

The Food Factory

Revision Guide

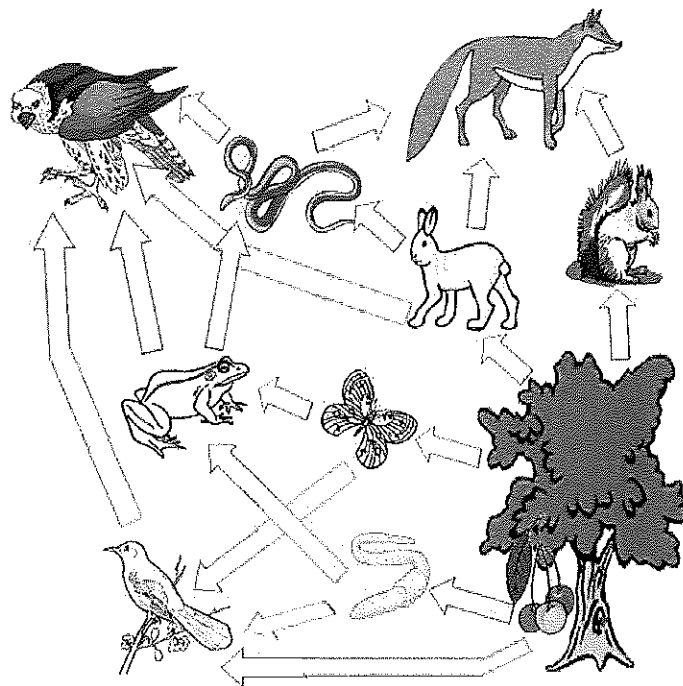
Name: _____

Read all the information before attempting to answer the questions.

Highlight key words. You could then turn these into flash cards.

Make a revision resource after you have done the tasks. This could be *flash cards*, *mind maps*, or *question and answer cards*.

Your teacher will look at your work if you take it to them.



Read through each specification and decide whether you feel confident, a little confident or not confident. Highlight target areas which you feel you need to focus on.

Specification question				Description	Target area?
Can you name the parts of a plant cell?					
Can you describe the structure of the leaf?					
Can you describe gas exchange in plants?					
Can you explain the role of stomata in gas exchange?					
Can you confidently use a microscope?					
Can you write the word equation for photosynthesis?					
Can you write an easy to follow method for an investigation?					
Can you describe what the glucose in photosynthesis is used for?					
Can you describe the adaptations of the leaf for photosynthesis?					
Can you explain how the balance of carbon dioxide and oxygen is maintained by photosynthetic organisms?					
Can you list the minerals and nutrients needed by plants for healthy growth?					
Can you describe how plants gain essential nutrients and minerals?					
Can you explain the effect a lack of any one particular mineral would have on plant growth?					
Can you construct food webs?					
Can you describe what human food security means?					
Can you explain the importance of insect pollination in human food production?					
Can you describe how animals affect their environment?					

