Science Department

2023/2024

Year 7

Term 1, Revision Pack (Unit 7)

Name: …….

Class: ……

7.1 Microorganisms

What is a microorganism?

- A microorganism is a living organism that is so small that you can only see it clearly by using a microscope.
- microorganisms are made of cells. Many microorganisms are made of only one cell: they are single-celled.
- There are several different kinds of microorganisms. They include bacteria, microscopic fungi, protozoa and algae.

Bacteria

- Bacteria are everywhere.
  (Bacteria is a plural word. The singular word, for just one of them, is a bacterium.)
- Each bacterium is made of a single cell.
- Cells of bacteria are much smaller than animal cells or plant cells.
- Most bacteria are harmless but there are a few kinds that can make you ill.

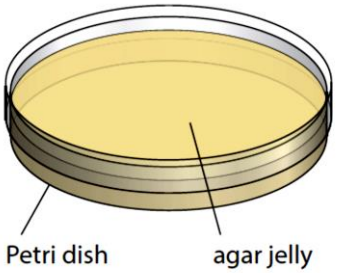
Fungi

- Fungi (singular: fungus) are not always microorganisms. Many fungi, including mushrooms and toadstools, are large and easy to see.
- Mushrooms and toadstools are only part of the fungus's body, and they only grow at certain times of year.
- Most of the time, the fungus is just a tangle of very thin threads. The threads often grow under the ground, or inside a dead log. The threads are so thin that they are difficult to see without a microscope.
- Some kinds of fungi do not produce mushrooms or toadstools. They are made of single cells, not threads, so they are microorganisms. For example, the powdery substance that you sometimes see on the surface of grapes is made up of millions of cells of yeast, which is a microscopic fungus.

Note: Viruses are not microorganisms as they don't perform any life process except replication.

Growing microorganisms

When a microorganism is left to grow, a single cell of a bacterium or fungus divides repeatedly to make a collection of many cells.
This collection of cells is called a **colony**.

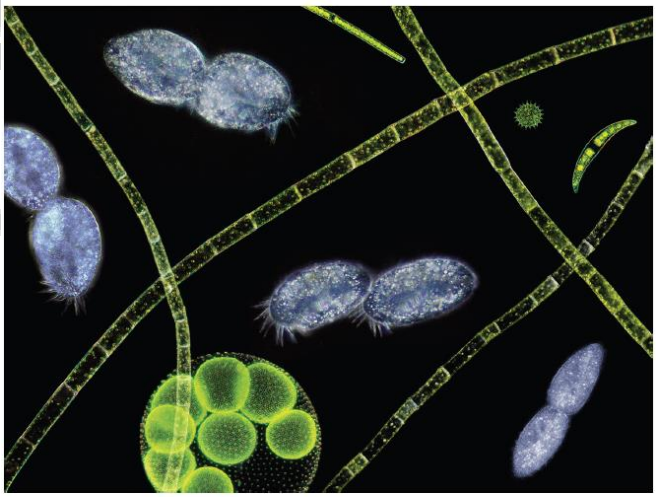


- Microorganisms grow in a **Petri dish** containing a special kind of jelly, called **agar jelly**.

The dish and the jelly have to be **sterile**. This means that any living organisms on them have been killed.

Microscopic algae and protozoa

If you look at some pond water through a microscope, you will see many tiny living organisms in the water. Some of them are tiny plant-like organisms, called algae. Some of them are animal-like organisms, called protozoa.
(The singular forms of these two words are alga and protozoan.)



These microorganisms are in a drop of pond water.

7.2 Food chains and webs

Ecology: is the science of studying living things and their interaction with other living or non-living factors.

Food chains and food webs describe how energy, in the form of food, is transferred between animals and plants and how microorganisms fit into food chains and food webs.

Food chains

How did the energy get into the food?
The energy in food begins in the Sun. Energy from the Sun reaches the Earth in sunlight.
Plants use energy from sunlight to make their food. Some of the energy from the sunlight goes into the food that the plant stores in its roots, stems, fruits and leaves.

The arrows in the food chain show how energy is passed from the Sun to the plant, and then is transferred to the rice, and then to the boy.

