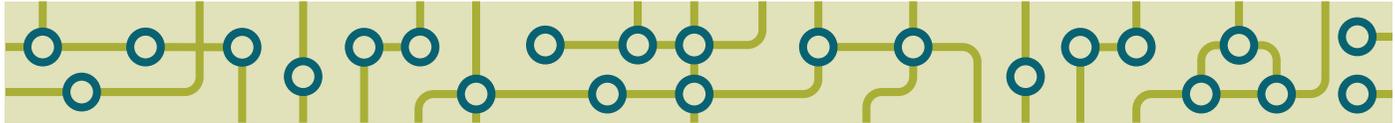




# Engineering Challenge

For upper Primary

Name: \_\_\_\_\_



Explore the Science and Technology Galleries and discover how everything around you has been developed, designed and made. Use what you learn to choose your favourite object in the gallery and show how you think that object could be changed and made better.

## Start on Level 5 – Energise

Scotland aims to produce 100% of its electricity from renewable sources such as wind turbines and solar panels by 2020.

We need people to work in engineering to make this happen.

Find the wind turbine blade section.

How many bulbs did the first wind turbine power?

\_\_\_\_\_

How many homes can a modern wind turbine power?

\_\_\_\_\_

## Go to Level 3 – Technology by Design

New technologies developed by people have allowed us to travel faster, further and cheaper. 200 years ago we had to rely on horses or walk.

Find the display of bicycles

Name of newest

\_\_\_\_\_

Year of newest

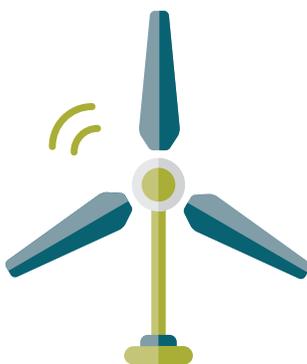
\_\_\_\_\_

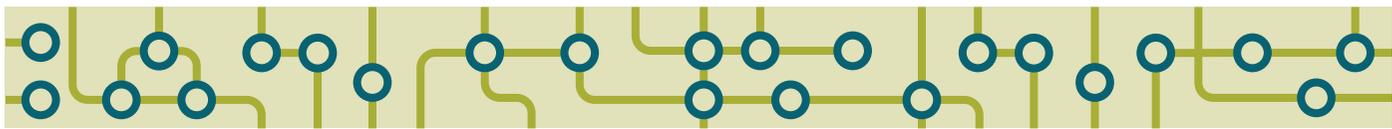
Name of oldest

\_\_\_\_\_

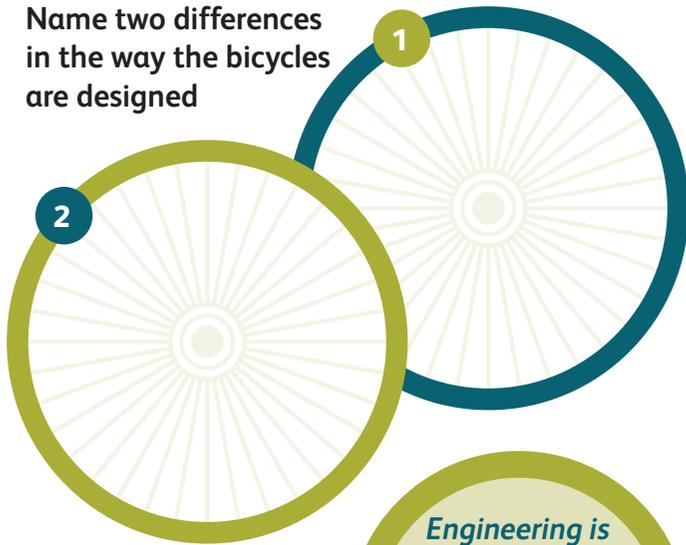
Year of oldest

\_\_\_\_\_





Name two differences in the way the bicycles are designed



*Engineering is all around us and we need engineers to make new things and solve problems*

Which engineer invented the rubber bicycle tyre with air in it that is called a pneumatic tyre?

