

Why a Metal Spoon Warms Up in Soup

Name _____

Date _____

Read the text carefully and answer every question clearly.

When a metal spoon at room temperature is placed in hot soup, the part under the surface soon warms up. Because the soup is at a higher temperature, energy moves from the soup into the cooler spoon. Heat is the transfer of energy caused by this temperature difference; it is not something stored inside an object.

As the spoon stirs the soup, hot liquid continually flows around its surface. Energy is transferred to the immersed end and then conducted through the metal. Inside the spoon, moving electrons and vibrating particles pass energy along. Metals conduct energy well, so the transfer towards the handle is fairly quick. Stirring helps by bringing different parts of the hot soup into contact with the spoon, but it is not the only cause: a metal spoon left in the soup would warm up too.

At first, the handle may still feel cool because the transfer of energy through the spoon takes time. If the spoon remains in the soup, more of it becomes warm. Meanwhile, the soup transfers a small amount of energy to the spoon and becomes slightly cooler. The transfer continues while there is a temperature difference. Once the spoon and soup reach the same temperature, there is no net transfer of heat between them.

Comprehension questions

1. Why does energy move from the soup into the spoon?

2. Why may the handle still feel cool at first?

Reflection questions

1. If the spoon were removed after only a few seconds, which part would probably be warmest, and what information in the passage supports your inference?

Opinion questions

1. The passage states that a metal spoon conducts energy quickly towards its handle. Would you prefer a metal or wooden spoon for stirring very hot soup? Explain your choice using the passage.
