Friction: What a Drag!!

Words to know before participating in this activity:

1. Friction
2. Surface
3. Newton

Objectives:
1. Recognize that weight and surface type affect friction
2. Recognize that surface area does not affect the friction
3. Recognize the difference between controlled, independent and dependent variables
4. Recognize that some things are hard to measure like friction because the spring scale needle vibrates

Materials:
- wood block
- spring scale
- metric weight set
- string
- different surfaces

Before beginning the activity, think about what factors can affect the size of a frictional force.

List 3 things that can affect frictional force

Do some experimenting to see which combinations of items increases frictional force. Things you might want to consider are length of item, how tall the item is, how much weight it has, material it is going over, different amounts of things, etc. **MAKE SURE THAT YOUR EXPERIMENTING IS IN A SAFE AND APPROPRIATE MANNER SO THAT YOU DO NOT LOSE YOUR LAB PRIVILEGES.** While you are experimenting, make sure to pay attention to the independent variables, the dependent variables and the controlled variables. Also, make sure that when you are pulling with the spring scale, that you are pulling straight and not at an angle as that can change your results.
**Performance Assessment:**

I informally assessed each person while we were experimenting in the lab. The following questions are a formal assessment of what you learned during the experimenting time.

1. What happens to the frictional force if I double the weight by stacking one block on top of another block?  
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2. What happens to the frictional force if I keep the weight the same, but double the amount of surface area?  
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3. What happens to the frictional force if I double the surface area and double the weight?  
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4. Explain how the surface type affects the frictional force making sure to use examples to support your answer.  
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5. What happens to frictional force if I use one block, but double the amount of weight in the block?  
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