

# SNEEZE ZONE

## Activity overview

**Age:** 7 – 12 years old

**Time:** 30 min

**Topics:** Microbes, health and hygiene

### Learning objectives:

- Microbes can sometimes cause illness and diseases.
- The symptoms of illnesses (like sneezing) can lead to microbes being spread and other people getting infected.
- Good hygiene can reduce the spread of microbes and so stop infections spreading.

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## BACKGROUND

Many infectious diseases are airborne and can spread in tiny droplets of water or aerosols that people cough or sneeze into the air. Aerosols in a sneeze can travel at more than 100 kilometres per hour and cover a distance of more than four metres!

Each droplet can contain thousands of potentially harmful microbes that could cause infection. The simplest way to stop them spreading is to cover our mouth and nose when we cough or sneeze with a tissue. This acts as a physical barrier that can help to stop the spread of microbes.

However, these microbes will remain alive on tissues for quite some time after sneezing or coughing. Luckily, we can then throw the tissue and harmful microbes in the bin making sure they do not spread. This is why you should use a tissue and not cough or sneeze into your hand – the microbes will just be on your hands if you do and will require washing with hot water and soap.

The aim of this activity is to raise awareness of pathogens, their transmission and the need for good hygiene to help stop the spread of infectious diseases.

### Find out more

What are infectious diseases:

[www.yourgenome.org/facts/what-are-infectious-diseases](http://www.yourgenome.org/facts/what-are-infectious-diseases)

E-bug, an online antibiotic and hygiene teaching resource created by the Health Protection Agency (HPA), that includes a range of games, interactive quizzes, and disease fact sheets:

[www.e-bug.eu](http://www.e-bug.eu)

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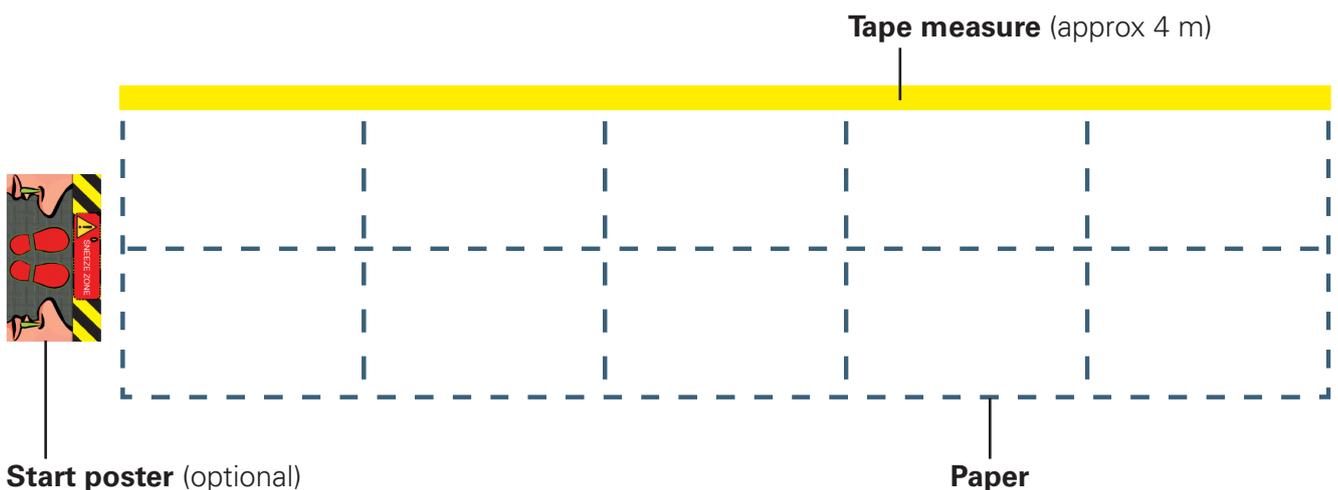
### ACTIVITY PREPARATION

#### Materials

- Tape measure
- Tissues
- Spray bottle
- Water
- Worksheet
- Surface to spray on
- Pen and paper (or chalk if doing the activity outside)
- Sneeze zone start poster (optional)

#### Set up

1. Make a Sneeze Zone by either finding a space with a markable surface (such as dry concrete) or by laying out paper (old newspaper or cardboard also works well) to make a ~4m surface. Lay a measuring tape out next to your sneeze zone.
2. Print off the sneeze zone start poster (or draw two feet) to indicate your starting point.



