

FLOAT YOUR BOAT: MAKE A MINI CANOE

Curriculum links: Key Stage 2 Design Technology: design, make, evaluate.

LEARNING OUTCOMES:

In this activity, pupils design and create a traditional style canoe, emulating primitive technologies from around the world. They use research to inform the design of a product, recording their ideas appropriately, then select appropriate materials and tools to build their design, and making modifications in response to problems they encounter. Finally they test and evaluate the product against their initial criteria.

By the end of this activity pupils will:

- Have used research to develop and design a canoe, creating plans and drawings to work from
- Have selected appropriate tools, methods and materials to construct their design
- Tested their constructions, evaluating performance against their design criteria.

ACTIVITY:

INTRODUCE...

What? Using natural materials to construct a canoe.

How? Introduce the concept by asking pupils if they have ever been canoeing, or by showing a modern canoeing video – footage of the British Olympic team winning a gold medal would be good. As pupils watch the video, ask them to identify and record the key features of a canoe. Alternatively, give pupils a research task to find out what a canoe is. They could use ICT skills, or obtain information from written and visual resources that you provide.

WHAT YOU'LL NEED:

- 3 flexible green sticks, 30cm long and about 1cm thick
- broad, flat leaves
- thinner green sticks and twigs
- heavy duty scissors
- pencil sharpener



DEMONSTRATE...

What? An example of what a handmade canoe looks like.

How? Show the pupils a pre-made canoe model of your own, but emphasise that this is just one example and that their model might be very different. Highlight and identify different parts of the canoe before setting a brief design and drawing task, in which pupils can plan their own canoe. Encourage them to think about what it should look like and why.

EXPLAIN...

What? How to construct a canoe.

How? This element of the activity is flexible. You could provide a printed instruction sheet for pupils to follow, or you could explain each step. Alternatively why not let them explore the materials and come up with their own methodology? Provide guidance on construction techniques, for instance weaving the green sticks together or binding with twigs.

APPLY...

What? Conduct some canoe trials.

How? Once pupils have made their canoes, it is great fun to test them out. Fill a large container or paddling pool with water, or even visit a local pond. Attach partially inflated balloons to the canoes, and then release the air to make them move across the water. Ask pupils to record their tests with video or photographs and write a short evaluation of the performance of their canoes.

SUMMARISE...

What? Embed the learning with these follow-up exercises.

How? These exercises are suggestions, which can be adapted depending on your focus for the lesson. Why not create a set of instructions on how to build a canoe, make a mind map exploring what makes a good canoe and what makes a bad canoe, or use this activity as part of a broader cultural project looking at modern and ancient peoples who use canoes – for example, indigenous tribes or the ancient Celts.

ACTIVITY NOTES

CONSTRUCTING A CANOE STEP-BY-STEP



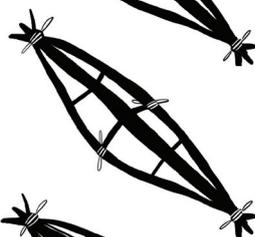
1. MAKE THE BASIC FRAMEWORK

Take the three long, flexible sticks and gently bend them until they hold a curved shape. Bind all three sticks together at each end with twigs or string. Wrap them several times and tuck the ends back under to secure.



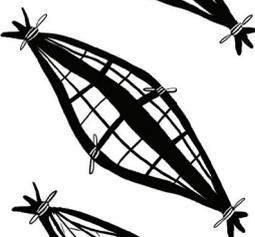
2. FORM THE SHAPE OF THE CANOE

This is the trickiest bit! Use scissors to cut a stick to approximately 8cm and sharpen both ends slightly with a pencil sharpener. Bend the stick gently until it holds a curve and then push it into the canoe. The pointed ends can be pushed into the thicker stick, which should stop it slipping while you bind it in place. This forms a rib.



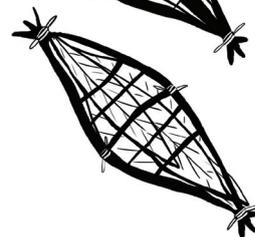
3. STRENGTHEN THE CANOE

Add two more ribs, placing them further along the canoe. If the sticks are cut to the right length they can be held under tension in the frame without requiring binding. To achieve this, cut them slightly longer and trim to fit.



4. FILL IN THE GAPS

Place two sticks along the length of the boat and several across its width. Weave them in between each other to form a strong structure.



5. MAKE THE SHELL

The shell of the canoe is made by bending leaves into the canoe. Add some extra ribs to keep the leaves in place, sandwiched between the two sets of twigs. Now you can test your canoe – carefully place it in water and see if it floats! If it doesn't, you may need to modify it. Make your canoe move by adding a partially-inflated balloon and then releasing the air.