

Upper Key Stage 2 Life Processes and Living Things

Introduction

This book of Science activities aims to help the busy teacher deliver high quality science lessons with as much manageable practical classroom work as possible.

This book covers all of the National Curriculum Science work on 'Life Processes and Living Things—Human Health and Growth + Growing Plants + Living Things in their Environment (including Variation and Classification)' at a level suitable for **UPPER KS2**. Other books in this series cover the same work at a level suitable for Lower KS2 and KS1. Used together, these books can provide differentiated work for children of different age groups and abilities or a spiral curriculum visiting each concept at least three times in a pupil's primary school career. All the activities are cross-referenced to the QCA Science Curriculum.

Each lesson follows a similar format with the following elements:

1. A simple information sheet with questions that explore the main concept to be studied during the lesson.
2. A simple investigation which on the whole can be carried out by small groups of children working independently.
3. A 'SAT' style homework sheet which reinforces the concept discussed and the knowledge gained from the experiment carried out.
4. Detailed teacher notes which list the Learning Objectives, the main points to be talked about, the equipment needed for the investigation, how the investigation should be carried out and the conclusion that can be made from it.

The book also contains simple assessment activities that can be used to help indicate the National Curriculum Level each child is working at and whole class record sheets for keeping track of the results.

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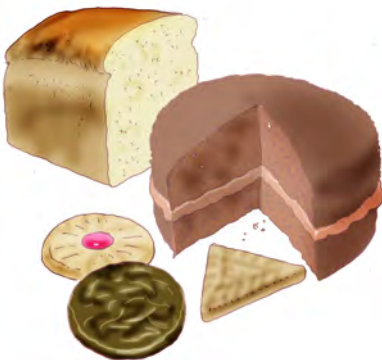






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Contents

Notes for Teachers	..2
Scientific Investigation Attainment	..9
Human Health and Growth	
Lesson 1: Teeth and Eating	<i>Information</i> 10
	<i>Investigation</i> 11
	<i>Homework</i> 12
Lesson 2: Food and Health	<i>Information</i> 13
	<i>Investigation</i> 14
	<i>Homework</i> 15
Lesson 3: Heart, Pulse and Exercise	<i>Information</i> 16
	<i>Investigation</i> 17
	<i>Homework</i> 18
Lesson 4: Muscles, Bones and Movement	<i>Information</i> 19
	<i>Investigation</i> 20
	<i>Homework</i> 21
Lesson 5: Human and Animal Life Cycles	<i>Information</i> 22
	<i>Investigation</i> 23
	<i>Homework</i> 24
Lesson 6: Healthy Living	<i>Information</i> 25
	<i>Investigation</i> 26
	<i>Homework</i> 27
Lesson 7: Micro-Organisms and Disease	<i>Information</i> 28
	<i>Investigation</i> 29
	<i>Homework</i> 30
Assessment Test	31
Record Sheet	33
Growing Plants	
Lesson 1: Plants are Living Things	<i>Information</i> 34
	<i>Investigation</i> 35
	<i>Homework</i> 36
Lesson 2: Plants Need Sunlight	<i>Information</i> 37
	<i>Investigation</i> 38
	<i>Homework</i> 39
Lesson 3: Plants Have Roots	<i>Information</i> 40
	<i>Investigation</i> 41
	<i>Homework</i> 42
Lesson 4: Some Plants Have Flowers	<i>Information</i> 43
	<i>Investigation</i> 44
	<i>Homework</i> 45
Lesson 5: Seeds are Scattered	<i>Information</i> 46
	<i>Investigation</i> 47
	<i>Homework</i> 48
Lesson 6: Seeds are Germinated	<i>Information</i> 49
	<i>Investigation</i> 50
	<i>Homework</i> 51
Assessment Test	52
Record Sheet	54
Living Things in their Environment (including Variation & Classification)	
Lesson 1: Adapting to a Habitat	<i>Information</i> 55
	<i>Investigation</i> 56
	<i>Homework</i> 57
Lesson 2: Life in a Pond Habitat	<i>Information</i> 58
	<i>Investigation</i> 59
	<i>Homework</i> 60
Lesson 3: Life in a Woodland Habitat	<i>Information</i> 61
	<i>Investigation</i> 62
	<i>Homework</i> 63
Lesson 4: Food Chains	<i>Information</i> 64
	<i>Investigation</i> 65
	<i>Homework</i> 66
Lesson 5: How to Group all Living Things	<i>Information</i> 67
	<i>Investigation</i> 68
	<i>Homework</i> 69
Assessment Test	70
Record Sheet	72

