

# RAFT REVIVAL

Can you re-invent the raft to help the animals across the river?

## BACKGROUND

Many years ago, the Jade Emperor decided there needed to be a way to measure time more easily. He chose to hold a race between the animals, the first twelve to arrive across the treacherous river would have a year of the zodiac named after them. As part of this race, Rooster, Monkey and Goat crossed the river using a raft that Rooster found. Monkey and Goat helped by paddling the raft across the river and each of them had a year in the Chinese zodiac named after them. Your challenge is to design a raft that would easily transport the three animals across the dangerous river.

Miss Whitaker

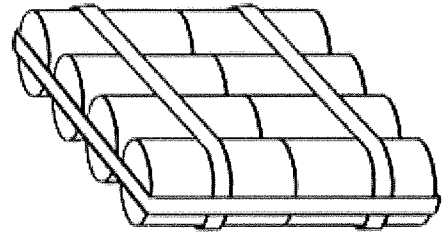
Science Champion

## First Draft

The first draft is an important step in any designer, scientist or artist's journey to a finished product. In this task you will be creating a first draft of what your raft is going to look like.

Remember to be innovative and creative with this challenge, try to think outside the box and have some fun.

Here are some suggestions of the things you may want to think about;



- This is a diagram and you will need to label the materials you plan to use when you build your raft.
- How much room will you need on your raft to fit the three animals?
- How is your raft going to float?
- How is your raft going to move across the river?

## Float or Sink?

Now that you have some ideas, it's time to think about those materials. What materials have you chosen? Can they float? Will any of them be damaged by the water? With all these questions there is only one way to answer them all, an experiment!

Get some things made from different materials that you might make your raft out of these could include; plastic, wood, metal, fabric, string etc. Place each of your items in a bowl of water and record your findings in the table below!

If you are doing this at home, please make sure you have an adult's permission/help as this might get a bit messy.

Material	Float or Sink?	Damage done by water if any?

### How big a raft?

In the story, we are told that the raft carries three animals; a goat, a monkey and a rooster. On this page you can investigate what different shapes and areas your raft could be/have.

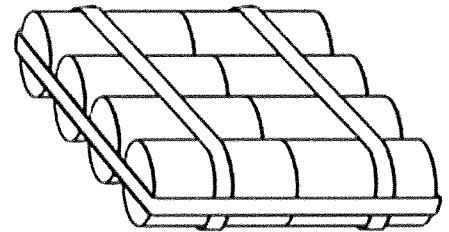
In the box draw the shape of your raft and add on the measurements you would need to fit a goat, a monkey and a rooster. Then calculate the area of your raft by multiplying the length and width (if it is rectangular or square). Can you think of more than one shape?

<div>Area =</div>	<div>Area =</div>
<div>Area =</div>	<div>Area =</div>

## Prototype

Now that you have tested your materials and decided how big your raft should be, you need to build a prototype. A prototype is a first or preliminary version of a device or vehicle from which other forms are developed. This means that it doesn't have to be exactly the right size or made from exactly the materials you tested; for example, if you wanted to use plastic you could use a plastic bottle for your prototype.

If you want a particularly accurate prototype you could try to make it a scale model, this is a small but exact copy of your raft. This usually involves making a scale; for example each 1cm is worth 5cm so if your prototype was 5cm long your actual raft would be 25cm long.



Don't worry if you don't want to try and do this as it is very tricky! In the box below you could put a photograph of your prototype.

### How much weight?

One of the final steps in any project is testing your product. In this activity you will be using your prototype to test whether your raft will be able to carry the weight of the monkey, goat and rooster.

To do this you will need; a bowl of water, your prototype and some weights (these can be anything in your house as long as you know how much they weigh, you could use some scales to work this out).

Put your prototype in the water first and see if it floats, if it does then you can write yes in the first box to record that it will float with 0g of weight. Then gradually add more weight to your raft recording the weight and whether it still floats. Keep adding weight until your raft sinks to the bottom of the bowl or you run out of space in the table below.

Weight in grams	Still floating?
0	

## Evaluation

This page is all for you to record your thoughts and feeling about the process you've just gone through. How did you get on? Did your raft float? Could it hold lots of weight? Do you think you used the right materials? Write down all of your thoughts, good and bad, you will need these for the final page where you will draw your final design of your raft, there you can include any adjustments you think you need to make after testing your prototype.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



# My Raft

In the box below, draw a picture of your final product. An amazing raft that will carry the animals across the river to take their place in the Chinese Zodiac.



# Congratulations!

Well done for completing the Chinese New Year STEAM

Challenge!

Date:

Signed: Miss Whitaker