# TASK:

You need to design, build and test a machine that will help you to solve a problem or challenge. This project will be completed over the next several weeks during class time. You will go through many rounds of planning and designing, building and testing, evaluating and redesigning your project.

You will use the video clip from the movie "Elf" as your inspiration.

#### You get to break the school rules - LET'S BUILD AND THROW SNOWBALLS!

Your challenge is to help Buddy the Elf by building a machine that will do one of the following tasks;

- Build 1 snowball
- Build many snowballs
- Move your snowball(s) from one location to another
- Throw your snowball at a target
- Throw your snowball over a large distance

Your machine must accomplish one of the above criteria. If you want a challenge, try building a machine that accomplishes two or more of these challenges with one device!

### CONSIDER:

Who?	Who will this machine help? Who can use this machine?
What?	What materials will I need to build this machine?
Where?	Where can this machine be used?
Why?	Why is this invention helpful and why should I build it?

## AT THE END OF THIS ACTIVITY:

- You must have a machine/device to show to the class.
- You must be able to show and explain *the process* that you have gone through from the start to the finish of your project. A true engineer will design, build, test and then redesign and re-test **MANY** times in order to invent the best possible device! They are never happy with the first/easiest answer!
- Your machine needs to move/work and you should be able to demonstrate and explain how it works to solve your problem during a short presentation to the class.
- Your invention must use a minimum of 2 simple machines (screw, wedge, inclined plane, lever, pulley, wheel and axle/roller) combined together to make a more complex machine. You can use more than 2 simple machines but NOT less!

### ASSESSMENT:

Upon the completion of this assessment, you will be marked on:

- <u>Your process</u>: The planning, designing, testing, self-assessment, re-designing, retesting, self-assessment, etc. (your project Log)
- <u>Final project</u>: What is the problem that this device was designed to solve? Is it creative? Practical? Realistic? Have you included and identified simple machines into your final project?
- <u>Question sheet</u>: You will be required to give detailed answers and explanations about your project in complete sentences.
- <u>Presentation</u>: You will demonstrate to the class how your device works, what its purpose is, and provide an explanation about how you made it. You should also be prepared to answer questions from your classmates about your device/invention.

Have fun and be creative!