscle that pumps blood continuously around the body.
- Know that blood vessels carry blood to and from the heart around the body.
- Know that blood transports oxygen, nutrients and water to cells and carries waste products away.
- Know that evidence from models and diagrams helps explain how the circulatory system works.

**(note for teachers – suggested task:** use a simple model (e.g. squeezing a sponge) to demonstrate how the heart pumps blood, then ask children to explain the role of each part of the circulatory system using a labelled diagram.)

- **Identifying scientific evidence that has been used to support or refute ideas or arguments**

### 3. Can I describe how nutrients and water are transported within our body?

- **Prior Learning (last lesson):** explained the function of the circulatory system
- **Vocab:** nutrients, digestion, digestive system, circulatory system, bloodstream, cells
- Know that nutrients from digested food enter the bloodstream and are transported around the body.
- Know that water is also carried in the blood to cells where it is needed.
- Know that the circulatory system works with other systems (e.g. digestive system) to supply cells with what they need.
- Know that oxygen and nutrients are transported to cells, and waste products are carried away.

**(note for teachers – suggested task:** use a diagram showing the digestive system linked to the circulatory system, then ask children to trace the journey of nutrients from food to different parts of the body and explain this process using annotated diagrams.)

- **Identifying scientific evidence that has been used to support or refute ideas or arguments**

### 5. Can I explain how diet, exercise, drugs and lifestyle affect how the body functions?

- **Prior Learning (last lesson):** investigated how exercise affects pulse rate
- **Vocab:** diet, exercise, substances, drugs, lifestyle, circulatory system, harmful, long-term effects

- Know that a balanced diet provides the nutrients needed for the body to function properly.
- Know regular exercise strengthens the heart; improves the efficiency of the circulatory system.
- Know that some substances (e.g. drugs, alcohol, smoking) can have harmful effects on the body.
- Know that lifestyle choices can affect long-term health, (e.g. physical fitness, risk of disease).

**(note for teachers – suggested task:** discuss examples of different lifestyles and ask children to analyse how diet, exercise and habits affect the body, then present recommendations for maintaining a healthy circulatory system using scientific evidence.)

- **Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms**
- **Identifying scientific evidence that has been used to support or refute ideas or arguments**

### 4. Can I plan and carry out an investigation to measure pulse rate and use results to explain how exercise affects the body?

- **Prior Learning (last lesson):** Described how nutrients and water are transported
- **Vocab:** investigation, pulse rate, exercise, heart rate, variable
- Know that pulse rate is the number of times the heart beats per minute.
- Know that exercise increases pulse rate because the body needs more oxygen and nutrients.
- Know that a fair test involves changing one variable (e.g. type or intensity of exercise) while keeping others the same.
- Know that taking repeat measurements improves the accuracy and reliability of results.

**(note for teachers – suggested task:** children measure their resting pulse, then carry out different exercises (e.g. star jumps, walking, running) and measure pulse again, recording results in a table, repeating readings, and identifying patterns to explain how exercise affects the heart.)

- **Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary**
- **Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate**