Create Alternative Solutions – Due

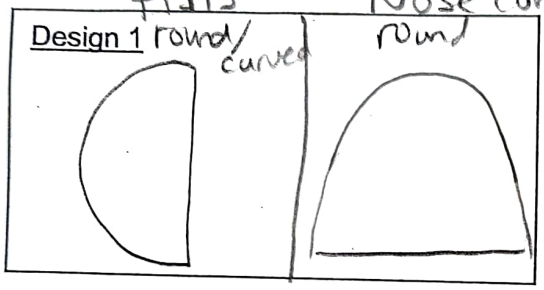
Illustrate 3 concept designs below and rate how effective, efficient and durable the designs may be under a range of controlled test conditions. Make sure each design is clearly labeled.

Describe the test conditions and how will you measure the success of your design:

I will launch a control rocket unchanged Standard nose cone, body, fins All launched on the same day

fins Nose cones

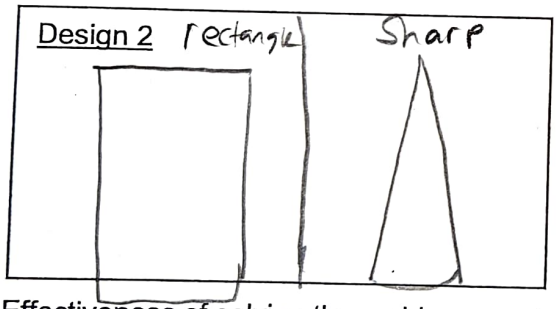
Design 1 round/curved round



Criteria – Rank your Prototype #1 (circle 1,2,or3)					
Material availability		Cost of materials		Will you need help?	
Rare	1	Expensive	1	Yes!	1
Can get	2	Some cost	2	Maybe	2
Have	3	Recycled	3	Not at all	3
Total of design rankings = _____					

Effectiveness of solving the problem - explain your reasoning:

Design 2 rectangle Sharp

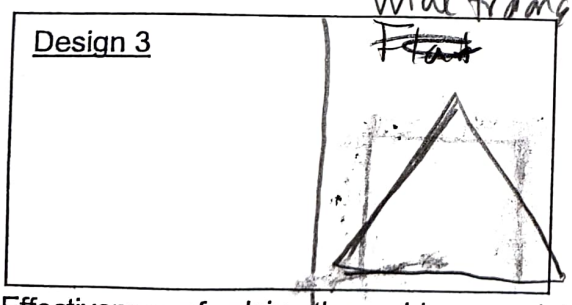


Criteria – Rank your Prototype #2 (circle 1,2,or3)					
Material availability		Cost of materials		Will you need help?	
Rare	1	Expensive	1	Yes!	1
Can get	2	Some cost	2	Maybe	2
Have	3	Recycled	3	Not at all	3
Total of design rankings = _____					

Effectiveness of solving the problem - explain your reasoning:

Wide triangle

Design 3 ~~Flat~~



Criteria – Rank your Prototype #3 (circle 1,2,or3)					
Material availability		Cost of materials		Will you need help?	
Rare	1	Expensive	1	Yes!	1
Can get	2	Some cost	2	Maybe	2
Have	3	Recycled	3	Not at all	3
Total of design rankings = _____					

Effectiveness of solving the problem - explain your reasoning:

Do Background Research Due

Find books, magazines, and websites or other references like interviews that will help you engineer your design. Use this research to develop your requirements, constraints and ideas of your design.

Important: List your resources in bibliography format. Use http://www.easybib.com to create your bibliography.

Resource 1. Sciencelearn.org Rocket aerodynamics

Short summary of information gained:
Rocket aerodynamics is the study of how air flows over a rocket and how this affects Drag and stability. the nose cone and fins on a rocket are Designed to minimise Drag, and to provide stability and control (Keep it pointing in the right Direction without wobbling).

Resource 2. Apogeerockets.com Basics of Rocket Aerodynamics optimization

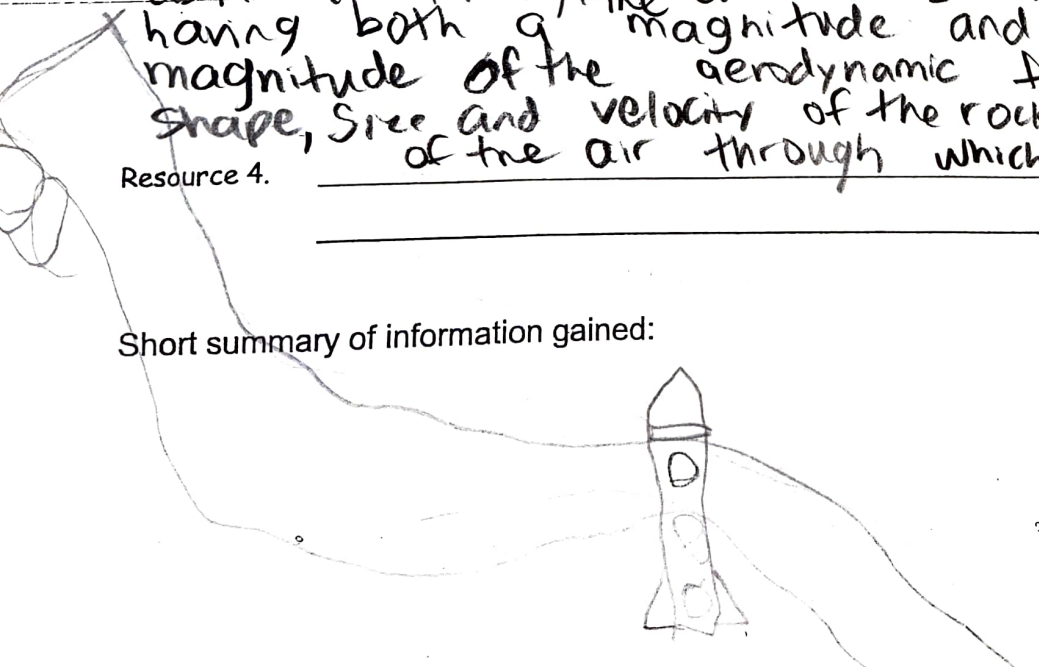
Short summary of information gained:
each fin has its advantages and disadvantages, so it is very important to pick the right fin shape for your rocket. theoretically, the elliptical offers the lowest induced drag for full size rockets but due to difficulty in construction the ideal choice for smaller rockets is the

Resource 3. www1.grc.nasa.gov/beginners guide to aerodynamics

Short summary of information gained:
Aerodynamic forces are generated and act on a rocket as it flies through the air. Forces are vector quantities having both a magnitude and a direction The magnitude of the aerodynamic forces depends on the shape, size and velocity of the rocket and some properties of the air through which it flies.

Resource 4.

Short summary of information gained:



The problem statement should clearly explain the following:

Problem: State the problem that you are trying to solve with this engineered design and tell how you will do this.

Personal Reasoning: Tell why you want to do this design or what made you become interested in this area of engineering.

Purpose of my Design: How will your engineered prototype solution contribute to society?

Problem: The problem I am trying to solve with this design is

The problem with rockets today is that they need a lot of fuel and energy to leave the Earth's atmosphere. I want to find a design that maximizes altitude and aerodynamics

