



Mouldy Medallions

Objects in 'A History of Pathology in 50 Objects' this resource links to:

Penicillium medallion: www.rcpath.org/the-college/50th-anniversary/50-objects/objects11-20/object-14-fleming-mould-plate

Petri dishes: www.rcpath.org/the-college/50th-anniversary/50-objects/objects41-50/object-49-petri-dish

Learning Objectives

- ◆ Observing food spoilage and fungal growth
- ◆ Understanding about antibiotics and 'superbugs'
- ◆ Understanding health, diet, drugs and disease
- ◆ Learning about the effects of bacteria and viruses
- ◆ Understanding scientific theories, observations and experiments

Materials required

- ◆ Petri dishes
- ◆ Cotton buds
- ◆ Water in a beaker
- ◆ Filter paper (round to fit into petri dishes)
- ◆ Small round cookie cutter
- ◆ Different types of bread
- ◆ Plastic pipettes
- ◆ Marker pens
- ◆ Sellotape
- ◆ Gold card
- ◆ Camera

(can also try toasting the bread as a comparison, or using slices of lemon or lime instead of bread)

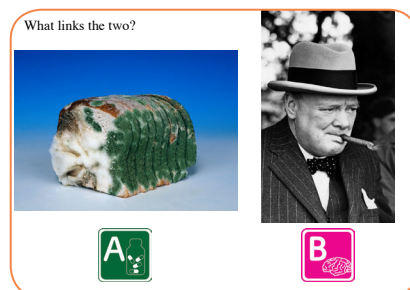
Time taken: 15-20 minutes set up, re-visit dishes after a week.

Picture link

Ask the students what they think is the link between mouldy bread and Winston Churchill?

Show the slide of the Penicillium medallion.

Following his discovery of penicillin, which naturally grows on mouldy bread, Alexander Fleming presented mould medallions to Winston Churchill, Marlene Dietrich, Pope Pius XII and others.



Mouldy bread and Winston Churchill



Penicillium Medallion
Following his discovery of penicillin, which naturally grows on mouldy bread, Alexander Fleming presented mould medallions to Winston Churchill, Marlene Dietrich, Pope Pius XII and others

Practical/Discussion activities

This activity can be run as an introduction to microbes activities, when teaching about antibiotics, infection control and hand washing.

Students can work in pairs, or if they each want a *Mouldy Medallion*, they can work individually too.

Tell students about how mould is a fungus and fungal spores are in the air. When these spores land on food, food goes mouldy.

Make sure all students wash hands, and they do not open the petri dish once sealed. It is important to dispose of mouldy food items safely at the end of this activity.

Give each student a slice of bread and ask them to cut a circle of bread using a cookie cutter.

In a petri dish, ask them to put a piece of filter paper and dampen slightly using a pipette with a few drops of water. On top of the filter paper, ask students to place their bread disc. Can also use circular slices of lemon or lime instead of bread.

Then using cotton buds, get students to collect dust (which will contain spores) from all over the classroom/lab and wipe it on the surface of their bread disc. Place a few more drops of water on top of the bread and put the petri dish lid on top and seal the dish shut using Sellotape.

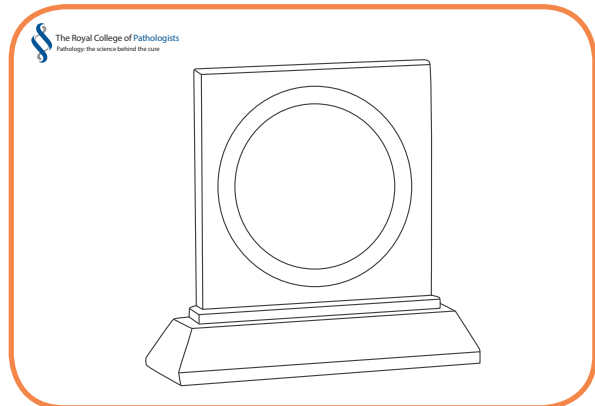
Ask the students to stick their petri dish to a rectangle of gold card, and write their name on the card underneath, as if it has been presented to them.



Leave all dishes at room temperature for a few days to a week. A blue/green mould should appear on the bread.

Each student can take a photo of their *Mould Medallion* to keep as a souvenir.

Penicillium is the blue/green mould that grows. The liquid that exudes from the fungus is called *Penicillin* and is used as an antibiotic. Antibiotics are substances created by one microorganism to harm another microorganism, and this is why they are prescribed by doctors when we have a bacterial infection.



Many schools run bacteria/hand washing practical activities as well as test antibiotics. This activity will also supply a set of images with zones of inhibition for students to measure and interpret.

This can be followed by a discussion around **superbugs**.

Ask the students what they understand about the term 'superbugs'?

Discuss the news items with the students:

◆ **'One in 12 hospital patients carries antibiotic-resistant superbug':** www.ctvnews.ca/health/one-in-12-hospital-patients-carries-antibiotic-resistant-superbug-1.1279679 (CTV News, Canada)

◆ **'Warning issued over superbug threat':** www.channel4.com/news/superbug-health-nhs-government-bacteria-threat (Channel 4 News, UK)

Useful links

Society for Microbiology:
www.microbiologyonline.org.uk/teachers

NHS Choices – Antibiotics:
www.nhs.uk/conditions/Antibiotics-penicillins/Pages/Introduction.aspx

e-Bug:
www.e-bug.eu