

## How do germs spread between people?

### Objective

To understand how germs can be spread through cross-contamination. This demonstration stresses the importance of thoroughly washing hands with soap and warm water to prevent the spread of germs.

### What you need

- Paint or gel or talcum powder
- Paper towels
- 4 pupils happy to collaborate
- Sink (to wash off)

### Experiment

1. Ask students to stand in a circle
2. Select one student and place some paint, Glo-germ gel or talcum powder onto her/his hands (check for allergies). Explain that this represents germs.
3. Ask her/him to shake hands with another 3 students
4. Then, ask these students to shake hands with another 3 students
5. Continue this process until all hands in the classroom have been touched
6. Lead a discussion about how germs can spread from one person to another



How many people ended up with 'germs'? How can we reduce the spread of germs?

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Why is it important to wash our hands after touching key Hygiene Hotspots?

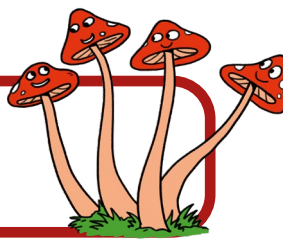
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When are the key times when we need to wash our hands?

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# Yeast races!

## Objective

All living organisms need water and food to survive and grow. This experiment shows the difference in growth rates between yeast (fungi) with and without food. Sugar acts as the food for the yeast to grow and expand. This process is called fermentation and it is used in food products like yoghurt. During fermentation, yeast respires and releases gas bubbles. These make bread dough rise.

## What you need

- 2 plastic cups
- Dessert spoon
- 4 dessert spoons of flour
- 2 measuring cylinders
- Yeast + water solution
- Yeast + **sugar water** solution
- Measuring stick
- Stopwatch
- Basin of hot water

## Experiment

1. Label one cup "A" and the other "B". Add 4 dessert spoons of flour to each
2. Add enough yeast + water solution to cup A until it has a thick milkshake consistency
3. Add enough yeast + **sugar water** solution to cup B until it has consistency of a thick milkshake
4. Pour contents of cup A into measuring cylinder A until reaches about 30ml
5. Pour contents of cup B into measuring cylinder B until it reaches about 30ml
6. Record the exact height of the dough in each cylinder
7. Place both cylinders into a basin of hot water
8. Measure the height of the dough every 5 minutes for 30 minutes

Results	YEAST		YEAST + SUGAR	
Time (minutes)	Vol. of dough (ml)	Change in vol. of dough (ml)	Vol. of dough (ml)	Change in vol. of dough (ml)
0				
5				
10				
15				
20				
25				
30				



# Yeast races!

## Evaluation

What happened to the dough in each cylinder?

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What caused the dough to rise up the side of the cylinders?

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What is this process called?

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Why did the dough in cylinder B move faster than in cylinder A?

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What other food products need fungi to grow and change substances?

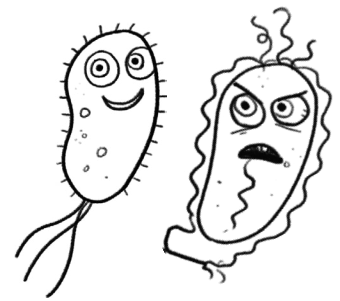
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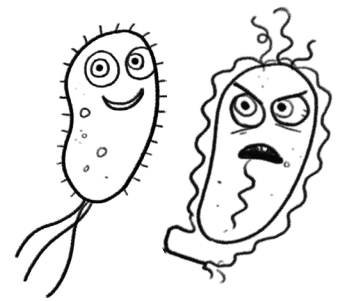
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# Helpful vs harmful microbes



1. Another scientific term for micro-organism is  
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2. Some micro-organisms are harmful to humans and some are  
.....
3. The 3 main types of micro-organism are  
.....
4. Salmonella is found on raw chicken and is a  
.....
5. Bathroom mould is a type of  
.....
6. We turn milk into yoghurt using a type of  
.....
7. Viruses are  
smaller than bacteria / the same size as bacteria / larger than bacteria
8. Our intestines digest food using some types of  
.....
9. Influenza is caused by a type of  
.....
10. Salmonella can cause  
dye-your-ear/die-or-ee-aa/diarrhoea
11. Bread rises because we use  
.....
12. The micro-organisms that help plants to grow are a type of  
.....

