BALLOON BUGGY WORKBOOK

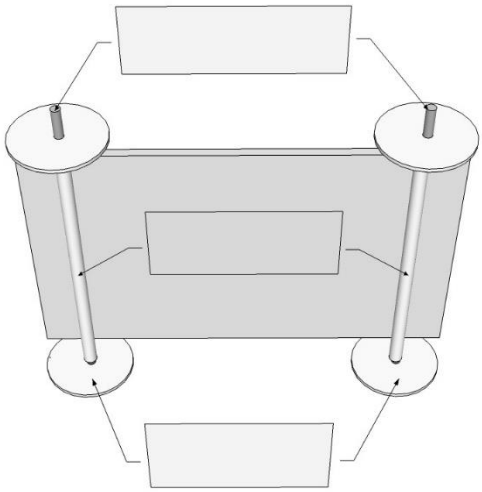
Name: .....

What force acts downwards on the buggy?

What makes the buggy accelerate across the floor?

When the buggy travels across the floor, what force acts to slow it down?

Label the wheels, axles and bearings on this diagram. What do the bearings do?

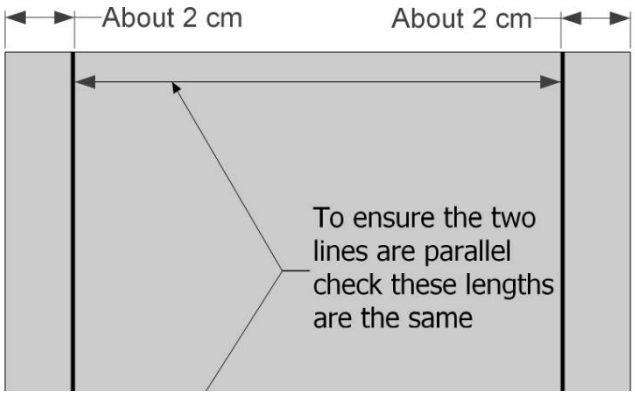


Where two surfaces move relative to one another, for example axle and bearing, the force mentioned above can act between them to slow the buggy down. Suggest more pairs of surfaces where this force could arise.

MY BALLOON BUGGY DESIGN

MAKE AND TEST YOUR BUGGY

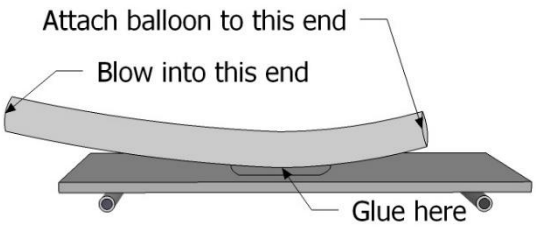
Decide which is the underside of your buggy base. Mark on where to put your straws (bearings). Make sure the lines are parallel.



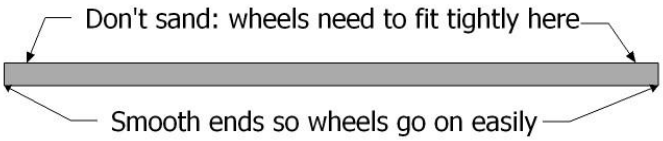
Measure and cut your bearings - they should be about 2cm longer than the width of your base. If the ends become flattened during cutting then round them out with the pencil.

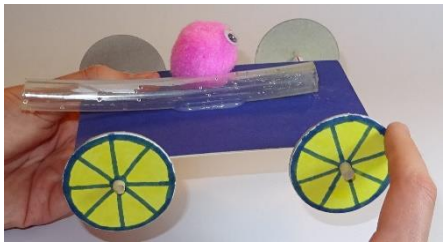
Run a line of glue across the base, hold a bearing by its ends and place it on the line of glue. Repeat for the second bearing.

Turn the base over and glue on the hose. Position it so that you can blow into one end of the hose and attach the balloon to the other end.



Mark your axles (dowel) 2cm longer than the bearings. Ask an adult to cut them for you using the secateurs. Smooth the very ends to help the wheels go on.





Colour in the wheels. For each axle, fit one wheel, slide the axle into the bearing then fit the other wheel. Leave a small gap between the wheel and the end of the bearing. Hold the base and spin the wheels to check the axles turn easily. If not, can you make improvements?

Fit the balloon and attach any passengers. Then try out your buggy. How can you get it to go as far/fast as possible?

What was the maximum distance your buggy travelled?

Did the buggy go further on a smooth floor or on carpet?

What was the distance you timed your buggy over?

What time did you record for your buggy?

What was the average speed of your buggy?

Extension questions:

Did you make any improvements to your buggy? What effect did these have?

Suggest possible reasons why some buggies go faster than others.