

# Microbe Magic Experiments

<http://microbemagic.ucc.ie>

## **Inside your gut – Watch how infections occur!**

The aim of this experiment is to watch how infections spread when something doesn't have a second line of defence like you have. You are comparing a *specimen* apple against a *control* apple to see what happens when an apple is damaged.

### **What you will need:**

- Two fresh apples, of the same variety, without any damage (no cuts or bruises)
- A large plate
- A spoon
- A warm spot (like a windowsill in the sun or a hotpress)
- Pencil
- Paper

### **What to do:**

- Wash and dry both of the apples.
- Place them both on the plate.
- Label one apple '*Specimen*' and the other '*Control*' (write each label on a small piece of paper and place it next to one of the apples).
- On the specimen apple only:
  - make a small bruise on one side of the apple by hitting it hard just once with the flat of the spoon.
  - make a small cut on the other side of the apple by digging the edge of the spoon into the flesh (make sure it pierces the skin).
- Place both apples in a warm spot.
- Keep a journal each day of what is happening to the apples (see template below).

### **What's happening?**

The apple has very few defences to protect it as it grows and ripens on the tree and in storage. Its first line of defence, its skin, does protect it from some invaders and damage but even when there is no damage to its skin, the apple can be in danger!

The apple does not have the same second line of defence that you have. If its skin is damaged or cut, it is in pretty big trouble. In your experiment, the control apple should stay pretty much unchanged (maybe a little dehydrated which will make it look a little wrinkly). The specimen apple on the other hand should have big changes, with more damage at the spot where you hit and cut it with the spoon. Because the apple does not have the same second line of defence as you do, it cannot fight the spread of the damage and over time, the apple will be completely destroyed.

In your body, your first lines of defence help to stop invaders from entering your body. Your second lines of defence help you to fight anything that does manage to get in. Any infection you may have would like to spread in the same way damage spreads in the apple but your immune system fights to stop it.

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	<b>Control</b>		<b>Specimen</b>	
	Appearance	Smell	Appearance	Smell
Day 0				
Day 1				
Day 2				
Day 3				
Day 4				
Day 5				
Day 6				
Day 7				
Conclusion				

Describe the appearance and smell of each apple at the same time each day. On day '0' describe the apples (colour etc) and remember to write your conclusion – what you think the outcome of the experiment is – at the end of the experiment.