

IT'S ELECTRIC!

The following experiment illustrates the concepts of conductors and insulators. Discover which fruits and vegetables conduct the most electricity and learn about the properties of conductors and insulators.

Procedure

1. Use sandpaper to file the tip of each nail and copper wire before the experiment begins.
2. Place one copper and one zinc electrode into a banana one inch apart.
3. Using the voltage meter, touch each electrode to measure the electricity and record the data in a table as shown below.
4. Next use the copper/steel combination.
5. Repeat with the zinc/steel combination.
6. Repeat steps 2-5 with each fruit and vegetable.
7. Record all the data in the chart, as shown below.

Materials:

- Ruler
- Voltage meter
- Sandpaper
- 2 steel nails - for electrodes
- 2 zinc nails - for electrodes
- 2 pieces of copper wire with plastic removed - for electrodes
- Fruits and vegetables: banana, apple, lemon, lime, orange, cucumber, carrot, potato, and tomato

Discussion

Which fruit was the best conductor? Which vegetable was the best conductor? Why do you think certain items were better conductors than others? Explain the difference in conduction when the electrodes were varied. Would a longer distance between electrodes make a difference in the amount of electricity conducted?

Conclusions

- The fruits and vegetables in this activity can conduct electricity.
- The electrodes react with the juice inside the fruits and vegetables to conduct electricity.
- The best electrodes are zinc and copper.
- The best fruit is an apple.
- The best vegetable is a carrot.
- The farther apart the electrodes, the better electricity is conducted.
- The best results were zinc and copper on opposite sides of an apple.

Volts measured from fruits and vegetables				
		Electrodes		
		Copper/Zinc	Copper/Steel	Zinc/Steel
Fruits and Vegetables	Apple			
	Orange			
	Carrot			
	Banana			
	Lime			
	Tomato			
	Lemon			
	Potato			
	Cucumber			