**CLUE** Look for the statue of a person's head.

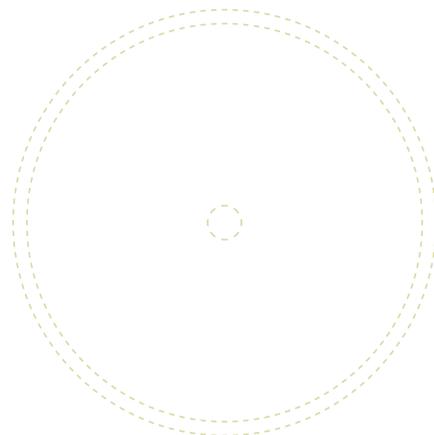
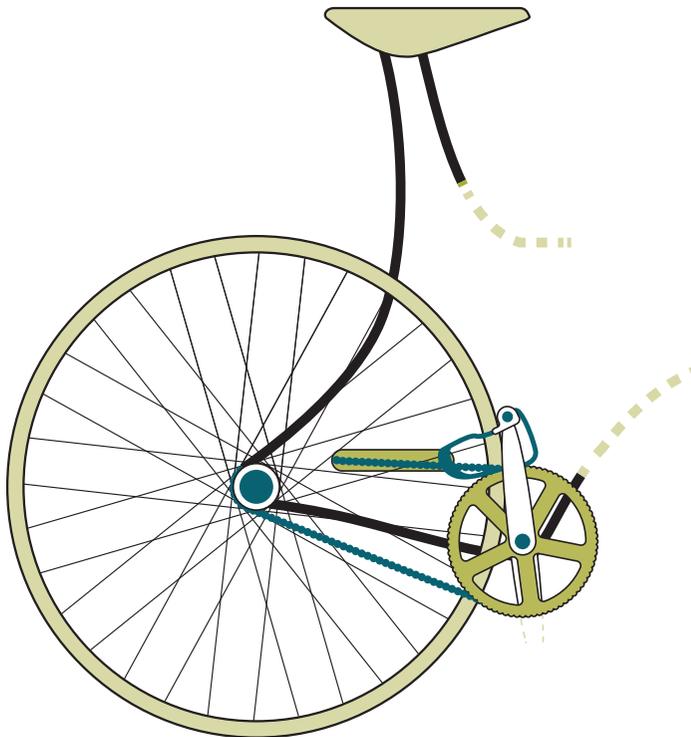
Look for the newer bicycles about you.

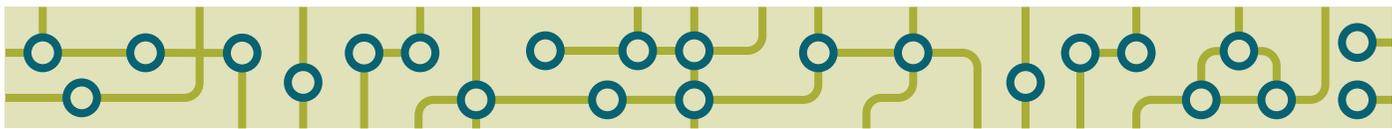
The newest bicycle here was made in 2000 from a material that didn't exist when the first bicycles were made.

What newer material is it made from?

