

WE ARE CELL TISSUE

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 to 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: Working Scientifically, Cell Biology (AS & A level)
Key Stages: KS4, KS5

Northern Ireland:

Science & Technology: Biology (AS & A level)
Key Stages: KS4, KS5

Scotland:

Sciences: Biology (Advanced Higher)
Level: Senior Phase

Wales:

Science & Technology: Biology (AS & A level)
Progression Steps: PS5, A levels

AGES 14–18

Topics

- epithelium
- cells and their functions
- Surrealism

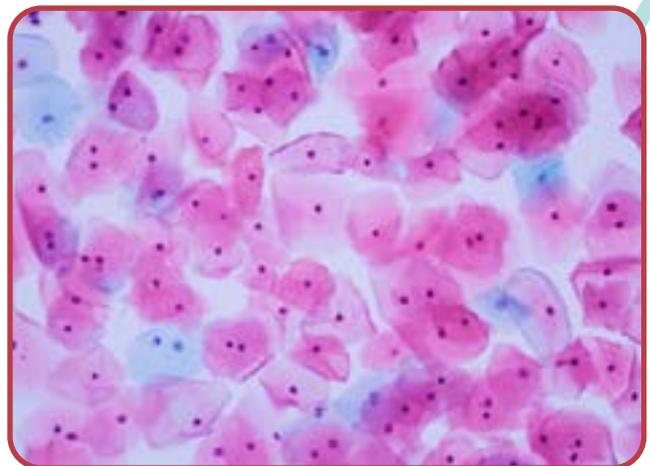
Literary features

- word association
- similes and metaphors
- enjambment

This resource looks at Kitty Joyce's poem 'Epithelium', which was a winning poem in a previous challenge for young poets on The Poetry Society's Young Poets Network, 2021. In the poem, Joyce uses word association and figurative language to evoke the structure of cell tissue, specifically epithelium. The resource contains discussion and writing prompts for young people to engage with the text and create their own poem in response.

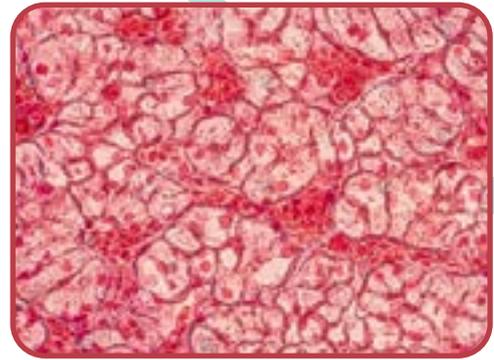
GETTING STARTED

The poem you are about to read is all about epithelium, a type of cell tissue. What do you know about cell tissue already? Can you name some different types of cells? Can you name the parts of cells? Why do you think they are called cells?



KEY INFORMATION

Epithelium is a type of animal tissue made up of densely packed cells that form a continuous sheet, lining the body's cavities and vessels. It is one of four types of animal tissue – the others are vascular, muscular, and connective tissue. Epithelial cells rest on a **basement membrane**, like a foundation layer on which the epithelium is built.



Epithelial cells have a range of functions in the body:

- they can act as a **protective layer**, shielding the underlying tissue from radiation, toxins, pathogens and trauma
- they can **secrete** substances e.g. they release hormones into the circulatory system, and they also secrete sweat, mucus, and enzymes
- they can **absorb** substances e.g. the epithelial cells in the digestive tract can absorb water and digested food
- they allow us to **sense** outside stimuli
- they facilitate **transcellular transport** – when substances are transferred through cells, rather than in between them



Can you think of metaphors that might help you to visualise the functions outlined above? For example, epithelial cells could be compared to washing up gloves in the way they offer a protective layer.

Epithelial cells are **squamous** (thin and flat – shaped like a bungalow), **cuboidal** (cube-shaped – think of a detached house), or **columnar** (long and thin, like a block of flats) in shape. Epithelium that is only one layer of cells thick is **simple epithelium**, while if it has more than one layer it is called **stratified epithelium**.

Pseudostratified epithelium is simple, one-layered epithelium that is arranged in such a way that it looks like it has more than one layer. This is simple epithelium in disguise.

DID YOU KNOW?

- The word 'squamous' comes from the Latin word 'squama', which means 'the scale of a fish or serpent' – think of the way a snake's scales are packed very tightly together. Similarly, epithelial cells have almost no gaps between them.
- 'Strata' (where 'stratified' comes from) means a layer – you might have heard the word used in relation to rocks, which are also layered. 'Strata' is sometimes used in a societal sense – have you heard the term 'social strata'? – and sometimes in a culinary sense, where a 'Strata' dish is one made of layers.



