

## G-METER

A common unit to describe forces we feel is the "g." One g is equal to the force of earth's gravity. When the space shuttle takes off, astronauts feel about three g's of force (three times the force of earth's gravity). How many g's do you feel on the swings, on your bicycle, on an amusement park ride, or in a car? You can make a "g" meter to measure these forces.

1. Obtain the following materials for each g meter:

- copy of g meter on next page
- thin cardboard
- glue
- scissors
- string or heavy thread
- metal washer

2. Make a copy of the g meter.

Cut out the g meter.

Glue the g meter to a thin cardboard and trim to size.

Take about 15 cm (6 inches) of heavy thread and tie one end to a weight such as a key or washer. Tie the other end through the hole at the top of the g meter.

Hold the g meter in front of you. Let the thread hang down so that it lines up with the 0 g mark.

If the g meter moves in the direction of the arrows, the weight and string will tell you the force in g's.

In order to have the g meter work properly, the top edge must be horizontal, level with the horizon.

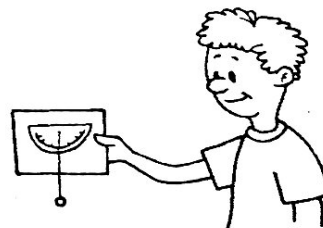
3. Now that you have your g meter, try it out.

Hold the g meter in front of you when your parents drive the car around a corner. How many g's did you feel? Is there a difference between going around a corner slowly and going around it fast?

Hold the g meter beside you while you are on a swing. Hold it so that the arrows point in the direction you will be going. As you swing, how many g's did you feel?

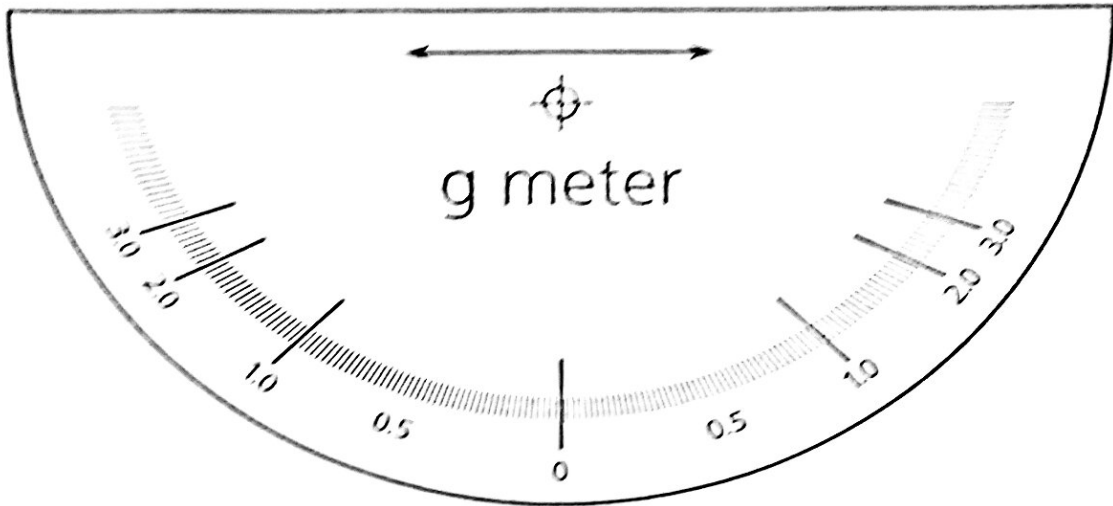
Use the g meter on the merry-go-round at the playground. Sit on the outside edge of the ride and point the arrow toward the centre. How many g's do you feel? What happens to the number of g's as the ride moves faster? What happens to the g's if you sit closer to the centre of the ride?

Use the g meter on the Amusement Park rides. How many g's does each ride create? How does each ride do it? Do some use speed or turns to create large forces?



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Trace and cut out this g meter.



Attach string and washer as shown.