3. Fill a clean spray bottle with some water.
4. Lay out some paper and pens or chalk ready to add the 'people'.
5. Print off the number of worksheets required.

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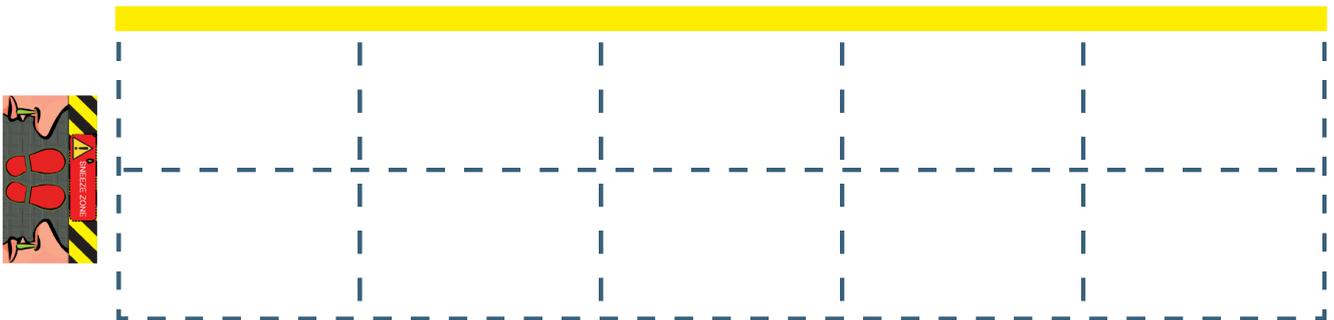
### ACTIVITY GUIDANCE

#### Warm up

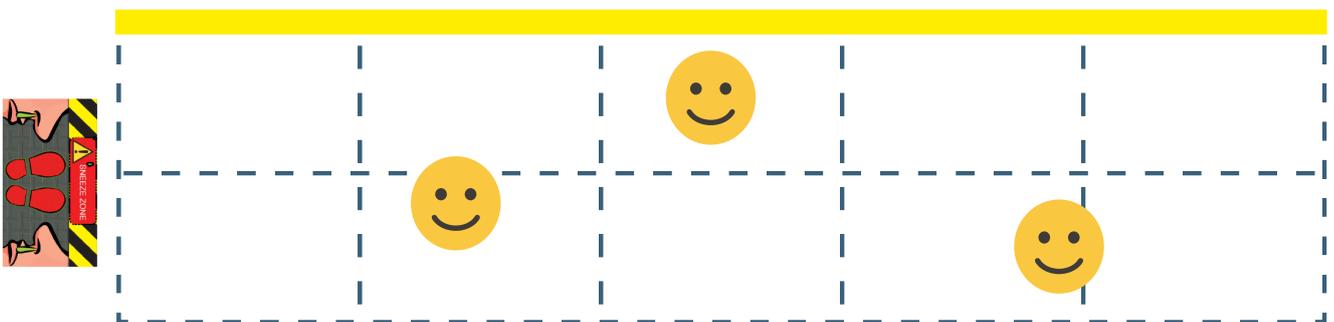
1. Describe how microbes are really tiny and can be found everywhere. They are as different from one another as different animal species are. Highlight how some can be 'bad' and cause disease but many are actually 'good' and really interesting. Some are used to make us food (like yogurt and cheese) and the medicines we rely on (like insulin).
2. Explain that this activity will be looking at how disease causing microbes can spread through the air via coughing or sneezing. Because microbes, like viruses, are so tiny even a small cough or sneeze can spread thousands of them quite a long way!

#### Run the activity

1. Show the sneeze zone area and highlight the tape measure and the area that will be showing the spread of the sneeze (the paper or concrete).



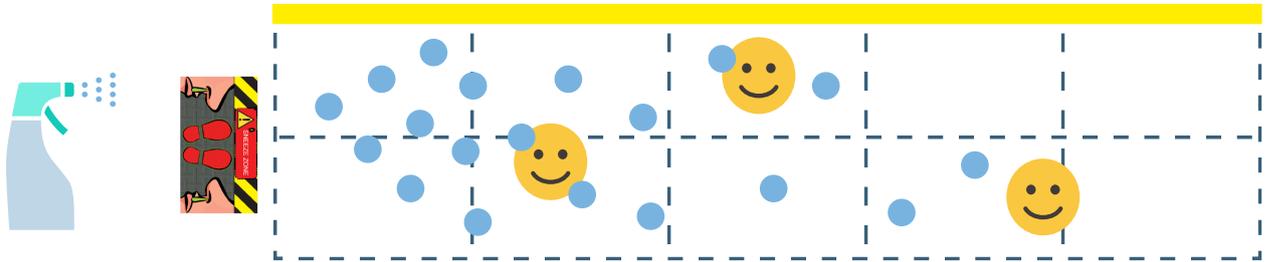
2. Encourage the group to make some "people" to put in the sneeze zone either by drawing round faces directly onto the sneeze zone (use chalk if on concrete) or on some paper and place them where you want within the sneeze zone.



