Name: _____ Date: _____ Hour: _____

Procedure: Testing the variables: Do not launch the projectile towards anyone.

A. Mass of the Projectile:

1. Choose either the cork or the rubber stopper as the projectile.
2. Weigh and record the mass of the projectile in Data Table A on the Build a Model Catapult worksheet.
3. Set the catapult on the floor and hold down the base.
4. Press the lever arm of the catapult down to the base and place the projectile in the bottle cap.
5. Making sure no one is in the path of the projectile, release the lever arm.
6. Note where the projectile lands. Measure and record the distance from the front of the catapult to that spot. *Note:* Do not include any distance the projectile moves after the initial landing.
7. Record any observations of the path of the projectile or the performance of the catapult.
8. Repeat steps 1-7 for a total of 10 trials.
9. Repeat steps 1-8 for the other projectile.

B. Length of the Lever Arm:

1. Measure and record the distance from the center of each dot to the fulcrum in Data Table B on the worksheet (Length of Lever Arm).
2. Use the data from Part A for the cork projectile to fill in the distances in Data Table B for the longest lever arm (dot near the end of the lever).
3. Remove the cap and place it on the center dot.
4. Repeat steps 3-8 from Part A above with the cork projectile.
5. Move the cap to the Velcro dot closest to the fulcrum.
6. Repeat steps 3-8 from Part A above with the cork projectile.

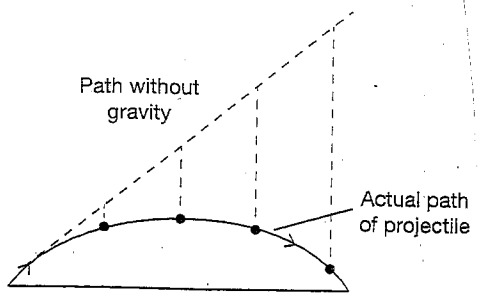

Figure 3.

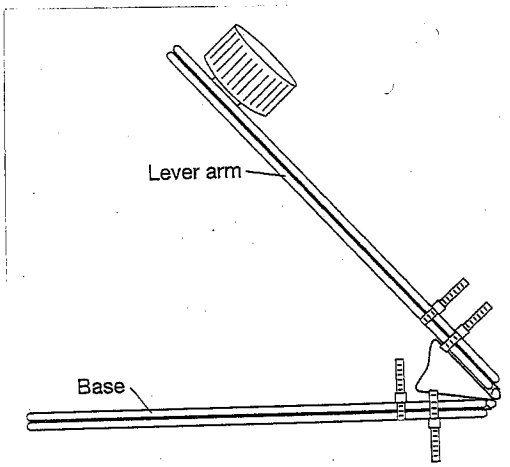

Figure 8.

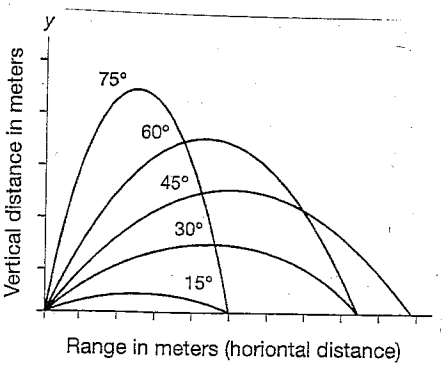

Figure 4.

Name: _____

Build a Model Catapult Worksheet

Data Table A. Mass of Projectile

Projectile	Rubber Stopper Mass:	Cork Mass:	Observations
Trial	Distance (m)		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Avg.			

Data Table B. Length of Lever Arm

Projectile:	Lever Arm: cm	Lever Arm: cm	Lever Arm: cm
Trial	Distance (m)		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Avg.			

Post-Lab Questions:

1. What acts as the fulcrum?

2. When the lever arm is released, what is the load that is being moved?

3. How did the mass of the projectile affect the distance it traveled in Part A?

4. How did the length of the lever arm affect the distance the projectile traveled in Part B?

5. How does the relationship between the fulcrum and the load explain the results from Part B?

6. What improvements could be made to the catapult to make it more successful in launching a projectile accurately?

7. What do we call the motion that the object travels with as it leaves the catapult?

8. What angle do you think will give a projectile the greatest launch distance? Why?