



Introduction to Micro-organisms

This lesson is designed to introduce students to viruses, bacteria and fungi. The introductory activity allows students to combine their observational and creative skills to make a microbe of their own choice, exploring various microbial types and shapes.

Curriculum Links

Science

Working scientifically, Living things and their habitats

PSHE/RSHE

Health and prevention

English

Reading and comprehension, Writing

Key Words

Fungi, Bacteria, Viruses, Cocci, Bacilli, Spiral, Penicillium, Lactobacilli

@ Weblinks

e-bug.eu/eng/KS1/lesson/Introduction-to-Microbes

Learning Outcomes

All students will:

- Understand there are three different types of microbes: viruses, bacteria and fungi.
- Understand microbes are all different shapes and sizes.
- Understand some microbes are useful but some can be harmful.

Most students will:

- Understand microbes are found everywhere.
- Understand most microbes are too small to be seen with the naked eye.

Resources Required

Activity: Modelling Microbes *Per group*

- ☐ Coloured modelling clay (follow TS1 for a home-made recipe)
- ☐ Permanent black marker
- ☐ SH1 Making Microbes Guide
- ☐ SH2 Microbes Fun Fact Sheet
- ☐ SH3-5 Microbe Example Sheets

Per student

- ☐ Petri dishes (optional)

Extension Activity: **Yes or No Cards**

Per class/group

- ☐ SW1 Yes or No Cards
- ☐ TS2 Yes or No Answers

Extension Activity: **Microbe Flashcards**

Per class/student

- ☐ SW2 Microbes Flashcards

Extension Activity: Fill in the **Blanks Worksheet**

Per group

- ☐ SW3 Microbe Mania Fill in the Blanks Worksheet

The modelling clay activity can be carried out using arts and craft materials you may already have in your classroom, or by drawing the microbes.

Advance Preparation

For the main activity students will be making microbes out of modelling clay. Use the Making Microbes Guide (SH1), Microbe Mania Fun Fact Sheet (SH2) and Microbe Example Sheets (SH3-5) for inspiration. Provide each student group with modelling clay, Petri dishes (if using), images and information about microbes.

Health and Safety

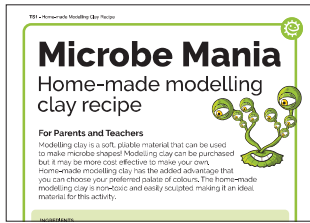
Take care that modelling clay is non-toxic and suitable for students.

Take care that students do not eat the modelling clay.

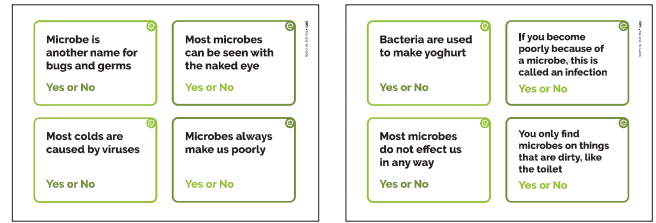
For safe microbiological practices in the classroom consult CLEAPPS www.cleapps.org.uk



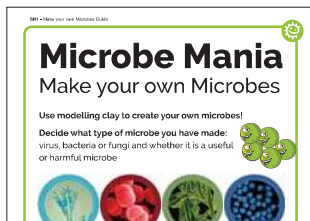
Supporting Materials



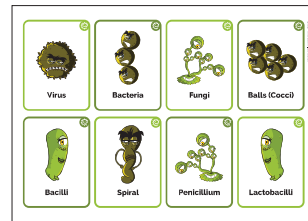
TS1 Home-made Modelling Clay Recipe



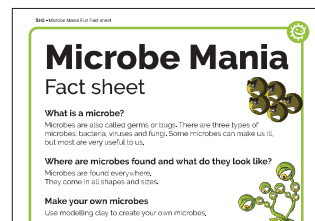
SW1 "Yes" and "No" cards



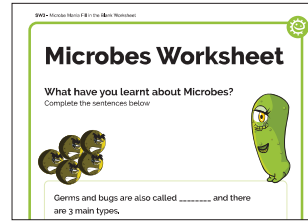
SH1 Making Microbes Guide



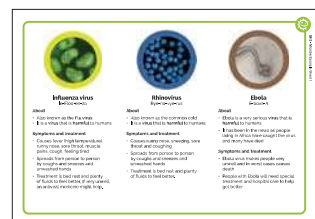
SW2 Microbes Flashcards



SH2 Microbe Mania Fun Fact Sheet



SW3 Microbes Mania Fill in the Blank Worksheet



SH3 Microbe Example Sheets

(SH4-5 available online)

Lesson Plan



Introduction

1. Begin the lesson by asking students if they know what microbes are. Explain that they are tiny living things that are all around us. Most of these are too small to be seen with our eyes.
2. Ask the students if they, or anyone in their family, has ever been poorly with a cough, cold or a temperature? What do they think caused it? Explain to the students that some illnesses called infections, are caused by these tiny living things called microbes. Explain that there are three different types of microbes: viruses, bacteria and fungi.
3. Emphasise that although some microbes make us ill, there are also useful microbes. Tell the students that bacteria help to make foods like yoghurt, and fungi like yeast help make bread while other fungi are used as medicines.
4. Highlight to the class that microbes can be found EVERYWHERE: floating around in the air we breathe, on the food we eat, on the surface of our bodies, in our mouth, nose and gut/tummy, most of these are not harmful and some are good for us.

