

Skills and Strategies

- Questioning and Predicting
- Planning and Conducting
- Processing and Analyzing
- Evaluating

Safety

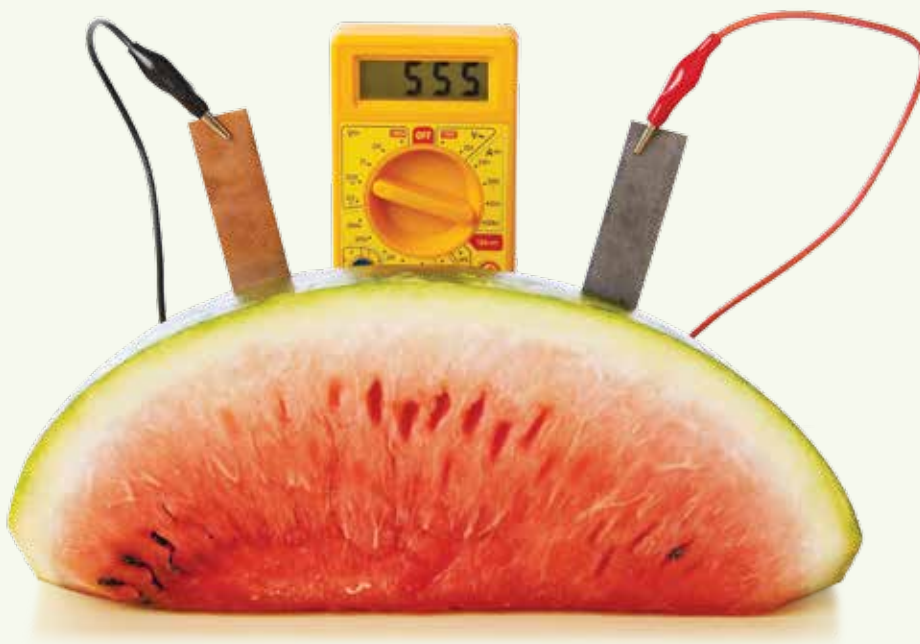
- Be careful handling sharp pieces of metal.
- Handle the multimeter with care.
- Advise your teacher if you are allergic to any type of fruit.

What You Need

- several types of fruit
- multimeter
- various types of metal strips or nails such as copper, zinc, iron, aluminum
- small electrical devices such as bulbs or motors
- wires with alligator clips

The Fruit Cell Challenge

In this investigation, you will create a wet cell from a fruit. If you connect the cell to a multimeter as shown below, you will be able to see that a current is flowing.

**Question**

What properties of a piece of fruit make it act like an electrochemical cell?

Procedure

1. As a class, decide on some type of challenge that teams will participate in with the fruit cells. For example, can a fruit cell light a small light bulb, or run a toy motor in a car? How long can a fruit cell run a device?
2. As a team, brainstorm a list of possible characteristics of a fruit cell that might contribute to its function as an electrochemical cell.
3. As a team, select two or three types of fruit and metal strips/nails to test for their ability to act together as a cell.
4. As a team, write a procedure for how you will assemble and test your fruit cells. Create a table to record your results.
5. Carry out your procedure.

6. Compare your results. Then choose the best fruit cell to use in the challenge.
7. Write a procedure for carrying out the challenge that the class chose.
8. Carry out the challenge.

Process and Analyze

1. Describe the cell that won the challenge. Suggest reasons why it worked best.
2. What did you conclude about the properties of fruit that allow it to act as an electrochemical cell?
3. Why do you think that fruit cells are not commonly used to run electrical devices?

Evaluate and Innovate

4. What could you do to improve your design for this investigation?
For example, could you use more than one piece of the fruit that you chose? What difference might more than one piece of fruit make? Would it have made a difference if you had softened the piece of fruit by rolling it with pressure? Write a paragraph explaining your ideas.

