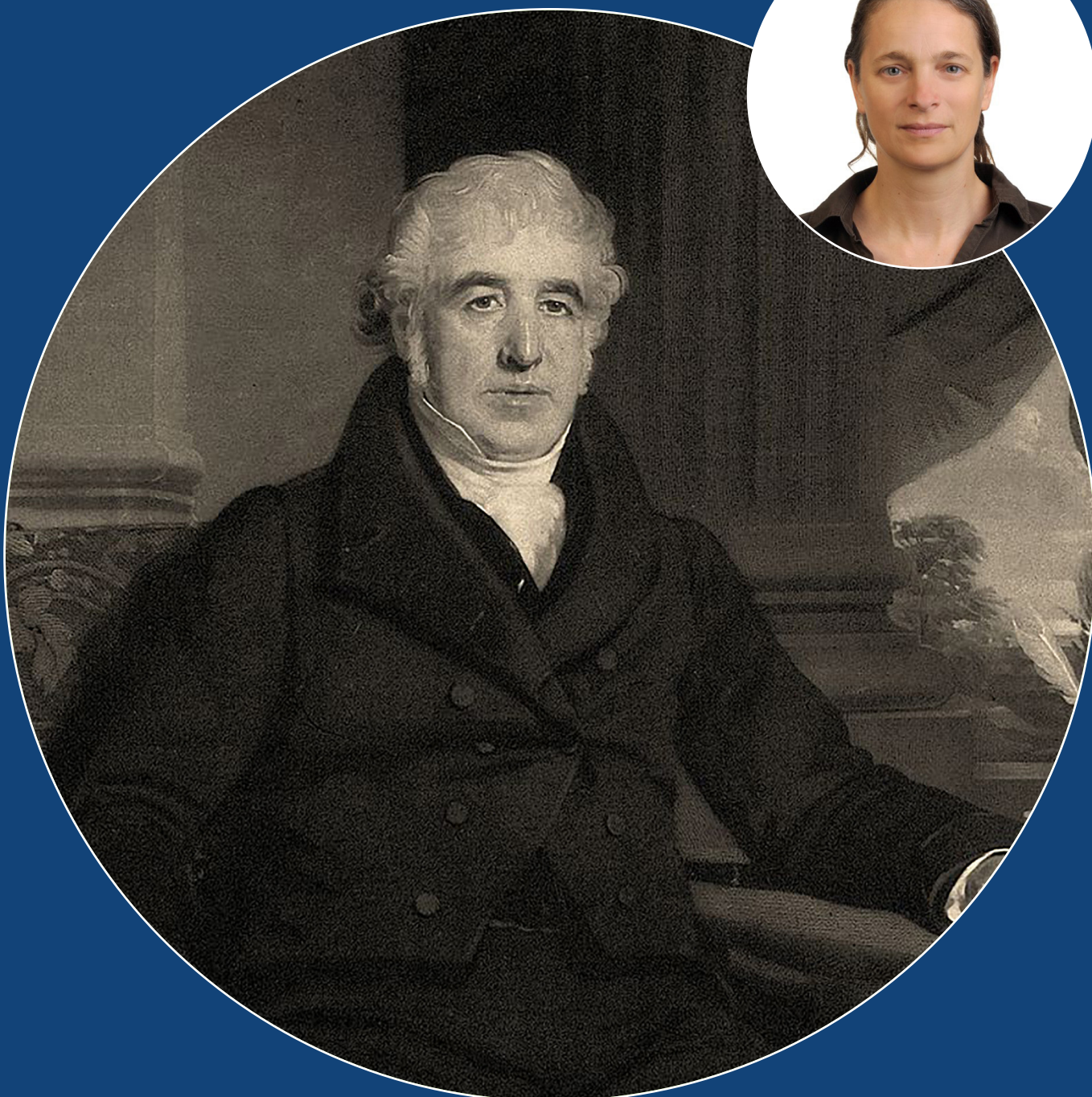
