You should now have a good idea of the steps and types of energy required to process a potato and a bag of potato chips for human consumption.

As a class, compare the steps each group has developed for each type of potato. Discuss the amount of energy that might be required by each type of potato product. Although you will not know exactly how much energy each type of potato product requires for processing, you should have a good idea of which type of potato processing requires more energy.

Now answer your research question: Which potato product requires more energy to be processed for human consumption?

## FACTivity: Go Outdoors

### Time required

One class period

### Materials needed

One 12″ new or used clay pot
One 12″ new or used clay saucer
One 12″ new or used plastic pot
One 12″ new or used plastic saucer
One new or used metal trash can lid (with no holes)
One large new or used sturdy plastic bucket
Acrylic sealant (brush-on or spray can)
Paint brush (if using brush-on sealant)
Heavy-duty outdoor glue
24″ rope
Two bricks (one preferably with holes)
Flat rock, about 4″ in diameter

In this FACTivity, you will answer the question: How does the energy use involved in the construction of three home-made bird baths compare when they are constructed?

This FACTivity involves a partial life-cycle inventory. The research article you read described a partial life-cycle inventory involving the manufacturing process up to production of the product. Complete life-cycle inventories include use, reuse, recycling, or disposal of the product. You will construct three bird baths from either new or recycled materials.

### Method

The method you will use to answer the research question is:

Your class will construct three different bird baths using either new or used materials. After construction, each bird bath will be compared on the basis of whether its construction involved new or recycled materials.

**Birdbath #1:** Clay pot, clay saucer, sealant
**Birdbath #2:** Plastic pot, plastic saucer, glue, flat rock
**Birdbath #3:** Plastic bucket, metal trash can lid, bricks, rope

Divide into three groups. Each group will construct one birdbath. Construction and placement should occur at about the same place. Place your birdbaths in an area away from bushes or other low vegetation, but close to a tree if possible. Low vegetation may hide predators, and trees will provide a place for birds to perch.

**Birdbath #1:**

1. The day before, seal the clay saucer with sealant.
2. Turn the clay pot over and position it where you want to place the birdbath.
3. Place the clay saucer on the over-turned pot.
4. Fill the saucer with water. Place fresh water in the saucer every day.

**Birdbath #2:**

1. Turn the plastic pot over and position it where you want to place the birdbath.
2. Glue the plastic saucer on the over-turned pot.
3. Place a flat rock in the center of the birdbath for stability.
4. Fill the saucer with water. Place fresh water in the saucer every day.

**Birdbath #3:**

1. Place the plastic bucket where you want to place the birdbath. This birdbath should be placed where there is complete shade during the hottest part of the day.
2. Place one of the bricks in the bottom of the bucket for stability.
3. Measure the bucket's height and subtract 4 inches. Cut the rope to this length.
4. Tie one end of the rope to the handle on the trash can lid.
5. Tie the other end of the rope around the second brick.
6. Place the trash can lid upside down on the bucket, letting the brick dangle inside the bucket. The brick will provide stability for the trash can lid.
7. Fill the trash can lid with water. Place fresh water in the lid every day.

Now that you have made your birdbaths, it is time to compare them. Each group will assess its own birdbath. This can be done inside the classroom.

Make a list of the materials used for your birdbath. Note if the material is new or used. You may use the example below to create your chart.

Type of Birdbath:

| MATERIAL | NEW OR USED? | NUMBER OF POINTS |
|---|---|---|
| Clay pot | New | |
| Trash can lid | Used | |
| Glue | New | |
| TOTAL POINTS | ---------- | |

If the material used is new, give it one point. If the material is used, give it a zero. Now add the points for your birdbath. If your birdbath was built entirely from used materials, it should have received zero points.

As a class, compare the point values of each birdbath. What do those values tell you about the energy needed to construct each birdbath? What does this comparison tell you about the energy involved in the use of new and used materials for construction?

**If you are a Project Learning Tree-trained educator, you may use Activity #69: "Forest for Trees."**