

Best Energy Buy in Appliances

Grade

9

Topic: Energy
Grade: 9
Course: Science, Academic
Code: SNC1D
Duration: 75 minutes

Students will conduct an investigation to determine the most energy efficient appliance given the available samples of different types.

Curriculum Expectations

- PHV.03: Evaluate the social, economic, and environmental costs and benefits of electrical energy production methods used in Canada
- PH1.11: Determine quantitatively the percent efficiency of an electrical device that converts electrical energy to other forms of energy

Background Information

A list of all the energy-using appliances and equipment in an average home would show why it is estimated that a well-equipped home consumes as much as 35 000 000 BTUs of energy each year to operate. Much of this energy is wasted and the first step toward conservation is to gain a better understanding of the energy efficiency of each appliance.

Accountability

Students will become aware of the fact that there are choices in the purchasing of appliances and have information to support making the most environmentally friendly choice.

Teacher Notes

1. Students should be put into groups of approximately 5 students
2. Five stations should be set up around the classroom each with three appliances (same type, different brands) at each station.
 - a. Station 1 – toasters
 - b. Station 2 – popcorn makers
 - c. Station 3 – can openers
 - d. Station 4 – hot plates
 - e. Station 5 – kettles
3. Rotating from station to station, students fill in the observation chart.
4. Make certain an equal quantity of substance (bread, popcorn, water) is used in each trial.
5. At the conclusion of the investigation students will determine which brand of each appliance is the best in efficiency of energy use.
6. Groups will compare results.

Home Extension

Students should test their appliances at home and compare to the results observed in class. Students could then make recommendations to parents about the purchase of new appliances.

Lesson Comments

1. Ask students to bring in the required appliances from home and/or use appliances available in school.
2. Food samples are required – 15 pieces of bread, 15 tins of ready to eat food with the same diameters (e.g., fruit cups), 15 small bags of popcorn.
3. Enjoy the products of your investigation.

Lab report: Best Energy Buy in Appliances

Name: _____

Complete the following by filling in the observation charts.

Brand of toaster	Time to toast	mass =

Brand of popcorn maker	Time to pop	mass =

Brand of can opener	Time to open	diameter =

Brand of hot plate	Time to boil water	volume=

Brand of kettle	Time to boil water	volume =