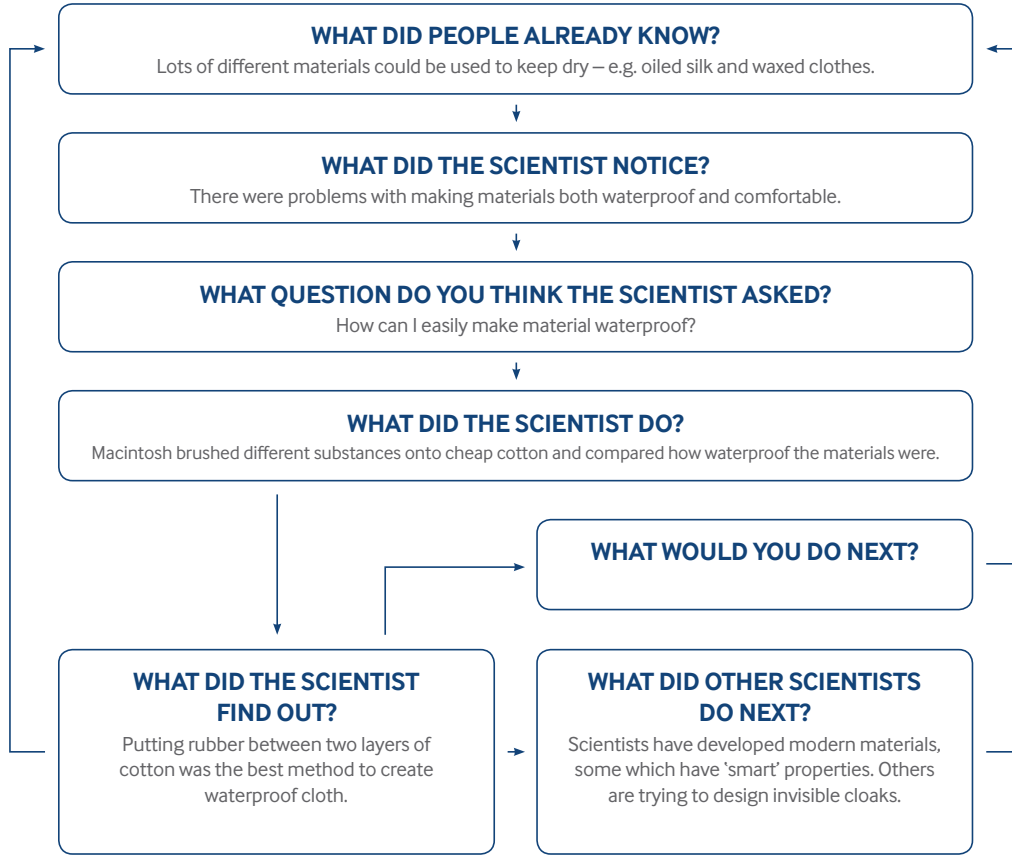




