



Letterbox Science

Teacher's Document

DESIGN BY ELLIE SHIPMAN



UNIVERSITY OF
CAMBRIDGE

Gurdon
INSTITUTE



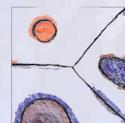
The resources for the Letterbox Science project have all been created by the team at the Wellcome and Cancer Research UK Gurdon Institute, Cambridge University, in collaboration with artist Ellie Shipman.

To see more of Ellie's work, visit www.elliesshipman.com



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SCHOOLS ENGAGEMENT AT THE GURDON INSTITUTE

Letterbox Science

The Gurdon Institute is committed to delivering valuable public engagement work that makes our biological research accessible and responsive to the public.

We use the term 'public engagement' to describe the myriad of ways in which our work can be shared with the public, from school workshops to festival open-days to local book clubs and community events.

EMPOWER AND
INSPIRE THE
NEXT
GENERATION

Working with schools makes up a large (and crucial!) part of our engagement programme. Our aim is not necessarily to

convince young people to pursue a career in science, rather to encourage their curiosity, and show that science is for everyone (whether that means working in one of our biology labs in the future, or simply feeling able to turn to science as a tool to answer questions and make decisions).

We also believe that children and young people can have a valuable contribution to our work. Our researchers who have taken part in our schools programme say time and time again that talking with children and young people helped them to see their own work in a way that they hadn't before.

To find out more about our public engagement work and our schools programme, visit www.gurdon.cam.ac.uk/public-engagement

THE PROJECT

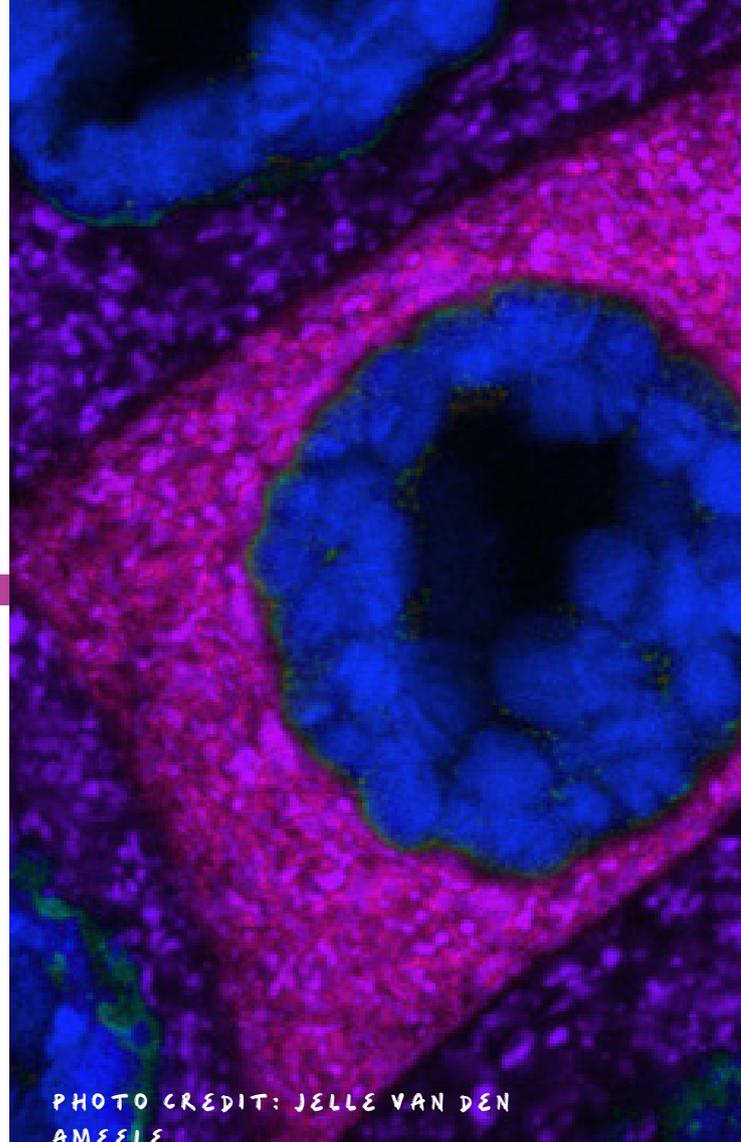
Letterbox Science

Letterbox Science is a project aiming to engage people of all ages and backgrounds with the work going on in our labs at the Gurdon Institute.