Key Words

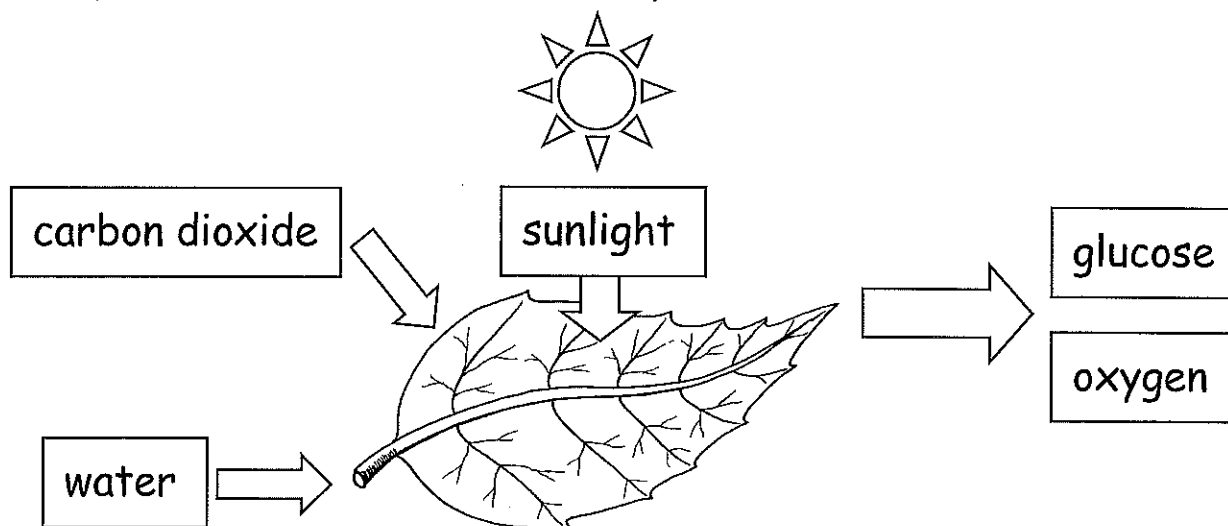
Key Word	Definition
Chloroplast	
Palisade cell	
Epidermis	
Stomata	
Xylem	
Phloem	
Iodine	
Glucose	
Starch	
Osmosis	
Food chain	
Food web	
Pyramid of biomass	
Pyramid of number	
Interdependence	
Bioaccumulation	
Eutrophication	
Anaerobic respiration	
Aerobic respiration	

Lactic acid	
Oxygen debt	
Biofuel	
Fermentation	
Yeast	

w.s.23. Photosynthesis.

Name

Animals feed on plants or other animals but most plants make their own food by using light energy and simple chemicals. This process is called PHOTOSYNTHESIS. Water and carbon dioxide molecules are joined together to make GLUCOSE sugar and waste oxygen gas. This happens in the leaf cells inside tiny discs called CHLOROPLASTS. The chloroplasts contain a green chemical called CHLOROPHYLL which absorbs light energy. The diagram below shows this process.



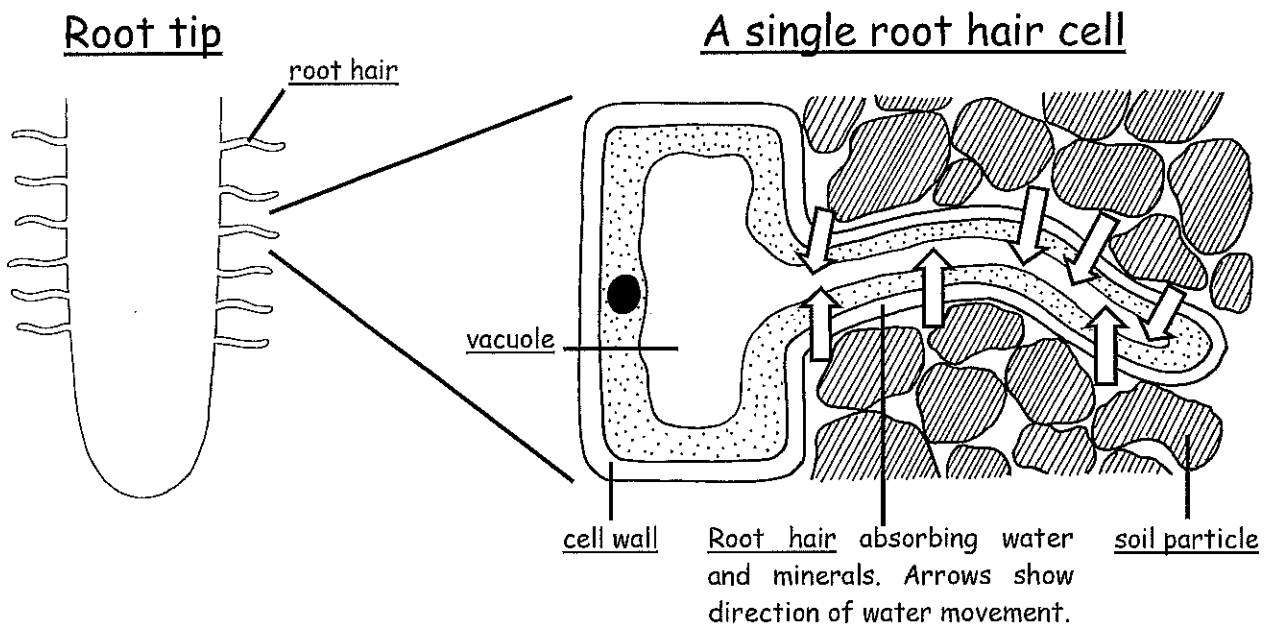
The glucose sugar that is made may be changed into other useful chemicals for growth or storage. The plant also uses glucose as a fuel in RESPIRATION to release energy when it is needed in the cells. Respiration is the opposite process of photosynthesis :



