

Class 7th Living science solution 2017-18

Chapter 9. WEATHER, CLIMATE AND ADAPTATION

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1. weather 2. colder, as the rays of the sun become more slanting as latitude, that is, distance of the place from the equator increases. Also the rays pass through a thicker layer of atmosphere. This causes the land there to get heated up less. Also the region received sunlight for less time.
3. No. Weather is a very complex phenomenon and is affected by so many factors. So it is very difficult to predict the weather accurately.
4. winter

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1. In a cold place; because these body parts lose heat first. So this help keep them warm.
2. cool the body
3. The elephant uses its trunk as a nose and also to pull down fruits and leaves to eat.
4. The fur traps air to keep the polar bear warm. Again the white fur helps the polar bear camouflage with its surroundings that is the white snow.

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- A. 1. b 2.c 3.a 4.b 5. a 6. d 7. d 8. d
- B. 1. true 2. meteorologists 3. cooler 4. false 5. warm, humid 6. hot, dry 7. air 8. migrate 9. hot climate places or deserts 10. false
- C. 1. Four elements of weather are: (i) temperature (ii) humjity (iii) rainfall and (iv) winds
2. Weather is a very complex phenomenon. It is affected by hundreds of factors and so very difficult to predict.
 3. Winds affect the weather of a given place. Like, during summers, the winds blow from the hot desert of Rajasthan towards Delhi and Delhi becomes very hot.
 4. Huddling helps penguins to retain the warmth created in them as a group. If they stay separately, they will feel more cold.
 5. In generalplare-s-riear the sea have a moderate climate, neither very cold nor very hot.
 6. Polar bear has two,thick layers-of fur that traps air, and a layer of fat under its skin. These provide excellent insulation. So if it does more physical activity, the heat generated will not be lost to the surroundings and the body will thus get overheated.

D. 1. Weather :

- (i) The day-to-day conditions of the atmosphere at a place with regard to factors like temperature, humidity, rainfall, speed and direction of wind and so on is called the weather at that place.
- (ii) The factors of weather are temperature, humidity, rainfall and wind.

Climate :

- (i) The average weather pattern of a place taken over a long time, say 25 years, is called the climate of that place.
- (ii) The factors of climate are distance from the equator, height above sea level, distance from sea or high mountain ranges, winds and moisture.

2. The factors on which the climate of a place depends are:

- (i) distance from the equator (latitude)
- (ii) height above sea level — the higher we go the cooler it becomes
- (iii) distance from the sea or from high mountain ranges; mountains affect winds and rainfall
- (iv) winds
- (v) humidity in air

3. Further away from the equator, the regions are cooler because as the distance from the equator increases, the sun rays become more and more slanting. Slanting rays spread over a larger land area and pass through a thicker layer of atmosphere. So the land heated up less there.

4. Three ways in which a polar bear is adapted for living in the Polar Regions are:

- (i) The body is covered with two thick layers of fur, as well as a layer of fat under the skin. These provide excellent insulation.
- (ii) It moves slowly to avoid being overheated due to physical activity.
- (iii) White fur can camouflage white snow and makes it difficult to be seen. This protects it against predators and also helps it to catch prey.

5. Adaptations to prevent heat loss from the body of different animals in colder regions are:

- (i) The bodies of polar bears and several other animals are covered with dense, fine fur that traps air, which acts as an insulator to keep them warm.
- (ii) Parts of bodies such as ears, tails and legs lose heat first; hence animals in cold climates have small ears and tails, and short legs.
- (iii) Birds migrate to warmer regions during winters to escape the cold.

6. Adaptations in hot climate animals which keep their body cool are:

- (i) Animals spend the daylight hours hiding in shady places such as burrows or behind boulders. They come out at night to look for food, for example, snakes.
- (ii) They have long legs and tails, and very large ears. The ears have blood vessels near the surface; the air blowing across the ears cools the blood, which in turn cools the body, for example, fennec fox.
- (iii) The animals sweat, pant and lick to cool themselves.

7. The lion-tailed macaque (also called 'beard ape') is a good climber and lives on trees. It gets all the food it needs on trees and hardly ever comes down. It mainly eats fruits, as well as other plant parts. It also catches insects from under the bark of trees.

8. The elephant is well adapted for living in rainforests. It has a strong sense of smell because it uses its long trunk as a nose. It uses its trunk to pull down fruits and leaves to eat. It uses its tusks to tear the bark from trees, which it eats.

HOTS Questions

1. Wet clothes dry faster in dry weather because water evaporates faster on a dry day than on a humid day.
2. The southwest monsoon winds pick up humidity from the Indian Ocean and Bay of Bengal.
3. Usually in the Southern Hemisphere, the longest day is 22 December and the shortest day is 21 June, opposite to that in the Northern Hemisphere.
4. Sunrise is earlier in summer than in winter. Sunset is earlier in winter than in summer. This happens due to the tilted axis of the earth's rotation around the sun.