Food and Health

Food is needed to help our bodies move, grow and repair themselves after being damaged. The food that we eat and drink each day makes up our diet. A healthy diet is a mixture of the seven different types of food. These are:

<p>1 Carbohydrates supply most of the energy we need for movement.</p> 	<p>2 Proteins grow and repair the body.</p> 	<p>Fish Meat Milk Eggs Beans Cheese</p>	<p>3 Fats store energy and help to keep us warm.</p> 									
<table border="0"> <tr> <td><i>Sugars</i></td> <td><i>Starches</i></td> </tr> <tr> <td>Biscuits</td> <td>Bread</td> </tr> <tr> <td>Cakes</td> <td>Pasta</td> </tr> <tr> <td>Sweets</td> <td>Cereals</td> </tr> <tr> <td></td> <td>Rice</td> </tr> </table>	<i>Sugars</i>	<i>Starches</i>	Biscuits	Bread	Cakes	Pasta	Sweets	Cereals		Rice	<p>4 Vitamins prevent some diseases.</p> 	<p>5 Minerals maintain healthy bones and teeth.</p> 
<i>Sugars</i>	<i>Starches</i>											
Biscuits	Bread											
Cakes	Pasta											
Sweets	Cereals											
	Rice											
<p>6 Fibre prevents blockage of the bowel (constipation).</p> 	<p>Whole grain bread Cereals Fruit Vegetables</p>	<p>7 Water dissolves food so it can be absorbed by the body.</p> 										

Task

Answer these questions:

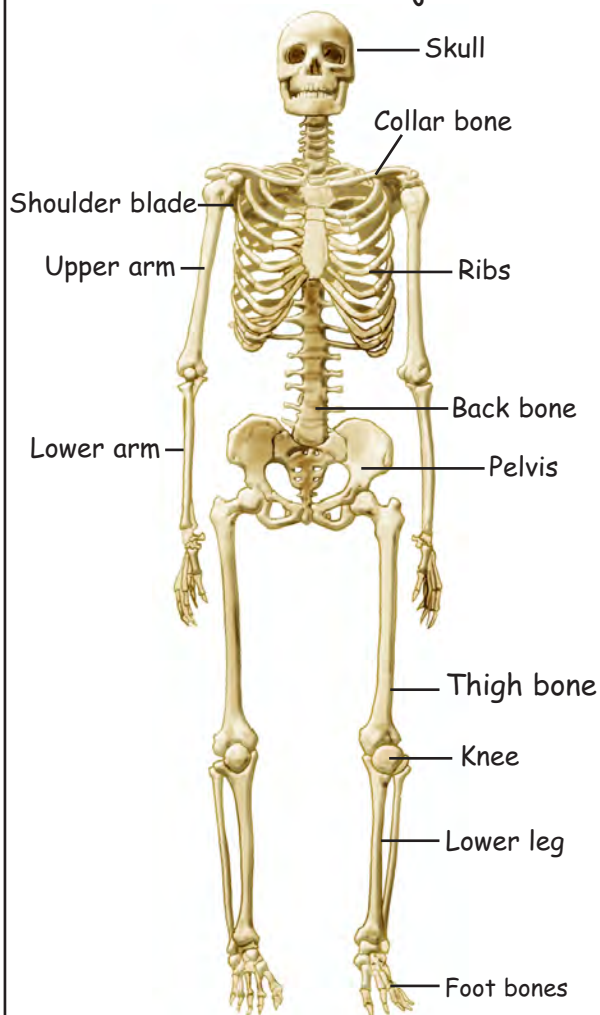
1. Name the seven different types of food.
2. Which two foods give you energy?
3. Name some foods which help to grow and repair the body.
4. Which foods are good for bones and teeth?
5. What does fibre do?
6. Why is it important to have lots of drinks?
7. Draw one food from each group. Name each food and the group it comes from.

