

NCERT SOLUTIONS- HEAT

NCERT Solutions for Class 7 Science Chapter 4 Heat is the essential study material to perfect Heat topics. The NCERT Class 7 Science solutions provided here correctly answer NCERT textbook questions. Solutions curated in a comprehensive manner will help students understand the subtopics in this chapter in a better way.

IMPORTANT SUB-TOPICS MENTIONED IN THE NCERT CLASS 7 SCIENCE CHAPTER 4 HEAT:

NCERT Solutions for Class 7 Science Chapter 4 Heat has the following sub-topics as given below:

| Sr. no | Topics |
|--------|--|
| 1. | Hot and cold |
| 2. | Temperature measurement |
| 3. | Thermometers |
| 4. | Heat transfer |
| 5. | Clothes in different climatic conditions |

NCERT SOLUTIONS CLASS 7 SCIENCE CHAPTER 4 HEAT:

1. State similarities and differences between the laboratory thermometer and the clinical thermometer.

ANS- Similarities:

- Both are constructed of a long, narrow glass tube and are composed of glass.
- Both of them have a bulb at one end.
- Both thermometers have mercury-filled bulbs.
- There is a Celsius scale on each thermometer.

Difference:

| laboratory thermometer | clinical thermometer |
|--|---|
| Temperature range is 35 to 42 0 c | The temperature range is -10 to 110 0 c |
| Used to measure human body temperature | Used to measure temperature in the laboratory |
| It has a kink which prevents immediate backflow of mercury | It does not have a kink |

2. Give two examples each of conductors and insulators of heat.

ANS- Conductors: Iron and copper

Insulators: Plastic and wood

3. Fill in the blanks :

- (a) The hotness of an object is determined by its _____.
- (b) Temperature of boiling water cannot be measured by a _____ thermometer.
- (c) Temperature is measured in degree _____.
- (d) No medium is required for transfer of heat by the process of _____.
- (e) A cold steel spoon is dipped in a cup of hot milk. Heat is transferred to its other end by the process of _____.
- (f) Clothes of _____ colours absorb heat better than clothes of light colours.

ANS-

- a. Temperature
- b. Clinical
- c. Celcius
- d. Radiation
- e. Conduction
- f. Dark

4. Match the following:

| Column-I | Column-II |
|--|------------|
| (i) Land breeze blows during | (a) summer |
| (ii) Sea breeze blows during | (b) winter |
| (iii) Dark-coloured clothes are preferred during | (c) day |
| (iv) Light-coloured clothes are preferred during | (d) night |

ANS-

| Column-I | Column-II |
|--|------------|
| (i) The land breeze blows during | (d) night |
| (ii) The sea breeze blows during | (c) day |
| (iii) Dark-coloured clothes are preferred during | (b) winter |
| (iv) Light-coloured clothes are preferred during | (a) summer |

5. Discuss why wearing more layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing.

ANS- Because air gets trapped between the layers, wearing more layers of clothing in the cold keeps us warmer than wearing just one thick garment. Air is a poor conductor of heat, hence it prevents heat from being transferred from the body.

HEAT

6. Look at Fig. 4.13. Mark where the heat is being transferred by conduction, by convection and by radiation.



ANS-

7. In places of hot climate, it is advised that the outer walls of houses be painted white. Explain.

ANS- The outer walls of houses should be painted white in hot climates since white is a poor heat absorber and reflects back most of the heat that is incident on it. This helps in maintaining the home's temperature.

8. One litre of water at 30°C is mixed with one litre of water at 50°C . The temperature of the mixture will be
 (a) 80°C (b) more than 50°C but less than 80°C (c) 20°C (d) between 30°C and 50°C

ANS- (d) between 30°C and 50°C

The temperature of the mixture will be between 30°C and 50°C because hot water loses heat and simultaneously cold water gains heat. This keeps the temperature in between 30°C and 50°C .

9. An iron ball at 40°C is dropped in a mug containing water at 40°C . The heat will
 (a) flow from the iron ball to water.
 (b) not flow from the iron ball to water or from water to the iron ball.
 (c) flow from water to the iron ball.
 (d) increase the temperature of both.

ANS- (b) not flow from the iron ball to water or from water to the iron ball because both of them have the same temperature of 40°C .

- 10. A wooden spoon is dipped in a cup of ice cream. Its other end**
- (a) becomes cold by the process of conduction.**
 - (b) becomes cold by the process of convection.**
 - (c) becomes cold by the process of radiation.**
 - (d) does not become cold.**

ANS- (d) does not become cold because wood is a bad conductor of heat.

- 11. Stainless steel pans are usually provided with copper bottoms. The reason for this could be that**
- (a) copper bottom makes the pan more durable.**
 - (b) such pans appear colourful.**
 - (c) copper is a better conductor of heat than stainless steel.**
 - (d) copper is easier to clean than stainless steel.**

ANS- (c) copper is a better conductor of heat than stainless steel.