Exercise - Complete the sentences below.

- 1) Animals can not make their own F _ _ _
- 2) Plants use L _ _ _ _ energy to help them make their food.
- 3) Photosynthesis happens in the L _ _ _ cells.
- 4) The gas needed for photosynthesis is C _ _ _ _ _ D _ _ _ _ _
- 5) C _ _ _ _ _ _ _ _ _ is the green chemical that absorbs light energy.
- 6) The opposite reaction to photosynthesis is R _ _ _ _ _ _ _ _ _
- 7) Plants give animals food and O _ _ _ _ _

Plants make glucose sugar by the process of photosynthesis. For healthy growth they also need to absorb mineral salts that are dissolved in the soil water. Mineral salts contain elements such as nitrogen, phosphorus and magnesium. Water and mineral salts are absorbed from the soil by the **ROOT HAIR CELLS** which cover the surface of the root. These cells greatly increase the surface area for absorption.



Element	Why it is needed
Nitrogen	To make proteins for good growth.
Magnesium	To make the green chemical CHLOROPHYLL needed in photosynthesis.
Phosphorus	For good root growth.

Exercise - Complete the missing words in the passage below.

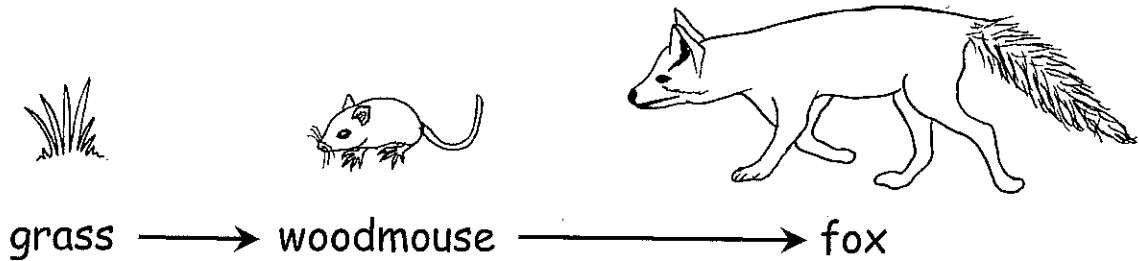
Certain chemical are needed for healthy growth in plants. They are obtained from mineral salts in the soil water. Root cells absorb water and mineral salts which are then carried up the to the leaves. The root hair cells greatly the surface area of the root. If a plant does not have enough it cannot make chlorophyll and its leaves turn yellow. If a plant does not have enough it cannot make proteins and its growth is stunted. Phosphorus is needed for good growth.

root elements hair magnesium nitrogen dissolved stem increase

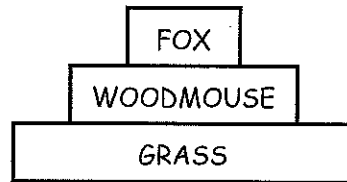
W.S.34. Food chains.

