

❖ Read this explanation text!

### HOW DOES POPCORN WORK

Pop corn certainly is unique. You toss a flat pouch no larger than a wallet into a microwave oven and in three minutes, it has expanded to a volume 40 or 50 times its original size.

There are three elements that make popcorn work like this:

- Moisture inside the kernel
- Starch inside the kernel
- The hard shell surrounding the kernel

When a popcorn kernel heats up, the moisture inside the kernel expands. Unless the percentage of moisture in the kernel is just right, the kernel won't pop up. When the pressure inside the hard shell gets high enough, the kernels explodes.

Here are three experiments you can perform to get a better understanding of how popcorn works:

- Use a needle or pushpin to puncture the shells of a number of popcorn kernels. Then try to pop the kernels. They won't pop up because the pressure cannot build inside the punctured kernels.
- Let the kernels stand in a warm oven or in the sun for several days and then try popping them. The oven or sun will dry the kernels out and make them difficult to pop.
- Try to pop popcorn at a low temperature (below 150 degrees celcius). You will find that the popcorn will not pop.

❖ Answer the questions based on the explanation text above!

1. Why is popcorn unique?

There must be moisture inside kernel, hard shell surrounding the kernel, the temperature high enough for the popcorn kernel to heat up and eventually explode

2. When does the corn kernel explode?

It can expand to a volume 40 to 50 times its original size

3. Why won't a punctured kernel pop?

When the pressure inside the hard shell becomes high enough

4. What is the temperature for the pop corn pop up?

Pressure cannot build inside the punctured kernels

5. What three conditions make it possible for a corn kernel to become popcorn?

above 150 degrees celcius