Discussion

Discuss the microbes the students made highlighting the differences between viruses, bacteria and fungi.

If you have used the extension activity, SW1 Yes and No cards, discuss the answers with the students. Explain that not all microbes make us poorly.

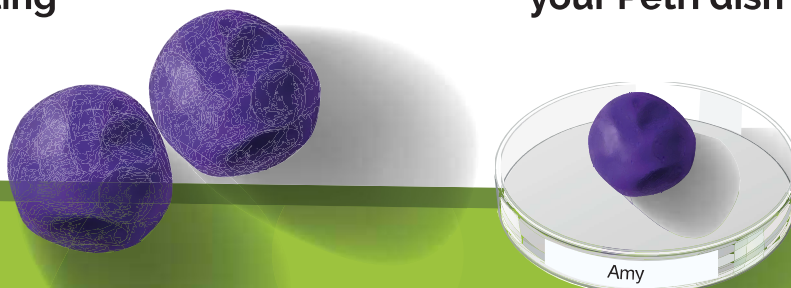
Activity: Modelling Microbes

1 Shape your microbe using modelling clay

2 Place into your Petri dish

3 Write the name of your microbe on your Petri dish

4 Take your Petri dish home



This activity aims to introduce students to different types of microbes and microbe shapes by allowing them to make a microbe out of modelling clay. This activity also introduces students to terms associated with microbes that they may come across day-to-day e.g. germs, bugs.

1. Remind the students that there are three different types of microbes (viruses, bacteria and fungi) and how these are different.
2. Encourage students to make microbes using modelling clay and to place them in a Petri dish (if using). They can use the images from SH1 and SH3-5, and information about microbes on SH2 as inspiration.
3. Point out common forms of microbes that they might have heard of to get them started.
4. Ask them which microbe they are making and to describe it e.g. is it a virus, fungi or bacteria and is it useful or harmful?

5. When they have finished, ask students to write what they have made on the Petri dish with the permanent black marker. Students can take the dish home.

Extension Activities

Yes or No cards

As a class activity or in groups of 3 or 4 provide SW1 Yes or No cards or display them on a whiteboard. Ask students to answer yes or no to the questions provided. Answers can be found in TS2 on the e-Bug website.

Microbe Flashcards

SW2 can be used to support learning. Print the sheet and cut out the flashcards, or display on a whiteboard. Ask students to name the image, the correct word is shown on the card.

Fill in the Blanks Worksheet

SW3 requires students to fill in the blanks using the correct words provided. Provide one worksheet per student to help test their knowledge of microbes.

Fascinating Fact

Micro-organisms first appeared on earth about 3.5 billion years ago and are essential to sustain life on our planet.

Learning Consolidation

At the end of the lesson, ask the class the following questions as a fact checking exercise.

- ☐ What are the three different types of microbes?

Answer: Viruses, bacteria and fungi

- ☐ Microbes can be beneficial to us e.g. yeast, can be used to make bread rise. What type of microbe is yeast?

Answer: Fungus

- ☐ True or false? Microbes are invisible to the naked eye and come in different shapes and sizes.

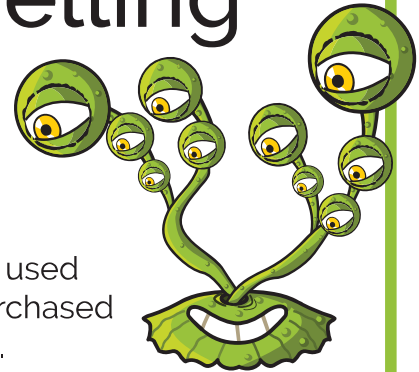
Answer: True





Microbe Mania

Home-made modelling clay recipe



For Parents and Teachers

Modelling clay is a soft, pliable material that can be used to make microbe shapes! Modelling clay can be purchased but it may be more cost effective to make your own. Home-made modelling clay has the added advantage that you can choose your preferred palate of colours. The home-made modelling clay is non-toxic and easily sculpted making it an ideal material for this activity.

INGREDIENTS

- 1 cup of plain flour
- 2 teaspoons of cream of tartar
- 1 cup of water
- 1 tablespoon of vegetable oil
- 1/2 cup of salt
- Food colouring

Method

1. Mix together the dry ingredients
2. Add the water and mix until smooth
3. Add the food colouring followed by the vegetable oil
4. Cook on a medium heat, stirring constantly, until the dough leaves the side of the pan in a ball
Alternatively, microwave the mixture on a high setting for 4 minutes, stirring every 30 seconds
5. Allow to cool before use
6. Store in a plastic bag or wrapped in cling film to stop the modelling clay drying out

