LO: I can describe the ways in which nutrients and water are transported within animals, including humans.

Why Do We Need Nutrients?

Match the types of nutrients with the reason why we need them (slide 3).

How Do We Get Nutrients?

Show a picture of the digestive system (slide 5).

Using the Digestive System Functions Activity Sheet, can you recall the functions of the different parts of the digestive system? *(Address any misconceptions or errors arising from this activity.)*

How Does It Work?

Read through the information on the next 5 slides to explain the processes of the digestive and excretory systems Might be useful for your child to make some notes. *(Transporting water and nutrients planning sheet)*

Explanation Diagram

Use the notes from their Transporting Water and Nutrients Planning Activity Sheets to create a diagram (on A3 paper) explaining the transportation of water and nutrients through the body. Create two diagrams – one for transporting water and one for transporting nutrients. *(Transporting nutrients and water images)*

Activities to illustrate some of the processes.

Activity 1

- Using 2 jelly snakes, keep one aside and place the other on a plate with some water and leave (either overnight or all day).
    - Observe their jelly snake closely (hand lenses/microscopes if available) and note any changes measure both jelly snakes
    - Think/discuss together and make suggestions as to what happened to the jelly snakes.
    - Explain that we need to **absorb** the nutrients that come from our food and that we also need water to function.

Jelly snake osmosis investigation (Yr5)

You will need:

- **Some jelly snakes or worms**
- **A plate**
- **Water**

Method:

1. Measure your jelly snake and record
2. Place the snake on a plate with 100mls water and leave overnight
3. Predict what you think might happen
4. Re-measure your snake and compare with the original length
5. Can you give an explanation as to why it has changed? Is the water still on the plate? If not where has it gone?
6. Photograph (or draw) your snakes at the end of the experiment and as a team come up with an annotation to accompany it, explaining what you did, what you observed and why you think this happened. Can you suggest how this investigation relates to the way the human body transports water?

Activity 2

- Arrange some skittles on another plate and pour approximately 100ml water onto the plate and observe what happens.
    - Again think about what happened to the water?
    - How does this relate to our body?
    - Explain that in their experiments, the colour from the Skittles represents their nutrients, and the water in the snake experiment represents the water in our bodies.

Skittles diffusion investigation (Yr5&6)

You will need:

- 5 different coloured Skittles
- A plate
- Water

Method:

1. Place 5 different coloured Skittles onto the plate
2. You are going to pour 100ml of water onto the plate and observe what happens, but before pouring the water on write down your predictions as to what you think might happen and why
3. Observe closely what happens to the Skittles and see if you can explain in scientific terms, what has happened
4. Photograph (or draw) your plate at the end of the experiment and as a team come up with an annotation to accompany it, explaining what you did, what you observed and why you think this happened. You then need to explain how this relates to the way the human body transports nutrients

Activity 3

- Place some raisin or sultanas in a tall glass or plastic bottle filled with water and leave. After about an hour remove them from the water.
    - What do you notice has happened? How have the raisins changed?
    - What do you think has caused this?

- *Explain that once broken down, the nutrients are absorbed through the walls of our intestines into the blood in a process called diffusion (like in the Skittles experiment) and that water doesn't need breaking down and moves between membranes in the body to arrive in the correct place, again via our blood through a diffusion process called osmosis (chn don't need to know the scientific details of diffusion & osmosis, just that they are processes used to transport nutrients and water).*
- *Ensure that chn realise this is true of all animals, not just humans.*
- *Explain that **osmosis** only applies to water (or a solution) and is dependent on a semi-permeable membrane to move from higher concentration to lower concentration, while **diffusion** is the general movement of molecules or particles from an area of higher concentration to an area of concentration lower (see link for your own reference).*

While children at this age do need to know the terms **osmosis** and **diffusion** it is good to introduce them to these terms.