RGM Newton's Laws Analysis

Physical Science and Technology

This is an individual assignment – you should do your own work, on your own paper. Please do this assignment in your notebook as part of your notes (there will be a quiz during the next class period).

Pick ONE simple machine from your Rube Goldberg Machine (a pulley, a ramp, or a lever). The simple machine must interact with another object (like a string, a ball, a weight, or a car). There must be a FORCE between the object and your simple machine, and this force must affect the motion of either the object or the machine.

1. Draw a picture of the simple machine you chose along with the object it interacts with. On your drawing, include arrows that show the location and direction of the two forces predicted by Newton's 3rd Law. (Remember – as one object pushes another object, the second object pushes on the first at the same time.)

2. In 2-3 sentences, explain how Newton's 1st Law (it takes a net force to change the motion of an object) helps you understand the motion that is occurring as your simple machine interacts with the object.

3. In 2-3 sentences, explain how Newton's 2nd Law ($F_{net} = m * a$) can help you predict how quickly acceleration will occur due to the forces that are involved with the motion you are describing.

4. Pick EITHER the simple machine or the object interacting with it, and draw a free-body diagram. (This should be a separate drawing from your work in part 1.) Remember that a free-body diagram only shows ONE object, and it shows all of the forces that are pushing or pulling ON THAT OBJECT.