

## Everyday Science Question Answers - Part 2

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26. **Question:** Why does a thermometer kept in boiling water show no change in reading after 100C?

**Answer:** The boiling point of water is 100C. Once water starts boiling at this temperature, thermometer records no change in temperature. The quantity of heat supplied is being utilized as latent heat of evaporation to convert the water at boiling point into vapour.

27. **Question:** Why do we bring our hands close to the mouth while shouting across to someone far away?

**Answer:** By keeping hands close to mouth the sound is not allowed to spread (Phenomenon of diffraction of sound) in all direction, but is directed to a particular direction and becomes louder.

28. **Question:** Why does a corked bottle filled with water burst if left out on a frosty night?

**Answer:** Because of low temperature the water inside the bottle freezes. On freezing it expands, thereby its volume increases and pressure is exerted on the walls.

29. **Question:** Why is a small gap left at the joint between two rails?

**Answer:** To permit expansion of rails due to heat generated by friction of a moving train.

30. **Question:** Why cannot a copper wire be used to make elements in electric heater?

**Answer:** Copper melts at 108.3C and forms a black powder on reacting with atmospheric oxygen. For heater elements a metal should have more resistance to produce heat.

31. **Question:** Why are water or mercury droplets always round when dropped on a clean glass?

**Answer:** The surface of a liquid is the seat of a special force as a result of which molecules on the surface are bound together to form something like a stretched membrane. They tend to compress the molecules below to the smallest possible volume, which causes the drop to take a round shape as for a given mass the sphere has minimum volume.

32. **Question:** Why does a balloon filled with hydrogen rise in the air?

**Answer:** Weight of hydrogen is less than the weight of air displaced by it. In balloons hydrogen is normally filled because it is lighter than air.

33. **Question:** Why do we lean forward while climbing a hill?

**Answer:** In order to keep the vertical line passing through our centre of gravity always between our feet, which is essential to attain equilibrium or stability.

34. **Question:** Why does smoke curl up in the air?

**Answer:** Smoke contains hot gases which being lighter in weight, follows a curved path because of the eddy currents that are set up in the air.

35. **Question:** Why does an electric bulb explode when it is broken?

**Answer:** The bulb encompasses partial vacuum and as it breaks, air rushes in causing a small explosion.

36. **Question:** Why does a man fall forward when he jumps out of a running train or bus?

**Answer:** He is in motion while in the train or bus. When he jumps out, his feet come to rest while touching the ground but his upper portion which is still in motion propels him forward.

**37. Question:** Why does an ordinary glass tumbler crack when very hot tea or milk is poured in it?

**Answer:** When a hot liquid is poured into a tumbler, the inner layer of the tumbler gets heated, it expands before the outer layer and an unequal expansion of both layers causes the tumbler to crack.

**38. Question:** Why is a compass used as an indicator of direction?

**Answer:** The magnetic needles of a compass under the influence of the earth's magnetic field lie in a north-south direction. Hence, we can identify direction.

**39. Question:** Why is water from a hand pump warm in winter and cold in summer?

**Answer:** In winter, the outside temperature is lower than that of water flowing out of the pump, and therefore, the water is warm. Whereas in summer, the outside temperature is higher than the water of the pump, and therefore, it feels cold.

**41. Question:** Why is a rainbow seen after a shower?

**Answer:** After a shower, the clouds containing water droplets act like a prism through which the white light is dispersed producing a spectrum.

**42. Question:** Why does a swimming pool appear less deep than it actually is?

**Answer:** The rays of light coming from the bottom of the pool pass from a denser medium (water) to a rarer medium (air) and are refracted (bend away from the normal). When the rays return to the surface, they form an image of the bottom of the pool at a point, which is little above the real position.

**43. Question:** Why is one's breath visible in winter but not in summer?

**Answer:** In winter, water vapor contained in the breath condenses into small droplets, which become visible but in summer they are quickly evaporated and not seen.

**44. Question:** Why doesn't the electric filament in an electric bulb burn up?

**Answer:** Firstly, because it is made of tungsten which has a very high melting point (3410°C) whereas the temperature of the filament required to glow is only 2700°C. Secondly, oxygen is absent since the bulb is filled with an inert gas which does not help in burning.

**45. Question:** Why does blotting paper absorb ink?

**Answer:** Blotting paper has fine pores, which act like capillaries. When a portion of blotting paper is brought in contact with ink, ink enters the pores due to surface tension (capillary action of liquids) and is absorbed.

**46. Question:** Why does a small iron sink in water but a large ship float?

**Answer:** The weight of water displaced by an iron ball is less than its own weight, whereas water displaced by the immersed portion of a ship is equal to its weight (Archimedes' Principle).

**47. Question:** Why does ice float on water?

**Answer:** The weight of the ice block is equal to the weight of the liquid displaced by the immersed portion of the ice.

**48. Question:** Why does moisture gather outside a tumbler containing cold water?

**Answer:** The water vapour in the air condenses on cooling and appears as droplets of water.

**49. Question:** Why does kerosene float on water?

**Answer:** Because the density of kerosene is less than that of water. For the same reason cream rises in milk and floats at the top.

**50. Question:** Why is the water in an open pond cool even on a hot summer day?

**Answer:** As the water evaporates from the open surface of a pond, heat is taken away in the process, leaving the surface cool.