The project is the work of two PhD students, Anna Klucnika and Eleanor McCartney, both currently working in the Ma lab group.

REMOTE,
ACCESSIBLE &
ENGAGING

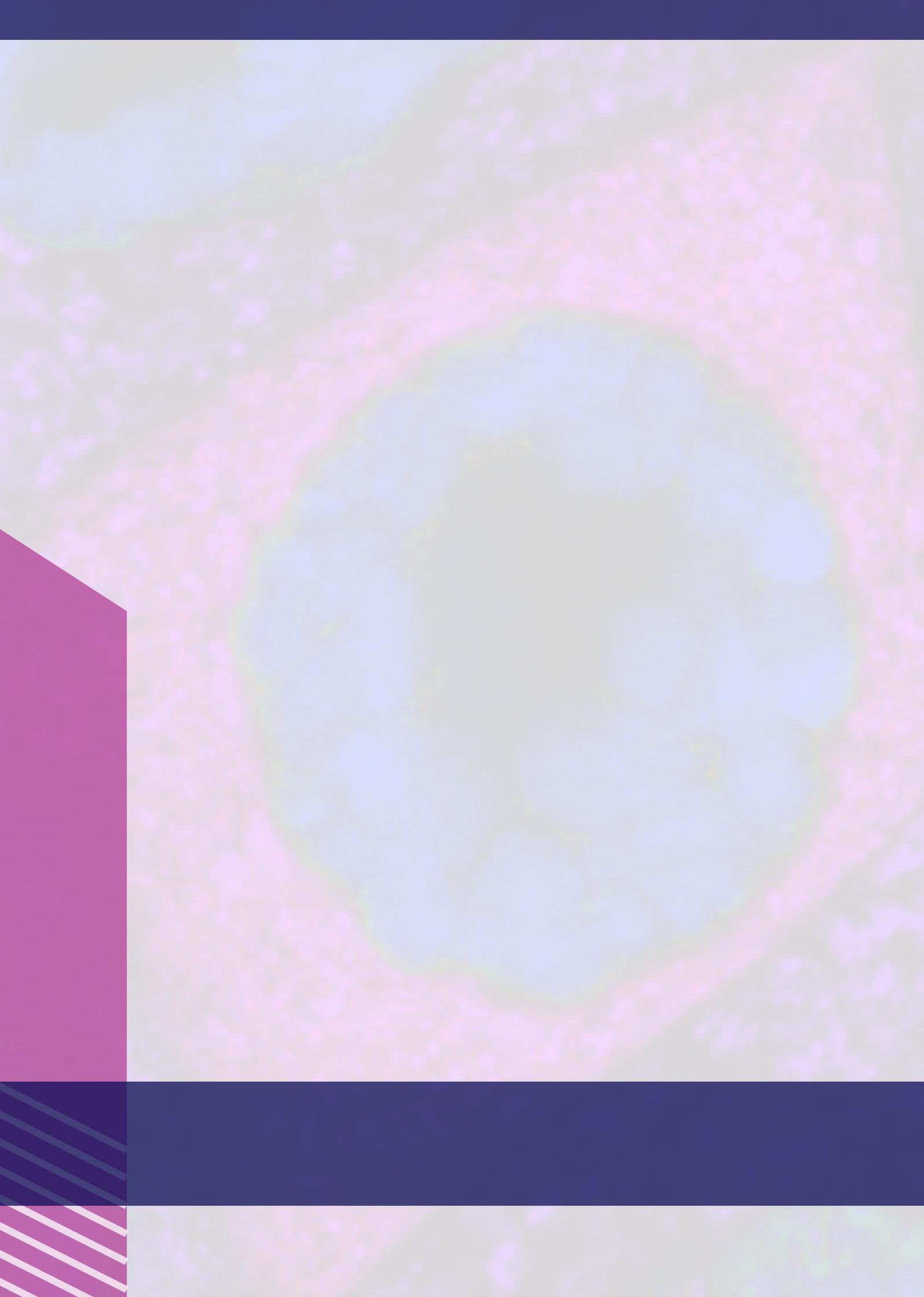
They wanted to address an inequality in the way that we engage people with research, often relying on digital and online resources to reach people. They hoped that, by creating something that is remote but non-digital, they would be able to reach new audiences and bring more voices



into the conversation around research.

