**Rocket Challenge - Mission 6:**

# **In your team of 4 people, launch your rocket, record all the data you need and calculate all the energy involved in your rocket.**

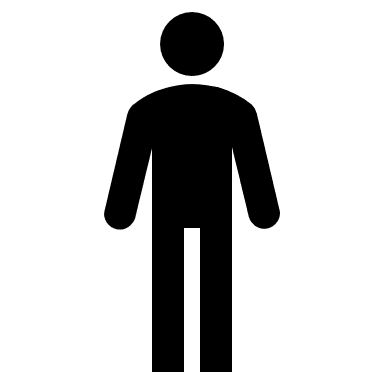
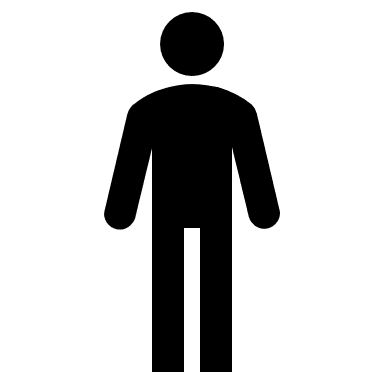
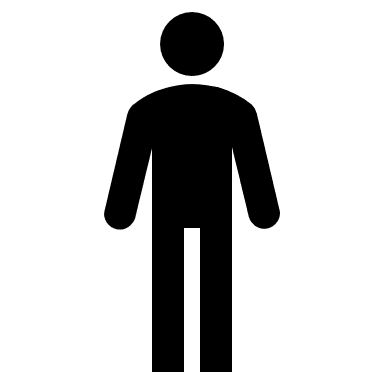
**Step 1:** In the space below illustrate the 3 types of energy involved with your rocket.

**Step 2:** Weigh your rocket and record the mass here: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ g

then convert to kg \_\_\_\_\_\_\_\_ (divide by 1000)

**Step 3:** Assign roles to every member of your group – when we get to the field everyone should know where to go and what they are doing! The speedometer person must be comfortable with the speedometer app or using slow-mo filming on their phone!

|  |  |
| --- | --- |
| **Name:** | **Role:** |
|  | **Angle Finder** |
|  | **Measurer** |
|  | **Launcher** |
|  | **Speedometer** |

**Step 4:** Launch your rocket and record all 3 data points you NEED ( 1 - 3) on the diagram below.

Speed (V): \_\_\_\_\_\_\_\_\_

Distance (L): \_\_\_\_\_\_\_\_\_

Rocket Angle (RA): \_\_\_\_\_\_\_\_\_

Distance: \_\_\_\_\_\_\_\_\_

**Step 5:** Use this information label the triangle.

H: ??

RA:

L:

**Step 6:** Solve for H.

H = L x tan(RA)

Get the stamp of approval from Ms. Lauder before going on to the next step!

**Step 7:** You now have all the constants you need to fill out the following table, so fill it out! Remember your order of operations! – PEMDAS!

|  |  |  |  |
| --- | --- | --- | --- |
| Type of Energy: |  |  | Mechanical |
| Formula: |  |  | ME = PE + KE |
| Constants: |  |  | PE and KE |
| Values for Constants: |  |  | PE: KE: |
| Equation: |  |  | ME = +  = |
| Energy Calculated: |  |  |  |

**Step 8:** How much energy will be transferred when the rocket lands? And knowing our law of conservation of energy where might it go?