

WE ARE MYCELIUM

This resource has been produced for About Us as part of UNBOXED: Creativity in the UK.

This interdisciplinary resource brings together creative writing, literature and science: teachers can use it in the classroom to explore literary techniques in scientific contexts, and explore the creativity behind scientific themes. Older students can use the resource in their own time to further their reading and generate ideas for poems of their own.

CURRICULUM LINKS

England:

English: Writing & Reading
Composition
Science: Ecosystems,
Photosynthesis & Cell
Biology (KS4)
Key Stages: KS4, KS5

Northern Ireland:

Language & Literacy:
Writing & Reading
Science & Technology:
Organisms & Health
Key Stages: KS4, KS5

Scotland:

Languages: Literacy
& English – Writing &
Reading
Science: Planet Earth
Level: Senior Phase

Wales:

Languages, Literacy
& Communication:
Literature
Science & Technology:
Being Curious, The World
Around Us
Progression Steps:
PS5, A levels

AGES 14–18

Topics

- mycelium
- symbiosis – trees and mushrooms
- ecosystem
- climate change
- sustainability and our future

Literary features

- tenses – past simple and present continuous
- voice – first person plural
- repetition (anaphora)

This resource looks at Brooke Nind's poem 'Mycelium Under the Canopy', which was a winning poem in a previous Poetry Society young poets competition on poems to solve the climate crisis. In the poem, Nind explores mycelium and its contribution to the ecosystem. The resource contains discussion and writing prompts for young people to engage with the text and create their own poem in response.

GETTING STARTED

The poem you are about to read is all about mycelium, a mass of branched filaments that are part of fungi. The poet reflects on how mushrooms contribute to the ecosystem, and the symbiotic relationships they form with trees. Have you heard the word 'symbiosis' before? What do you think it means?



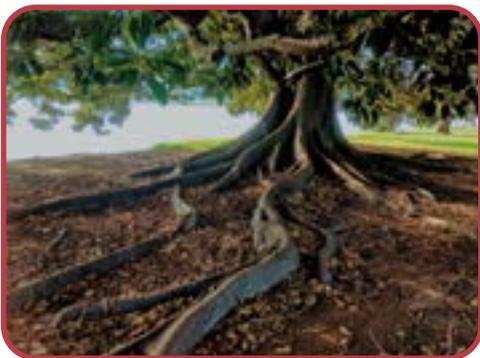
KEY INFORMATION

Mycelium is the **vegetative** part of a fungus (in biology, the term 'vegetative' relates to asexual reproduction or propagation). It consists of a network of threads known as **hyphae**. These threads spread underground, helping other organisms to communicate and carrying nutrients.

Mycelia are integral to the ecosystem because they form symbiotic relationships with other plants. **Symbiosis** is the term used to describe a close interaction between two different organisms, often (although not always) in a way that is beneficial to both organisms.



Mycelium is the perfect example of this. It develops **enzymes** to break down plant material, releasing the nutrients into the soil. In this way, mycelium's contribution to the decay of organic matter helps the cycle of the ecosystem, whereby decomposition of one organism feeds into the life of another. In addition to this, mycelia distribute nutrients throughout their network, make the soil healthier by breaking down toxic substances and filtering water, and can even support a host plant's immune system. In fact, it is estimated that more than 90% of plant families interact with fungi.



Have you heard of 'talking trees' (and no, we don't mean in a Lord of the Rings way)? Trees use mycelium to communicate with one another through their roots, in what is known as a **mycorrhizal network**. The fungus enters the tree's roots, either moving between its cells (an 'ectomycorrhizal network') or within its cells (an 'endomycorrhizal network'). This allows the fungus to benefit from the glucose the tree produces during the **photosynthesis** process, while the tree benefits from the nutrients – nitrates and phosphates – that the fungus absorbs from the soil.

What's more, trees share resources with other trees using the mycelium. In this way, younger trees benefit from more established trees. Trees can use mycelium to gauge how far away other trees are and when to give one another a bit of space!

DID YOU KNOW?

- The biggest mycelium recorded is in the Blue Mountains in Oregon, USA. It is over 2,000 acres in size, making it the largest organism on the planet.

Lots of this information came from [Micropia](#), a museum of microbes. You can find out more about mycelium on their website [here](#). If you're interested in understanding mycorrhizal networks in greater detail, here's a short [video](#) from the BBC, or a much longer [TED talk](#) by ecologist Suzanne Simard.

NOW LET'S THINK ABOUT THIS TOPIC IN THE FORM OF A POEM...

Here is 'Mycelium Under the Canopy', by Brooke Nind

MYCELIUM UNDER THE CANOPY

Under the canopy we planted trees and mushrooms—
the mushrooms sang, nutrients pooling
around them, humus darkening in delight.

Under the canopy the trees and mushrooms worked
in tandem, pushing water through the dirt,
underground transportation.