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

Here is 'Epithelium', by Kitty Joyce

EPITHELIUM

Liminal: fairy-blue, like the spaces between diagnoses.
The centre of a trembling that hollows out a city, or a marriage. Organza petticoats made from blackbird feathers and staples. The curve of a tongue on the back of the word *lullaby*. The writhing of mango skins in water as seeds float frost-like on the surface. Bitter yarn untied between orange segments. The butterfly layer of a French-kissed postage stamp. A half-sonnet stretching the full length of a robin's tombstone. A band of white light past the horizon. Music, and the hitch between one note and another.



Kitty Joyce originally wrote this poem for the Human Cell Atlas challenge on The Poetry Society's Young Poets Network in 2021. That challenge was created in partnership with the Newcastle Centre for Literary Arts (NCLA) and One Cell At A Time, part of the Human Cell Atlas

DISCUSSION POINTS

Read the poem and spend a few moments thinking about it. You could try reading it aloud – pay attention to the rhythm as you go, and note which lines run into the next line, as if they want to run away faster than your tongue.

Think about the following discussion points. You could talk to a partner about them or, if you're using this resource independently, jot down some ideas.

- What is the relationship between the title and the rest of the poem? Without the title, would you know what the poem is about?
- What do you think about the poem's opening word? Look up 'liminal' if the word is new to you. Why is epithelium described as liminal?
- This is a very **sensory** poem. Which senses do you think are awakened by the poem – do you have an impression of textures, tastes, sounds?

- You might have played a word association game in the past – it's when one person says a word, and the next person responds with the first word that comes into their mind and so on. If you haven't played it before, try it now! Some starter words you could use are: cells, tissue, membrane, structure, strata, absorb, protect, secrete.
- This poem is constructed around a similar idea. It is an example of an '**associative word poem**', where the poet has begun with the word 'epithelium' and created a series of images connected to the starter word, or to one another. Each image in the poem then acts as a **simile** or **metaphor** for epithelium. Can you make the connections between the images and epithelium, explaining how the different images represent epithelium?
- Can you find the connections between one image and another? How is marriage connected to petticoats? How is a feather or a staple connected to a curve?
- Associative word poems are structured around a series of connections. In what way could the same be said for epithelium and its role in the body?
- What is the effect of the word association technique? Think about the **rhythm** of the poem. There are very few active verbs – how does this affect the pace and flow of the poem?
- Identify any instances of **enjambment**, which is when a thought, phrase or sentence runs over from one line into the next. Is enjambment also a way to connect things? How?



EXTENSION ACTIVITY



There's lots of room for creativity in word association. In fact, it's a technique that was often used by Surrealist artists and writers as a form of **automatism**, an approach to writing that aims to access the subconscious.

Surrealism makes unexpected connections between different images and thoughts. For example, if you look at a [painting](#) by Salvador Dalí, or a [poem](#) by André Breton, two famous Surrealists, you can see how they bring together different images that might not feel, at first glance, as though they belong together. What is the effect of this? Does it make you think about these things differently?

Do some more research into Surrealism and the artists associated with it. Think about how the idea of connectivity relates to their expressed desire to 'express...the actual functioning of thought...in the absence of any control exercised by reason, exempt from any aesthetic or moral concern.' (André Breton, Manifeste du surréalisme [Surrealist Manifesto], 1924).

What do you think is the relationship between the surreal, the unreal, and the real? Does exploring unexpected connections change our perception of reality?

WRITING YOUR OWN POEM

Write your own associative word poem. Pick another part of the human body as your starting point – the more specific and obscure, the better! Start by writing a list of everything that comes to your mind when you think of your chosen starter word. Spend three minutes listing these.

Go back to your list and underline any images that surprise you. Why are these connections surprising?

Select a few of the images and work them up into a poem, thinking carefully about how to describe each image using language that appeals to the senses and captures the reader. Think about the structure of your poem – do you want to use enjambment to link one line to the next, as Kitty Joyce does? Perhaps you can use rhyme to make connections, or have a refrain that repeats throughout the poem? If you really want to challenge yourself, try writing a [villanelle](#) or a [sestina](#).

Or, write a poem exploring the interconnectivity of cells and how they function with the body. Can you find a metaphor and extend it to reflect on the theme of connection? You could, for example, write about cells as daisy chains, Lego blocks, or jigsaw pieces. Perhaps the human body is a transport network or the internet. Perhaps it's the solar system.

For more inspiration about using word association to think about cells and the body, check out the [Human Cell Atlas ideas](#), run by Young Poets Network.



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.