C \_ \_ \_ \_ \_ F \_ \_ \_ \_ \_

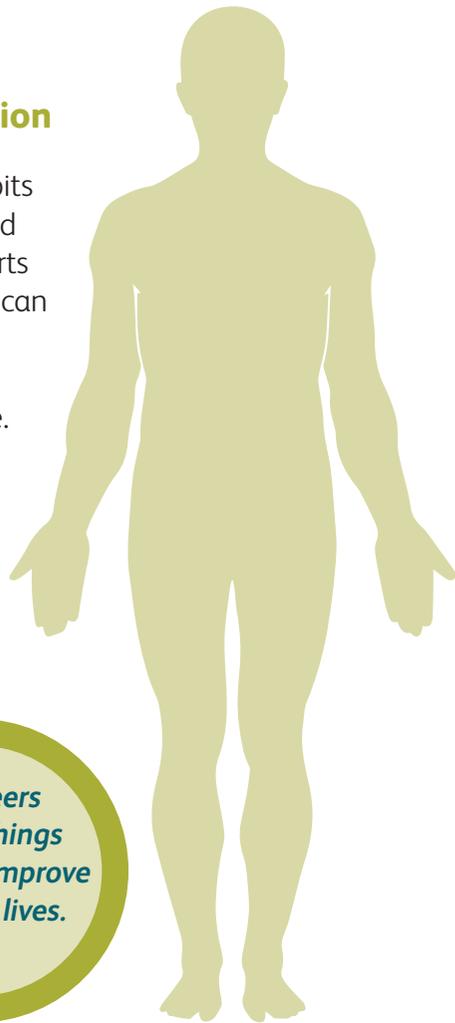
**Drawing challenge:** Can you complete the drawing below?





### Go to the Engineering Humans section

Look at the exhibits in this section and highlight four parts of the body that can be replaced by objects that we design and make.



*Engineers create things that help improve people's lives.*

### Find the wheelchairs.

What is the oldest wheelchair made from?

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Look very closely at it. Can you see two things that have been designed to make it more comfortable.

1 

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2 

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Now look at the newest wheelchair.

How is it similar to the newest bike you have just looked at?

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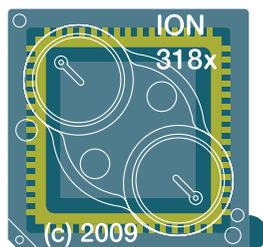
**CLUE** Think about modern materials.



### Go to Level 1 – Explore

Stand in the area near the inflatable balloons.

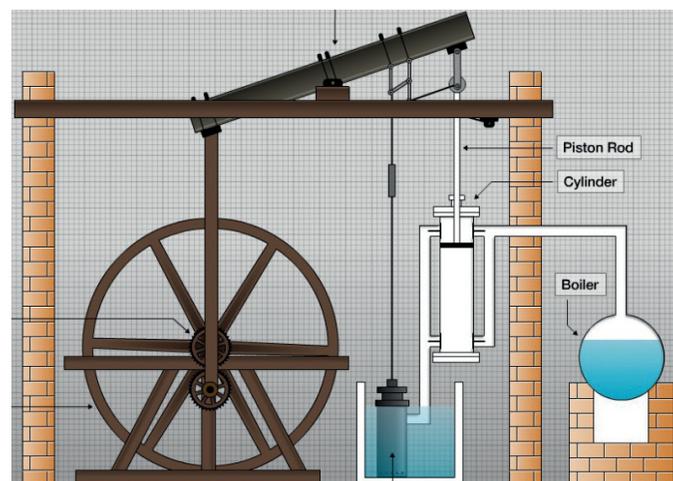
Engineering can be on a very big scale and can be quite old. Engineering can be on a tiny scale and be very new.



What is this called?

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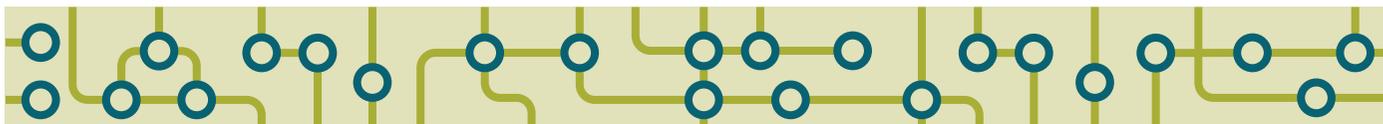
**CLUE** Look for some small electrical objects inside the glass case near Dolly the sheep.



What is this called?

