



# Knowledge Summary

Year 8 Term 4 2023/24

## Science

### Biology Module

### Ecosystems and Adaptations



#### Essential Questions/Knowledge

- What are the requirements for aerobic respiration?
- What is the name of the process by which energy is released in cells?
- What are the products of anaerobic respiration?
- What is the difference between aerobic and anaerobic respiration?
- What is meant by 'fermentation'?
- Name the organism used to make bread, beer, and wine?
- Where does photosynthesis occur in a plant?
- What are the products of photosynthesis?
- How do you test for the presence of oxygen?
- What are the main structures of a leaf?
- What is the function of the chloroplasts in a leaf?
- What are the factors that affect the rate of photosynthesis?
- Which two experiments can be used to prove photosynthesis has taken place?

#### How students will be assessed on their knowledge

- Daily retrieval
- In-class tasks
- Extended writing questions
- End of unit assessments

#### Questions/Knowledge to deepen understanding

- How do the reactants for respiration get into the cells?
- Explain the process of aerobic respiration
- The uses of the products from anaerobic respiration.
- The differences between the two types of respiration
- How the process of fermentation works in relation to the word equation
- Why temperature is important in the making of bread, beer, and wine
- The importance of photosynthesis in the food chain.
- How the plant obtains the reactants for photosynthesis
- How the structures of a leaf make it well adapted for photosynthesis
- The role of chloroplasts in photosynthesis
- Why low temperature, shortage of carbon dioxide, and shortage of light limit the rate of photosynthesis
- Which method of investigating photosynthesis could be used to measure the rate of photosynthesis

#### Key Concepts

- Aerobic Respiration
- Anaerobic Respiration
- Biotechnology
- Photosynthesis
- Leaves
- Investigating Photosynthesis
- Plant Minerals

#### Tier 2 and 3 vocabulary linked to the unit

- Cells
- Glucose
- Energy
- Molecules
- Reactants
- Products
- Micro Organisms
- Fermentation
- Photosynthesis
- Stomata
- Chloroplasts