

How's That Work: Slow Cooker, Doorbell, Circular Saw

About How's That Work

A microwave, a hair dryer, a remote control, a dishwasher--simple, everyday conveniences that most of us take for granted. Behind every celebrated home invention is a great story. For instance, did you know that a weary socialite created the first dishwasher? *How's That Work?* uncovers the entertaining origins of our favorite household items and how they actually work.

About this Episode

In 1970 the assets of the failed Naxon Utility Company were purchased by a Rival. One of those assets was a simple bean cooker. The company began to experiment with their new cooker and found that meats and vegetables came out even better than the beans. After adding a larger heater, they invited company executives to a pot roast lunch cooked with their creation. The execs took one bite, and gave the green light to immediately produce 25,000 units. Then, Frenchman Jean Eugene Robert-Houdin, a magician and early idol of the famous Harry Houdini, used a small button hidden under his foot to complete an electric circuit that rang a bell. Naive audiences had no idea how he commanded a bell ring out of thin air, but as people caught on, they realized these ringing bells served a more practical purpose. They began replacing knockers outside of doors with similar buttons to alert residents when visitors arrived. Finally, handheld saws date back to the Bronze Age. One myth claims that these early tools were modeled after the jawbone of a snake. They were simply sheets of metal with jagged teeth pounded out on one side. Circular saws appeared during the late 18th century. Back then, these metal discs were installed in mills and powered by large paddlewheels. They made cutting large trees into useable lumber a simpler task for early settlers.

Vocabulary

- Beveled
- Cylinder
- Element
- Exceed
- Magnetic
- Revolutions
- Shaft
- Torque

Discussion Questions

1. List the inventions in the episode and ask students which ones they are familiar with. How many of them have one or more of the inventions at home? Which inventions would they want to own?
2. Have students list at least one thing that they already know about each invention. Then have them list one thing that they'd like to learn.
3. What do they see as the benefits of these inventions?

Suggested Activities

This is How That Works! (Science, Technology, Language Arts, Performing Arts)

Have student groups select one of the inventions featured in the episode. Then have them create a flow chart that illustrates how their invention works. The chart should include all steps. Once they have completed their flow chart, have students design a way to "act out" their flow chart, taking on the role of the invention's parts. They can use props, signs and equipment and can narrate the process if they choose. Finally, have students "perform" their invention for the class. Which performance best captures how an invention really works?

What's Cooking? (Science)

In the episode, students learn several of the scientific principles behind the slow cooker. Have students list these principles. Then have students list all of the benefits of cooking with a slow cooker. These include convenience, the ability to safely leave the home while the meal is cooking and the use of less energy. Ask students why the slow cooker uses less energy and why this might be an attractive benefit for someone to use it. Have students imagine that they have been asked to design a slow cooker. Instead of metal, they can choose one of the following natural materials to insulate their cooker: paper, cloth or hay. Which would they choose, and why? Have students conduct an experiment to determine which material would best insulate their slow cooker. For this experiment, they will need three large boxes of equal size, 3 potatoes of equal size, 3 matching cooking pans and lids, newspaper, cloth, hay, a thermometer, a heat source and some water. Have them place a potato in each pan and boil for two minutes over the same amount of heat. Then place a layer of insulating material at the bottom of each box. Have students place the pans inside the boxes, and surround the pans with insulating materials. Close the box. After one hour, have students record the interior temperature of the potatoes. Which insulator worked best?

Invention Convention (Social Studies, Language Arts, Technology)

In this episode, students learn about the history behind the three inventions, including the connection between the doorbell and the world of magic and the mythical beginnings of the saw. Have students select a household invention that they would like to learn more about. Have them research the origin of their invention, including when it was invented, by whom and for what purpose. They should also include information about how their invention has changed over the years and any other interesting information about its history. Finally, have students come up with a creative way to share the information they have researched. More information about the history of many household inventions can be found at

<http://inventors.about.com/od/astartinventions/a/FamousInvention.htm>.