In order to do this, Anna, Eleanor and the institute Public Engagement Team created three postcards themed around the work done by our researchers, and beautifully illustrated by artist Ellie Shipman.

We hope that these postcards will be used as a means of communicating and facilitating conversations about the work that we do.



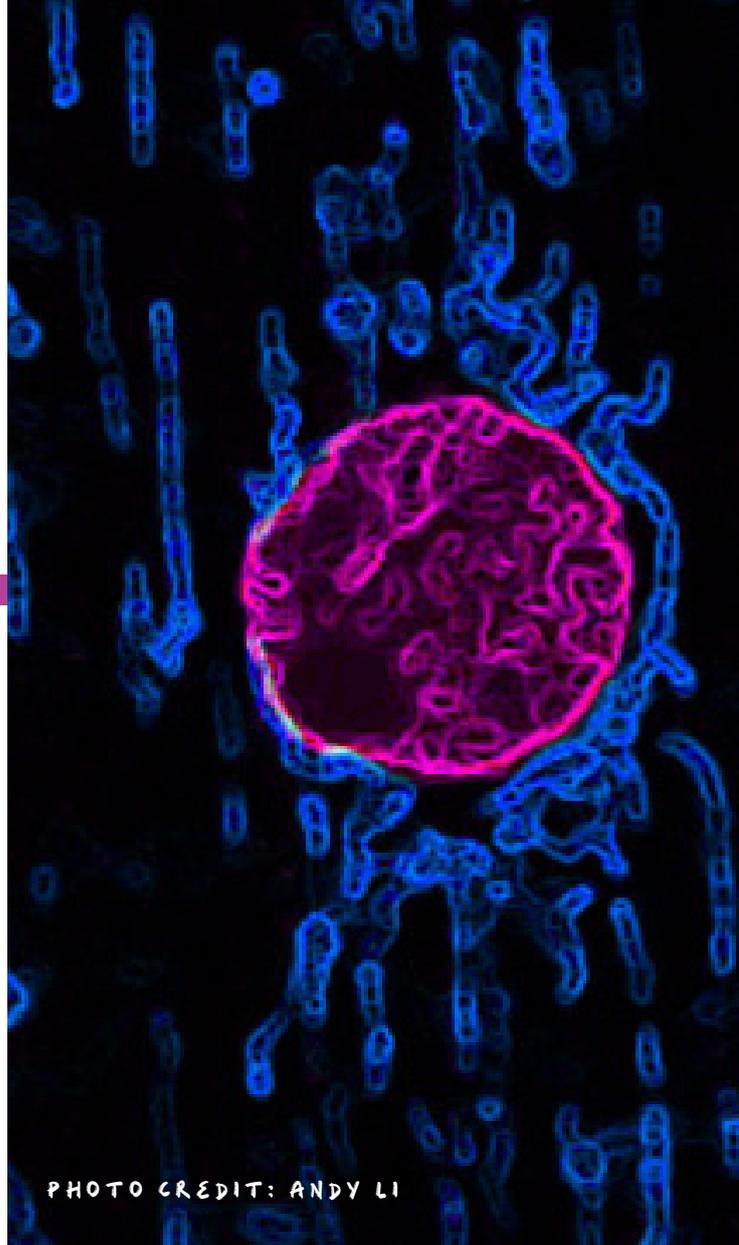
THE RESOURCES

Letterbox Science

The Gurdon Institute Public Engagement team will send a package with postcards featuring illustrations and real microscopy images captured by researchers working in labs at the institute.