To develop this design, I will

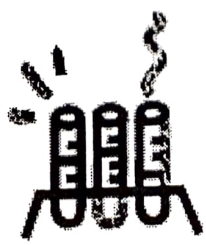
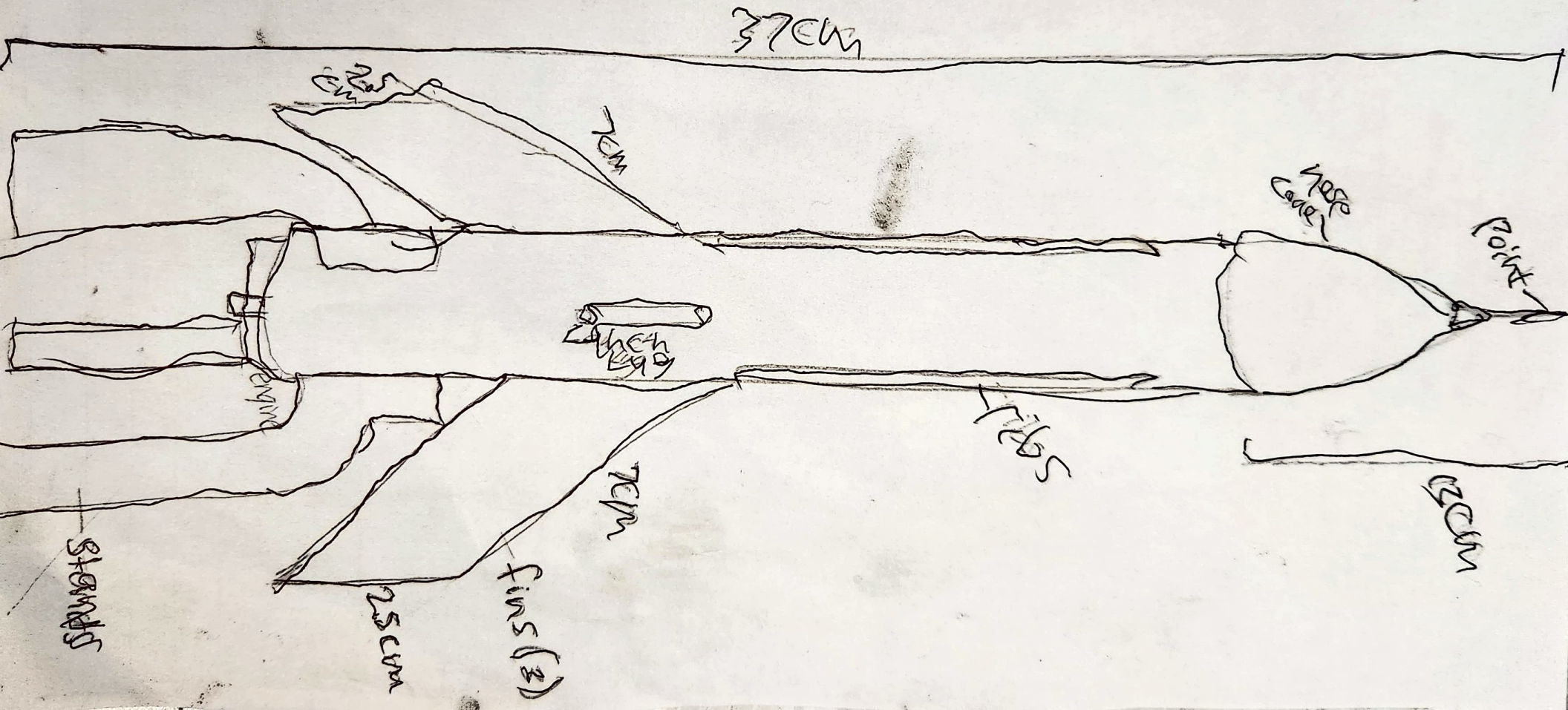
Test 3 different fin designs a 3 different nose cone designs to test their maximum altitude. I will then create an original design based on the results

Personal Reasoning: I want to design this prototype because

I am interested in rocketry and how astronauts get to space I did an experiment at school that sparked my ideas for better designs

Purpose of My Design: The purpose of my design is that it will help other people by

Understanding different rocket designs that can help us to get to further planets such as Mars.



The Guardian Rocket