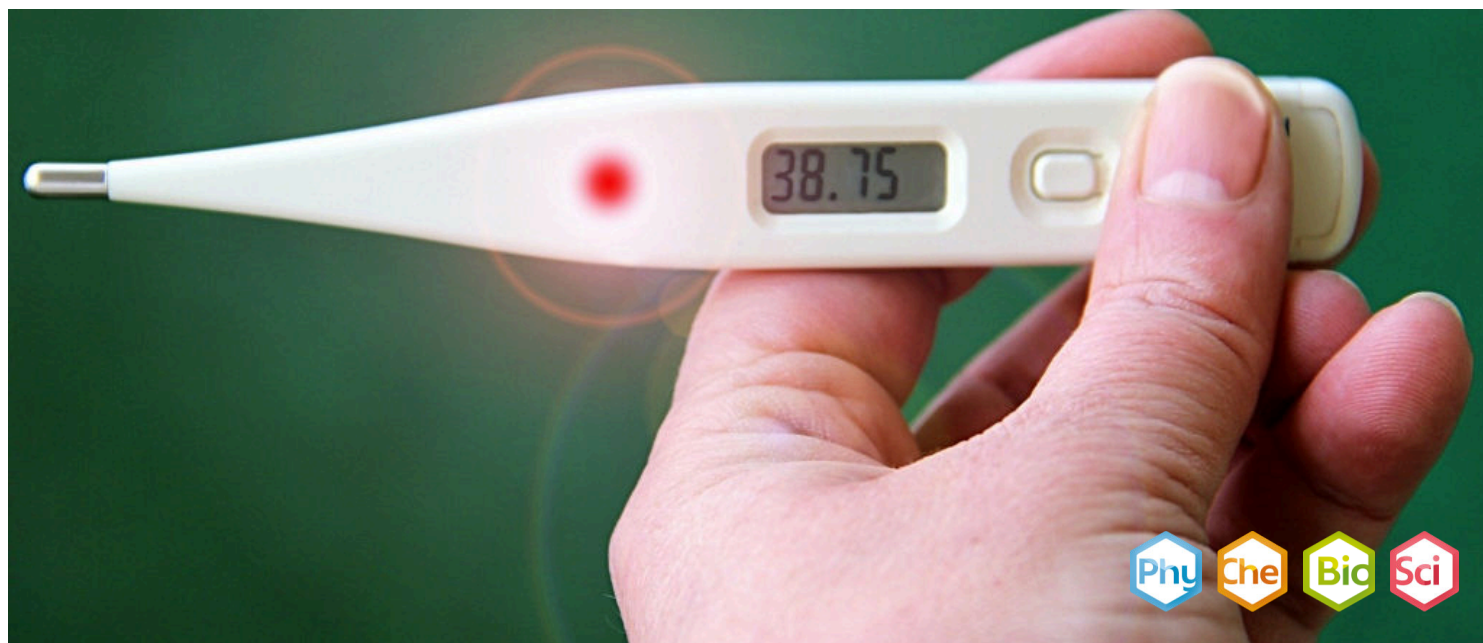


Body heat



Nature & technology

Body & health



Difficulty level

easy



Group size

1



Preparation time

10 minutes



Execution time

10 minutes

This content can also be found online at:

<http://localhost:1337/c/5f584cc40bc63c0003a1dbc6>

PHYWE



Teacher information

Application

PHYWE



Body as heat source

A healthy person has a body temperature of between 36 °C and 37.5 °C, which is generally higher than that of a normal person.

as the temperature of the environment. Therefore, we give off heat to our surroundings. With diseases may increase body heat (fever with body temperatures above 40 °C)

The average body temperature varies from person to person and there are also fluctuations. At night, during the sleep phase, the body temperature is at a minimum, during the day the body temperature increases again and reaches a maximum in the afternoon. On average, these fluctuations are less than 1 °C.

Other teacher information (1/2)

PHYWE

Prior knowledge



Every human being has a normal core body temperature that lies between and . On the basis of medical examinations and from everyday life we know that the body temperature fluctuates during the course of the day and that the person shows an increased body temperature during sporting activities.

Scientific principle



When determining the normal (own) body temperature there are some things to consider. Because in the course of the day and also due to individual lifestyle (e.g. sports activities) there are significant fluctuations. To measure body temperature, a digital thermometer is recommended, whereby the temperature values can be read off digitally. Several measurements during the course of the day and during sporting activities show the "principle" of the temperature curve of the core body temperature in humans.

Other teacher information (2/2)

PHYWE

Learning objective



In this experiment the students observe that the human body temperature is subject to natural fluctuations. In the afternoon, the temperature reaches a maximum and at night it reaches the minimum, with fluctuations of up to 1 °C. During physical activity the fluctuation can reach 1 - 2 °C.

Tasks



A healthy person has a body temperature that lies between 36°C and 37.5°C. This is generally higher than the temperature of the environment in which we find ourselves. Therefore, we give off heat to our environment and the students should use a thermometer to measure their body temperature hourly over a longer period of time, preferably over a whole day.

Safety instructions

PHYWE

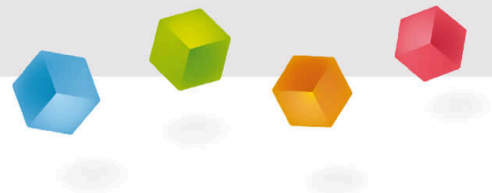


During this test, there are no electrical or mechanical hazards or hazards from hazardous substances.

