

2 WHAT DO WE KNOW ABOUT FLU?



Joe and Sarah learn about flu. We are going to study flu too.

1 Think about flu and order these pictures.

1

2

3

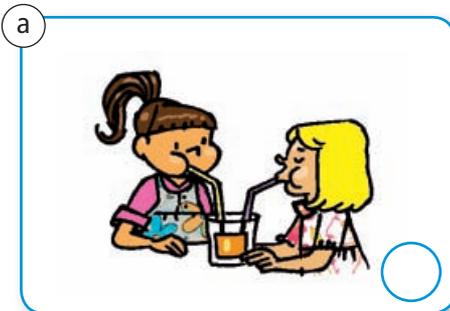
4

5

6

The easiest way to catch the flu

The most difficult way to catch the flu



2 Mark has flu. In groups, think who or what caused it. Tick the correct option.

He had a cold drink.

He went out with wet hair.

He caught a virus.

He was playing outdoors on a windy day.

3 Circle the picture which best helps observe what causes flu.



microscope



hand lens



naked eye



electron microscope





Children in Joe's classroom are discussing how to avoid spreading flu. Let's see what you think about how to prevent* catching flu and other diseases.



1 In groups, discuss and select nine items. Write them on the diamond graph.



Do not touch infected people.



Take medicines from time to time.



Do not walk barefoot in wet areas i.e. swimming pools.



Get vaccinations against common diseases.



Brush your teeth after meals.



Wear a face mask.



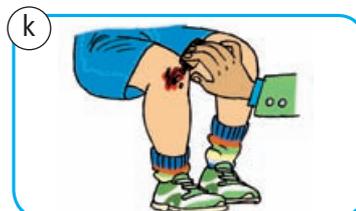
Wash your hands before eating and after using the toilet.



Do not put objects into your mouth.



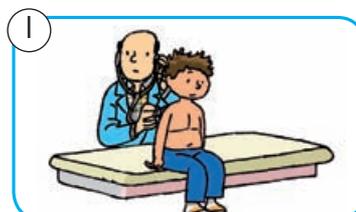
Cover your mouth and nose when you cough or sneeze.



Keep any wounds clean.



Keep away from other people if you have a disease that is easily spread.



Visit the doctor regularly.





4 Look at the pictures. Are they microorganisms? Justify your answers.

bacteria



YES. It is a microorganism because

mosquito



NO. It is not a microorganism because

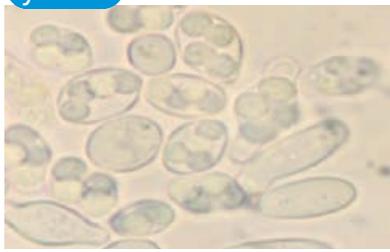
green algae



dust



yeast



pollen grain



bee hummingbird



sea weed



WE HAVE LEARNED THAT...

A microorganism is a _____
 _____ . Some examples of microorganisms are _____ ,
 _____ and _____ .



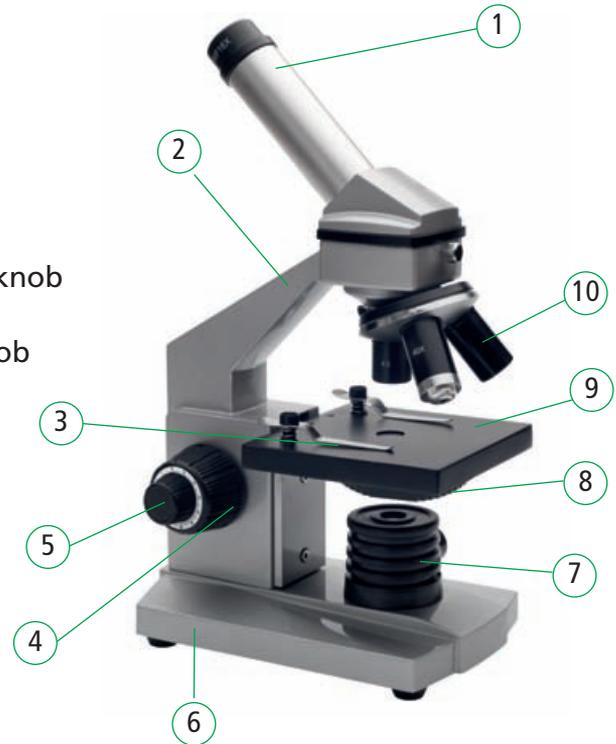
To observe microorganisms, scientists need powerful tools like electron microscopes or digital microscopes. Schools have simple microscopes like compound microscopes, optical microscopes or stereoscopes. Have you ever used a microscope?



1 Play a game!

2 Write the correct numbers to label the microscope.

- | | |
|---|---|
| <input type="checkbox"/> eyepiece | <input type="checkbox"/> base |
| <input type="checkbox"/> objective lenses | <input type="checkbox"/> diaphragm |
| <input type="checkbox"/> stage clips | <input type="checkbox"/> coarse adjustment knob |
| <input type="checkbox"/> stage | <input type="checkbox"/> fine adjustment knob |
| <input type="checkbox"/> light source | <input type="checkbox"/> arm |



3 Let's use a microscope:

Pond water microorganisms.

- Collect some water from a pond or puddle.
- List the materials you will need.
- Before starting to look at the sample, do you know how to use a microscope?

