

Carrots vs. Snickers

Summary

Students will understand strategies organisms use to balance energy intake with energy expenditure.

Time Frame

1 class periods of 70 minutes each

Group Size

Individual

Materials

- hat
- paper
- large area
- bag of baby carrots
- mini snickers candy bars
- jump ropes
- overhead projector or document camera
- one large head of lettuce
- one large juicy steak
- king size candy bars (one for each class)
- [class recording data sheet](#)
(attached)
- [possible journal or discussion questions](#)
(attached)
- [student sheet](#)
(attached)
- [task sheet](#)
(attached)

Background for Teachers

Brief Activity Description:

This is a unit "hook" activity in which students will be introduced to the idea of using and obtaining energy in an ecosystem. They will also begin to understand that organisms expend different amounts of energy to obtain more energy.

Time Needed: 50 minutes with an optional 20-minute addition for class discussion

Notes to Teacher: This activity involves physical exertion. Be sensitive to students in your classroom with disabilities or clothing that might provide limitations. You might provide other options for these students or have them help with data recording.

Instructional Procedures

- Run off 6 copies of the task sheet (for a class of 36). Cut the tasks apart so each is a separate strip.
- Run off the overhead of the class data sheet.
- Make enough copies of the student sheets for your classes.
- Place the tasks in a hat (or other container) where students can pick one

Obtain all needed supplies. Your physical education department will most likely have jump ropes you can borrow.

6. Hook:

When students come in to the classroom place the carrot and the candy bar in a visible position. Take a poll of the students on which they would prefer for a meal. (Most will chose the candy bar) Ask student what they would be willing to do to get that meal. Have all the students stand in the classroom. Tell them to remain standing as long as they are willing to perform the task to obtain each food. Start with a small task (standing on one foot for 5 minutes) and move up gradually (you might end with: run a marathon) until you only have one student standing (you might give the candy bar to this student). Ask the students why they think most students were more willing to expend a greater amount of energy for the candy bar. Introduce students to the idea that organisms must budget their energy and balance intake with expenditure.

Pass out the student sheet. Have student read the background information through the predictions. Students should make their predictions.

Have students pick a slip of paper from the hat.

You will probably want to choose several students to help you supervise and record data as the tasks are completed. They should record the data on the overhead of class data. Then once the activity is complete this paper can be placed on the overhead for all students to copy the data.

Proceed with round one. Make sure students perform OPTION 1 from the tasks given them. If they do not perform the task they will not receive any food. Do not tell them before hand what the food is.

Give all students who accomplished their tasks a carrot. Record results in class data table.

Proceed with round 2, allowing students to choose any of the OPTION 1 tasks in order to obtain food.

Record results in class data table, and give whomever completes their task a carrot.

For the final round students may choose option 1 or option 2 from their original slip of paper. If they perform option one they receive a carrot. If they perform option 2 they are given a snickers.

Record data.

Return to class and put data on the overhead for all students to copy.

Give students time to make their graph and answer analysis questions and conclusions.

Follow up (if desired) with a class discussion using the discussion or journal questions provided.

Assessment Plan

Sample Scoring Guide:

Answers to Analysis Questions:

The students who had to use the least amount to energy were most likely the students who had to use the most were the least likely

The students who had to run around the parking lot

Yes because lettuce doesn't have very many calories and they burned a lot of calories running

Because they could use the least amount of energy possible to receive they food, more energy efficient

Same reason, trying to save energy

More likely to choose the harder option because the reward was greater, or we received more energy by doing so

They use more energy to get to where they are migrating but they get better food, or more energy in the process so it is worth it to them

I lost energy by using energy to run, and also through heat.

No! I would run out of energy

No, it would also use up all of its energy

My teacher, she gave me the carrots or snickers

The sun, through sunlight!

Answers to Conclusions:

Answers will vary but should be detailed and relevant. Be sure students use complete sentences. You may want to have students share their analogies.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)