Name:_____ Period:_____

Background Information: Organisms in an ecosystem employ various strategies to balance the energy expended to obtain food to the energy gained from the food. Some of these strategies include, the seasonal migration of birds to areas where food is more plentiful, animals switching the type of prey based availability, and the hibernation of some animals during harsh seasons of little food. A hummingbird must not expend more energy hovering at a flower compared to the amount of energy gained from the nectar, or a coyote chasing a mouse cannot use more energy than is gained from catching one. If an organism using more energy than it can obtain eventually it will die. In this lab you will be simulating organisms obtaining prey. Each of you, like organisms may have a different strategy you use to obtain energy.

Purpose: To obtain as much of the best (high calorie) food you can during the class period.

Prediction: Will more students choose to use more energy for a greater reward, or use less energy for a smaller reward?

Procedures:
1. Pick a slip of paper from the hat
2. Perform **OPTION 1** when your teacher tells you to begin. If you performed the task obtain food from your teacher.
3. Report to the class recorder which task letter you had and if you completed your task.
4. In Round 2 you may perform any **OPTION 1** task you choose. Check with your classmates and choose the best option for you. If you performed a task obtain food from your teacher.
5. Report to the class recorder which task you chose.
6. In Round 3 you may choose to perform **Option 1** or **Option 2**.
7. Report to the class recorder which option you completed.
8. Obtain food from your teacher depending on the task you accomplished.
9. Graph your results.
10. Answer analysis questions and conclusions.

Data Tables:

Table 1: Round 1

| Task Letter	Number Completed in Class	Incomplete in Class
A		
B		
C		
D		
E		
F		

Table 2: Round 2

Tasks	Number in Class who choose Task	Number who Completed Task	Number Incomplete who attempted
A			
B			
C			
D			
E			
F			

Table 3: Round 3

Number in Class who Completed Option 1	Number in Class who Completed Option 2

Graph: (Bar graph)

Examine all 6 tasks and plot them according to how much energy you think that they require

```
Amount of Energy
needed |
       |
       |_____
         A   B   C   D   E   F
```
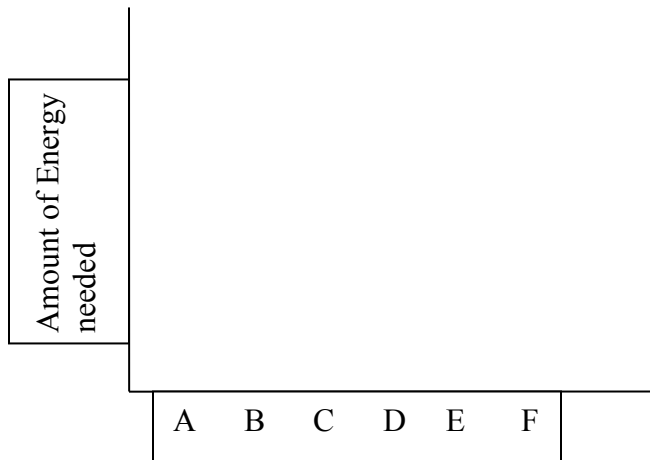
Analysis Questions:

1. Which students in the class were most likely to complete their given tasks? Why? Which were least likely and why?

2. Whom in the class do you think used the most energy?

3. Do you think those people who had to run around the parking lot 5 times used more energy in trying to get their food than they actually gained by eating the food? Why?

4. Why did most people choose the easiest option when given the choice?

5. What would make an organism choose the easiest option when given a choice?

6. In round 3 when you could receive a candy bar if you used more energy were you more or less likely to choose the harder option? Why?

7. How is a bird migrating in the winter like choosing Option 2 and receiving a snickers bar?

8. Can you think of any ways you lost energy in this activity? (hint: Did you feel your body temperature rise?)

9. Could you continue running for 7 days without receiving any food (energy)? Why not?

10. Could an ecosystem in nature work and work for days without receiving food (energy)? Why not?

11. Where did you receive energy from in this lab?

12. Where do you think energy comes from in an ecosystem, how is it added?

Conclusions (please use complete sentences):

What are 3 things that you learned about energy from this activity?

Create an analogy to nature with this lab.(eg.This lab is like a coyote hunting because. . .)