Muscles, Bones and Movement

Many animals like humans, sheep and mice have a skeleton. Some animals like slugs and jellyfish have no bones at all. Skeletons are made up of hard bony material on the inside and soft muscle on the outside

The skeleton does three jobs:

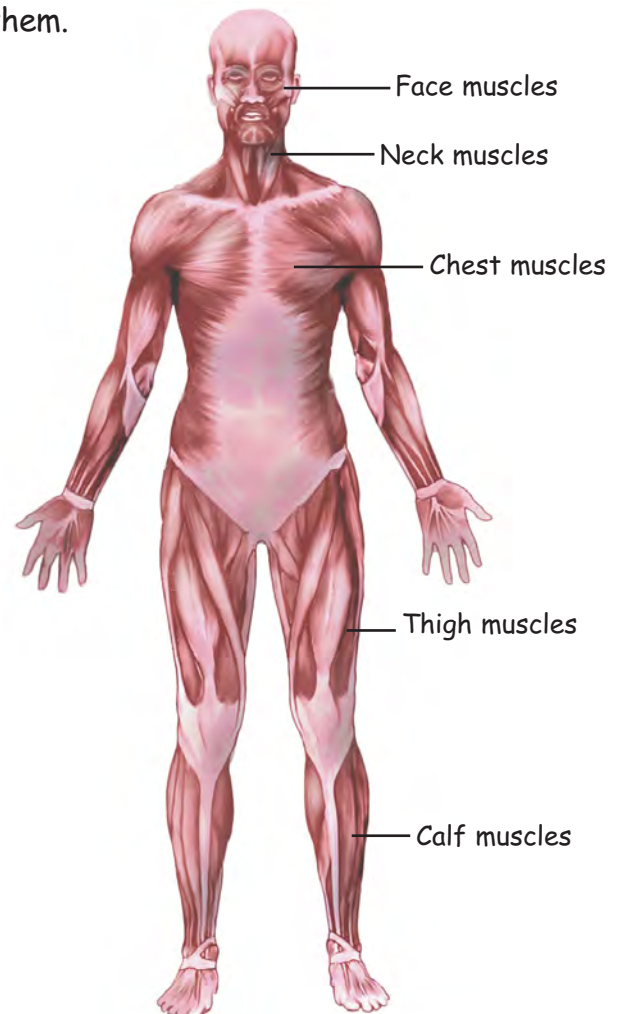
1. **It protects your organs.** The skull protects the brain. The firm ribcage protects the soft heart and lungs from getting damaged.
2. **It supports your body.** Your bones help to hold you upright.
3. **It lets you move.** Muscles can move bones where there is a joint.



Human Skeleton

Animals move by using muscles to pull on bones. Most muscles work in pairs. To move a joint one muscle gets shorter (contracts) and another gets longer (expands). There are two main types of muscle.

1. **Voluntary muscles** - respond to a message from the brain.
2. **Involuntary muscles** - e.g. heart and lung muscles act without you thinking about them.

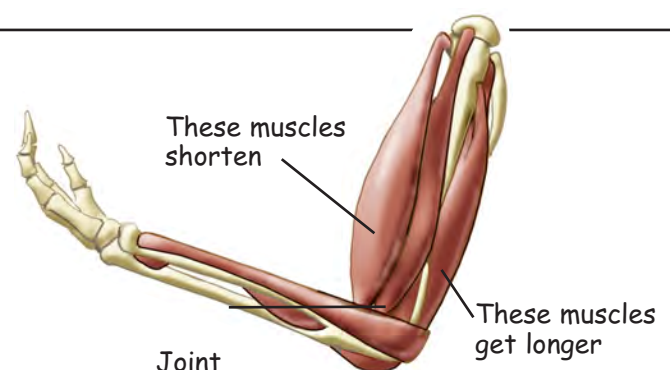


Human Muscle Map

Task

Answer these questions:

1. Do all animals have a skeleton?
2. What are skeletons made up of?
3. What three jobs does a skeleton do?
4. What are the two main types of muscle?
5. How do animals move?
6. How do muscles move a joint?
7. Draw a skeleton and name the bones.