The general regulations of the guidelines for safety in the classroom (RiSU for short) must be observed in student experiments.

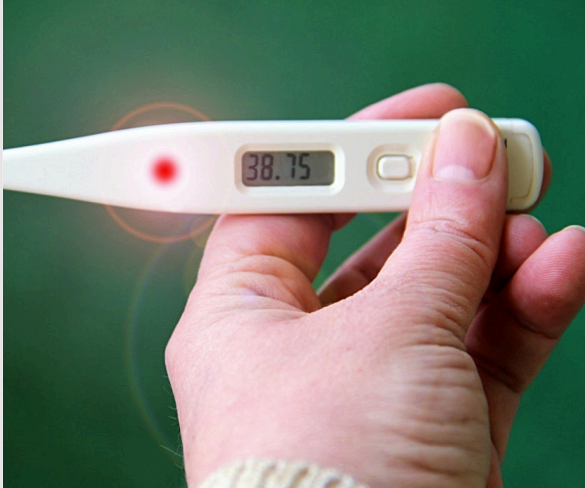
PHYWE

Student Information



Motivation

PHYWE



Measurement of body temperature

Every human being has a normal core body temperature which lies between 36.0°C and 37.5°C . Based on medical examinations and as we know from everyday life, the body temperature is subject to fluctuations during the course of the day. Likewise, the human being shows an increased body temperature during sporting activities.

The core body temperature is an important factor influencing our well-being and health. For example, an increased body temperature (from 38.5°C) is called fever, and temperatures below 35°C are called hypothermia. In both "states" there is already a danger to human health.

Tasks

PHYWE



clinical thermometer

Determine the body temperature with the help of a clinical thermometer over a longer period of time (preferably over a whole day) every hour

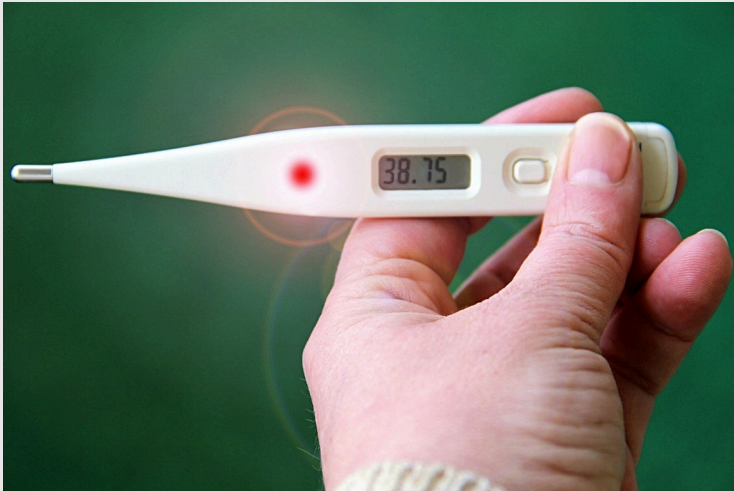
1. way the heat emission - the heat radiation - ours body. Observe the fluctuations of our Body heat in the course of a day
2. Write down your observations when you put your hands together

Equipment

Position	Material	Item No.	Quantity
1	Clinical thermometer, digital	04166-00	1

Procedure (1/2)

PHYWE



Determination of temperature variations

In the first part of the experiment, you are supposed to use a fever thermometer over a longer period of time to take your body temperature. Therefore, this part of the experiment not at school, but at home in to perform independently.

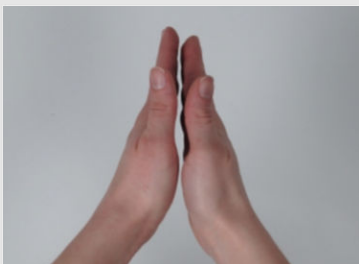
Measure your own body with a clinical thermometer temperature either hourly. Carry out the measurement for at least 10 to 12 hours through. Start early in the morning if possible and measure your Body temperature regularly until the evening.

Procedure (2/2)

PHYWE

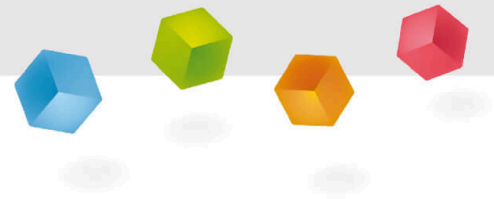


In this experimental part you know the heat emission - the heat radiation - of your Body to. Hold both hands with the palms of your hands at a distance from then a few centimetres against each other (Fig. top left)



Moveme the palms up to a distance of a few millimetres without them touching each other (fig. bottom left). Halte the hands then short quiet time. Write down your observations that you have made, alWhen you put your hands together, into the enttalking field onthe results page

PHYWE



Report

Task 1

PHYWE

How does the temperature of our body change?

If you look at the body temperature over the course of a day, you will notice Body temperature is in the morning, during the day and in the afternoon.

Body temperature during exercise, while it constant during non-exhausting physical activity.

Task 2

PHYWE

If you bring the palms of your hands close together, you can feel your own body temperature as heat. Since we feel our body temperature as warm, it shows that our body temperature

- ☐ is lower than the ambient temperature
- ☐ is equal to the ambient temperature
- ☐ is higher than the ambient temperature

☒ Check

Sewn palms

Slide

Score/Total

Slide 13: Temperature of our body

0/5

Slide 14: Body temperature compared to the environment

0/1

Total amount

 0/6 Solutions Repeat