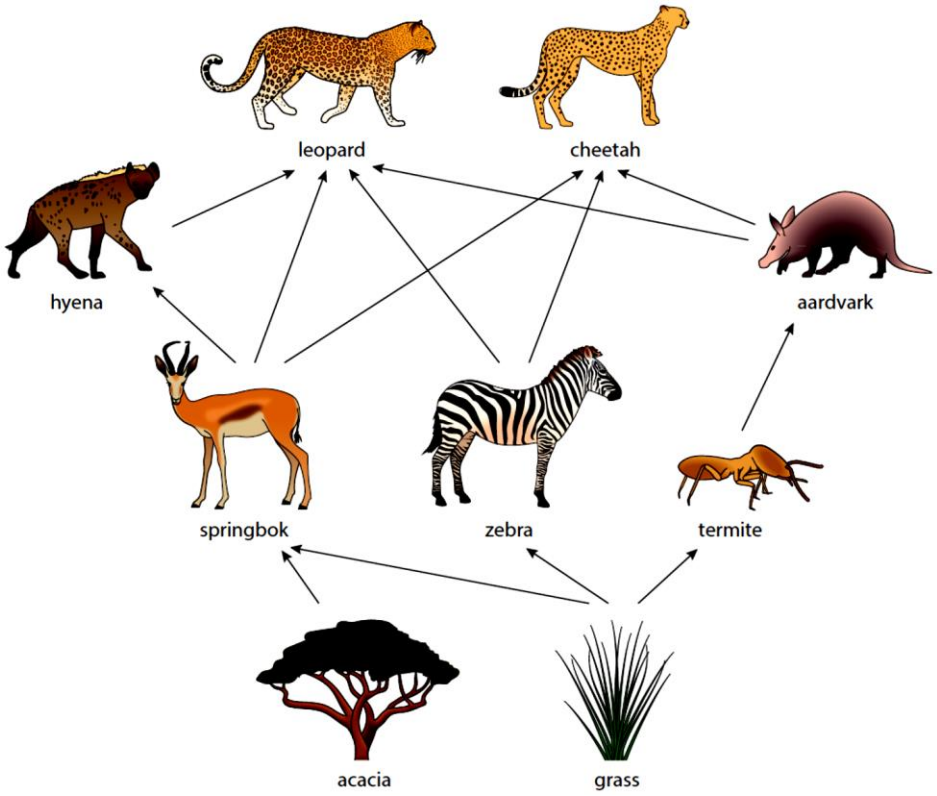
Producer: is the first organism in a food chain.
(Plants use energy from the Sun to produce food).
Consumers are all the other organisms in a food chain.
Animals are always consumers. They have to eat ready-made food to get their energy.
They consume (eat) plants or other animals.

Herbivores are consumers that consume only plants.
Carnivores are consumers that consume other animals.
Omnivores are consumers that consume both plants and animals.

Predators are animals that catch, kill and hunt other animals.
Prey is the animal that is eaten by another animal.

Food webs

It shows how the organisms in two or more food chains, and some other organisms, are connected by their feeding habits and the direction of energy flow.



7.3 Microorganisms and decay

microorganisms are everywhere. They live in the air, in the soil, in water, on our skin and inside our bodies.

Decomposers are organisms that make things decay.
Many different kinds of microorganisms – including some kinds of bacteria and microscopic fungi – are decomposers.

Any substance that has been made by a living organism (by a plant or animal) is called **organic matter**.

Some microorganisms can break down organic matter when they feed on it. This breaking down causes organic matter to rot, mould or decay.

7.4 Microorganisms in food webs

Roles of decomposers:

Decay by microorganisms is useful, as they break down dead bodies and animal wastes (dung).

When microorganisms decay organic matter, they return the nutrients to the soil. Plants can then use the nutrients to help them to grow. This also helps animals, because there are more plants to eat.

Nutrients supply living things with energy or help them to grow.

Decomposers feed on almost every organism after it dies. They also feed on waste from animals. This is how decay microorganisms get their energy. Energy from the dead organisms and their waste is transferred to
the decomposers.