WHY WEAR GOGGLES?

INVESTIGATING THE CHANGE IN DESIGN OF SNOW GOGGLES

POLAR EXPLORATION KS2

Curriculum mapping:

Design and technology

Purpose of study: Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.

Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.

Aims: build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users

Critique, evaluate and test their ideas and products and the work of others

KS2: Design

- **use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups**

Make

- **select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately**
- **select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities**

Evaluate

- **evaluate their ideas and products against their own design criteria and consider the views of others to improve their work**
- **understand how key events and individuals in design and technology have helped shape the world**

Computing

Purpose of study: Ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology

Aims: are responsible, competent, confident and creative users of information and communication technology

KS2: select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

Introduction activity

Show the class the image of the snow goggles (search for them here: http://polar.lgfl.org.uk/resource.html) without explaining what they are.

Ask the class to tell you what they think these objects are.

Explain that they are called snow goggles and were worn in polar conditions to protect the eyes of the explorers.

Explain that these are the actual goggles worn by Apsley Cherry-Garrard who was the youngest person on the 1910 expedition with Captain Scott to the Antarctic.

Explain that as an explorer, Apsley Cherry-Garrard was different to the others because he paid to go on the expedition. He paid £1,000 to join in and that was a lot of money in 1910 - the equivalent to about £76,000 today!

As a class, watch the video 'Apsley Cherry-Garrard's snow goggles' which explains that as assistant zoologist, he studied the Antarctic animals, and is also famous for writing a very famous book called 'the worst journey in the world' about an expedition that he took with Wilson and Bowers to investigate the penguins.

Show the class the photo of Apsley Cherry-Garrard that actually shows him wearing the goggles we saw in the video.

Main part of lesson

Using the Artefacts book explore pages 30, 31, 32 and 33.

In these pages we explore the snow goggles that belonged to Captain Scott and Frank Debenham (Geologist with the Terranova expedition).

