Mars Rover Design Challenge

Situation

The Mars Rover is part of a fleet of "all-terrain vehicles" (ATV) that can navigate over various terrain, including meteors.

Problem

Design, construct and test a self-powered rover that can scramble over rough terrain.

Specifications

- Your rover must traverse across the length of an open book (upside down)

- You may use any open book (the larger, the bigger the challenge)

- Your rover must be powered by elastic bands

- You may make the rover any size

- Considerations: Driving wheels should carry weight, elastic bands can be chained together or single or cut, wheel size and shape (is circle always best?)

Materials

- 3 elastic bands

- 4 wooden skewers

- Scissors

- 30 cm duct tape

- Cutters

- Cardboard: 1x6" square, 2x5" square, 2x2"square

- Candy

- Pencil

- Straws

Due Date:_____

Research

- What is kinetic energy?

- What is a chassis?

- What are the simple machines used in this vehicle?

- How can the elastic bands be used as power?

Sketches

- Each person in the group must create at least 1 sketch that demonstrates an idea

- Create one idea as a group and develop into a final sketch on graph paper. Include measurements and labels for how you intend to use your materials.

Design

- Construct your solution to the problem

Evaluation

Test your design to see how it performs. Take some time to re-evaluate and modify the design if necessary using the remaining materials.

Evaluation Questions:

1) Did your design solve the problem? Why or why not?

2) What modifications did you make?

3) What are some positive features of your design?

4) How could the design be improved or innovated?

5) How did you contribute to the group?How did your partners contribute to the group?

Challenge Timeline

	Class	Date	Task
	1		Complete Research , Thumbnail Sketches and Refined Sketches
	2		Make a decision on design and create working drawing. Once approved start building
	3		Complete building and Test your design.
	4		Complete evaluation and your report as a group.