Freefall Calculator Worksheet

In this activity, you will study what happens when you throw different objects off various cliffs. Since we can't go out to different cliffs, we will use a computer calculator to get our data. We will examine whether heavier objects fall faster then lighter objects, and whether the height of the cliff affects how fast an object hits the ground. All of the speed values will be the objects speed just as it hits the ground.

You will first collect all your data using the computer, then draw your graphs and make your conclusions.

Part One

We will first examine whether heavier objects fall faster than lighter objects. Do the following steps:

1. Enter the height of the cliff as 100 m. You will not change that value for Part One.
2. Enter the following values for the mass of the object and hit the calculate button. YOU ONLY NEED TO ENTER THE NUMBER, NOT THE UNIT, "kg."
3. Record the speed in the chart below.

Mass (kg)	Speed (m/s)
5	
10	
15	
20	
25	
30	
35	
40	
45	
50	

Part Two

Next we will change the height of the drop.

1. Enter the mass as 10 kg.
2. Enter the following values for the height of the drop and hit the calculate button. YOU ONLY NEED TO ENTER THE NUMBER, NOT THE UNIT, "m."
3. Record the speed in the chart below.

Height (m)	Speed (m/s)
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	

Part Three

Next we will change the height of the drop more dramatically.

1. Enter the mass as 10 kg.
2. Enter the following values for the height of the drop and record the speed

Height (m)	Speed (m/s)
25	
50	
75	
100	
125	
150	
175	
200	
225	
250	

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