

Heat Conduction Part 1

Heat conduction is an important part of our lives. You probably use it every single day when you're cooking a meal. The transfer of heat from a flame to food is basic heat conduction.

Gather your materials. You'll need:

- a cooking pot,
- a stick of butter,
- three types of spoons. The spoons you need are a wooden stirring spoon, a plastic cooking spoon, and a regular metal spoon. [\[1\]](#)

You need to get spoons that are relatively long. If you put the spoon in the pot the handle should be coming out of the pot by about three or four inches.

If you want a precise measurement for heat conduction you can also use thermometers. In that case you'll need three thermometers and electrical tape.



Place butter on the spoons. Cut three slices of butter. You should cut them about a quarter inch each, but it isn't that important. The pieces of butter don't need to be as big as the ones in the picture above. It is more important that the butter be cold when you put it on the spoon. Now place one slice in each of the spoons. [\[3\]](#) Make sure they don't slide into the water. Be careful not to touch the metal spoon as you place the butter on it.

Wait a few minutes and check the butter. After about two minutes, come back and check the butter. You'll notice that the butter on the metal spoon has melted significantly, the butter on the wooden spoon has melted a little bit, and the butter on the plastic spoon has barely melted at all.^[4] This is heat conduction at work.

- Metal conducts heat better than wood, which conducts heat better than plastic.
- If you are using thermometers, check your thermometer readings after a few minutes. The same results will appear with specific number
- You can also use a timer to measure how much time it takes each spoon to melt the butter. If you repeat the experiment, you should let everything cool to the same temperature as you started with the first time so that you can get similar results.

This experiment demonstrates the heat conductivity of the different materials. Add photos or videos of your experiment to your science page. Describe why knowing the heat conduction properties of materials is important.

The picture below shows a slightly different setup for this experiment. Using an electric pan may be easier to do in a classroom. It is also easier to set up the spoons.



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