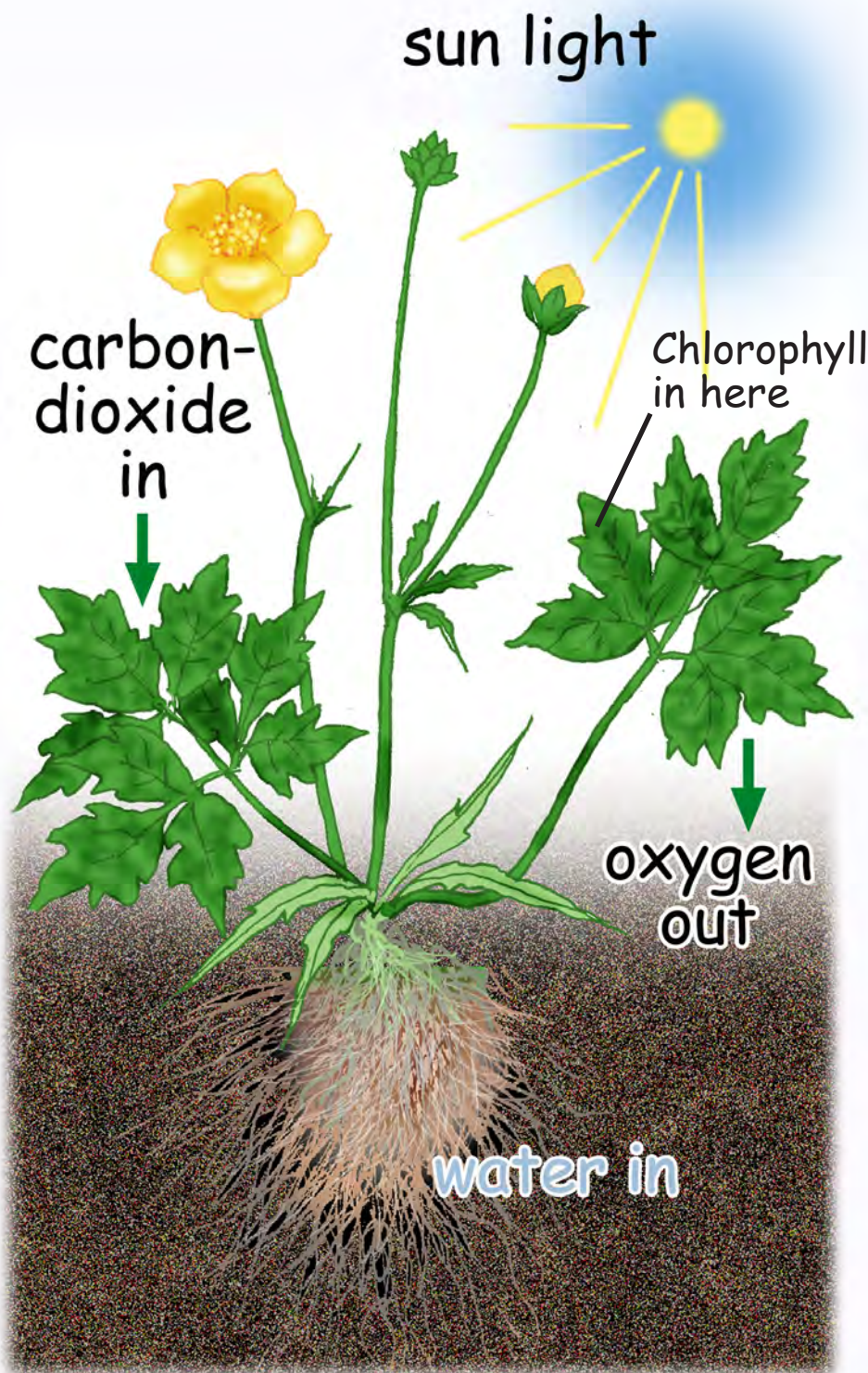
Plants Need Sunlight

Plants need sunlight to make food. They also need water and air. Plants use the food they make to grow. Animals and humans eat the fruit which grows on healthy plants.

A plant cannot go shopping for food!

A plant cannot go hunting for food!

- It has to make its own.



How a Plant Makes Food

1. The sun shines on the leaves.
2. The leaves absorb a gas called Carbon Dioxide from the air.
3. Inside the leaves is a chemical called Chlorophyll. It colours leaves green in the summer.
4. Water is taken from the roots, up the stem to the leaf.
5. A chemical reaction takes place in the leaf called photosynthesis.
6. A sugary food is made and oxygen is released from the leaves.

Task

1. Copy down the six stages which tell how a plant makes its own food. Draw a small diagram to illustrate each stage.
2. Write a 'recipe' for plant food!

Food Chains

In the wild lots of animals eat other animals. e.g. a fox will eat a rabbit or a thrush will eat a slug.



