SUBJECT: Biology **YEAR: 8** **MTP TITLE: Digestion** **HALF TERM: 1** **NO. OF LESSONS: 15**

Deliberate and specific retrieval of expected prior knowledge

- The role of diffusion in the movement of materials in and between cells.
- The structural adaptations of some unicellular organisms.
- The hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms.
- Content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed.
- Calculations of energy requirements in a healthy daily diet.
- The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases.
- The tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts).
- The importance of bacteria in the human digestive system.

Academic transformation

- The roles of digestive organs in the process of digestion. Digestion is the process of breaking large insoluble molecules into small soluble molecules.
- Know the functions of digestive organs.
- Secretion of saliva (which now is known to contain enzymes rather than simply softening/moistening food).
- The production of bile (which breaks down lipids and neutralises stomach acid) and breakdown of toxins, storage of bile, secretion of juices (containing enzymes which break down nutrients).
- Villi and the importance of the surface area of villi is also covered though microvilli. Discussion of the small intestine should relate to the role of blood in digestion.
- Know that enzymes are proteins and are specific linked with the lock and key/induced fit.
- Students will develop some familiarity with common digestive enzymes, where they might be found in the digestive tract and why their response to environmental factors may differ.
- The structure of the small intestine may be shown in the context of adaptations of body tissues in line with their function

Key skills – analysis (of food), data collection, calculations, graphs

, Personal transformation (2 or 3)

Deliberately inviting students and our community to enrich learning by sharing their experiences, history and first hand accounts. Explicitly choose application opportunities for learners to:

- Context of the importance of a balanced diet in health
- Context of food allergies and how people cope
- Context of BMI and social issues of body image.
- Issues around development in Faecal transplant therapy.
- Research into how the human gut is responsible for absorbing the nutrients crucial to life, and warding off toxic chemicals and life-threatening bacteria.
- Research between gut health and general health.

Can I Learning Questions

- Can I define digestion?
- Can I name key organs of the digestive system
- Can I explain how nutrients are absorbed into the blood
- Can I describe what key nutrients are broken down into?
- Can I describe the role of bile in digestion?

Literacy

Think, pair, share – regularly used

Key vocabulary

- Tier 2 – adaptation; hypothesis; qualitative; optimum
- Tier 3 – molecule; glucose; peristalsis, pancreas, intestine, emulsify

Disciplinary reading

- Human Microbiome: The Role of Microbes in Human Health text
- Disgusting digestion Nick Arnold 20-24 comical look at the process
- Comprehension task https://www.olivehackney.com/wp-content/uploads/2020/06/Year-4-Reading-Your-Digestive-System.pdf
- ***Classroom talk*** Student whiteboards: 'Which part of the digestive system ……..'?
- Design the perfect digestive system is a good way to get them to think what is needed for the system to fulfill the definition of digestion

Misconceptions (5 or 6 examples)

- Understand that the definition of digestion is to 'breakdown large insoluble molecules into small soluble molecules so they can be absorbed' students often miss the absorbed part.
- The role of acid – it provides the optimum conditions for the enzyme it does not break down the food (number one misconception)
- Understanding that the movement of food through the digestive system is active – peristalsis.
- Digestion starts in the stomach – it starts in the mouth.
- You can not swallow food when you're upside-down
- Digestion ends in the stomach it continues into the small intestine.
- That digestion occurs in the pancreas and liver - they do not digest
- Oesophagus – often confused with trachea

Definition

Drawing

Digestion

Key organs

Misconceptions