

If You Could.....

Before completing this worksheet, find your height in inches and centimeters.

Name: _____ Height in inches: _____

Height in centimeters: _____



Part One Hop Like a Frog

The frog is an excellent jumper. On average, a 3-inch frog can hop 60 inches. Write that as a ratio:

A frog can jump _____ times farther than its length. How many inches could you jump **if** you could jump like a frog?

How many centimeters could you jump **if** you could jump like a frog?



Part Two Be as Strong as an Ant

Ants may be tiny, but they are great weight lifters. For example, an ant that weighs $\frac{1}{250}$ of an ounce, can lift a bread crumb that weighs $\frac{1}{5}$ of an ounce. How much larger is $\frac{1}{5}$ than $\frac{1}{250}$?

If you were as strong as an ant, how much weight could you lift?

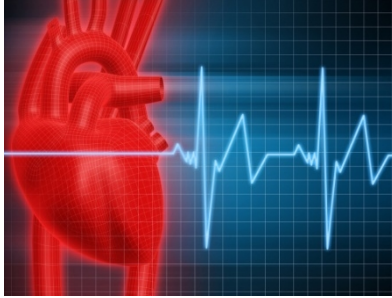


Part Three Scurry Like a Spider

Considering its length, a female spider is incredibly fast. It can move 33 times its body length in only 1 second! How many inches could you travel in one second **if** you were as fast as a spider?

How many feet could you travel in one second?

How many miles could you travel in one hour?



What's My Rate?

How many beats did you count in ten seconds? Imagine that this *heart rate* will remain unchanged. Complete the table below using this *rate* until you are able to identify your *beats per minute* .

Heart Rate Trial 1

Time (seconds)	Beats
10	
20	
30	

My first heart rate is _____.

How many beats did you count in fifteen seconds? Imagine that this *heart rate* will remain unchanged. Complete the table below using this second *rate* until you are able to identify your *beats per minute*. Explain how your heart rate changed.

Heart Rate Trial 2

Time (seconds)	Beats
15	
30	

My second heart rate is _____.



A Tale of Two Frogs

The Story of Hip Hop

Marty's frog Hip Hop jumped for several seconds. After measuring the time and distance, Marty wrote this equation: $d = 5.4t$. Using this equation, help Marty complete the table below.

<u>Time in seconds</u>	<u>Distance in centimeters</u>
10	_____
15	_____
18	_____
30	_____
—	270

1. Explain how the rate of 5.4 centimeters per second can be found using the data in the table.
2. Explain how the table demonstrates that the graph of this relationship would be a straight line.

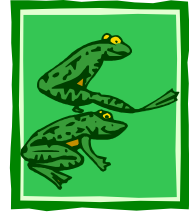
The Story of Frogger

Gisella's frog Frogger jumped for 20 seconds and reached a distance of 140 cm. Gisella created a table of values using Frogger's average jumping rate. Help her complete the table below.

<u>Time in seconds</u>	<u>Distance in centimeters</u>
20	140
40	280
50	_____
55	_____
—	420

3. What is Frogger's jumping rate in centimeters per second? Show the work done to determine this rate.
4. What equation would Gisella write for Frogger? _____

More Frog Tales



Part One: Patrick's frog Jumper was able to hop at an average rate of 4 centimeters per second. Create a table, equation, and graph for Patrick's frog. Show all the work done to answer the five questions below. Be prepared to explain your reasoning.

Time in seconds	Distance in centimeters
0	_____
10	_____
20	_____
30	_____
40	_____
50	_____
60	_____

equation: _____

1. If Jumper could continue at this rate, how far could Jumper travel in an hour?

How far would this distance be in meters?

2. How long would it take Jumper to travel 300 centimeters?

3. Patrick decided to change Jumper's equation so that t represents time in minutes and d represented distance in meters. What equation did Patrick write?

4. Using Patrick's new equation, how long would it take Jumper to travel 12 meters?

5. Verify whether or not the relationship shown in the table is proportional.

Part Two: Dana's frog Cutie averaged 2 centimeters per second. Create a table, equation, and graph for Dana's frog. Graph Cutie's results on the same grid used for Jumper.

Time in seconds	Distance in centimeters
0	_____
10	_____
20	_____
30	_____
40	_____
50	_____
60	_____

equation: _____

Patrick realized that Dana's frog Cutie was never going to beat Jumper in a race. He wanted to give Cutie a head start to make the race more exciting. He decided to give Cutie a 50 cm head start. Create a new table, equation, and graph for Cutie with the head start.

Time in seconds	Distance in centimeters
0	_____
10	_____
20	_____
30	_____
40	_____
50	_____
60	_____

equation: _____

6. If the race lasts one minute, who will win? Prove your conclusion in at least two ways.

7. Did any graphs intersect? ___ If so, what was the point of intersection and what did it mean?

8. Which of the equations for Cutie was NOT proportional? _____ Explain why it does not form a proportional relationship.