

A2 ACTIVITY 8: THE ENERGY OF SKATING

Background

This activity also makes use of [PhET simulations](#) from the University of Colorado, Boulder, USA. The simulations are interactive and have the added bonus of being available in different languages. The simulation [Energy Skate Park](#) contains a comprehensive teacher's guide and helpful suggestions, and can be used as a whole-class activity led by either the students or the teacher, or as an activity where the class is divided into groups.

The simulation uses a skateboarder to explore the **conservation of energy** and different types of energy. As well as using different types of tracks there is a graphic representation of the **energy changes**.

What you need:

There are three ways to run [PhET simulations](#):

- Run them online in class, or;
- Install all the simulations onto a drive thus eliminating the need for an internet connection to run the simulations, or;
- Download the simulations needed, again eliminating the need for an internet connection to run the simulations.

Suggested approaches:

- This link: <https://phet.colorado.edu/en/simulation/skate-park-basics> leads directly to the simulation.
- Showing the simulation on the whiteboard makes it possible for all the students to participate. Students can guide either the teacher or other students in the actions taken. Using the simulation this way helps to ensure that the whole class are seeing the same thing and allows the teacher to address any possible misconceptions as they come up.

Preview

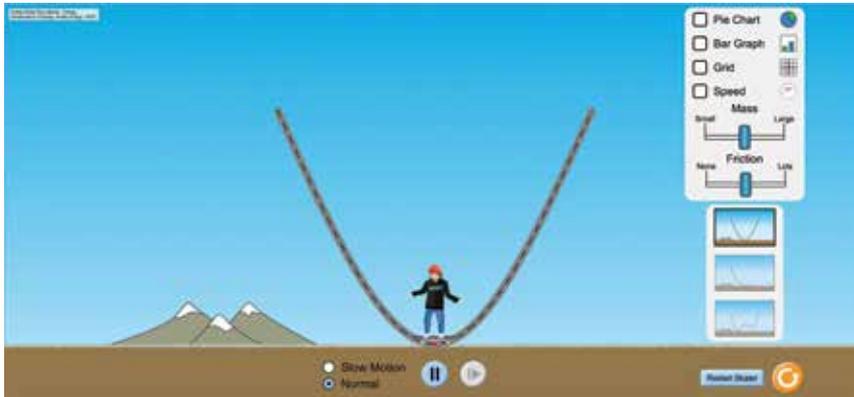
There are three activities in this simulation:

- The first exercise is an **introduction to the energies involved in skating**. Students can examine the skate path on the three different tracks either in slow motion or at normal speed while at the same time viewing the various energies involved on a graph that displays **height, mass and speed**. The students can use this simulation to discover how **changing the mass of the skater alters the energies involved**.



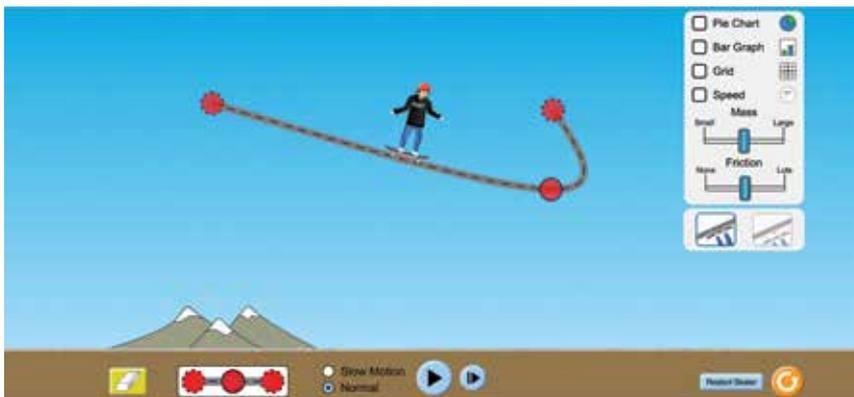
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2. The second simulation shows the effect of **friction** on the skater. There are **two variables** – the **track shape** and **friction**. The action is viewed within a graph that displays these variables.



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3. The third simulation allows students to design and virtually build their own tracks. They then use these to explain the **conservation of energy**.



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