Name

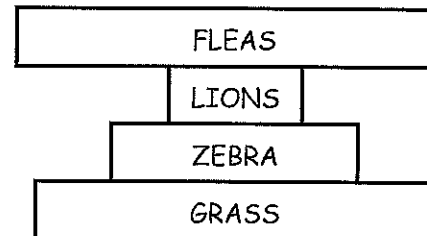
Green plants make food by PHOTOSYNTHESIS. Animals must feed on plants or other animals. The food is passed along a FOOD CHAIN.



Food chains always begin with plants. Animals that eat plants are called HERBIVORES. Animals that eat other animals are called CARNIVORES. Carnivores are also called PREDATORS and the animals that they hunt are called the PREY. In most habitats there are more plants than herbivores and more herbivores than carnivores. This can be shown with a PYRAMID OF NUMBERS.



Pyramids of numbers are usually large at the bottom and small at the top. Sometimes they have a different shape because of the different sizes of the organisms in them. Two examples of this are shown below.



Exercise - Fill in the missing words in the passage below.

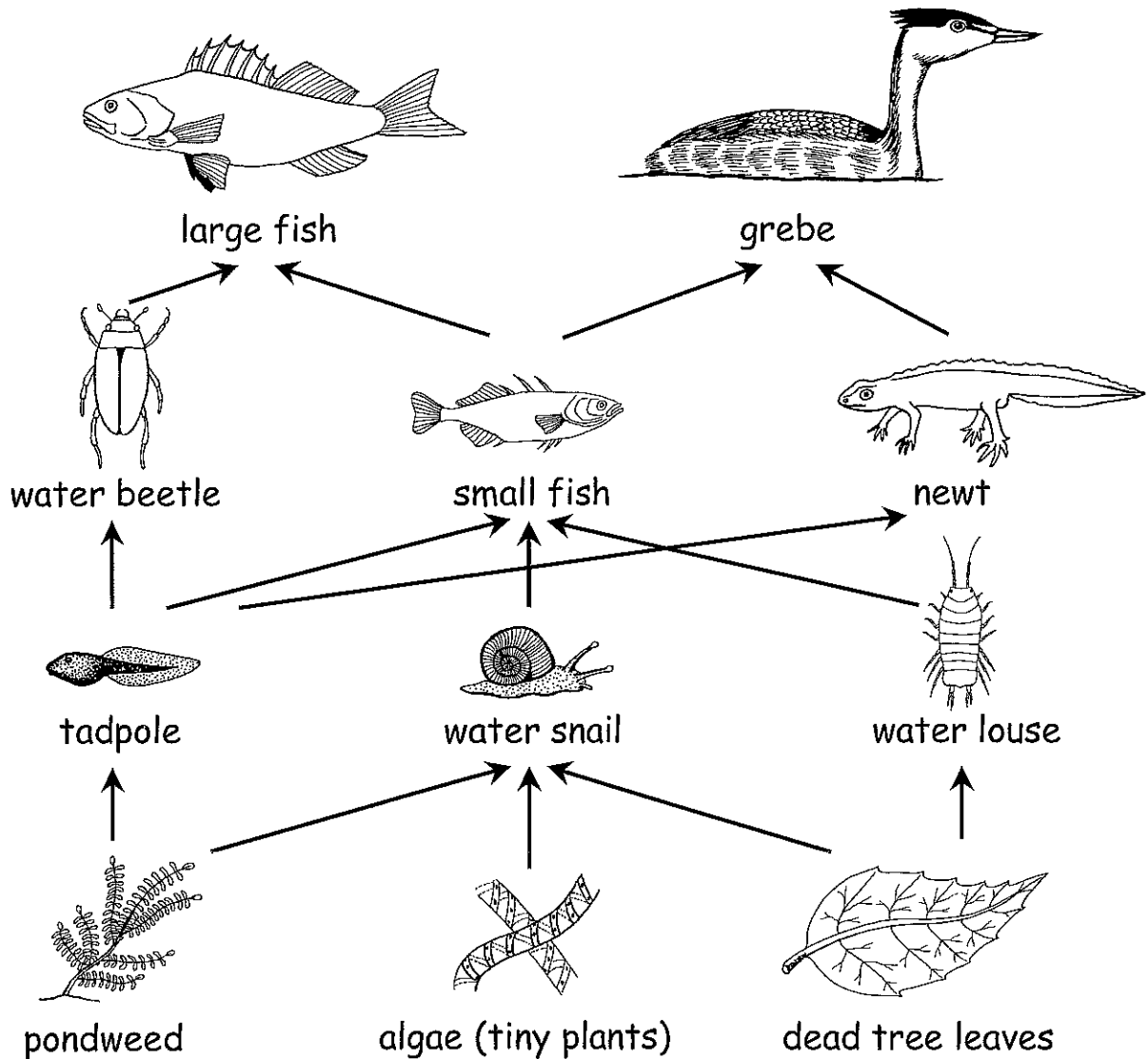
In habitats there is a mixture of herbivores and carnivores. Carnivores are animals that eat other Herbivores eat plants and are by carnivores. Another name for carnivores is and the animals that they hunt are called the The amount of plants in a habitat must be than the amount of herbivores or else the herbivores would run out of In the same way there must be carnivores than herbivores.

