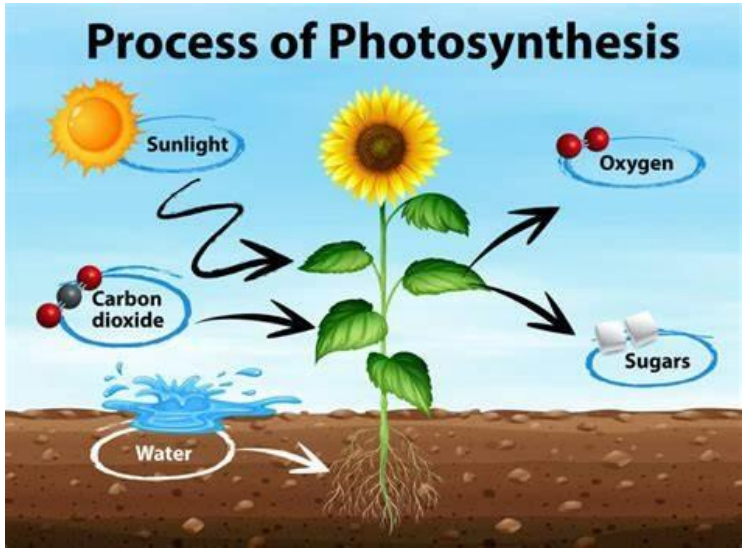
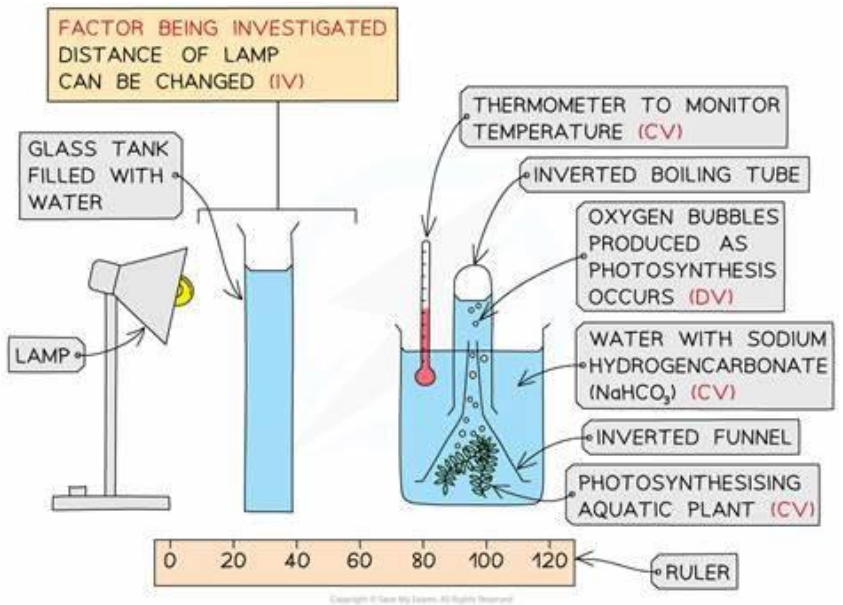
Plants & Ecosystems

Ecology	Study of living organisms in the environment
Abiotic factor	Non-living eg. Sunlight, temperature
Biotic Factor	Living eg. Predator, disease
Quadrat	Square grid used to count plants
Photosynthesis	Process carried out by plants to generate food (sugar)
Limiting factor	The factor which controls the speed of photosynthesis. The one that is in the shortest supply.
Iodine Benedict's solution & heat	Test for starch Test for sugar



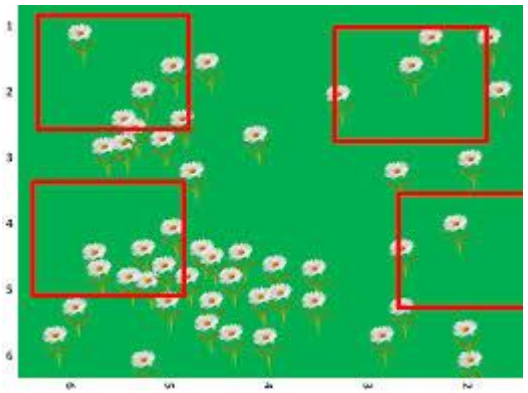
Water + carbon dioxide ⟶ glucose + oxygen

