

Monday 21st March 2022

LO: To discuss how scientists are a diverse group of people.



What is a scientist?

I think that a scientist looks like this.

I think that a scientist looks like this.

Where?

Male or female?

What are they doing?

What do they look like?

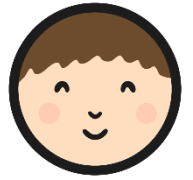
What are they holding?

Other detail

A cartoon illustration of a laboratory background. On the left, there is a sink with a faucet and two small bottles on a shelf. On the right, there are laboratory cabinets and a piece of equipment. The ceiling is a grid pattern. A large white rounded rectangle is centered on the page, containing the text.

What is a scientist?

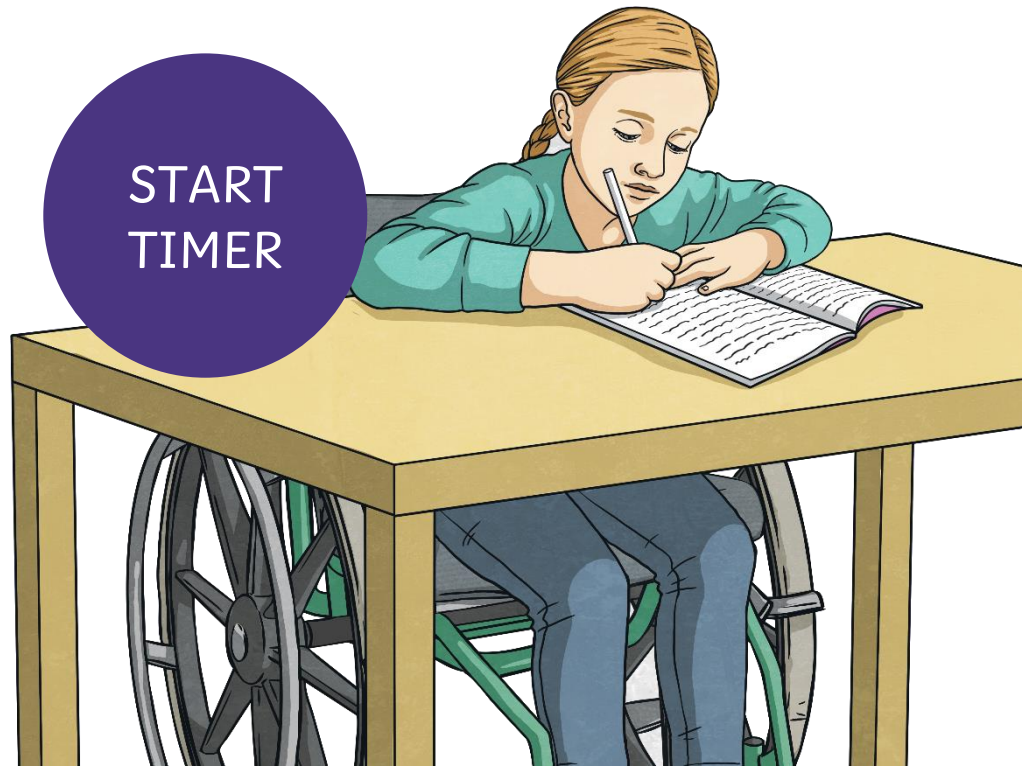
What Is a Scientist?



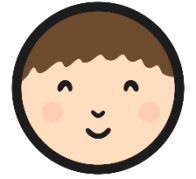
Using the [What Is a Scientist? Activity Sheet](#), write a definition of what a 'scientist' is. Then, draw a picture of what you think a scientist looks like. You have 5 minutes.

TIME'S
UP!

