



HEAT

Vocabulary (can be discussed before or after viewing):

- Molecule
- Conduction
- Radiation
- Electromagnetic spectrum

I. Pre-viewing Questions:

Ask:

Who cooks with a microwave?

Who uses an electric or gas oven?

Can anyone explain how these different appliances cook food?

Have learners heard negative stories about microwaves?

What are their reactions to those stories?

SHOW HEAT VIDEO (eight minutes)



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II. Post-Viewing Questions

Ask:

What happens when we cook food?

[Technically speaking, when we heat the molecules in food, the heat changes the taste and texture of the food.]

What is conduction?

[Heat transfer through solid objects. For example, in the video, we see the heat of the burner heating the metal of the pot.]

How did the potato Jamika cooked in the oven get hot through conduction?

[The heat in the oven gets the molecules in the potato moving faster and faster, layer by layer. So heat is a measure of how fast the molecules are moving: a fast molecule is a hot molecule.]

How did the microwave heat the potato?

[Microwaves are a form of electromagnetic waves, or radiation. They directly deposit energy into the food. The air in the microwave doesn't get hot like it does in the regular oven.]

What do you think of when you hear the word "radiation?"

[It doesn't just mean scary things, like nuclear melt-downs. Radiation is a form of energy that comes in waves of different lengths. Radio waves bring us music. Microwaves cook our food. Even visible light is a form of radiation.]

What does the electromagnetic spectrum show us?

[Different types of radiation, or electromagnetic waves, organized by wavelength from large radio waves to tiny waves called gamma rays.]

General Discussion:

What else did viewers learn from the video? Was it enjoyable? Ask for examples of what was clear/confusing. How did the recipe relate to the science topic? What else do learners want to know about this topic? Would they show it to their children?

Web Lessons: On tv411.org/Science, note the science and math web lessons that correlate to **Heat**. Use them as part of your lesson or encourage learners with outside access to the internet to visit tv411.org where they can review the videos, learn more about the topic through the related web lessons, or explore other videos and lessons.