predators animals food fewer eaten plants prey greater

W.s.35. Food webs.

Name

Food chains can be connected together to make FOOD WEBS. The diagram below shows a food web in a lake.



Exercise - Complete the food chains and sentences below.

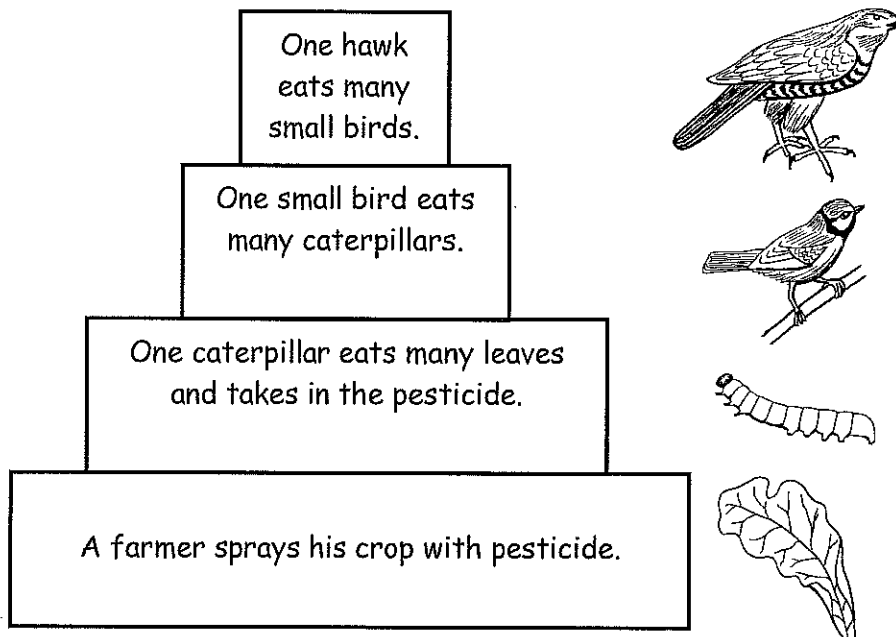
PONDWEED → → WATER BEETLE → LARGE FISH
 LEAF → WATER LOUSE → → GREBE

- 1) The predators of small fish are _____ and _____
- 2) The prey of water beetles are _____
- 3) The prey of grebes are _____ and _____
- 4) The animal that **only** eats dead tree leaves is the _____
- 5) The 3 **herbivores** are _____ and _____
- 6) The 2 top **predators** are the _____ and _____

W.s.36. Poisoned food chains.