START
TIMER



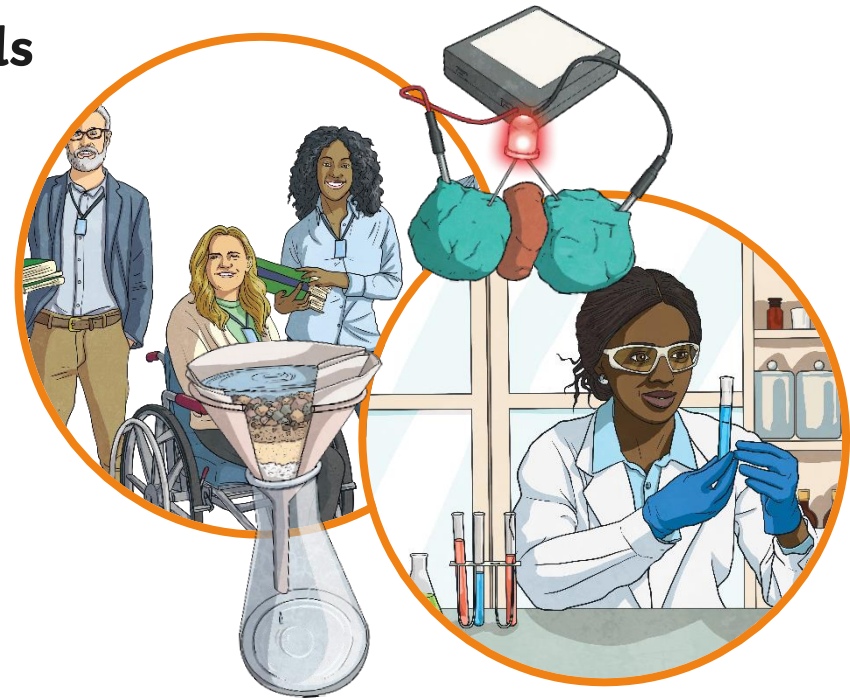
What Is a Scientist?



Scientists study science. They are curious about how the world works and finding out new knowledge.

Scientists can have many different skills and their work may include:

- ▶ Making observations.
- ▶ Asking questions.
- ▶ Coming up with ideas about how the world works and testing them.
- ▶ Carrying out experiments and recording data.
- ▶ Teaching and training other people.



Look at your definition of a scientist. Have you got any of these points? Is there anything you would add?

