



## Stage 1: Introduction & the digestive system

The Farming STEMterprise project will involve children completing a range of cross-curricular tasks in order to grow their own ingredients, develop their own food products, set up a farm shop business and calculate with money in an engaging, real life context.

### Learning Objective:

- To identify the organs involved in the digestive system and their functions

### Stage Overview:

In this stage, the children are introduced to the digestive system, its functions and how it works by building their own digestive system in the class room. The children then apply their learning during a cross-curricular writing opportunity: writing a short story from the perspective of a piece of food travelling on a journey through the digestive system.

### Materials needed for each group:

- Cracker
- Banana
- Plastic sealable sandwich bag
- Water
- Orange juice
- Half a pair of tights
- Tray
- 2 paper cups (one with a hole in the bottom)
- Body diagram sheets (one per child)
- Digestive system sheets (one per child)
- Marketing strategy sheet

### Presentation notes:

Slide 2-3: Introduce the STEMterprise project

- Introduce the stimulus problem. Explain to the children that during this project, we will be learning how to set up a business and maybe one day, they could be the entrepreneurs of the future!!
- Give the children five minutes to think of a name for their business and write it on their marketing strategy sheet. They will fill in the remaining sections of the sheet in later stages of the project.

Slide 5: Learning intention	<ul style="list-style-type: none"> <li>- Share the learning intention and explain that before we can start developing our healthy new product, we need to understand how the digestive system works.</li> <li>- Ask the children what they think the job of the digestive system is. Establish that it is responsible for processing the food that we eat so that our bodies can absorb the nutrients they need and expel (get rid of) the waste products that they don't need.</li> <li>- Ask the children to draw what they think the digestive system looks like on the body diagram and note the misconceptions.</li> </ul>
Slide 6: The digestive system	<ul style="list-style-type: none"> <li>- Use the power point to explain which organs are involved in the digestive system and each organ's different role.</li> <li>- Address the misconceptions identified in the starter activity.</li> </ul>
Slide 7: Task 1: Building the digestive system	<ul style="list-style-type: none"> <li>- Explain that you are going to build your own digestive system to help you understand how it processes food:</li> <li>1. <b>The mouth:</b> place the cracker and banana into the plastic bag and break them up to represent the teeth chewing them. Ask the children what does our mouth produce to make food easier to swallow? Saliva softens the food and starts breaking it down in the mouth. To represent this, add water to the bag. The food then travels down the oesophagus.</li> <li>2. <b>The stomach:</b> explain that acid and digestive juices break down the food in the stomach (add orange juice to the bag to represent this). Gently squeeze the bag to represent the stomach churning the food to break it down.</li> <li>3. <b>The small intestine:</b> working in pairs, ask the children to cut a small corner off the corner of the bag, place the tray underneath the tights and carefully squeeze the contents of the bag into the tights (the small intestine). In the small intestine, proteins, fats and vitamins from the food are absorbed into the body. Demonstrate this by squeezing the food down the tights and watching the liquid fall through and into the tray (the body). The products that the body cannot digest are left behind in the tights (small intestine).</li> <li>4. <b>The large intestine:</b> Waste then travels to the large intestine. Represent this by transferring the solid waste from the tights to the paper cup with a hole in the bottom (the large intestine). In the large intestine, water is absorbed from the remaining waste to be used by the body before it is excreted through the anus.</li> <li>5. <b>The anus:</b> Use a second cup to push the solid waste through the hole of the first cup. This represents what happens when someone goes to the toilet.</li> <li>- Ask the children to take photos of each stage of the model digestive system to refer to in a later task.</li> </ul>
Slide 8: Task 2: Labelling the digestive system	<ul style="list-style-type: none"> <li>- To demonstrate their progress, give the children an unlabelled diagram of the digestive system to complete with the names of the organs and everything they have learnt about their functions this lesson.</li> </ul>
Slide 9: Task 3: Applying learning	<ul style="list-style-type: none"> <li>- Ask the children to imagine that they are a piece of food and write a first person, present tense narrative or past tense diary entry to describe the journey they travelled on as they passed through the digestive system.</li> <li>- As an alternative activity, the children could use their photographs of each stage of their digestive system model to create a video slideshow with a voiceover explaining the process using the 'Shadow Puppet</li> </ul>

	Edu' or 'Quik' Ipad applications or you could use green screen technology e.g. the 'Dolnk Greenscreen' application to position children inside the human body and explain the parts of the digestive system.
Slide 10: Consolidating learning	- Use Kahoot! or Quizizz websites to consolidate knowledge through a whole class quiz.

**Links to the National Curriculum:**

Subject	Topic	Objective
Science	Animals, including humans	Describe the simple functions of the basic parts of the digestive system in human.
Computing		Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

