

Lesson 1

Which mushrooms safe to eat?



Students, teachers and parents may have questions regarding which mushrooms are safe to eat, or what type of mushrooms growing in the mushroom kit supplied.

These resources and the FAQ section below will help explain why store bought mushrooms are safe, the mushrooms growing in the kit are safe, and illustrates the dangers of foraging.

IMPORTANT! Do not pick wild mushrooms, or touch mushrooms growing in the wild. Some wild grown mushrooms can look similar to the store-bought variety but can be deathly poisonous. It can be very difficult to distinguish the difference between what is poisonous and what is safe.

The only safe mushroom is a commercially grown store-bought mushroom, or the mushrooms growing in your kit.

Step 1. Watch this video.



Click this link: <https://www.youtube.com/watch?v=c-7yOsBIXKM>

Step 2. Refer to the fact sheet

Which mushrooms are safe to eat?

Mushrooms bought from a trusted retailer

Look for the Australian Grown label.

Mushrooms found in the wild.

There is a serious risk of illness or even death if toxic mushrooms are mistakenly picked and consumed. If in doubt, don't!

Technical fact sheet Fungi 101

What are fungi?

Mushrooms are FUNGI and not a plant, therefore they grow in a very unique way. Fungi are crucial decomposers and mycorrhizae that help maintain complex ecosystems ranging from forests to agricultural crops. The fungi kingdom is vast. It's estimated that we know only 5% of the planet's 2.2 - 3.8 million fungal species. Fungi belong to a separate biological kingdom to that of plants. Interestingly, they are more closely related to us as humans, than to plants. Fungi grow in a huge range of habitats and vary widely in size, shape, colour, edibility and in some species, toxicity. Like humans, fungi are heterotrophs - meaning they use food sources for energy. Most fungi are saprophytes (grow on non-living organic matter). Others form mycorrhizae (such as mycorrhizal associations with plant roots) or have a parasitic relationship with living organic matter.

Fungi growth cycle

Distinct from plants and animals, fungi grow via spores (similar to the seeds of a plant). These spores form threads, called hyphae that mature into mycelium. Mycelium is visible as fine, white strings on decomposing organic matter, either underground or within a host. When conditions are right, the mycelium forms a mushroom, which is the fruiting body of the mycelium. The mushroom appears above the surface and releases spores to continue the growing cycle.

Commercially produced mushrooms:

95% of mushrooms consumed in Australia are *Agaricus bisporus*. This species includes common store bought varieties like white button mushrooms, cremini, B&B's and their brown variety, which are brown and portobello. Each year, Australian mushroom growers produce around 63,000 tonnes of *Agaricus bisporus* mushrooms, which are predominantly used through supermarkets.

Scientific name: *Agaricus bisporus*

Feeding mode: Saprophytic (grows on non-living organic matter)

Further information:

- Australian mushroom farmers grow *Agaricus bisporus* on pasteurised compost, which is produced in highly controlled conditions.
- Agaricus bisporus* spores, is propagated in a commercial laboratory and added to the compost.
- Mycelium forms, and mushrooms start to grow within a few weeks.
- Agaricus bisporus* is grown on beds made specifically designed and enclosed growing rooms, where farmers control and optimise the environment specifically for the species.
- Once progressed the growing cycle is very quick, taking just 6 weeks to produce these 'Buds' of mushrooms.
- Mushrooms are harvested by hand, one by one. They are placed in a box, and immediately chilled.
- When the growing cycle is complete, the rooms are completely cleaned out and sanitised, ready for the next crop.

Poisonous, wild mushrooms:

Wild fungi produce a range of compounds, some of which can cause serious illness or even death. The deathcap mushroom (*Amanita phalloides*) is responsible for most fatalities from mushroom poisoning in Australia and around the world. *Amanita phalloides* is a different species to *Agaricus bisporus*, requiring a different feeding mode. However, it is visually similar to the edible variety. **Do not touch wild mushrooms, as they can be toxic to livestock.** It is simply not worth the risk.

Scientific name: *Amanita phalloides*

Feeding mode: Symbiotic (forms mycorrhizal associations with specific trees)

Further information:

- Amanita phalloides* is a deadly mushroom and can cause severe liver and kidney damage.
- It is highly toxic and a single mushroom can be fatal to livestock.
- Poisonous mushrooms are only found in the wild. There is a serious risk of illness or even death if toxic mushrooms are mistakenly picked and consumed. If in doubt, don't!

The only mushrooms you can be sure are safe are those sold at trusted retailers.

CLICK TO DOWNLOAD: <https://australianmushroomgrowers.com.au/wp-content/uploads/2023/10/092123-AMGA-Factsheet-FINAL.pdf>

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FAQ's

Q: If I use an app to identify the mushrooms I pick from the wild, will they be safe to eat?

There is a myriad of mushroom identification apps available, however it can be difficult to use only a photo as a method of identification. Apps can be used to help conversation about mushroom identification, but we strongly advise against using an app to identify if a mushroom is edible. It's not worth the risk.

Q: How do I know that other types of mushrooms won't grow in the school mushroom kit?

The kits provided have been assembled on a commercial mushroom compost facility, which supplies substrate to large scale commercial mushroom farms. The compost process includes a pasteurisation process with heat up to 70 degrees. This process eliminates human pathogens and competing fungi, providing a nutrient dense organic material ready to be spawn run.

Spawn is the vegetative form of the mushroom, known as the mycelium, which has been grown on sterilised grain. *Agaricus bisporus* spawn is sourced from a specialised commercial laboratory (of which there are only two in Australia). This highly controlled process relies on impeccable hygiene and it's tested to confirm it is free from microbial contaminants.

Q: Could 'death cap' mushrooms grow on a mushroom farm?

Absolutely not.

It is biologically impossible for *Amanita phalloides* (commonly known as 'death cap' mushrooms) to grow on a commercial *Agaricus bisporus* (commonly known as white and brown mushrooms) farm.

Why? **Because they are completely different species.**

Amanita phalloides are symbiotic mushrooms, meaning they will only grow near a tree, as it gives and receives nutrients from that tree.

Agaricus bisporus are *saprophytic* mushrooms, meaning they grow by using organic matter as a food source.

Amanita phalloides will not grow on compost produced specifically for *A. bisporus*, as it needs a different environment.

It's a bit like putting a polar bear in a eucalyptus tree and expecting it to survive!

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Q : How do you pronounce the species name?

Agaricus bisporus: “Ah-gary-kus Bye-spore-us”

Amanita phalloides: “Am-in-knighta fell-oi-dees”

Q: What’s in the compost?

In Australia, the growth medium used for growing *Agaricus* is a compost made primarily from wheat straw and poultry litter. The formulation and process used for compost production is backed by decades of research and practical experience.

The compost process includes a pasteurisation process with heat up to 70 degrees for a long period of time. This process eliminates human pathogens and competing fungi, providing a nutrient dense organic material that is safe to grow mushrooms.