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Transport

Book 1

Activities for 8-10 yrs



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Making a Helicopter (2)

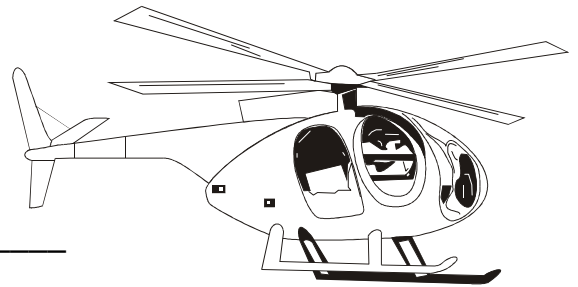
3. Using your design from page 10, experiment with the blade length. Construct another helicopter using longer blades and one using shorter blades. Test all three helicopters from the same height.

What differences are made to the flight pattern? Give details of the blade lengths.

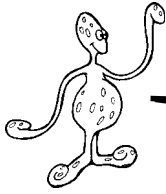
4. Make your blades out of different materials, e.g. plastic, popsticks, feathers, Plasticine. What works best? Give reasons why you think certain materials fly better than others.

Conclusions:

Write up all of your findings. Decide which of your models was the best, giving reasons to support your answers.



Somewhere in a Galaxy ...(1)



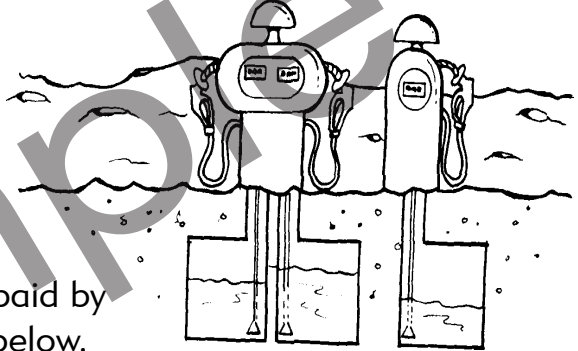
Greetings Earthlings ...
Wherever you live, one of the first things you learn when you own a vehicle is that it won't go if you don't put the right sort of fuel in it.

Match the machine with the fuel:

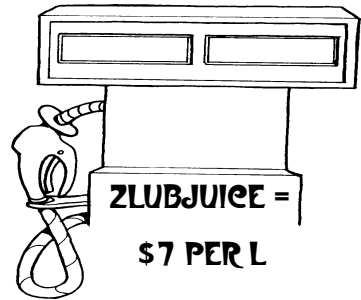
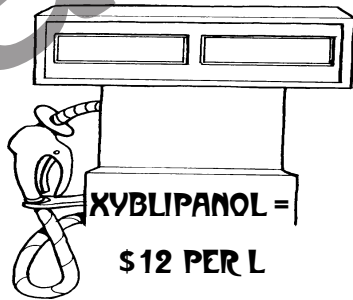
- aeroplane
- older car
- modern car
- bus
- solar powered car
- hybrid car
- space shuttle

- solid rocket fuel
- sun
- aviation gas
- diesel
- petrol and electricity
- unleaded petrol
- leaded petrol

Here on Planet Yaboodaboodoo our spaceships run on three different types of fuel. Like your petrol stations on Earth, the fuel is stored in large underground tanks.



Calculate how much money will need to be paid by each customer based on the prices shown below.



Write your answers below.

1) 50 L of Wibblegas

2) 5L of Xyblipanol

3) 19L of Zlubjuice

4) 26L of Wibblegas

5) 30L of Xyblipanol

6) 38L of Zlubjuice

7) 43L of Wibblegas

8) 45L of Xyblipanol

9) 23L of Zlubjuice

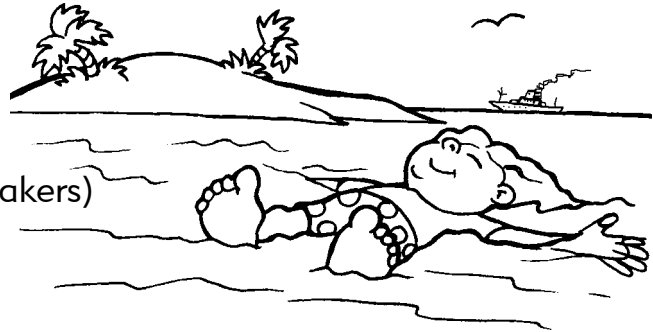
Density Experiment (1)

If you've ever been swimming in the sea you may have noticed that you seem to float better than you do if you go swimming in the local pool.



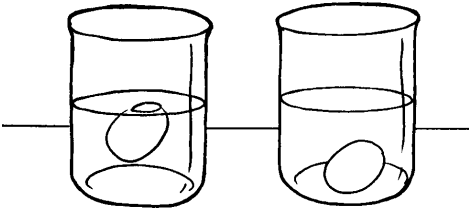
Let's find out why this happens.

You will need

- ◆ 2 clear containers (e.g. glass jars, drinking glasses or beakers)
- ◆ 2 eggs (raw)
- ◆ Salt
- ◆ Teaspoon
- ◆ Water

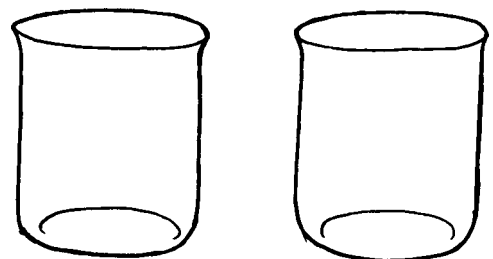


What to do

<p>1. Fill one container about half full with water.</p> 	<p>2. Place about 3 teaspoons of salt in the other. Half fill it with water and stir until the salt disappears.</p> 
<p>3. Gently drop the eggs into the water. You should notice something different about the way they float.</p> 	<p>4. Try swapping the eggs over to check that you haven't got a faulty egg. Do you get the same results?</p> <hr/> <hr/> <hr/>

Use the diagram to show what happens to the eggs. Label the eggs' water (fresh or salt).

Adding salt increases the **density** of the water and helps the egg to float. Like you, and the eggs used in the experiment, ships float higher in salty water.



As Easy As Pi (2)

- Think back to your experiment on page 24 and then answer the following. Did all of the bikes travel the same distance?

What happened to the distance travelled (the circumference of the wheel) as the height (diameter) of the bike tyre increased?

- Use a calculator to divide the circumference of the tyres by their diameter.

$\frac{\text{Circumference (cm)}}{\text{Diameter (cm)}}$
--

Round your answer to two decimal places, e.g. $1.23456 \approx 1.23$ and fill in the last column of the results' table.

Compare your results with another group's – if you have all measured accurately you should have the same number, which is _____.

This number is called **pi** or **π** .

Long ago the ancient Egyptians and Babylonians discovered **π** and people have been fascinated by it ever since. You rounded pi to two decimal places, but mathematicians using computers have been able to calculate it to more than 100 000 places!

What's My Name?

- Complete the "pi" words below:

- | | |
|----------------------------|----------|
| a. A musical instrument | PI _____ |
| b. A tube | PI _____ |
| c. A seed | PI _____ |
| d. Meal outside | PI _____ |
| e. A farm animal | PI _____ |
| f. A cushion | PI _____ |
| g. A fruit | PI _____ |
| h. A sea robber | PI _____ |
| j. A game played with bats | PI _____ |
| k. A colour | PI _____ |

