



SUPERSTAR

Crafty Rafts

Organiser's Card



About the activity

This activity is designed to get children designing and making a raft that floats.

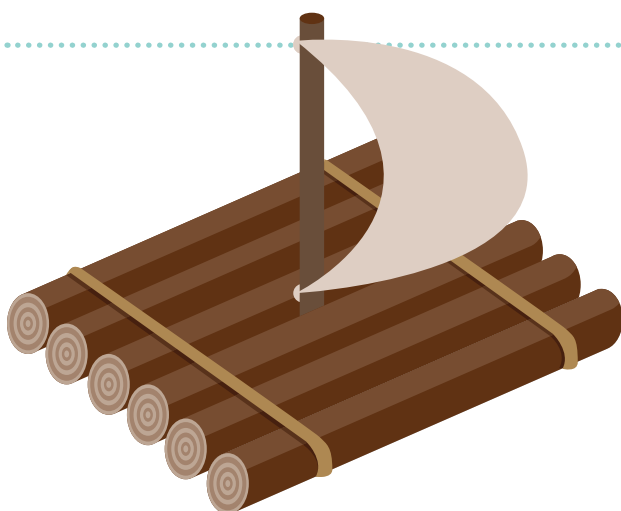
The children have been asked to design a raft. The Cub Scouts and Brownies of Startown are having a problem making a raft that floats.

Through this activity you will support your group to:

- Design and make a model raft using just a piece of paper
- Conduct a fair test to see which raft design can hold the most weight
- Record and present their results.

Kit list

- Plastic tanks or bowls of water – 1 per group
- A square sheet of paper (20 cm x 20 cm) or A4 – 6 per group plus spare sheets
- Foil (optional as an alternative to paper)
- A set of marbles all the same size – 30 per group plus lots of spares
- Sellotape, masking tape, staplers, or other fasteners – provide the same for each group
- Waterproof coverings if you are working on wooden desks



What to do

1. Introduce the activity using the story.
2. Give out activity cards and equipment to the children.
3. Explain that they will be designing and making rafts, and testing how much weight they can carry before sinking.
4. Encourage children to discuss their ideas and how to carry out their investigations. Give each group access to sheets of paper or foil. Remind them they can only use one piece at a time. Challenge groups to make several rafts of different shapes and sizes. They can do this by folding the paper or foil and securing the corners. Give children time to discuss which shapes might work and to practise ways of folding the paper to make different rafts.
5. Support children to conduct their investigation and make their own records of their results. Set them off on the challenge to build a raft able to hold the largest number of objects before it sinks. They can float their rafts in a container of water and add cubes or marbles until the rafts sink. The raft that carries the greatest number of objects will be the winner.
6. Ask the children to present their findings to the rest of the group, they can be as creative in their presentation as they want.

Things to think about

Make sure that the water is deep enough for the loaded rafts to float and not touch the bottom.

It's best if children use one sheet of paper at a time and are left to experiment with their own raft shapes.

Some children may add the objects to the raft too quickly or unevenly. Let them experiment on their own. They learn more when it goes wrong.

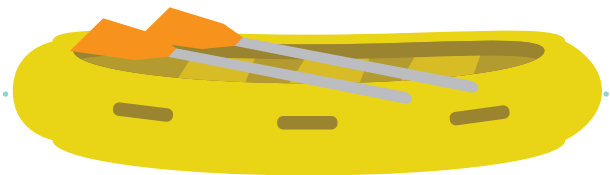
The children will need to agree on how they will know when a raft has officially sunk. This could be when it sinks below the water line or when it lands on the bottom of the container.

An object that is normally unable to float can be made to float by changing its shape. Different shapes will float in different ways. You will find a wide flat raft is very stable when it floats but can tip if it is loaded on one side. If the children are investigating carefully, the best raft is likely to be one with a large base and with sides approximately 1.5 cms deep.

A good raft will hold a surprisingly large number of objects.

Keywords

- Floating
- Buoyancy
- Paper
- Building
- Weights



Watch out!

Mop up water spills quickly and collect escaped marbles to avoid accidents.



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Crafty Rafts Activity Card



Your challenge

Can you help them to decide the best design for a raft?

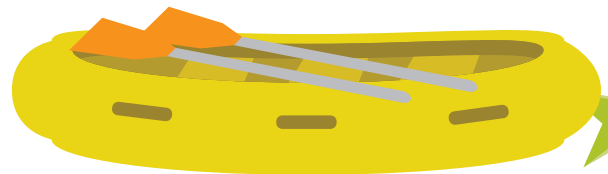
You can make models out of paper. What shape of raft will hold the largest number of objects before it sinks? **You can only use one sheet of paper at a time.**

Discuss

What do you know about rafts?

Have you ever made one?

What shapes do you think might make good rafts?



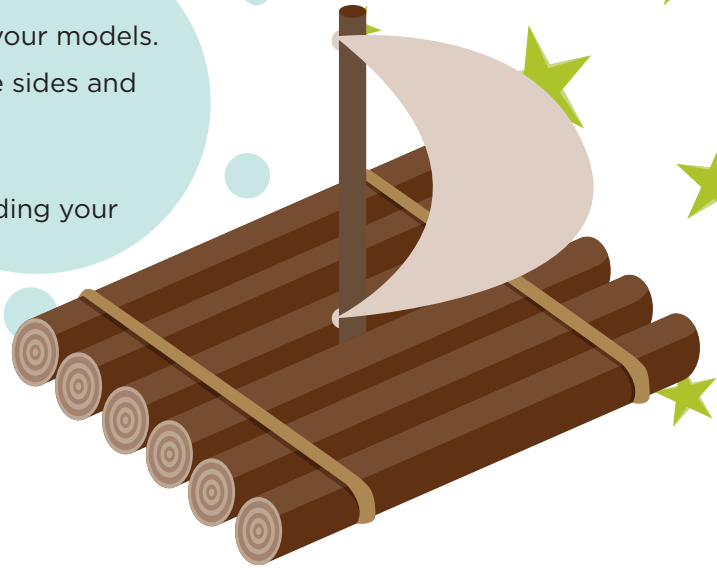
Getting started

You can use sheets of squared or A4 paper to make your models.

You can make the paper into a raft by bending up the sides and folding the corners.

Fasten the corners. Don't cut your paper.

What different shapes and sizes can you make by folding your pieces of paper in different ways?



Test your ideas

Put your raft to the test!

See which shape holds the most objects without sinking. What's the best way to add the objects? Which raft do you think will win and why?

You could record your results in a table like this:

	Picture/ description of raft	Maximum number of marbles before sinking
Raft 1		
Raft 2		
Raft 3		

Share your ideas

You could make a model of your best raft to send to Natty Nodrum.

Extra things to do

Would it matter if you use different types of paper?

Could you make the raft without fasteners?

What other materials can you use to make a raft?