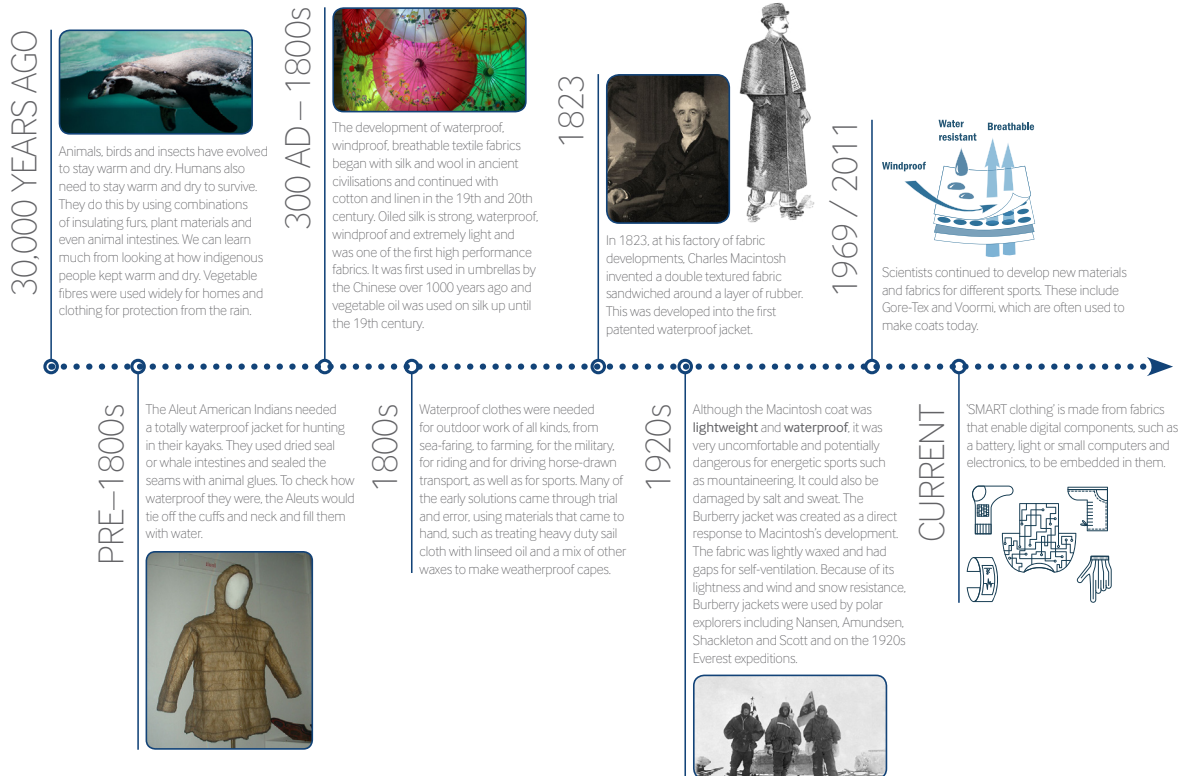
CHARLES MACINTOSH



CHARLES MACINTOSH



THE TIMELINE OF A RAINCOAT



THE JOURNEY OF YOUR RAINCOAT

LEARNING OBJECTIVES:

Knowledge

- Identify the properties of a raincoat

Scientific Enquiry

- Conduct a simple comparative test to compare waterproof materials.
- Set up a simple test, make observations and record results in a table and interpret and communicate results.

(You may change the focus of your lesson, and the skills you wish the children to develop.)

*This activity does not develop the skill of predicting, as the children may not have sufficient prior knowledge to do this.

RESOURCES (PER GROUP):

- ✓ Plastic cups or beakers x 3
- ✓ Squares of household cleaning cloth or old cotton x 6 (large enough to cover the cup or beaker)
- ✓ Pipettes/syringes/beakers
- ✓ Water
- ✓ PVA glue
- ✓ Glue stick
- ✓ Cooking oil
- ✓ Glue spreader
- ✓ Elastic bands
- ✓ Tray in which to contain the resources to avoid spillages
- ✓ Other substances that may be spread between two layers (e.g. wax crayon)

ACTIVITIES

1. Introduce the story of the raincoat. Use the presentation resource and template to set the scene, describing Macintosh's approach to developing a waterproof material. You may like to use hot-seating, to get the children to ask Charles Macintosh about his investigation.
2. Guide the children through the investigation, supporting them to observe, compare and record how waterproof the glue sandwiches are, by dropping water onto the materials using a pipette or syringe.
3. Children could record their observations in a pre-made table or one that they create.
4. Discuss which combination created the best waterproof material.
5. Reflect on how the children would improve coat designs in the future.



EXTENSION ACTIVITIES

1. Ensure that the children have an opportunity to ask further questions about waterproof materials.
2. Children may wish to design their own waterproof coat, labelling key properties.
3. Children may wish to observe their own coats and properties required for different seasons.
4. Compare results for wet and dry glue.