SOME MICROSCOPE INSTRUCTIONS

- 1) Start with the microscope on the **low* power objective lens** position.
- 2) Put the sample* to be observed on the **slide** and cover it with a **cover slip**. Place it on the **stage** and fix it with the **stage clips**.
- 3) Switch on the **light source** and open the **diaphragm** to let light pass through.
- 4) To change to the **high* power objective lens**:
1 Focus and centre the sample on the stage.
2 When changing objective lenses **WATCH FROM THE SIDE**; be careful and **STOP** if you think the lens can touch the slide!
- 5) When using the **high power objective lens**, use the **fine adjustment knob** to obtain a clear image of the sample.
- 6) Before you remove the slide, put the microscope back on the **low power objective lens**.





Some microorganisms can help living things in many ways. Let's find out!



1 Read the information and answer the questions.

ACTIVE LIFE yoghurt New Formula

| Nutrients composition | Unit / 115 g | 100 g |
|-----------------------|--------------|-------|
| Energy (Kcal) | 109 | 95 |
| Proteins (g) | 5.2 | 4.5 |
| Carbohydrates | 14.6 | 12.7 |
| Fat | 3 | 2.6 |
| Calcium (mg) | 181 | 157 |
| Vitamin E (mg) | 2.07 | 1.8 |
| Vitamin B6 (mg) | 0.23 | 0.21 |
| Vitamin D (µg) | 0.86 | 0.75 |

Ingredients:

- Sugar fermented milk
- Pasteurised skimmed milk
- Cream
- Sugar (6.7%)
- Glucose
- Stabilizers
- Milk enzymes
- Lactobacillus casein

It helps to increase the intestinal flora and contributes to improve the intestinal activity.

- Which of the ingredients in yoghurt do you think is a microorganism?
 - a pasteurised skimmed milk b cream c sugar d lactobacillus casein
- After reading the information above, do you think that yoghurt is healthy*? Justify your answer.

2 Circle seven places where you can find microorganisms that are helpful.



Do you remember the story? Children had some questions. Let's answer them using your new knowledge of microorganisms.

QUESTION 1

Who or what produces the flu? Is it a living thing?

1 Complete the text. Use the words in the box.

virus symptoms host naked eye reproduce
high temperature infect living things body

Flu is an illness caused by a very small agent called a _____.

Viruses cannot be seen by the _____. Not all scientists consider viruses to be _____ because they cannot _____ by themselves.

They need to _____ cells of another living thing to reproduce. These cells are called _____ cells. When we have flu some of our cells are infected by a virus and our _____ usually reacts to the infection with a _____.

Other _____ can be a cough, chills*, a headache, etc.

QUESTION 2

Are there living things that we cannot see?

2 Circle the right option in bold.

1 **Yes** / No, there are / aren't. All living things that **can** / cannot be seen by the naked eye are called **macroorganisms** / microorganisms.

2 **Microscopes** / hand lenses are a great invention. They **do not help** / help us find out about and **observe** / kill lots of microorganisms through a combination of **lenses** / numbers.

3 There are different kinds of **microphones** / microorganisms, for example, bacteria, algae, **mushrooms** / fungi and protozoa.

4 Viruses form a special microscopic **group** / collection on their own.



QUESTION 3

How do we get infected?

3 Complete the sentences.

Protozoa Bacteria Fungi Virus

The most common ways of becoming infected by a harmful microorganism can be:

1 Through contact

2 Through the air

3 Through wounds

_____ : spreading of this usually occurs through the air entering the nose and mouth, by contact or through wounds. For example, flu.

_____ : we usually become infected by contact, for example, walking barefoot on a place where there is a fungus, sharing infected objects, etc.

_____ : we become infected by contact or through wounds, for example, eating contaminated food.

_____ : it is not very common, but we can become infected through contact, through animals or through water.

QUESTION 4

What can I do to avoid infection?

4 Select the correct ending to these sentences.

1 Wash your hands well after touching ...

2 Clean and ...

3 Stay away from places ...

4 Vaccinate as a ...

a ... where there is a disease outbreak.

b ... preventive measure.

c ... disinfect any wound.

d ... objects in public places or after you cough or sneeze. Use soap.





1 INFECTIOUS DISEASES CONFERENCE



Now we are ready to apply what we have learned about microorganisms. Let's become doctors and study infectious diseases.



1 In groups of four, work as a team of doctors studying an infectious disease. What disease are you going to study?

2 In groups of four, decide on a role for each person.

| ROLE | NAMES AND TASKS |
|-----------------|---|
| The illustrator | _____ will be in charge of the visual support. |
| The consultant | _____ will check that information is scientifically correct. |
| The researcher | _____ will look for information. |
| The editor | _____ will check that the language used is adequate and the pronunciation is correct. |
| Speakers | All group members are going to speak in the presentation. |

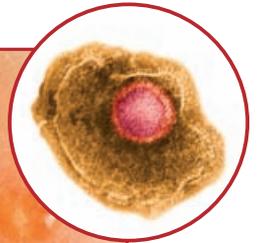
3 Have a look at the different microorganisms that cause each disease and answer the questions.

TOOTH DECAY



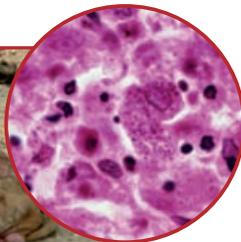
Bacteria: *Lactobacilli* and *Streptococci*

CHICKEN POX



Virus: *Varicella zoster*

LEISHMANIASIS



Protozoan: *Leishmania*

ATHLETE'S FOOT



Fungi: *Trichophyton*





NAME OF THE MICROORGANISM WHICH CAUSES THE DISEASE:

Is it a living thing? Justify your answer.

What type of microorganism is it?

Why is it considered to be a microorganism?

List the characteristics of this type of microorganism:

- _____
- _____
- _____
- _____

