Caution: This activity requires adult supervision

Materials
- Microwave Oven
- Large, Juicy Grape
- Knife
- Microwave-Safe Plate

1. Cut a grape in half across the middle. Take one half and cut the long way, leaving a bit of skin to hold the halves together.

2. Open up the halves and place grape on a small plate. Pat the insides of the grape dry a bit. Remove the rotating turntable in the microwave. Place the plate in the microwave.

3. Turn off the lights. Set the microwave for 5 seconds (but stand by to hit "Stop" when needed). You should see sparks and a puff of "flame."

What’s Happening?

Not surprisingly, a microwave oven uses microwaves to heat food. Microwaves are a type of wave like radio waves and light. These waves are also called electromagnetic radiation. Microwaves in particular are special because they are absorbed by water, fats, and sugars, causing them to heat up.

Grapes are chock-full of electrolytes, a liquid (a.k.a. “grape juice”) that conducts electricity. Each grape-half serves as a reservoir of electrolytes, connected together by a thin, weakly conducting path (the skin). As the microwaves heat up the grape, the charges in the electrolytes start to travel back and forth very quickly between the two halves. As they do this, the skin bridge heats up to a high temperature and dries out. At this point, the charges have to jump (arc) across the gap, creating the bright flashes you see.