There will also be a postcard with a prompt that participants can use to share their thoughts with us about what they would like biologists to investigate. This can be something short-term, or something more ambitious for the future. Please gather the response postcards and send them back to us using the pre-paid envelope provided.

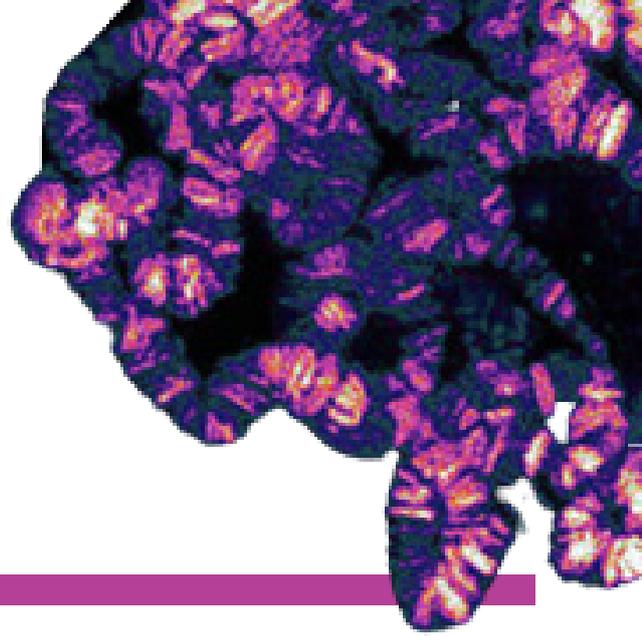
We have also provided some suggestions on the following page of discussion prompts that can be used to explore the ideas further.



If you have an idea for how we could facilitate your group's involvement with the project, please do not hesitate to get in touch and we can discuss the options. Our Public Engagement Team are always looking for new ways to open the discussion about our research to new audiences, so we would be delighted to hear from you.

LESSON IDEAS

Letterbox Science



We have listed some ideas of how the topics shown in the postcards can be used in class to help discuss biology and what makes up our bodies, but the list is by no means exhaustive.

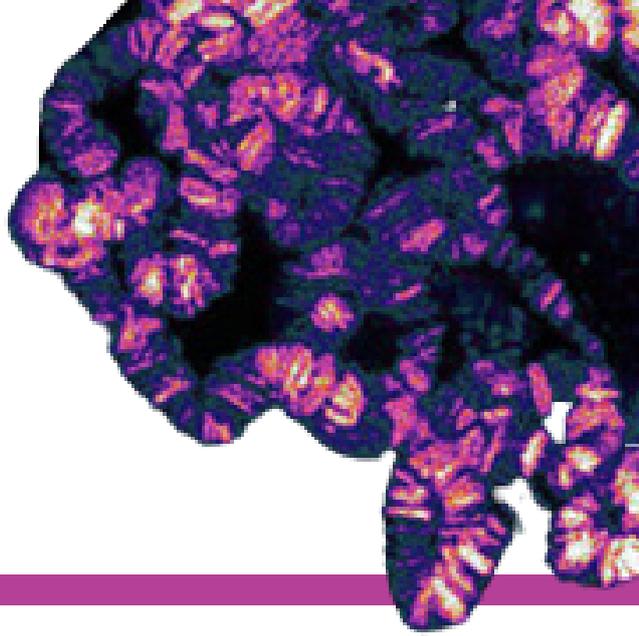
CELLS

Did you know our bodies are made of trillions of tiny cells?

- Your body has over 30 trillion cells! What do you think 30 trillion looks like written out using numbers?
 - 30,000,000,000,000 - it's great to write it out on the board to show just how large that number is!
- The picture shows one kind of cell - do you think all cells are the same? Why might they look different?
 - There are lots of different kinds of cell that all do different things in your body - for example muscle cells that help you to move, neurons (brain cells) to help you think, skin cells to protect all the important things inside your body!
- It is not just humans that are made of cells, **all** living things are! What other types of living thing can you think of?
 - Explore what things are living (and therefore made of cells!) and which are not. This could be done as a sorting game with a list/collage/tray of living and non-living things.