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- Let someone have the first attempt by standing at the start of the sneeze zone, holding the spray bottle near the ground and doing one full spray of the water.



- Check where the water droplets landed on the sneeze zone. Draw special attention to droplet marks that have landed on the 'people' drawn on the sneeze zone.

- Measure and record how far the water droplets (the sneeze) went and the number of "people" the droplets touched, on the observation table.

SNEEZE ZONE		Attempt 1	Attempt 2	Attempt 3	Attempt 4	Attempt 5
Sneeze	Length here					
	Number of people affected					
Sneeze with tissue	Length here					
	Number of people affected					

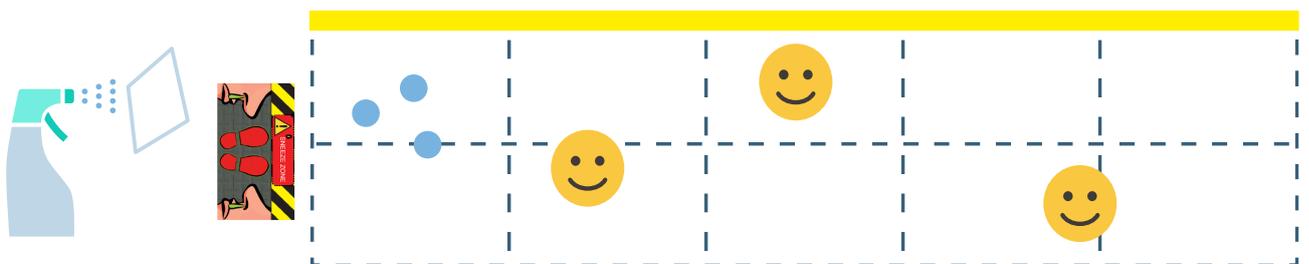
1. What was the highest number of people affected by one sneeze?

2. What happens when a tissue is put over the mouth and nose when you sneeze?

3. What should we do with a tissue after sneezing into it?

4. Why is it better to use a tissue when sneezing rather than your hand?

- Let the sneeze zone dry off and then have another go BUT this time have someone hold a tissue in front of the nozzle as you would your own nose and mouth when sneezing.



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7. Measure the distance the sneeze went again and fill in your observation table.
8. Repeat for as many attempts as you or the group would like to.
9. Now answer the questions at the bottom of the worksheet.

### Reflect on it

Highlight the difference in how far the 'sneeze' went when a tissue was used as a covering.

Talk about why using a tissue is much better than covering your mouth and nose with your hand. Highlight how microbes on your hands are likely to spread to other people through touching objects and surfaces.

Draw attention to the fact that microbes have to get inside you to make you ill. If bacteria or viruses are on your hands, and you don't wash them regularly, it is likely that the microbes could get into your body through your mouth when eating or drinking or just from touching your face. That is why it's really important to wash your hands, especially before eating and drinking.

Encourage discussions around what this would mean in a real world example of someone being ill and as they go about their daily lives.

Touch upon the cost of illness to society (people being ill as well as the economic cost) and highlight how cheap and easy it is to use a tissue and compare it to the impact it can have on disease spread – as highlighted in the activity.

End by drawing attention to the fact that if anyone doesn't have a tissue then using their elbow to catch the sneeze or cough is the next best thing as they are less likely to touch other things with that part of their body.

### Take it further

Why don't you explore what microbes look like? Have a go at making your own models of them with our balloon bugs activity.

Balloon bugs: [www.yourgenome.org/activities/balloon-bugs](http://www.yourgenome.org/activities/balloon-bugs)

What makes some microbes 'good' whilst others are 'bad'? Investigate the role DNA plays in determining what a microbe looks like and what it does by becoming a microbe maker.

Microbe maker: [www.yourgenome.org/activities/microbe-maker](http://www.yourgenome.org/activities/microbe-maker)