

**TECHNOLOGY NOTE****● It's a Heat Wave!**

Percy L. Spencer never stopped looking for answers. In fact, he patented 120 inventions in his 39 years with the company Raytheon. During a routine visit to one of the Raytheon laboratories in 1946, Spencer found that a candy bar had melted inside his coat pocket. He could have just chalked this up to body heat, but he didn't. Instead, he took a closer look at his surroundings and noticed a nearby magnetron—a tube he designed to produce microwaves for radar systems.

**A Popping Test**

This made Spencer curious. Did the microwaves from the magnetron melt the candy bar, and if so, could microwaves be used to heat other things? Spencer answered his questions by putting a bag of unpopped corn kernels next to a magnetron. The kernels popped! Spencer had just made the first “microwave” popcorn! The test was a huge success. This simple experiment showed that a magnetron could heat foods with microwaves, and it could heat them quickly. When Spencer patented his invention in 1953, he called it a “High Frequency Dielectric Heating Apparatus.”

**Perfect Timing!**

Spencer originally designed magnetrons for radar machines used in World War II. Discovering another use for them was well timed. After the war, the military had little use for the 10,000 magnetrons a week that Raytheon could manufacture. So Raytheon decided to use the magnetrons to power Spencer's “High Frequency Dielectric Heating Apparatus.” But first the company had to come up with a simpler name! The winning entry in the renaming contest was “Radar Range,” which later became one word, *Radarange*.

**An Inconvenient Convenience**

The first Radaranges had a few drawbacks. For one thing, they were very expensive. They also weighed over 340 kg and were 1.6 m tall. Try fitting that on your kitchen counter! Because the Radarange was so large and expensive, only restaurants, railroad companies, and cruise ships used them. By 1967, improvements in the design made the Radarange compact and affordable, similar to the microwave ovens of today.

**Now You're Cooking!**

Just how do microwave ovens cook food? It just so happens that microwaves are absorbed by water molecules in the food being cooked. When water molecules throughout the food absorb microwaves, they start to move faster. As a result, the food's temperature increases. Leftovers anyone?

**TYPE OF ACTIVITY**

● **It's a Heat Wave!** *continued*

**Find Out for Yourself**

Microwaves make water molecules in food move faster. This is what increases the temperature of food that is cooked in a microwave. But did you know that most dishes will not heat up in a microwave oven if there is no food on them? To discover why, find out what most dishes are made of. Then infer why empty dishes do not heat up in a microwave.