

Mí na Samhna – Fócas ar Fhungais

Paddy Madden continues his series of SESE tips



November

Zoom in on fungi



Rich foraging

Background information

The *Usborne Science Encyclopedia* defines fungi very clearly: "Fungi are simple, plant-like organisms that never flower and do not have true leaves, stems or roots. They grow in damp, dark places, and do not contain the green chlorophyll needed to make their own food. Instead they feed on either living things or dead matter".

Most of a fungus cannot be seen. The visible part is the fruiting body and consists of a cap, gills (which contain spores), stalk or stipe. The main part, the mycelium, is underground, and consists of lots of tiny thread-like tubes called hyphae.

Types

Fungi that live on dead matter are saprotrophs. Those which feed on living things are parasites.

Above right:
Shaggy ink cap

Beneficial fungi

Penicillin: A fungus that can destroy several types of germ. Discovered accidentally by Sir Alexander Fleming.

Yeast: A fungus that can change sugar into alcohol and make dough rise.

Edible mushrooms: Three popular ones found in Ireland are Chanterelles (*Cantharellus cibarius*), Hedgehog mushrooms (*Hydnum repandum*) and Ceps (*Boletus edulis*).

Truffles: Expensive, edible mushrooms found in deciduous woods.

Mycorrhizae: Form symbiotic associations with plant roots. Essential for plant's health and growth. Can be destroyed by fungicides and pesticides.

Enokitake; Shitake: Asian mushrooms that produce compounds which fight cancer.

Decomposers: They break down dead matter.



Bracket fungus



Edible chanterelles

Literacy/Litearthacht

➤ **Mycology/Míceolaíocht:** The scientific study of fungi. Staidéar Eolaíochta Fungas.

➤ **Mycelium/Micíliam:** A mass of thread-like filaments which spread underneath the mushroom. Mais d'fhilliméid ar nós snáitheanna a bhíonn spréite in íochtar an bheacáin (beacán = fás aon oíche = muisiriún).

➤ **Hypha/Hífe:** The main part of a fungus consisting of thread-like tubes which absorb nutrients from the host. An phríomhchuid d'fhungas atá déanta d'fheadáin ar nós snáitheanna a tharraingíonn cothaitheigh isteach ón óstach.

➤ **Fruiting body/Spóthoradh:** The visible part of a fungus over the ground. An chuid infheicthe d'fhungas os cionn an talaimh.

➤ **Spore/Spór:** A minute reproductive unit capable of giving rise to a new organism. Aonad atáirgthe bideach atá in ann orgánach nua a thabhairt ar an saol.

➤ **Gills/Duilleoga nó Geolbhaigh:** Spore producing structures under the mushroom's cap. Struchtúir a tháirgeann spóir faoi bhun chaidhp an bheacáin.

Harmful fungi

Poisonous mushrooms: Death Cap (*Amanita phalloides*), Destroying Angel (*Amanita virosa*), Fools Mushroom (*Amanita perna*), Cortinarius spp. Former two have no known antidote.

Honey Fungus: A fungus which spreads to roots of trees and destroys them. *A. mellea* and *A. gallica*. Are the most common in gardens

Dry Rot: A fungus that destroys roof timbers.

Athlete's Foot: A fungus which infects the skin

Ringworm: Do.

Blight: Affects plants. *Phytophthora infestans* was a cause of the Irish Famine.



Did you know?

✦ The *Armillaria ostoya* has been growing for 2,400 years. It covers 880 hectares of the Malheur National Forest, in Oregon. This giant fungus stretches 5.6 kilometres across and it grows c. 1 metre downwards.



Edible Hedgehog

**Safety Note**

Avoid eating a fungus that you cannot recognise with 100% confidence. Also avoid picking old mushrooms.

Active learning indoors and outdoors**Indoors**

Explore the fascinating world of fungi

- ✦ To observe spore patterns remove the stalk and place the cap on a sheet of white paper. Place an upturned glass over the cap and leave overnight. Next day observe the wonderful spore pattern. Spray with hair spray or art fixative to preserve it. See *Science Quest 6* (C J Fallon) for a fair test on conditions needed to grow fungi.
- ✦ Study the effect yeast has on the decomposition of fruit by placing a slice of banana in a ziplock bag with no yeast and another slice covered in yeast in another bag. Observe using a chart for five days. (*Science Made Simple*, Frank Schaeffer Publications).
- ✦ Compare different ways of preventing bread going mouldy by getting 4 jars with the same amount of bread in each. Jar 1: Cover bread with water. Jar 2: Cover bread with vinegar. Jar 3: Cover bread with water which has a few spoonfuls of dissolved salt. Jar 4: Control. Put lids on jars and observe what happens. (*501 Science Experiments*, Hinkler Books, 2007). Study Alexander Fleming and the discovery of penicillin.
- ✦ Explore the growth of fungi in different conditions. Get four slices of bread. Put a slice into three separate ziplock bags. Mark the bags A, B, C. Dampen fourth slice and place in ziplock bag marked D. Place Bag A into a dark place (No light). Place Bag B in a fridge (No light, no warmth). Place Bags C in a warm, light place (Warm and light). Place Bag D in the same warm place (Warm, light and damp). Record amount and colour of mould. Observe using magnifying glasses. Do not open bags. (*Experiments with plants and other living things*, Franklin Watts, 2009).

Safety Note

Some people are allergic to moulds and fungi. Avoid inhaling spores.

**Outdoors**

Fungi hunt pack for autumn and winter available from www.naturedetectives.co.uk

Mushroom walks and courses

- www.blackstairsecotrails.ie
- www.mushroomstuff.com
- www.tawnylustlodge.com
- www.woodland-care.com

Useful websites

- www.northamptonshirewildlife.co.uk/nfungi/fungiforkids.htm
- www.kidsbiology.com/biology_basics/five_kingdoms_life/plants.php
- www.childrensuniversity.manchester.ac.uk/interactives/science/microorganisms/micro-organisms/
- www.fungi4schools.org/GBF_web/Teachers%20notes.htm
- www.gardenersworld.com/how-to/projects/creative-projects/how-to-grow-mushrooms/215.html
- www.wildmushroomsofireland.com
- www.rogersmushrooms.com
- www.irishpotatofamine.org
- www.askaboutireland.ie

Useful books

- *Mushrooms and other Fungi of Gt. Britain & Ireland* (1981) by Roger Phillips.
- *Collins Fungi Guide: The Most Complete Field Guide to the Mushrooms and Toadstools of Britain & Ireland* (Hardback) (2012) by Stefan T. Buczacki, Chris Shields and Denys Ovenden.
- *The Usborne Science Encyclopedia* (2002)
- *Collins Gem Mushrooms* (2003) by Patrick Harding
- *Complete Irish Wildlife* (2004, Collins) by Paul Sterry

Videos

- www.youtube.com/watch?v=rNTt-pdt-NDU



Tasty treat



Edible cep or Penny bun



Fly Agaric



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