



# Take It Outside STEM

## Stick Rafts

### Introduction

Use this practical outdoor activity to explore the concept of floating and sinking with your class. You could also link this activity with topic work on ocean and seas, pirates or Noah's ark, perhaps creating your own decorated flags.



### You will need:

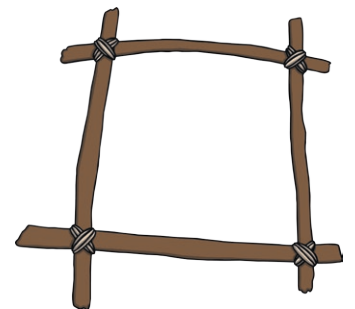
Sticks - ideally these would be collected by the children and should be of equal length (around 15 cm is ideal).

### Key Questions

- What did you find?
- What did you notice?
- Compare your raft with a friend. What is the same? What is different?
- If you could make another raft, what would you change? What would you keep the same?
- What other materials could you use?

### What to do:

1. Ask the children to gather sticks together. They will need to be of equal length. Around 13 sticks will be needed for each raft. Children will need four for the frame, eight for the base and one for the mast.
2. Explain to the children that if a stick is too long they can snap it until it is the correct size. Demonstrate how to do this safely by snapping a stick.
3. Lay four of the sticks out on the ground in a square.
4. Tie these four sticks together by wrapping string around each corner. Wind the string around and overlap it until the corner feels strong.
5. Lay the other sticks across the square frame. Tie them onto the frame.





6. Continue until you have a strong base for the boat. Due to the natural material there may be gaps in the base. The boat should still float. Can the children explain why? You can also make the base out of different materials such as grass and leaves. Allow children to explore different materials and make choices – which material was the easiest to work with? Which one is strongest? How do you know?
7. Check that the raft floats and adapt as needed. Encourage children to resolve any issues independently.
8. Choose a long stick to be the mast. Stick this through the base of the boat.
9. Provide materials for children to create a flag such as paper, fabric or large leaves.

### Ways to Support

Some children may need help with their fine motor skills and tying knots. You can provide alternative resources for these children to use to attach the sticks together, such as elastic bands or blu-tac.

### Ways to Extend

Children could test the rafts and record/compare their findings. Which raft will hold the most small world animals? Which raft will hold the greatest mass?

### Curriculum Links

**Science:** Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Describe the simple physical properties of a variety of everyday materials. Identify and compare the suitability of a variety of everyday materials.

**Maths:** Compare, describe and solve practical problems for lengths and heights.