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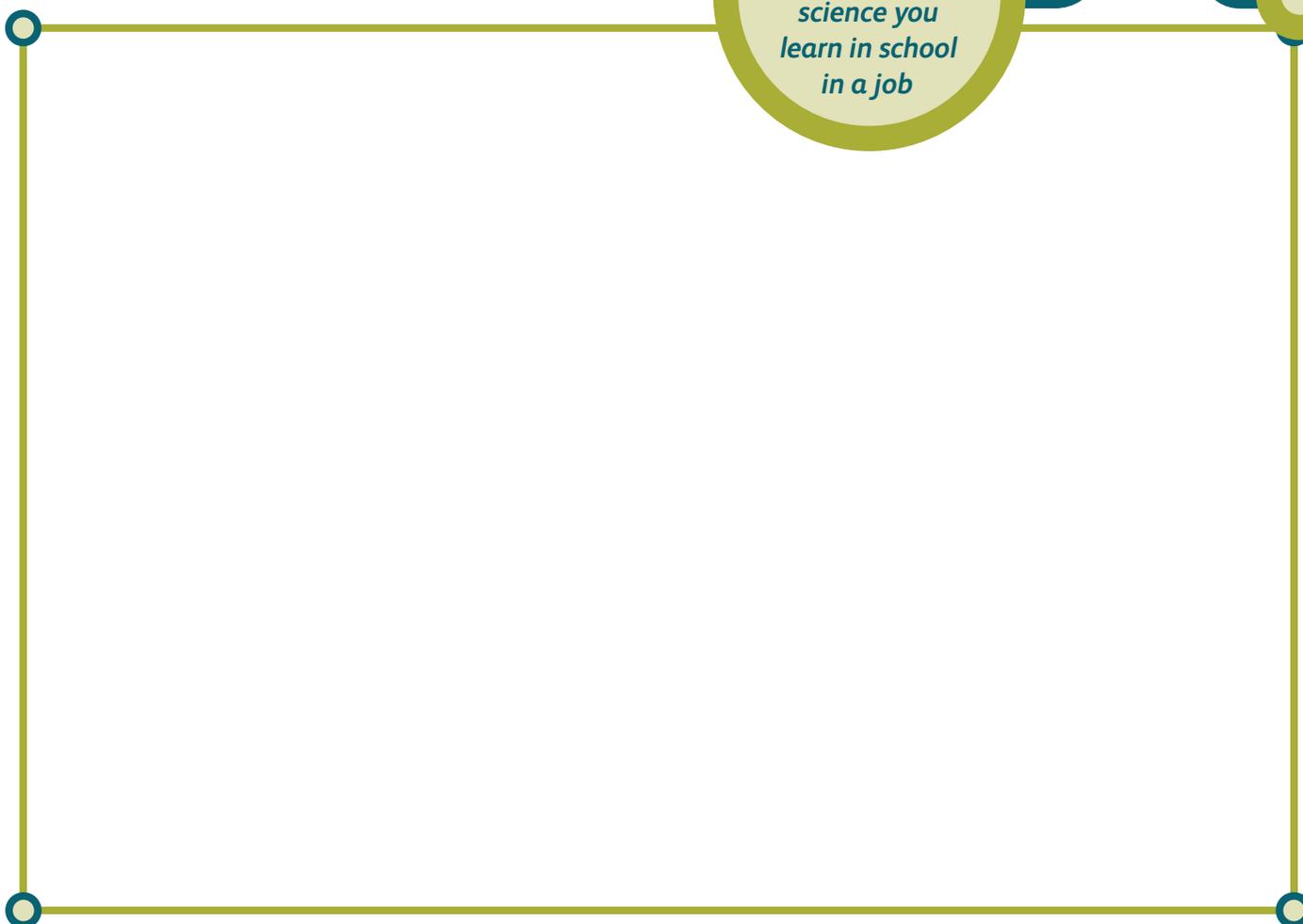




## Drawing challenge:

Draw your favourite object you've seen today and show how you would make it even better.

*Engineering lets you use the maths and science you learn in school in a job*



## So now you know more about: **Engineering**

Would you like to improve something that exists already or invent something new in the future that people want or makes their life easier? There are lots of different types of engineer including civil, chemical, mechanical and electrical. These are all jobs that you could do in the future.

Find out more at [www.myworldofwork.co.uk](http://www.myworldofwork.co.uk).

Find out what subjects you need to study at school, what skills you need, how many jobs there may be in the future and lots more.



National  
Museums  
Scotland