Under the canopy the mushrooms bore fruit,
bore our burdens, bore everything.

Under the canopy we cut open our houses,
found mushrooms, rolled them in our palms.

Under the canopy we dug a ditch, clawed
into the earth and found mycelium, dipped
our fingers into cleansed water.

Under the canopy we cried over oil spills,
sent mushrooms to the shore to absorb
the chemical pains of the thickened waters.

Under the canopy we dreamed of mushrooms,
grown thick and fluffy like marshmallows – they latched
onto our worries, decomposing them while we slept.

Brooke Nind originally wrote this poem for a challenge on The Poetry Society's Young Poets Network in partnership with People Need Nature, 2021.



DISCUSSION POINTS

- This poem was written in response to the prompt 'poems to solve the climate crisis'. How do you think creativity, and specifically language, can help us respond to climate change?
- An important theme in this poem is connectivity. How is this explored in the context of the relationship between trees and mushrooms? Think about the mycelium network transporting nutrients.
- Do you think this idea of connectivity or cooperation is relevant to how we respond to the climate crisis? Can we learn from nature in some way?
- 'Mycelium Under the Canopy' is written in the first person plural ('we') voice. Who do you think the 'we' in the poem is? Why has the poet chosen this voice and what effect does it have on the reader?
- Look at the verbs. Some are in the simple past tense ('planted', 'sang') while others are in the present continuous tense ('darkening'). Highlight all the past tense verbs in one colour, and the present continuous verbs in another. What is the effect of combining tenses in this way? Thinking particularly about climate change, how do actions that have been completed in the past relate to actions that are ongoing?
- The poem uses repetition, and specifically anaphora, which is when the same word or phrase is repeated several times at the beginning of successive sentences. In this example, the phrase 'Under the Canopy' is repeated. A canopy can mean the uppermost layer of branches in a forest, or a cloth that hangs over a bed. What is the relationship between the forest and sleep in this poem?
- The poem mentions humus, dirt, earth, digging and decomposing. Are these things you would expect to see celebrated in a poem? In what way is decay represented as a good thing?



- Consider the phrase 'darkening in delight'. Can you find any word play in it? Which word can you spot within 'delight'?
- Can you draw a comparison between mycelium and the art of poetry? The mushrooms are said to 'sing', they 'decompose' our worries. How does this poem explore the relationship between organic decomposition and poetic composition? Bearing in mind what we learned earlier about trees using mycelium to communicate, do you think mycelium could be considered analogous to language?

WRITING YOUR OWN POEM

'Mycelium Under the Canopy' reflects on the relationship between trees and mushrooms, and the way that each plays a role in nurturing the other. Can you think of another example of a symbiotic relationship in nature and write about it?

You could think, for instance, of bees gathering nectar from flowers and helping to spread pollen in the process. Or you could consider buffalos and oxpeckers (a type of small bird): the oxpeckers help remove parasites from the buffalo, and the buffalo provides food for the oxpeckers in the form of those parasites. Think about how you could structure your poem in interesting ways to experiment with the ideas of duality or cycles of life – can your poem be a conversation between two organisms? Can you use rhyme or repetition to make your poem loop back on itself?



MORE IDEAS FOR POEMS

Write a poem in celebration of mud. Think about how it is formed and why it is useful. Think about what it feels and smells like. Perhaps you used to play in mud when you were little (perhaps you still do!). Perhaps you enjoy gardening. What is it about being connected to the earth that appeals to our imaginations?

OR



Write a poem about mushrooms. Remember to think about all the senses mushrooms appeal to: they can be all sorts of weird and wonderful shapes and colours. What do they feel or taste like? Can you focus on a specific kind of mushroom? Look up the names of some mushrooms, choose one of the following and see where your imagination takes you:

- Portobello mushrooms
- Crimini mushrooms
- Oyster mushrooms
- Black trumpet mushrooms
- Hedgehog mushrooms

NEXT STEPS

For more poetry opportunities, check out Young Poets Network, The Poetry Society's free online platform for poets worldwide up to the age of 25. You'll find features, challenges and competitions to inspire your own writing, as well as new writing from young poets, and advice from the rising and established stars of the poetry scene. youngpoetsnetwork.org.uk

About this project

About Us is one of ten commissions for UNBOXED: Creativity in the UK. The project explores the infinite ways we are connected to the universe, the natural world and one another. A major live show toured the UK in spring 2022.

59 Productions is an award-winning design studio and production company who created the breath-taking video design for the London 2012 Olympic Opening Ceremony. Stemettes is an award-winning social enterprise working to bring young women and non-binary young people into Science, Technology, Engineering and Maths (STEM) careers. The Poetry Society is an Arts Council England National Portfolio Organisation and is one of the UK's most dynamic arts organisations, championing poetry for all ages.