Smashing Stereotypes in Science

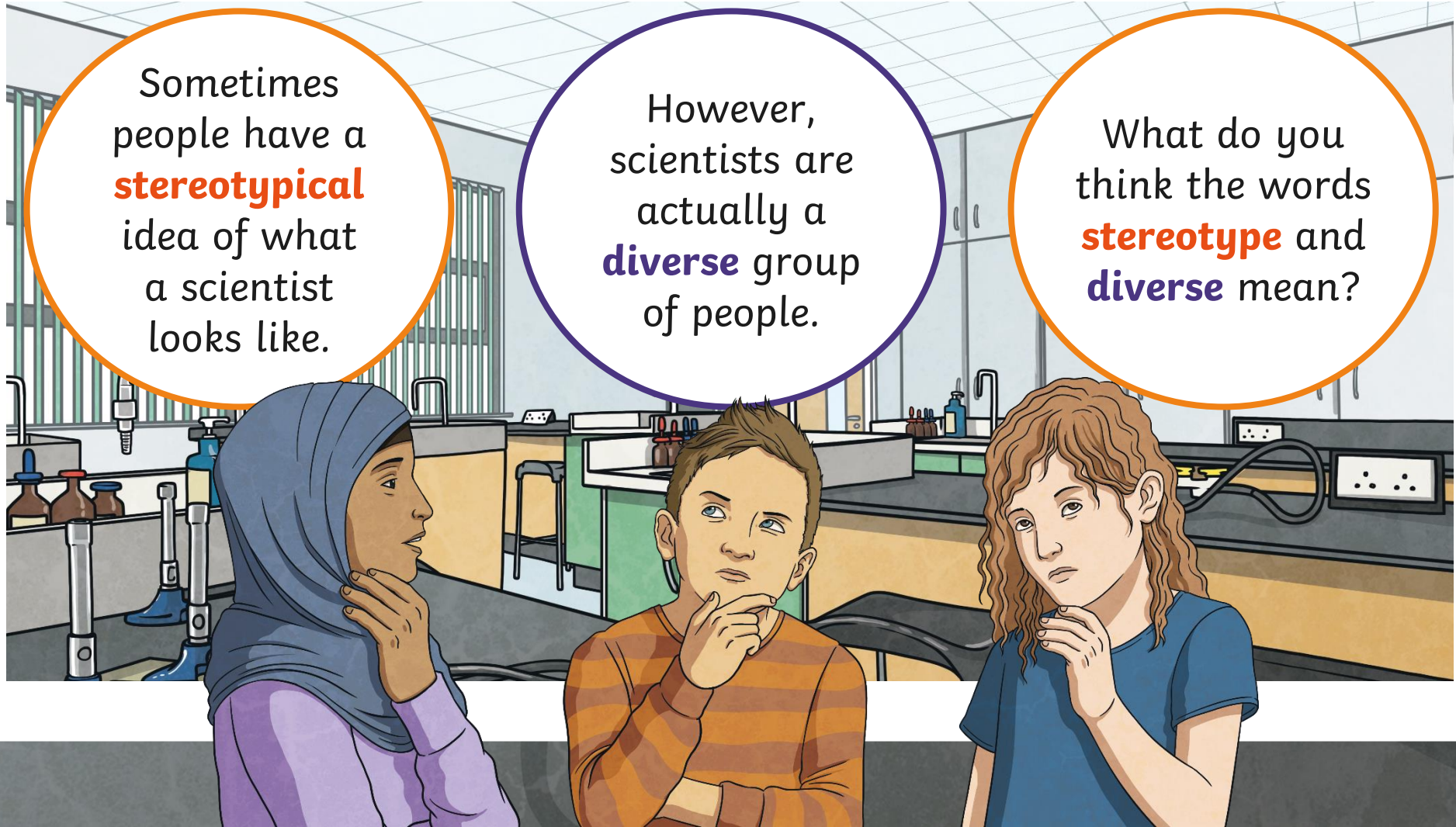


Now, look at your drawings of scientists as a class.
Do they all show the same thing? Or are there differences?

Sometimes people have a **stereotypical** idea of what a scientist looks like.

However, scientists are actually a **diverse** group of people.

What do you think the words **stereotype** and **diverse** mean?



Smashing Stereotypes in Science



Diverse means a wide variety.

You can have a **diverse** range of people - this means they're all from different backgrounds.

Scientists come from a **diverse** range of backgrounds. They have a **diverse** range of jobs and work in **diverse** ways in a range of **diverse** places.

Diversity is the noun we use when there is a wide variety of something.

A **stereotype** describes the set ideas people have about what a certain group of people are like.

For example, a **stereotype** would be that scientists are men in lab coats carrying around bubbling potions.

There is not one fixed image of a scientist - they are **diverse**!



Scientists are everyday people often working together to do great things in their everyday jobs.

One of the themes of this year's British Science Week is 'Smashing Stereotypes' - how diverse scientists are and how we can smash the stereotype of a scientist.



Why is it important to smash the stereotype of a scientist?

Types of Scientist



There are almost too many types of scientist to count! Here are a few examples to show the **diversity** of roles a scientist may have:

Entomologist

An entomologist is a scientist that studies insects and how they interact with us, the environment and other living things.

Entomologists might work on discovering new species of insects, looking at the insects important role in habitats, researching how some insects spread disease and studying their role in agriculture.

Depending on their specialism, they may work in all sorts of places including outdoors, in a lab or in a museum.





Types of Scientist

Food Scientist

A food scientist creates food and drink products and makes sure they are safe for us to consume.

Their role can include investigating how to preserve food, putting together nutritional information and developing recipes.



They often work in lab settings or research facilities.