LESSON IDEAS

Letterbox Science



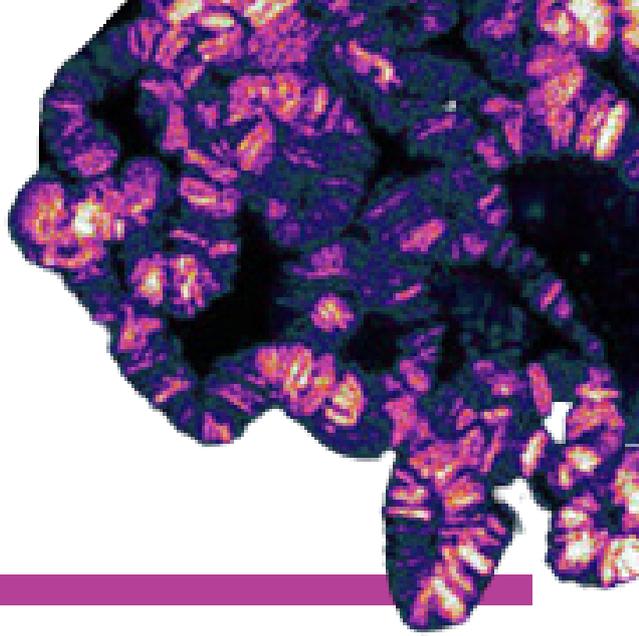
DNA

DNA contains a code that instructs each cell in our body what its job will be, for example a muscle or skin cell.

- The artwork on the DNA postcard shows lots of body parts that your DNA helps build. Can you recognise any of the body parts? Do you know what they do?
 - Pick out some of the more obvious body parts and discuss what they do - e.g. lungs for breathing, heart for pumping blood around the body, brain for thinking!
- DNA has a very special shape (discovered by scientists right here in Cambridge!). You could try building some using Lego/paper/straws and blue tac!
 - Our favourite way to build DNA strands is using sweeties! (Search Science Buddies video on Youtube named "Make a Candy DNA Model" to find out how)
- DNA is responsible for the different traits we all have, such as our hair colour, eye colour, height, whether or not we can roll our tongue.
 - Exploring this is a great way to introduce maths and data skills, by getting the class to create bar charts/pie charts/scatter diagrams etc. using data they collect.

LESSON IDEAS

Letterbox Science



MITOCHONDRIA

Did you know that mitochondria in our bodies provide us with energy?

- What do we all do to provide us with energy?
 - Talk about mitochondria being like tiny factories inside our bodies that release energy from the food that we eat.
- The artwork on the postcard shows two people - one in bed asleep and one jumping up with a superhero cape on!
 - Use the illustration as inspiration for your own artwork - how would you show someone feeling tired and then that person full of energy? What might someone full of energy be doing?

KEEP IN TOUCH!

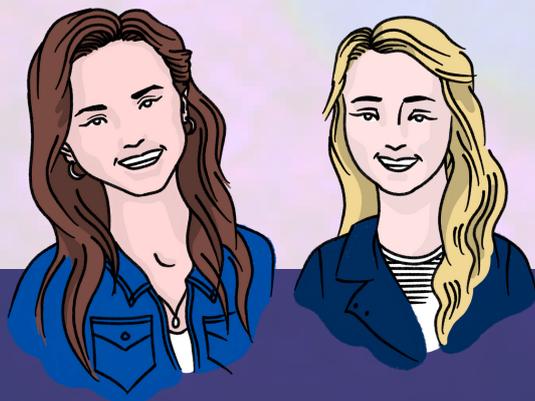
Letterbox Science

Your pack contains pre-paid postage that allows you to send your class's responses back to the institute.

Our scientists would love to hear what you would explore and investigate if you were biologists in our labs. We are always coming up with new questions and things we would like to discover, so your ideas could inspire the next way of scientific discovery.

By returning your postcards, you consent to the responses possibly being shared publicly on our website and social media channels (with the surnames removed of course!).

We can't wait to hear from you!





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