

Student Experiments

Manual

HEAT 1

P9160-4C



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Required Kit:

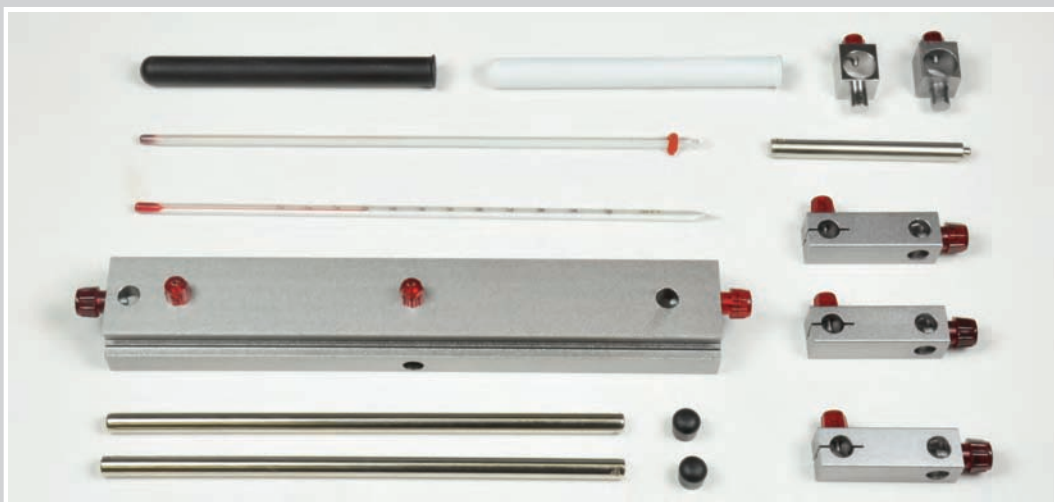
P9901-4A Stand rail material
P9902-4C Heat 1

**Material:**

2x Bearing pin
2x Holder for dynamometers
1x Stand rail, 300 mm
3x Bosshead universal
2x Support rod, 250 mm
2x End cap for rods
1x Support rod, 100 mm
1x Bodies for heat-radiation
1x Thermometer, graduated
1x Thermometer, ungraduated

Additionally required:

1x Gas cartridge burner
1x Matchsticks
1x Water



When we sunbathe we neither receive the thermal energy by thermal conduction nor by heat flow.

There is a second sort of heat expansion.

Preparation:

Arrange according to the illustration. A 25 cm rod is pushed through the cross hole of the stand rail. The rod is fixed by means of the knurled screw.

The caps for rods are mounted at both ends of the rod. The second 25 cm rod is clamped vertically in the stand rail.

The 10 cm rod is attached to the 25 cm rod by means of the universal bosshead at an angle below 90°.

The two blocks for heat radiation are equipped with bolts which are used to clamp the blocks in the universal bossheads. These two universal bossheads are attached to the 10 cm rod as near as possible to each other.

A few drops of water are filled into both blocks (to improve the heat flow).

The scaled thermometer is inserted in one block for heat radiation, the unscaled thermometer in the other one. The unscaled thermometer was calibrated in the experiment W 1.2.

The two initial temperatures are taken down.

Experiment:



The burner is lit. After about 2 minutes the temperature of both thermometers is read.

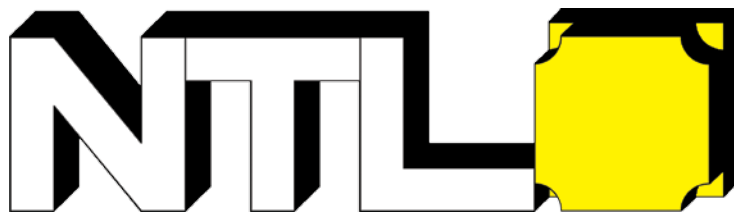
Temperature in °C after	0 min	2 min	4 min	6 min
bright block
dark block

The thermometer in the bright block indicates a slighter rise in temperature than the thermometer in the dark block.



Conclusion:

Bright, shining surfaces absorb less beams of heat than dark, dim surfaces.



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