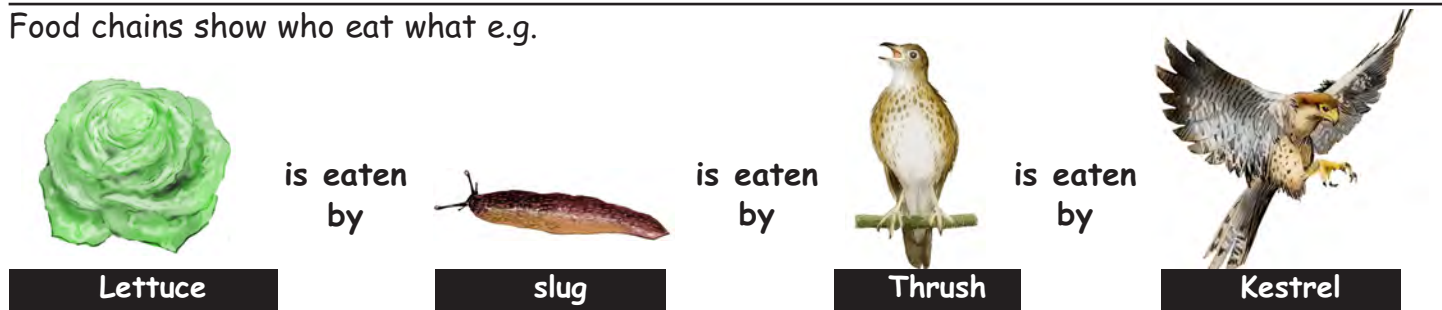
If an animal attacks then it is called a predator. e.g. a kestrel is a predator of a mouse.



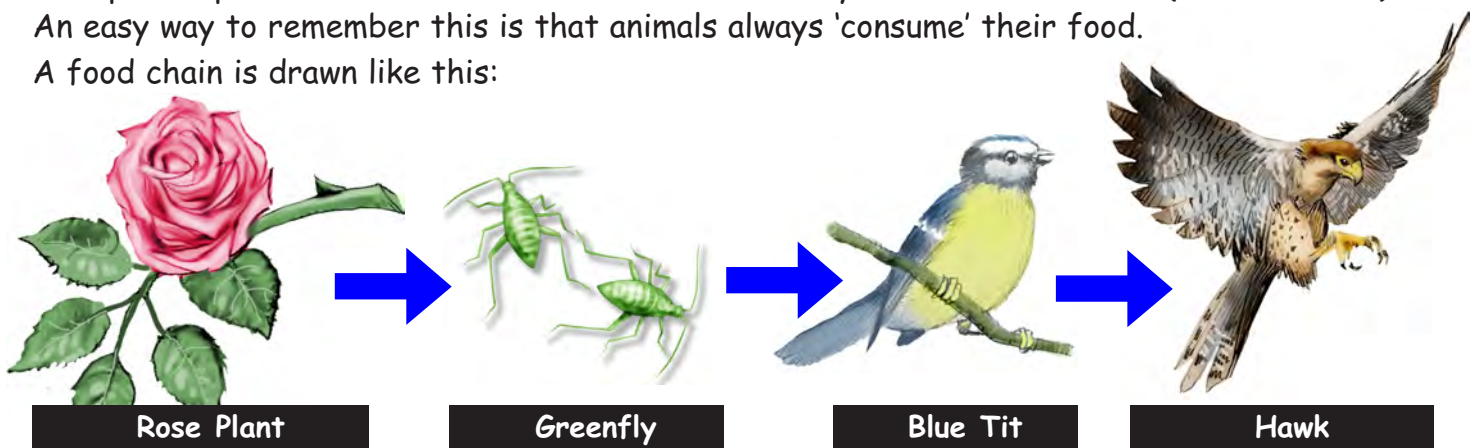
If an animal is attacked then it is called the prey. e.g. when a kestrel attacks the mouse the mouse is said to be the prey.



Food chains show who eat what e.g.



Food chains always start with a green plant (the producer). An easy way to remember this is that plants 'produce' their own food. Food chains always end with an animal (the consumer). An easy way to remember this is that animals always 'consume' their food. A food chain is drawn like this:



The arrow in the food chain means 'is eaten by'.

Task

Answer these questions:

1. What do some animals do for food in the wild?
2. What is a predator?
3. What is a prey?
4. What do food chains show?
5. What do food chains always start with? What is the name given to this?
6. What do food chains always end with? What is the name given to this?
7. What does the arrow in a food chain represent?
8. Draw and colour a food chain of your own.