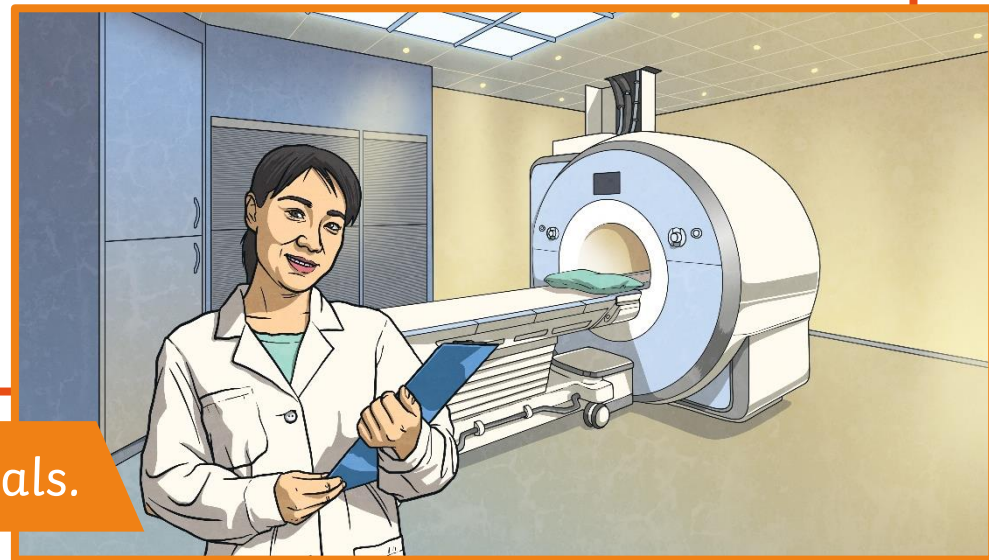
Types of Scientist

Medical Physicist

Medical physicists work in healthcare. They are responsible for working with specialist equipment and techniques used to diagnose illnesses and treat people.

Their work could include designing, testing and monitoring. They may also analyse results, plan treatment and many work with patients.

Medical physicists may use specialist equipment such as MRI scanners, x-rays, ultrasound scanners and radiotherapy machines.



These jobs are often based in hospitals.



Types of Scientist

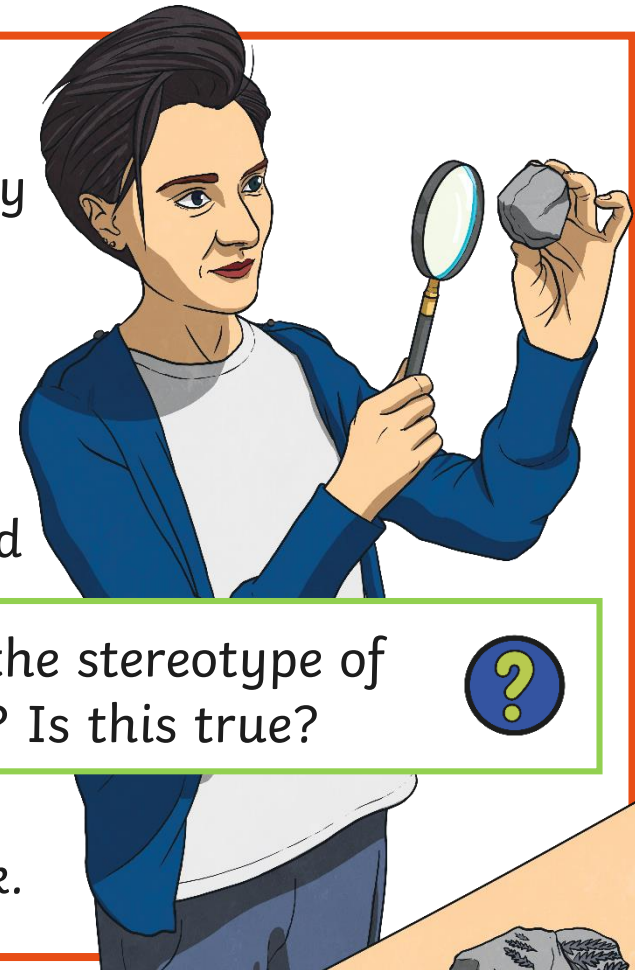
Palaeontologist

Palaeontologists use fossils to study the history of life on Earth.

Their work includes collecting, classifying and using technology to examine samples.

They can work with all sorts of fossil types, including vertebrates, invertebrates, plants and microorganisms. Some even look at fossil footprints.

Palaeontologists can manage exhibitions, working on TV programmes and giving talks about their work.



X

What do you think the stereotype of a palaeontologist is? Is this true?



They can work at field sites, in museums, labs and offices.



