# PHYSICS

## ROLLERCOASTER

**Brief summary of activity:**

The user has to design a rollercoaster track. The user has to make the track exciting by making tight curves that are not considered harmful to the rider. To do this the user has to apply their knowledge of 'G Forces'.

**Specific Curriculum Area:**

**Year 9** — Unit 9K: Speeding up, Section 4: How do forces affect speed?

**Assessment method:**

Teacher observation.

**Differentiation:**

There is no obvious area of differentiation within this task except for the increasing difficulty when levels are completed.

**Learning objectives:**

Children should learn: that a force produces a change in speed (an acceleration); that in the absence of force, objects move at a steady speed, or remain stationary; to make generalisations about forces and speed.

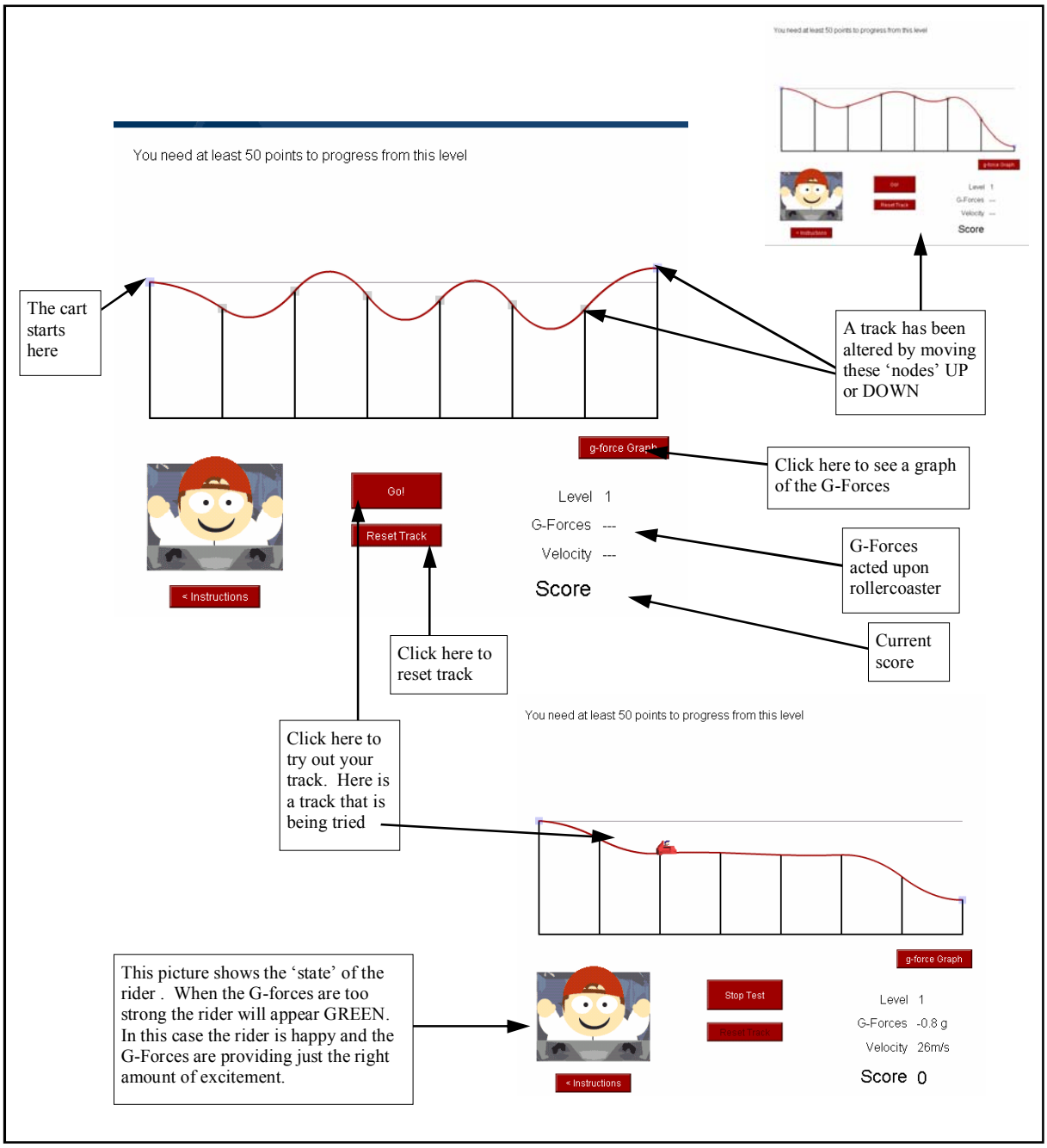
**Use of Activity in a lesson:**

This task could be set as a homework activity, assuming Internet access is possible. Alternatively, the teacher could demonstrate the task to the class (via an Interactive Whiteboard).

**Hints and tips for teachers:**

1. Tell pupils not to get frustrated if they do not succeed until having had many attempts— encourage trial and error. This particular activity requires subtle alterations to be made in order to enhance the final run.
2. At higher levels the tracks have more nodes to alter and higher scores have to be obtained in order to progress. For this reason it is important that the user reads the instructions fully as these provide invaluable assistance.
3. Pupils having difficulty should keep click the 'stop test' button as soon as they see something go wrong with their track. This allows them to make alterations immediately, instead of having to wait for the 'truck' to settle.
4. Be careful when altering nodes as moving one up or down can have a serious effect on all of the subsequent nodes ie. they move too and will 'throw out' any earlier design.

**URL:**




**Troubleshooting:**

**Other links:**

http://www.standards.dfes.gov.uk/schemes2/secondary_science/sci09k/09kq2