

# GET A GRIP!

## Student Activity 1D Data Page



### Part II - Relating Size of Hose Clamp to Newtons of Force (Record your data in the Table Below)

The Number of Turns on Hose Clamp to Equal 50 N of Force

Trial Number	Number of Turns Equal to 50 N Force
1	
2	
3	
4	
5	
Average	

Calculate average here and record in the table above:



Handwritten area for calculations with horizontal lines.

1. Why did you repeat this measurement five times and calculate an average?

Handwritten area for answer 1 with horizontal lines.

2. Why is it necessary to know how many turns on the hose clamp equals 50 N of force?

Handwritten area for answer 2 with horizontal lines.

### Part III – Relating Height of Water to Force Applied

Force (N)	Height of Water in Tube (cm)			
	Trial 1	Trial 2	Trial 3	Average
0				
50				
100				
150				
200				
250				
300				
350				

Calculate averages here and record in the table above:



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1. Why did you repeat these measurements three times and calculate an average?

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2. Why is it necessary to know how the height of water in the tube of the grip meter is related to force in Newtons?

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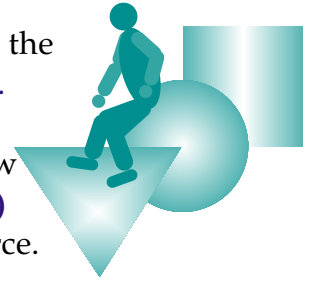
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## Part V – Testing Grip Strength

Record the data you collect using the Grip Meter to test grip combinations in the Table below entitled **The Effect of Grip Combination on Force (N) Produced**.



Look at the grip combinations listed in the Table below entitled **The Effect of Grip Combination on Force (N) Produced** and *predict* which will produce the most force.

**The Effect of Grip Combination on Force (N) Produced**

Trial	Thumb & all Fingers	Thumb, Index, & Middle Fingers	Thumb & all but Little Finger	Thumb & Index Finger	Thumb & Ring Finger	Thumb & Middle Finger	Thumb & Little Finger
1							
2							
3							
4							
5							
Average							



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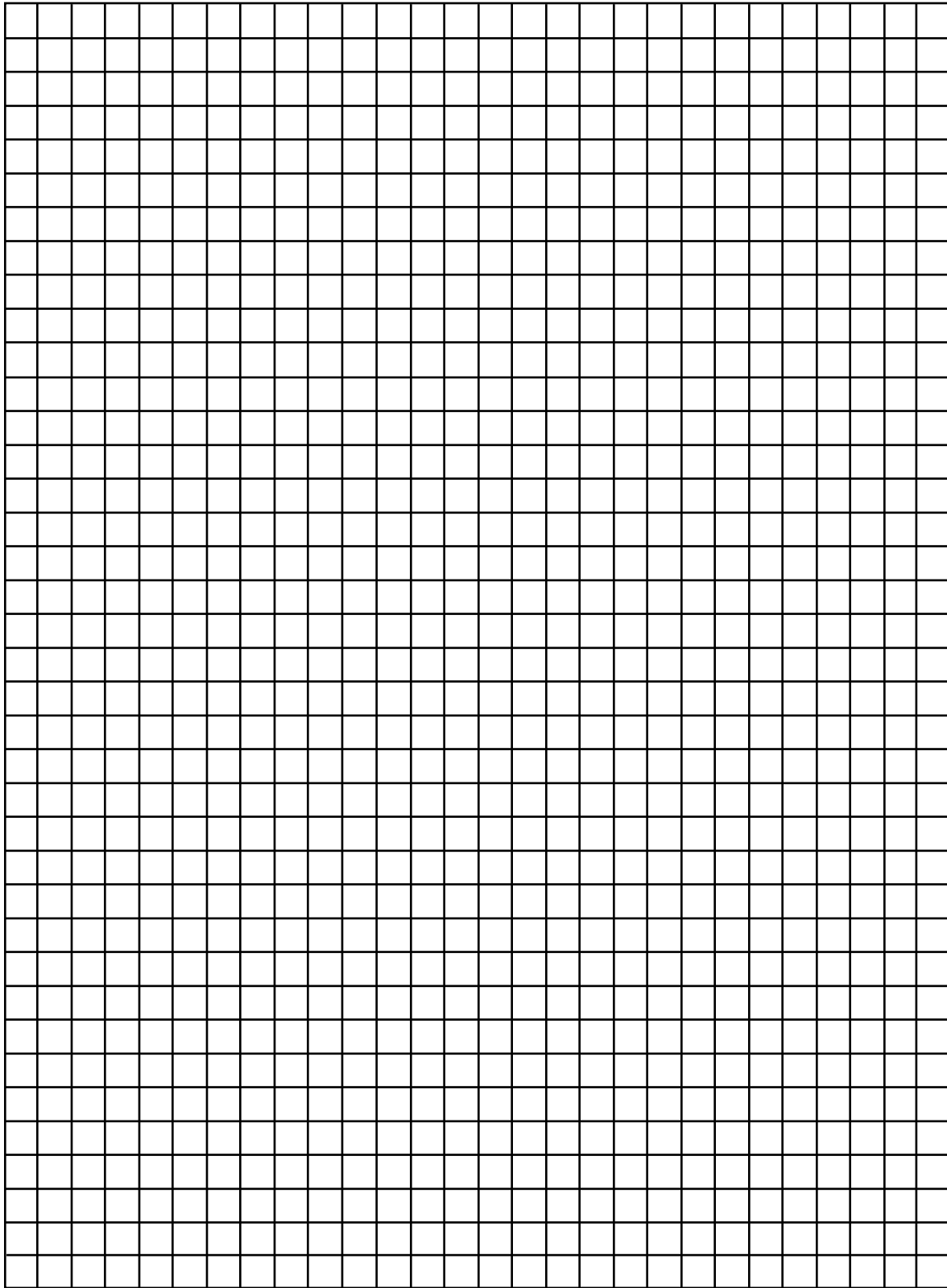
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Next, Graph the results you recorded in the Table (**The Effect of Grip Combination on Force (N) Produced**) above on the graph paper provided in this *Student Data Page*.

Student Name \_\_\_\_\_

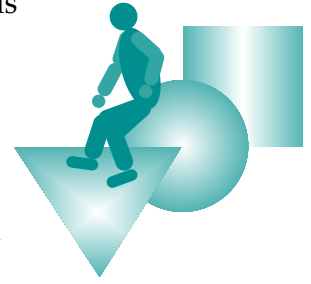


1. Which digit was included in every grip combination? Why do you *think* it is used so often?

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2. Which grip combination produced the greatest grip strength? Why do you *think* this combination allowed you to exert the most force?

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3. Which grip combination produced the smallest grip strength? Why do you *think* this combination produced the least force?

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4. In looking at the grips that used the thumb and only one other finger, which finger is capable of exerting the most force? Can you be certain that this finger is the strongest? Why or why not?

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5. When you held the grip meter with two fingers and then with all fingers, which grip produced the least amount of fatigue? Why do you *think* this happened?

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6. In a factory where workers must grip objects on an assembly line all day, which grip combination would be best for them to use? Why?

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7. If the diameter of the grip meter bottle were twice the size, how might that affect grip strength? Why?

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8. What other factors might affect grip strength? How could you design an experiment to test one of these other factors?

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