Name

Farmers often spray their crops with PESTICIDES to kill pests such as insects and weeds. Pesticides may stay in the environment (surroundings) a long time and poison animals higher up the food chains. Pesticides can also be washed into streams and ponds. The diagram below shows how pesticides can build up along food chains.



If the pesticide is passed on from the caterpillars into small birds and then into the hawk we can see how it would quickly build up in the hawk's body. Scientists are now trying to make pesticides that only affect the pest and break down a short time after they have been used. They are also trying to find other ways of controlling pests by using their natural enemies. This is called **BIOLOGICAL CONTROL**.

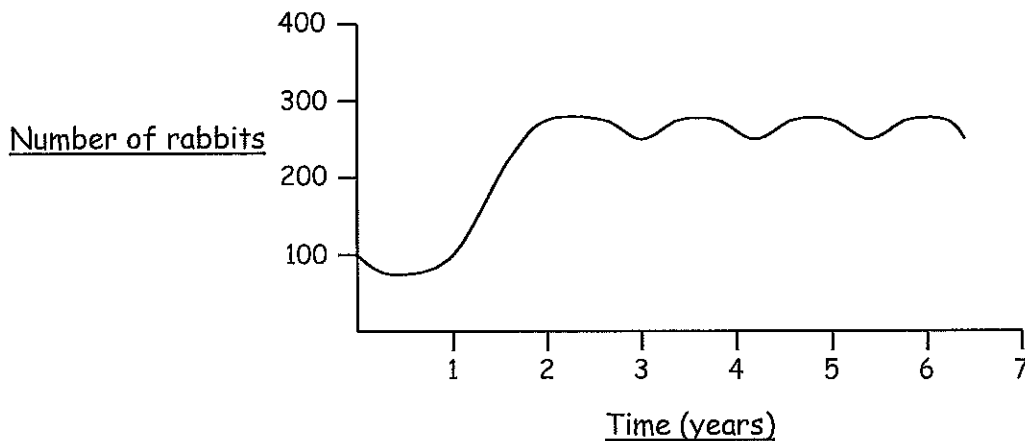
Exercise - Complete the sentences below.

- 1) P _____ are poisons that kill pests.
- 2) Pesticides can get into food C _____ and poison other animals.
- 3) Small B _____ eat many insects which may have pesticides in them.
- 4) Hawks may be P _____ by eating birds that contain pesticides.
- 5) Pesticides can also be washed into S _____ and P _____
- 6) B _____ control means using a pest's natural enemy to destroy it.

W.S.37. Populations.

Name

A population is a number of organisms of the same species (type) living in one place. For example there may be a population of one thousand tadpoles living in a pond, or a population of five hundred oak trees in a wood. The graph below shows how a population of rabbits grew when scientists placed one hundred of them onto an island where rabbits had never lived before.



The population grew slowly at first as the rabbits were getting used to their new habitat. The population then grew very quickly as the rabbits had plenty of food and space and they were reproducing. The growth rate of the population then slowed down until it reached a fairly steady level of about 260 rabbits. At this point competition between the rabbits for food and space had increased and predators were finding and killing the rabbits more easily. When the balance between the number of births and deaths becomes equal the population stops growing.

Exercise - Complete the missing words in the passage below.

A is a number of organisms of the same species living in one place. There are a number of factors that control how big a population of animals can Competition for and space is important. As the population grows there will be competition and so more animals will Predators are also important in controlling the numbers of animals. If the number of predators increases more prey will be If the number of predators decreases more prey will In the same way, the of a predator's population is controlled by the numbers of its prey. If there are more prey there will be more predators. A population stays steady when the number of births equals the number of

size greater prey population deaths killed grow survive food die