



## Learning notes

### Finding out about fungi

Linked Article: [Skin deep: modelling fungal skin infections](#)

The author of this article talks about the importance of fungal infections on human skin and why they are difficult to study and treat. She explains why animal models, such as mice, are not suitable for studying fungal skin infections in humans and says that there are better ways to study this problem. She describes alternative non-animal experiment models.

The learning tasks below give you an opportunity to explore a model for testing anti-fungal treatments and information about understanding micro-organisms and disease.

#### Learning Task:

Inhibition zones and antifungals.

Use aseptic technique to set up a lawn or pour a plate of the fungus baker's yeast and use it to investigate the action of possible anti-fungal substances such as athlete's foot cream and essential oils.

**Note:** you should carry out a risk assessment before doing the learning tasks suggested here.

You will need: per person or group:

- Petri dish containing sterile medium, such as malt extract agar to grow the yeast.  
**Note:** yeast will not grow well on nutrient agar. You could use yeast extract-peptone-dextrose agar (YPD or YEPD) or starch malt agar (SMA) instead of the malt extract agar
- Suspension of fast action baker's yeast made by mixing 1g of fast action yeast granules from the supermarket with 100ml of sterile water, left in a warm place or incubator for approximately 2 hours

- Sterile spreader
- Sterile syringe or Pasteur pipette
- Filter paper discs cut from filter paper using a hole punch
- Forceps or tweezers
- Substances to test for anti-fungal properties, for example: athlete's foot products – different brands; essential oils – try tea tree or clove oil; crushed garlic, onion or other alliums; disinfectants such as Dettol.

Instructions for aseptic technique setting up the plates can be found on [CLEAPSS website PPO50](#) (member log in required) or in GCSE Biology and A level practical Biology guidance from examination boards.

Information to support students to do micro-organism risk assessments can be found on CLEAPSS student safety sheet 01 Microorganisms [here](#).

#### Take your learning further:

Grow your own fungi – although this CLEAPSS resource is in their primary science section the technique could be adapted to explore the effect of changing variables such temperature [primary.cleapss.org.uk/Resource/P006-Growing-fungi-on-food.aspx](#)

The Society of General Microbiology also have information on fungi to explore and about growing fungi to look at their morphology [here](#).

Explore information from health services about fungi - NHS direct (UK health service) including photographs:

- ringworm [www.nhs.uk/conditions/ringworm](http://www.nhs.uk/conditions/ringworm)
- athlete's foot [www.nhs.uk/conditions/athletes-foot](http://www.nhs.uk/conditions/athletes-foot)
- fungal nail infection [www.nhs.uk/conditions/fungal-nail-infection](http://www.nhs.uk/conditions/fungal-nail-infection)

You may like to compare this with the advice and information given in another country, for example the US Centers for Disease Control and Infection fungal diseases pages: [www.cdc.gov/fungal/index.html](http://www.cdc.gov/fungal/index.html)

### **Take your learning further still:**

1. Read about the action and different effects of disinfectants using CLEAPSS student safety sheet 9 Disinfectants [science.cleapss.org.uk/resource/SSS009-Disinfectants.pdf](http://science.cleapss.org.uk/resource/SSS009-Disinfectants.pdf)
2. Make a time-lapse video to show fungal growth or decay using a mobile phone and an app – you can find tips [here](#).
3. Read information and classify disease causing microbes, according to criteria doctors use, information cards and images [here](#).