Captain Scott's snow goggles 1901

Frank Debenham's snow goggles- Terranove expedition

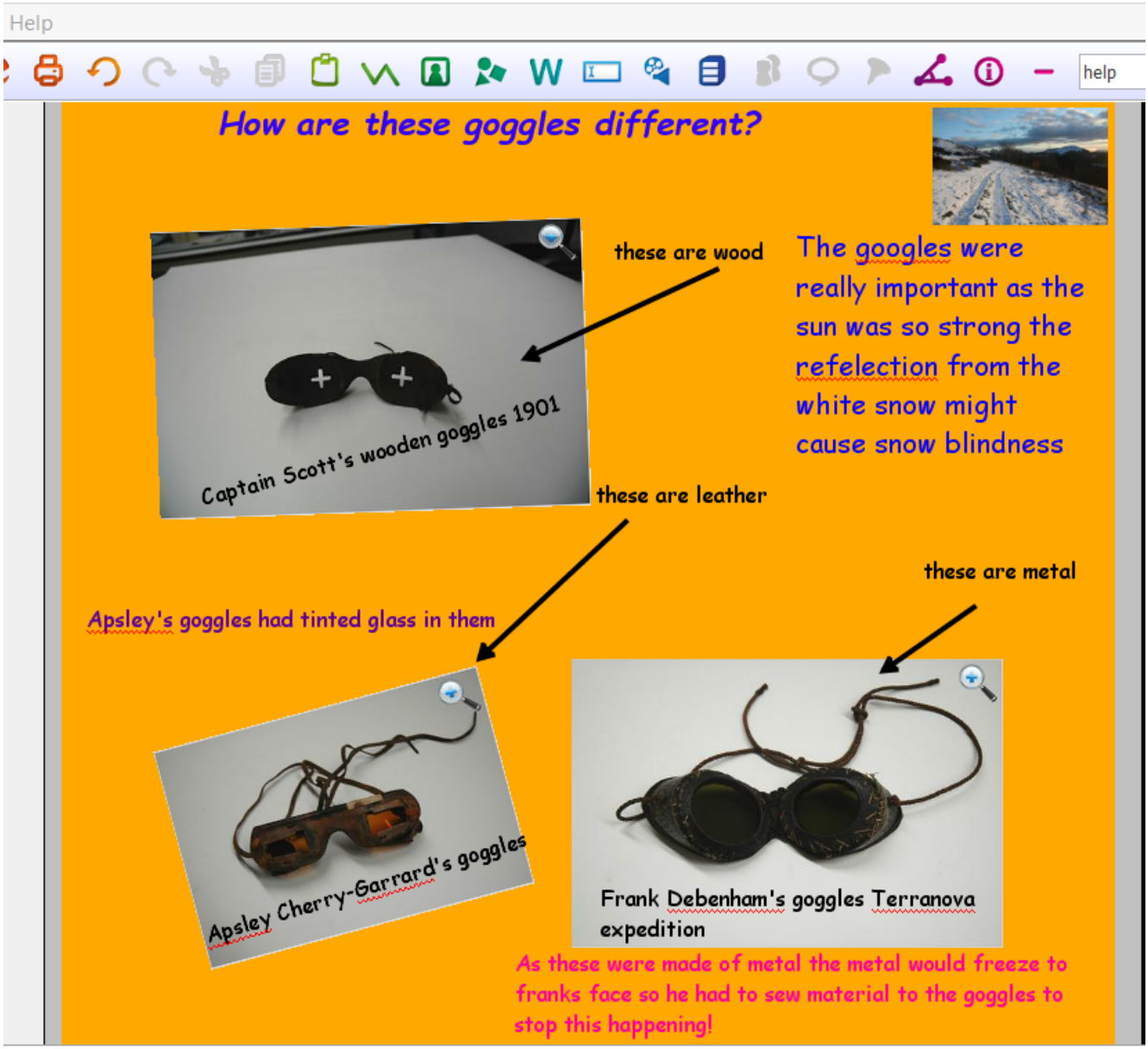
Discuss that the explorers didn't necessarily wear goggles like we wear sunglasses to stop the glare of the sun affecting our eyes, but it was the glare of the sun reflected off the white snow that caused problems for the explorer. Explain that this is what we call snow blindness.

Explain that goggles were therefore very important kit for the explorer and they would have to look after them and definitely not lose them. Also discuss how on expeditions like these, the design of the goggles changed as it was developed by trial and error. By experimenting with different designs the men found what worked and what didn't. For example, it was discovered that to be effective in preventing snow blindness, in addition to filtered glass, the goggles needed to have covers on the side to prevent light getting through. Ask the class why Frank Debenham had to put material around the edges of his goggles and also make small holes in the sides?

The pupils have two tasks as follow-up activities (this will probably take up more than one lesson).

One task is to import the images of the 3 different types of snow goggles into j2e5 at www.j2launch.lgfl.net (pupils will need a USO username and password to access this resource). Once imported, the pupils are to use the tools within j2e5 to create a comparison of the different goggles – materials used, functionality and how the design changed after different experiences on different expeditions.

Pupils will create a presentation using j2e5 e.g.



These presentations could also be shared via the blog functionality of j2webby (simply click the blog icon within the j2e resource. A pupil's presentation is made public when the teacher has approved the work via the dashboard function.

As well as producing a presentation, explain that the class will also be creating and testing their own goggle designs, making goggles out of simple material (cloth, cardboard etc.) and testing out visibility through use of different lens materials and/or colours.

Provide pupils with a range of materials to create their own goggles, then they can make them.

Plenary

Watch the 'modern day kit bag' video from the Polar Stories section. Here Peter Clarkson explains how modern day kit is different from kit he wore in the 1960's and very different from the kit worn on Scott and Shackleton's expeditions. The entire video lasts 9 minutes and covers the whole kit bag; skip to 6 minutes for the 1 minute section on goggles if this is all you want to see.

Discuss how these modern-day goggles are different to those worn in Scott's expeditions.

Also share and discuss the created goggles and especially discuss which ones the class think will be most effective in the Polar Regions. Critique, evaluate and test their goggle ideas as a class and comment on them and the work of others.