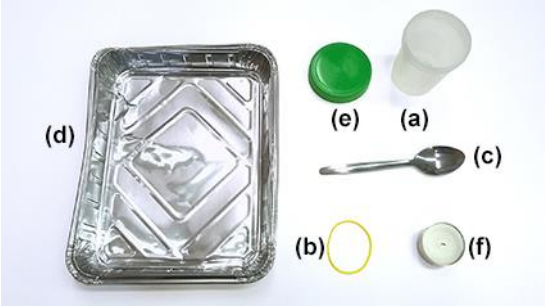
Heat 4: Does a metal spoon conduct heat?

1 Apparatus and materials

Your materials



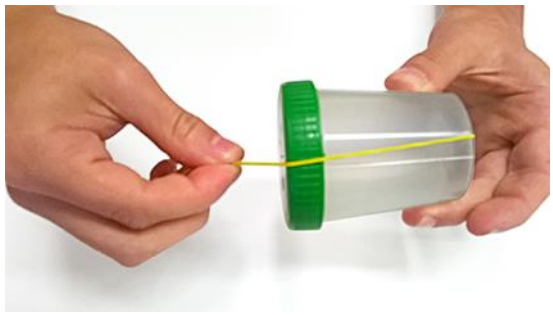
- 1 plastic cup, 100 ml (a)
- *1 lighter*
- 1 rubber band (b)
- 1 teaspoon (c)
- 1 pan, aluminum (d)
- 1 screw-on lid (e)
- 1 tea light (f)
- *2 pieces of wax*

1.1 Safety information

The materials may be used only as instructed by your teacher or as described in the experimentation instructions.

2 Preparing the experiment

1. Screw the lid onto the cup.



2. Stretch the rubber band around the cup.

3. Carefully place the spoon between the cup and the rubber band.

4. Place a tea light in the aluminum pan.

5. Place the cup next to the aluminum pan. Push the tea light under the tip of the spoon handle.

6. Place two pieces of wax on the spoon handle.

2.1 Question 1

What will happen to the wax pieces when the tea light is lit?
Write down your guess.

3 Conducting the experiment

Conduct the experiment according to the instructions.

Light the tea light. Observe the wax pieces.

3.1 Assignment 1

Note your observations.

3.2 Assignment 2

Try to explain what happened.
Write down your guess.

3.3 Assignment 3

Read the following text.

A metal rod is heated at one end. It becomes hot at this section. It is still cold at the other end. The metal rod now has two different temperatures.
The heat then flows from the hot end to the cold end. The metal conducts the heat from the section with the higher temperature to the section with the lower temperature. The temperature difference between the two ends is reduced.
This process is called heat transfer.
All metals (e.g., iron, copper) are good heat conductors. Wood, plastic, and ceramic are poor heat conductors.

3.4 Assignment 4

Fill in the missing words using the following terms:

cold, heat up, higher, different, hot, temperature difference, lower, spoon, heat

I held a _____ over a tea light. The end of the spoon _____.

The spoon now has _____ temperatures. It is _____ on the

one side and _____ on the other side. The _____ flows from

the section with the _____ temperature to the section with the

_____ temperature. The _____ is reduced.

3.5 Assignment 5

Draw in a yellow flame.
Color the section that heats up first red.
Color the section that is still cold initially blue.
Draw an arrow to show the direction of heat transfer.

3.6 Assignment 6

In the photos, a copper nail is being heated.
In which photo is the experiment being conducted properly? Why?

Photo 1

Photo 2