Lesson 1 – Life processes

Key points to learn:

1. Photosynthesis is how plants use the sun's energy, water and carbon dioxide to make food.

2. The word equation for photosynthesis is carbon dioxide + water > oxygen and glucose.

3. Roots are long and have a large surface area. Leaves have a large surface area and are thin. Leaves contain a chemical called chlorophyll.

Study and Question book Key stage 3 Biology Higher page 58 – 61

Exploring Science 7 page 130 Leaf. Exploring Science 9 page 32

Resources:- Discovering Photosynthesis 9Ca6, Photosynthesis 9Ca5

Plant Reactions 9Ca1, Sun, Soil and Air 9Cb1

Doddle KS3 photosynthesis

Lesson 2 – Photosynthesis

Key points to learn:

1. We can measure the rate of photosynthesis by counting the number of oxygen bubbles per minute from the plant.
2. Understand the independent variable is the one we change e.g. distance between plant and lamp.
3. Understand the dependent variable is the result or measured value e.g. the number of oxygen bubbles per minute.
4. Control variables are what we keep the same e.g. same plant.

Resources : Exploring Science 9 page 32-33

Measuring Photosynthesis 1 9Ca2

Measuring Photosynthesis 2 9Ca3

Lesson 3 – Reproductive systems in animals

Key points to learn:

1. Limiting factors are those factors that are in shortest supply and limit the rate of photosynthesis in a plant.
2. Examples of limiting factors are: light, temperature or carbon dioxide levels.

Resources: Exploring Science 9 page 32-33

Limiting Factors 9Ca

Limiting factors notes DH

Lesson 4 – Water Flow.

Key points to learn:

1. Plants have tissues called root hair tissues that collect water and minerals from the soil.
2. Plants have xylem vessels to carry water up the stem from the roots to the leaves.

Resources: Exploring Science 9 page 34-35

Water Flow 9Cb3

Water Loss 9Cb5

Doddle Plant structure lesson.

Lesson 5 –

Key points to learn:

Plants have many organs such as roots, stems, leaves and flowers.

Plants have stomata and guard cells to control water losses and allow carbon dioxide to enter the leaf for photosynthesis.

Resources: Exploring Science 9 pages 34-35

Leaves and Roots 9Cb6

Leaves and roots 9Cb6 alternative

Adaptations for Photosynthesis 9Cb4

Doddle plant structure lesson.

Lesson 6 – Adaptations of Plants

Key points to learn:

1. Stomata open in the day to allow carbon dioxide in for photosynthesis.
2. Stomata close at night as no photosynthesis takes place in the dark.

Resources: Exploring Science 9 pages 34-35

Gas Exchange Plants 9Cb7

Lesson 7 –

Key points to learn:

1. Planning an investigation involves you looking at hazards, risks and control measures.

Study and Question Key stage 3 Biology Higher book pages 2 to 6 .

Lesson 8 – Products from Plants.

Key points to learn:

1. We test a leaf for starch using iodine solution. If the leaf contains starch it will go blue/black when iodine solution is added.
2. We needed to be careful with ethanol in the reaction because it is flammable.

Resources: Exploring Science 9 pages 36-37

Leaves for Photosynthesis 1 9Cc6

Leaves for Photosynthesis 2 9Cc7

Starch in Plants 9Cc4

Leaves and Photosynthesis 9Cc5

Plants and photosynthesis worksheet 1 (doddle worksheet)

Doddle KS3, photosynthesis revision and quiz.

Lesson 9 – Farming for Food.

Key points to learn:

1. Biomass is the amount of dry living mass of an organism.
2. Farmers use many different methods to increase biomass and crop production including machines, pesticides, herbicides, selective breeding, glasshouses and hormones.

Resources: Exploring Science 9 pages 36-37

Plant Biomass 9Cc11

Farming our Food 9Cc10

Growing Lettuces 9Cc12

Lesson 10 – Farming problems.

Key points to learn:

Debate different farming methods.

Study and Question book page

Resources : Farming Problems 9Cd1

Farming for Wildlife 9Cd2

Lesson 11 – Food Chains and Webs.

Key points to learn:

1. A food chain shows how each living thing gets food and how energy is passed from organism to organism.
2. Food chains begin with plant life and end with animal life.
3. Food webs are similar to food chains but larger and show how organisms are connected to each other.

Study and Question Key stage 3 Biology Higher book page 75.

Resources: Questions 76 to 78

Exploring Science 7 pages 46-47

Links and Chains 7Ce1

Allotment food chains 7Ce3

Lesson 12 – Feeding relationships.

Key points to learn:

1. You have learnt sampling techniques to study habitats.
2. You have learnt about a Tullgren funnel and how this can be used to collect insects for sampling.

Resources: Exploring Science 7 pages 36-37

Exploring Science 8 pages 54-55

A pond community (ecosystems) 8Db7

Lesson 13 – Competition and survival.

Key points to learn:

1. You have learnt that a predator and prey relationship can be shown in the form of a graph.
2. You have learnt that predators and prey have an interdependent relationship.
3. You have learnt that there are a number of different physical environmental factors that can affect organisms such as light and temperature.

Study and Question Key stage 3 Biology Higher book page.72 to 73

Exploring Science 7 pages 46-47

Feeding relationships 1 7Ce6

Feeding relationships 2 7Ce7

Food webs and numbers 7Ce8

Lesson 14 – Communities and populations.

Key points to learn:

1. You have learnt that we can use different ways of collecting evidence for different communities and populations.
2. You have learnt about further sampling techniques including quadrats, pond-dipping and pitfall traps.
3. You have learnt that humans can damage food chains and endanger species by the accumulation of toxic materials.

Study and Question book page.