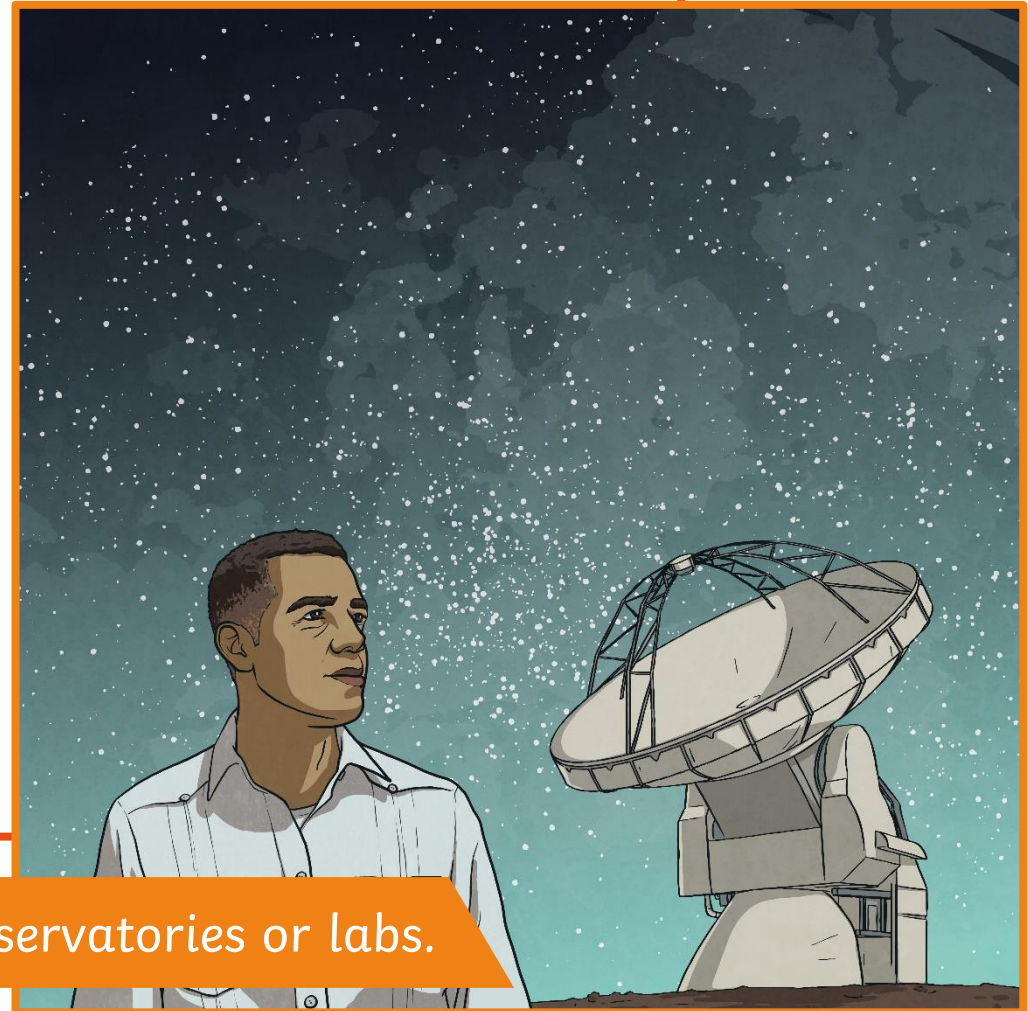
Types of Scientist

Astronomer

Astronomers study the universe. They might study stars, planets, galaxies or black holes.

Astronomers can make observations using telescopes, satellites and spacecraft.

They may also come up with and test theories using existing data, observations and computer models.



They often work at universities, observatories or labs.



Types of Scientist

Microbiologist

Microbiologists study microorganisms and can work in many **diverse** areas.

- Some microbiologists study microorganisms that cause infectious diseases and they work to identify, monitor and control these. They may also work on how we can use microorganisms to produce medical products.
- Microbiologists may work on identifying and classifying new species of microorganisms and the roles of microorganisms in their environment.
- They may study the roles of microorganisms in food production.

