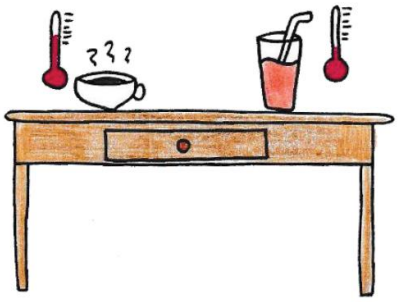
Section 2

Heat and temperature

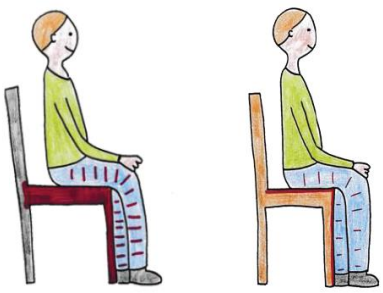
A) Choose the correct answer for each question:

1. We measure the temperature
   a) with a thermometer in degrees Celsius (oC)
   b) with a timer in seconds
   c) with a scale in kilograms
   d) with a measuring tape (tape measure) in centimeters of the meter

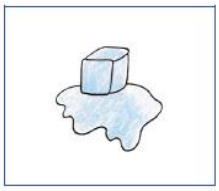
2. Leave a cup of hot tea and a glass of cold orange juice on the same table. After a long time
   a) the tea will be colder than the orange juice
   b) the orange juice got hot, but the tea is still hot
   c) the tea got cold, but the orange juice is still cold
   d) the tea got cold and the orange juice got hot. They are both the same temperature as the room.



3. If we touch a metal chair and a wooden chair we feel
a) the metal chair warmer than the wooden chair because they have a different temperature
b) the metal chair colder than the wooden chair because they have a different temperature
c) the metal chair colder than the wooden chair because the metal chair takes heat from our hand faster
d) the metal chair colder than the wooden chair because the wooden chair gives heat to our hand faster

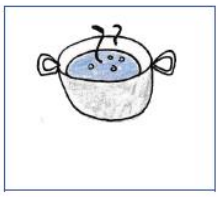


B) Below you see two columns. Match each picture in the left column with the correct sentence. You must show whether what each picture shows takes or gives off heat.

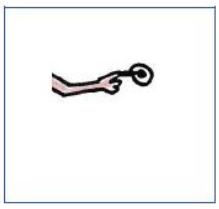


melting icicle

takes heat

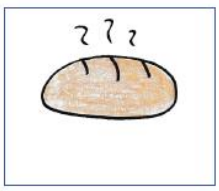


pot of hot water



door handle

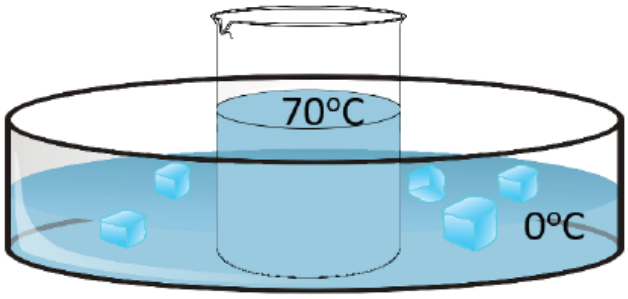
gives heat



bread that came out of the oven

C) Write an S next to each sentence if it is True. Write an L next to each sentence if it is False.
1. Things that are in the same room for a long time have the same temperature.
2. Heat and temperature are not the same thing
3. Heat always goes from something that is cold to something that is hot

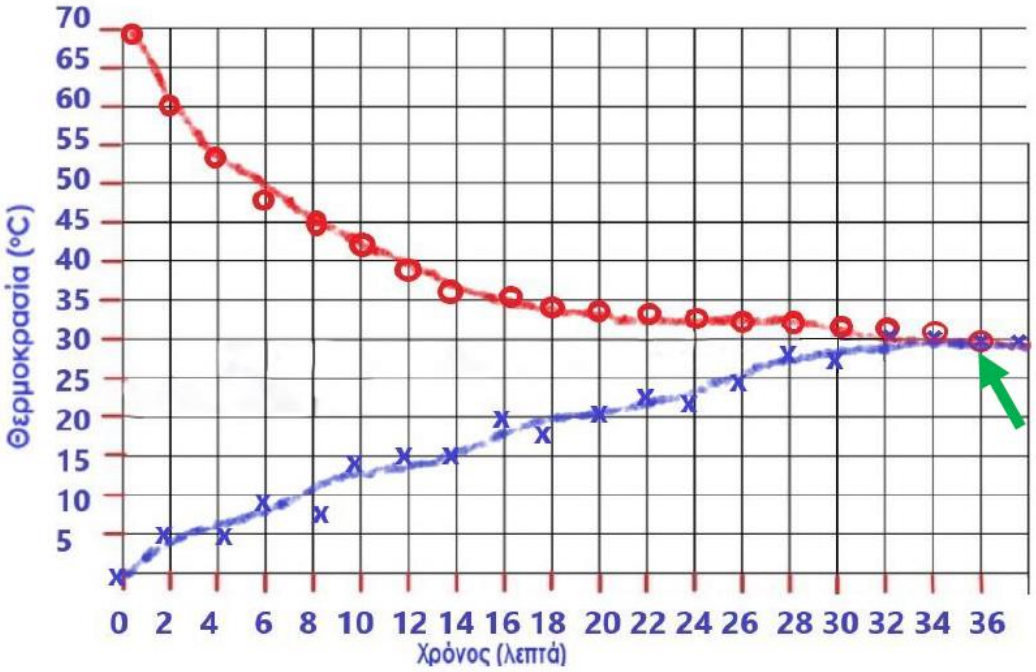
D) Complete the sentences with the missing words. You see the words you will write above the sentences with the spaces.
1. Put a glass of hot water (70 ˚C) in a pan of cold water (0 ˚C). We measure the temperature of the water in the glass and in the pan for a long time.



[rises] [glass] [same] [Heat] [equal] [pan] [falls]

The temperature in the glass ……. . The temperature in the pan ……. . ……. from the water in the ……. goes into the water in the ……. . This continues until the two temperatures become …… . Then the temperatures in the glass and the pan do not change, they remain …….

2. From the above experiment we make a diagram like this one here:



The chart tells us that:

[rises] [same] [glass] [falls] [pan]

The red line shows us how the temperature of the water inside the …….. changes over time. The blue line shows us how the temperature of the water inside the …….. changes over time.
We understand this because the red line shows how …….. the temperature. The blue line shows how …….. temperature.
The red and blue lines meet where the green arrow (□) is. This shows us that the water in the glass and the water in the pan have the ……. temperature.

3. Look at the pictures below. Each image has two cubes. One cube has a high temperature **(Θ)** and the other cube has a low temperature **(Θ)** . The cubes are touching each other. Draw a → arrow or a ← arrow in each picture. The arrow should point *from where to where* the heat will travel