

Hello Trees Resource Sheet



KS1 Y1 Science Diary Item

Spores vs Seeds



You don't have to use every Science Diary suggestion!
You don't have to do everything on this sheet! Bits in **bold** recommended.

OBJECTIVE: COMPARE FUNGI SPORES TO PLANT SEEDS

[\[Interesting insight from botanist Colin Tudge:](#)

Spore producers (fungi, ferns, mosses) send their offspring out into the world naked with a bag of toffees; **seed** producers provide at least a waterproof coat or even (conkers, acorns) warm pyjamas, a duvet, food and an insulated house! ¹

WHAT YOU NEED

1. **A brown, open-cup mushroom** (mine was 'portobello' from Tesco). Cut down the stalk, unless you want to take a knife into class and do it there.
2. **Seeds** (birch, conifer, maple, acorn, conker ... sunflower, pumpkin ...)
3. **Piece of white paper** placed on a **grill or cake rack**.
4. **Magnifying glasses and/or camera (zoom in on a photo)**



The mushroom is the source of **spores**. Ferns, bracken, molds, mosses ... produce spores but brown, open-cup mushrooms are available in supermarkets (2 for £1.50 and you can eat the other one!) – and they shed their spores in an easy, amazing and beautiful way. Don't bother trying closed-cap mushrooms.

[\[Background information about mushrooms/answers to awkward questions:](#)

See also the 'word bucket' below. Fungi consist of thread-like hyphae which together are a mycelium. Nutrients are absorbed from organic matter through the hyphae. When hyphae from one mycelium meet those from another, they can begin the sexual process of forming single-cell spores within a fruiting body (mushroom). Pupils might have seen the white threads in garden soil.

WORKING SCIENTIFICALLY

✓ **Experience and observe:**

Examine seeds brought in by teacher and/or pupils: size of the seeds; their outer covering of fleshy fruit and/or hard case; their wings/parachutes.

Examine the mushroom: cap, stalk, gills; colour, weight, size, texture.

Explain that this mushroom grew out of a thread-like, underground fungus. A new fungus can grow from spores produced by the mushroom. When they are ripe and the weather dry, the spores drop from between the gills. Spores are smaller than seeds: like fine powder.

✓ **Curiosity and questioning** (all suggestions acceptable):

How could we get to see the spores?

How can we find out whether the spores come from between the gills?

[Elicit: Need to turn the mushroom upside down so the spores fall out.

Needs to be on white paper so we can see the spores.

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Spores vs Seeds

If spores come from between gills, they will be in lines under the gaps between the gills. Needs to be dry, so rack under paper to let air circulate underneath. Leave overnight. Needs to be away from draughts so spores don't blow away when we lift the mushroom. Need to remove the stalk so air can't get in and blow the spores away as they drop.]

✓ **Tests to answer questions:**



1. **Put the white paper on a rack** (from a grill pan, or one to put hot cakes on).
2. **If not done already, cut the stalk from the centre of the mushroom.**
3. **Turn the mushroom upside down and carefully lower it on to the paper.**
4. **Lift the rack out of reach to be left overnight.**

Next morning,

1. **Lift the mushroom vertically and see the spores that have fallen out.**

Their pattern shows they dropped from between the gills of the mushroom.

Could the colour on the paper be a stain from the gill-edges?

2. Dab the spores with your finger. See that it is not a stain but fine powder: spores.
3. Dab the spores from your finger onto white paper next to seeds to compare size.

Ask some pupils to carefully do the same.

Observe the spores through a magnifying glass – or take a photo and zoom in.

- ✓ school locality: where pupils found seeds. Country of origin on mushroom label.
- ✓ grow our own: you could plant the seeds and scatter spores.
- ✓ observe changes over time: keep the mushroom and seeds. See how they dry out.
- ✓ notice patterns, **compare: spores to seeds and seeds with each other: size, coating.**
- ✓ group and **classify: classify spores as wind dispersed.**
- ✓ Use secondary sources of information: See Internet images of spores on ferns.

✓ **Develop scientific language:**



A **mushroom** is the '**fruiting body**' of a **fungus**, pl **fungi**.

Fungi grow from spores.

Fungi are not plants or animals. They are in their own Kingdom: '**Fungi**'.

The ribs under a mushroom cap are called '**gills**'. Spores develop between them.

- ✓ Communicate what they find: ✓ To different audiences and ✓ In different ways: as ever
- ✓ PLANTS ✓ Identify common trees and plants: **name identifiable seeds.**
- ✓ ANIMALS **Bigger seeds dispersed by birds or animals. More later.**
- x EVERYDAY MATERIALS x Identify and name everyday materials
- ✓ Properties of everyday materials – **light-weight materials fly best**
- ✓ SEASONAL CHANGES
- ✓ mushrooms appear in late summer when it is warm. x Day length – another time

PLENARY: # Plants grow from seeds; fungi grow from spores.

Spores are smaller than seeds. They come from between mushroom gills.

Spores are dispersed by the wind.

¹ Tudge, Colin, 'Trees: The Secret Life of Trees', pp75-6, Penguin, 2006.