Microorganism: an organism that is so small it cannot be seen by the naked eye. Includes bacteria and fungi.

Some microorganisms are harmful to us (for example, they can make us unwell) but many are useful. Some microorganisms can actually be used to make medicines. They can be used in food production and cleaning up polluted areas.



Can you identify and describe some of the many different jobs scientists can do?



Microbiologists generally work in hospitals, labs and universities.



Inspirational Scientists

Scientists study many different aspects of the world around us and have come from all sorts of different backgrounds with different experiences and routes to their jobs.

Does anyone know a real scientist?

Here are some examples of well-known scientists that we are going to be discussing.



They show the **diversity** of scientists - from their background to the area of science that they work in.

Inspirational Scientists



- It was difficult for Garrett Morgan to achieve his many successes due to the racism that he experienced. Sadly, due to racial discrimination, when some companies realised the Morgan Safety Hood was made by a Black inventor, they cancelled their orders.

Garrett Morgan



Inspirational Scientists



- Stephanie Kwolek was born in 1923 in Pennsylvania, USA.
- Her father was interested in science and passed this interest on to her.
- She completed university with a degree in chemistry.
- Kwolek invented a material called 'Kevlar' which is lightweight but exceptionally strong.
- Kevlar is used for car tyres, bulletproof clothing, protective gloves, diving equipment, boots, helmets and fireproof clothing.

Stephanie Kwolek



Inspirational Scientists



- Hawking developed theories about how black holes are formed, how they behave and where they can be found in the universe.
- He also authored many books which have helped millions of people to understand difficult scientific concepts.

Stephen Hawking



Inspirational Scientists



- While working at NASA, Hamilton was responsible for programming the on-board flight software on the Apollo computers. She wrote code that was used to navigate and land spacecraft safely.
- A problem with the Apollo computer becoming overloaded was overcome by a program Hamilton had written. If she had not added this program, the landing of the Apollo 11 spacecraft on the Moon (carrying the first people to set foot on the Moon, Neil Armstrong and Buzz Aldrin) would not have succeeded.

Margaret Hamilton

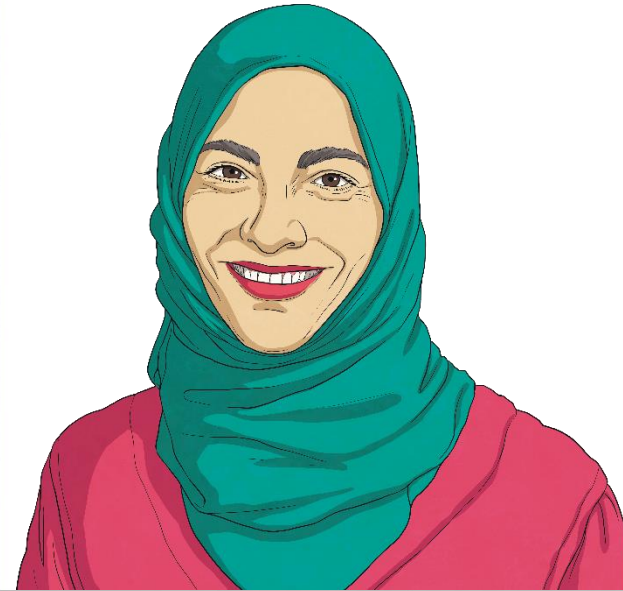


Inspirational Scientists



- Sindi co-founded a non-profit organisation that creates devices that diagnose disease.
- These devices are low-cost and easy-to-use and have been designed for use in the developing world.
- She also works to promote science education and innovation, especially to young people.

Hayat Sindi





You as a Scientist

What qualities and skills do the scientists we have looked at have?

In your group you have 5 minutes to write down as many qualities and skills as you can think of.

Think about which of these attributes you have yourself.



You as a Scientist



With your partner, discuss:

Would you like to work as a scientist? Why?

Has today changed your mind about what a scientist does? Would you like to do any of the jobs you've learnt about?

Can you describe a **stereotypical** view of a scientist and explain why it is not true?

Can you explain why we say that scientists are **diverse**?

Can you think of any other jobs scientists do?