Measuring the rate of photosynthesis



Quadrat

Systematic sampling -Transect



Random Sampling

Core questions

1. Calculate the mean, mode and median.

   4,5,3,3,2,7

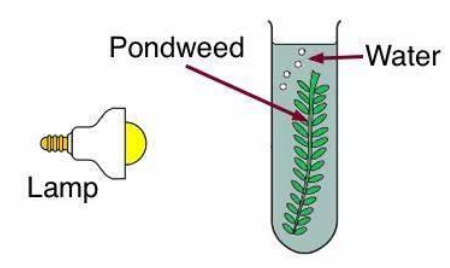
2. Name 3 resources that animals compete for
3. Name 3 resources that plants compete for
4. What is an abiotic factor
5. Ecologists can sample different habitats. Describe how they could sample randomly.
6. What is a transect?
7. What is the word equation for photosynthesis?
8. How are mineral ions taken up by plants?
9. Why do plants need magnesium ions?
10. Why do plants need nitrate ions?
11. Which gas is produced during photosynthesis?
12. How can the rate of photosynthesis be measured?

Core questions **Answers**

1. Calculate the mean, mode and median. Mean 4 Median 3.5 Mode 3
   4,5,3,3,2,7

2. Name 3 resources that animals compete for Food, territory, water, dominance, mates
3. Name 3 resources that plants compete for Light, minerals, space, water
4. What is an abiotic factor? Non-living conditions in an ecosystem eg. Amount of light, temperature.
6. Ecologists can sample different habitats. Describe how they could sample randomly.
Grid the area and then use a random numbers generator to select squares/coordinates to sample
7. What is a transect? Lay a tape measure across an area you want to sample and then place a quadrat down at regular intervals & count what is in each quadrat.
8. How are mineral ions taken up by plants? Through their roots by active transport
9. Why do plants need magnesium ions? To make chlorophyll
10. Why do plants need nitrate ions? To make amino acids/proteins for growth
11. Which gas is produced during photosynthesis? Oxygen
12. How can the rate of photosynthesis be measured? Count number of oxygen bubbles produced in a given time

GCSE Plants & Ecosystems



Prior Learning

Name the reactants and products of **photosynthesis.**
Know that plants generate oxygen & biomass

List some adaptation of leaves

Know that plants are producers at the start of food chains

Role of **stomata** in plant leaves.

Photosynthesis

Word equation

Factors needed and how they are manipulated to promote growth

RP: Photosynthesis

Food Tests

Use of iodine and Benedict's solution to test for sugar & starch in plants

Minerals

Taken in through roots **by active transport**

Magnesium ions for chlorophyll
Nitrate ions for proteins & growth

Competition

Animals & plants compete for limited resources in their environments

Abiotic & Biotic Factors

Control the numbers & types of organisms that live in a particular ecosystem

Sampling

Use of random & systematic sampling of plants using **quadrats.**

Calculation of means, median & mode values

Future Learning

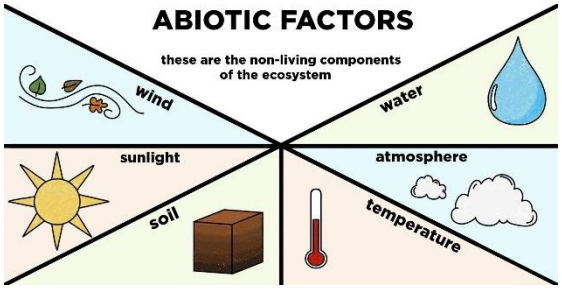
How humans affect the environment – Pollution & deforestation

Food security

Food production

Role of water temperature control

Digestion



Vocabulary:

Photosynthesis, chlorophyll, limiting factors, active transport, abiotic & biotic factors, competition, ecosystem, quadrat, transect, producer,