# Helpful vs harmful microbes



1. Another scientific term for micro-organism is  
**MICROBE**
2. Some micro-organisms are harmful to humans and some are  
**HELPFUL / BENEFICIAL**
3. The 3 main types of micro-organism are  
**BACTERIA, VIRUSES, FUNGI**
4. Salmonella is found on raw chicken and is a  
**BACTERIUM**
5. Bathroom mould is a type of  
**FUNGUS**
6. We turn milk into yoghurt using a type of  
**BACTERIA (LACTOBACILLUS)**
7. Viruses are  
**SMALLER THAN BACTERIA** / the same size as bacteria / larger than bacteria
8. Our intestines digest food using some types of  
**BACTERIA**
9. Influenza is caused by a type of  
**VIRUS**
10. Salmonella can cause  
dye-your-ear/die-or-ee-aa/**DIARRHOEA**
11. Bread rises because we use  
**YEAST**
12. The micro-organisms that help plants to grow are a type of  
**BACTERIA (RHIZOBIA)**

# Hygiene Hotspots?

Circle the main places germs hide.





# Where do most germs hide... in homes?

Use a coloured pen to mark the areas where most germs can be found.



# Where do most germs hide... on hands?

## Objective

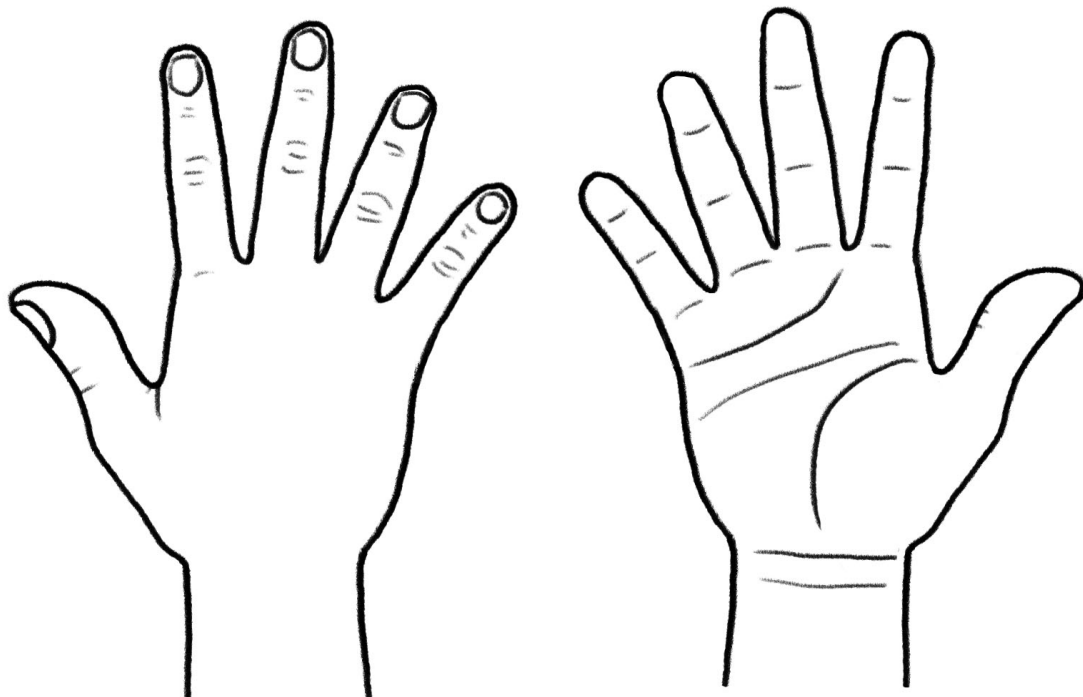
To remind ourselves where germs are most likely to hide on our hands so that we pay extra attention when washing.

