

# Science

All children – regardless of gender, starting point or background – will have the opportunity to engage with a high-quality science education. They will be equipped with the knowledge, skills and vocabulary to understand how science can be used to explain what is occurring, predict how things will behave and analyse caused. We intend to inspire a sense of enjoyment and curiosity about science.

## Animals Including Humans

Spring 2

### Prior Knowledge

Year 2 - Animals Including Humans

Year 4 - The Digestive System.

### New Knowledge:

- The heart is a muscle that pumps blood in the blood vessels to the lungs. The heart has four chambers: left and right ventricles; left and right atrium.
- The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body.
- This is the human circulatory system.
- There are 3 main groups of blood vessels: arteries, veins and capillaries.
- Arteries carry oxygenated blood away from the heart except for the pulmonary artery, which carries de-oxygenated blood.
- Veins carry de-oxygenated blood towards the heart except for the pulmonary vein, which carries oxygenated blood to the heart.
- Most veins contain valves to prevent back-flow of blood.
- Capillaries are the smallest blood vessels in the body. The exchange of water, nutrients, oxygen and carbon dioxide takes place in the capillaries.
- Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products.
- Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body.
- Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well our heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think and how generally fit and well we feel.
- Some conditions are caused by deficiencies in our diet e.g. lack of vitamins.
- A drug is something you put in your body that has an effect on your body. The effect can be good or bad.
- Drugs can be medicines that are helping your body, but they can also be substances such as alcohol or chemicals found in cigarettes that have a very bad effect on your body.

### Key Vocabulary:

Circulatory System  
Heart  
Pulse  
Rate  
Pumps  
Blood  
Blood vessels  
Artery  
Veins  
Transported  
Lungs  
Oxygen  
Carbon Dioxide