VOCABULARY

MATERIAL

The substance or substances from which an object is made, e.g. metal, glass or fabric

PROPERTY

A characteristic of a substance

WATERPROOF

The property of a material that ensures that it does not let water through

ABSORBENT

Able to take up and retain liquids

OBSERVE

Use senses closely to discover what is happening

RECORD

Using a table to make a note of what happens during the investigation

THE JOURNEY OF YOUR RAINCOAT

TOP TIPS / USEFUL IDEAS

- To save time, pre-prepare glue sandwiches, but model how to put a layer of glue between two layers of household cloths
- You may wish to leave your glue/oil sandwiches overnight to allow them to dry fully
- Use coloured water to see the water drip through more clearly
- To compare the amount of water that has dripped through the cloth, put a piece of filter paper in the cup and draw around the puddle
- Use a miniature figure in the beaker to represent a person inside the rain jacket
- Bring in some modern waterproof coats to look at their properties and/or look at the children's raincoats

QUESTIONS FOR PROGRESSION AND ASSESSMENT

Questions for developing scientific enquiry:

- How will you know which material is most waterproof?
- How will you make a fair test?
- How will you measure/record your findings?
- What did you find out?

Questions for developing an understanding of scientific attitudes and attributes:

- Why did Charles Macintosh want to develop a waterproof coat?
- What did you like about Charles Macintosh's experiment?
- Do you think Charles Macintosh only carried out his experiment once?

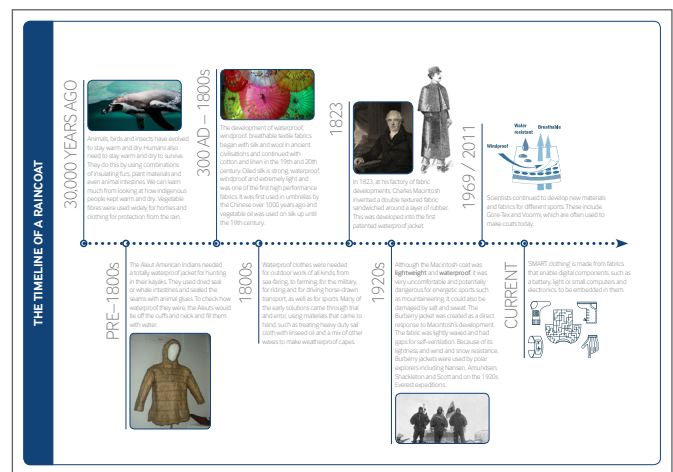
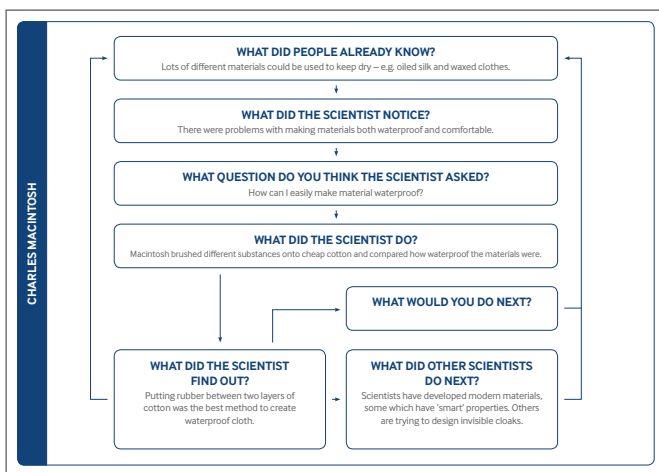


“ I liked doing the fabric sandwiches and seeing if they worked with water – like Macintosh did! ”

Child's comment

DOWNLOADABLE RESOURCES:

In the resource pack you will find a completed Template, 3 versions of the Timeline and a Classroom Presentation for Charles Macintosh.



THE JOURNEY OF YOUR RAINCOAT

We are going to learn about Charles Macintosh and how he made a raincoat. We will be creating and testing materials that could be used to make a raincoat, like Charles Macintosh.

VOCABULARY

PROPERTY	ABSORBENT
MATERIAL	OBSERVE
WATERPROOF	RECORD