

Energy Skate Park

Part A – Beginning Commands

a) click on 'potential energy reference' – why is this useful? _____

b) click on 'show grid' – do you find this useful? Why or why not? _____

c) click on 'show path' – these purple dots are taken at the same time interval. You may find it helpful to 'clear' the path or 'stop' showing path.

Describe the pattern of purple dots. _____

Connect this pattern to the speed of the skater _____

Part B – Types of Energy

d) click on 'bar graph'. Describe what you see as skater moves up/down. Mention kinetic, potential, thermal and total energy.

e) click on energy vs. position and energy vs. time graphs. Try to make sense of these graphs. Remember you can 'stop' the action at any time at the bottom of the main screen. You might want to sketch one below to help you remember.

f) Kinetic energy does reach zero at times. Why? _____

Potential energy does NOT reach zero at any time. Why? _____

Part C – Add friction – near the bottom – click on 'track friction'. Choose a medium amount of friction.

g) What happens to the skater now? (that is different) _____

h) You may need to 'return skater' to start him again. Click on 'show graph' if the bar graph isn't up already. Now return skater and watch what happens until he stops moving.

Sketch and label this last bar graph.

i) 'return skater'. Click on 'potential energy reference'. Move it up to the bottom of the skater's ramp. Now run it again with the bar graph . what do you notice about this final bar graph? _____ Sketch and label below.

j) There is a law in physics called the 'conservation of energy' law. It is similar the the law of conservation of mass. Make a prediction. What do you think, based on your online experiments, the law of conservation of energy states?

Law of conservation of energy states _____

Time left over? Play around with the other controls.