## What you need

- Scissors
- Glue
- White paper
- Coloured pencils
- Coloured paper
- Crayons or markers
- Optional:**
- Cardboard

## Experiment

1. Using the white paper, carefully trace left and right hands with pens
2. Then, cut out your traced artwork and glue them on coloured paper or cardboard
3. Using the image in the stimulus presentation, identify commonly missed areas when handwashing and discuss the importance of thorough handwashing
4. Use coloured pencils and pens to draw and label areas easily missed on hands
5. Display artwork around the classroom as a reminder of germ hotspots



BACK

FRONT

Where in the classroom or school is best to remind about the need for handwashing?

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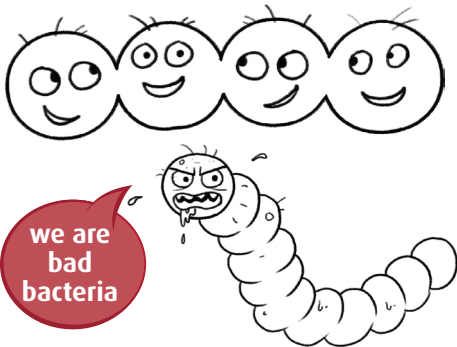


## Colour in these bacteria

### "Strep"

Some **Streptococci** in the mouth are friendly

We are good bacteria



**Streptococcus mutans** is one bacterium associated with tooth decay

### Lactobacillus

**Lactobacillus** is a good or 'friendly' bacterium that helps us make yoghurt

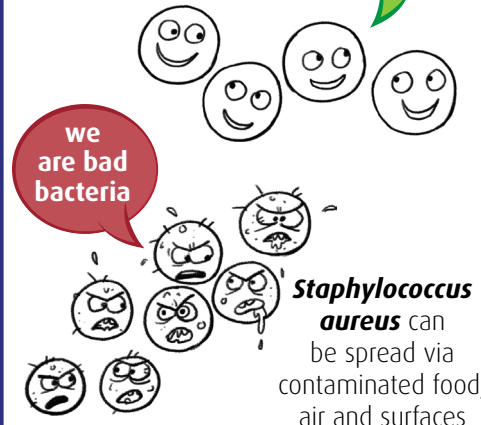
I'm a good bacterium



### "Staph"

Some **Staphylococcus** on the skin are friendly

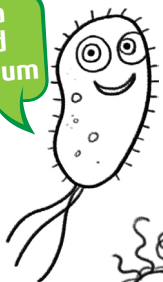
We are good bacteria



### "E.coli"

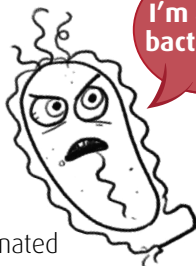
I'm a good bacterium

**Escherichia Coli** normally helps to break down and digest food



I'm a bad bacterium

Some types can cause food poisoning and are spread through contaminated food, water, and contact with animals or people



### Rhizobia

I'm a good bacterium



**Rhizobia** are soil bacteria that help plants absorb food and water from the ground to help them grow

### Salmonella

I'm a bad bacterium



**Salmonella** is commonly spread via contaminated foods such as uncooked chicken. It can cause diarrhoea and vomiting

Draw a virus:

Differences between viruses and bacteria:

1. ....

2. ....

3. ....

# My hand-washing action plan



1. Write down what you believed about how germs spread before this lesson

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2. When did you wash your hands most often?

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3. When did you skip washing your hands?

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4. What have you thought today about how to stop the spread of germs?

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5. Who would you most like to protect from germs?

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6. What do you want to do to help protect those around you from germs?

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7. What do you want to do to help protect yourself better?

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8. What new action will help you to do this?

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