WHERE IS IT FROM?

WOOD, PAPER, RUBBER, CORK AND OTHER THINGS FROM FORESTS

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KEY STAGE 3 LESSON PLAN

Investigate natural resources from forests and the products made with them.

Consider from where and how materials are sourced and used, considering issues of sustainability.

National Curriculum Links:

- Design & Technology
- Geography
- Education for Sustainable Development (& Global Citizenship)
- Learning for Sustainability

FSC FORESTS® FOR ALL FOREVER

EQUIPMENT

- Pencils/pens and plain paper and/or access to PowerPoint software
- 'Where is it from' PowerPoint presentation
- Internet access to explore research links

WHAT TO DO

Ask pupils to:

- Look at examples of forest-based products and consider what they are and where they might be from. (Thinking and Discussing)
- Design a product using forest-based materials (Activity)
- Present their product back to the group, explaining their choices of materials (Plenary)

Thinking and Discussing

Discuss the images of different forest-based products, using the questions and prompts provided in the script, in the 'Where is it from' PowerPoint presentation.

Activity

In small groups, or individually, ask pupils to design a product using forest-based materials, including at least one species or wood and one other forest-based material, and to explain their choices.

Things to think about:

- Who/what is it for?
- What physical properties do you need the materials to have? (rigid, flexible, beautiful, strong, durable, light etc)
- Which species of wood will you choose and why?
- Can you source the materials from the UK or will you need to source them from another country? Which country?
- How will you make sure that the materials you use are sourced responsibly?
- Are there any alternative materials or species you could use?
- Is the product practical/usable, innovative and sustainable?

Pupils may wish to use the internet to further investigate materials and species.

The FSC certificate database (https://search.fsc.org/) can be used to identify possible sources of wood and other forest products. The lesser-known species database (www.lesserknowntimberspecies.com) can also be used to find more information.

Plenary

Invite pupils to present their products to the group, explaining how which materials and species they decided to use and why. How would the group rank the products in terms of practicality, innovation and sustainability?

SCRIPT (use with 'Where is it from' PowerPoint presentation)

Slide 2

How many different materials can you see in the picture? How many of these are naturally sourced? Are the the decking and the recliner made from the same type of wood?

This is non-slip, hardwood decking. The recliner could be made from a hardwood or a softwood, perhaps stained to look darker, as softwoods tend to be lighter in colour than hardwoods. Why do you think these species might have been chosen for these products? Where do you think the wood for these products was grown?

Slide 3

Do you know the difference between a hardwood and a softwood? Hardwood are usually, but not always, heavier, and often darker in colour.

Slide 4

What kind of wood is this deckchair made from? Is it a hardwood or a softwood? How can you tell? What else could you help you to tell?

Without being able to touch the product itself, it's not easy to tell if it's made of a softwood or a hardwood – we might guess at it being a softwood due to the light colour, but could equally be a pale-coloured hardwood like beech or ash. Having an idea of the weight of the chain might help us to decide. But there are exceptions – did you know that the lightest and softest wood in the world – balsa wood – is actually a hardwood?

Slide 5

Different species of tree produce different colours of timber with different properties. Some are very durable, making them good for use outside, and some are very strong, making them good for use in construction. Different timbers are sourced from different kinds or trees and forests around the world.

Slide 6

Could the pencil and the notebook be made from some of the same materials? Why?

The pencil is made from wood – probably a softwood. Paper is made from cellulose fibre. Cellulose is an important structural component of the primary cell wall of green plants, such as trees. Paper can be made from cellulose from any source but most paper is made from cellulose fibre from trees. Trees are made into wood pulp at a pulp mill. Coniferous trees, producing softwoods, are usually preferred because the cellulose fibers in the pulp of these species are longer, and therefore make stronger paper. It's likely that most paper will contain a mix of wood species.

Slide 7

Like paper, tissue, like you use to blow your nose or when you use the toilet, is made from cellulose fibres. Most toilet paper and tissue products are made using cellulose from trees. It may not look much like wood, but this is a product that has taken a long time to refine. The first recorded use of toilet paper is from 6th century China, the first perforated toilet paper rolls were introduced in 1890, but it wasn't until that 1930 that toilet paper was finally manufactured "splinter-free."

Slide 8

Cardboard in a general term used to describe both paper over a certain thickness or weight, which is more properly called paperboard, and corrugated fibreboard, such as has been used to make this box. Using fluted corrugated sheet sandwiched with one or two further flat sheets provides added rigidity and cushioning and is therefore a popular choice for delivery packaging.

Can you think of any other examples of cardboard packaging can you think of? Do they use corrugation?

Is this box made from recycled paper? How can you tell? (just because it is brown doesn't mean it's recycled - it just means it isn't bleached)

Slide 9

Corrugated boxes contain paper that is folded into ridges.

Slide 10

How many different materials if this carton made from? Which material has been used for 70% of this carton?

An average Tetra Pak® carton is made of about 70% paperboard, 25% plastic and 5% aluminium to protect its contents – cartons like these are recyclable where adequate collection, sorting and recycling systems are in place.

Slide 11

What is this new clothing made from? How could you find out?

What are you wearing? Can you or a friend read the care label on one or more of the items of clothing you're wearing? Does it tell you what material it is made from? Is it made from more than one material? Does the label contain any other information in relation to the materials from which it is made? Is the clothing made from a natural material? Can you think of any other examples of natural materials used to make clothes?

This clothing is made from viscose, which is a man-made cellulosic fibre. Like paper, it can be made with wood pulp from trees.

Slide 12

Are these wellington boots made from plastic?

These boots are made mainly from natural rubber. Natural rubber is made from the liquid latex that is harvested from rubber trees. The latex is harvested by slicing a groove into the bark of the tree and peeling back the bark. This process does not kill the tree, which can go on to producing latex for many years.

Slide 13

Cork comes from trees but, like rubber, harvesting it does not kill the tree. These corks are made from the bark of the cork oak. Most cork comes from Portugal.

Apart from for closing wine and champagne, can you think of any other products made from cork?

Slide 14

What are these toothbrushes made from?

To try to reduce plastic, toothbrushes made from wood and bamboo are increasingly available.

Bamboo is not a tree, it is categorised as a grass, but it can grow in forests.

Can you think of any other products made of bamboo?

Slide 15

We probably see and use forest-based products every day of our lives.

Given that some forests are threatened by deforestation, and that deforestation contributes to climate change, should we be using materials from forests? Why is it a good idea? Why might it be a bad idea?

If we don't use materials from forests, which materials would we use? Is it better to use forest-products in place of plastic? What might be the advantages or disadvantages?

Slide 16

Certification labels are used to show that products or packaging meet certain standards.

The Forest Stewardship Council, also known as FSC, is an international organisation dedicated to promoting the responsible management of the world's forests. FSC has developed a system of forest certification that allows consumers to identify wood and forest-based products that support responsible forestry. These forests must be managed with consideration for the environment, the wildlife and the people who live and work in them.

Have you seen the FSC label on any packaging or products?

How important is it that forests are managed sustainably?

Slide 17

There are more than 60,000 species of timber around the world, but only a fraction of these are bought and sold in substantial quantities around the world.

Some of the most popular species in the world are under threat of extinction in the wild, and yet many lesser-known timber species are under used.

FSC has made an online database of lesser-known timber species to support those using tropical timber to consider alternative species.

Slide 18

Design a product using forest-based materials, including at least one species or wood and one other forest-based material, and explain your choices.

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THANK YOU

For questions and queries:

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