# LEARNING OBJECTIVES

1. Climate and Adaptation
2. Adaptations and their types
3. Adaptations in Polar Regions
4. Migration

# Climate And Adaptations-

- Some animals live in extreme conditions of temperature. They possess special features to protect themselves against the extreme cold or heat.
- Features and habits that help animals to adapt to their surroundings are a result of the process of evolution.

**The ability of an organism to develop certain features which improve the chances of its survival in the environment in which they live, is known as adaptation. Animals are adapted to survive in the conditions in which they live. In other words, an adaptation is a trait of an organism that has been favoured by natural selection.**

# Adaptations are of three types -

(i) Structural adaptations - Adaptation of special body parts of an organism that helps it to survive in its natural habitat, e.g. skin colour, shape, body covering.

**(ii) Behavioural adaptations Adaptation of special ways in a particular organism that helps it to survive in its**

**natural habitat. It usually occurs in response to some external stimuli, e.g. frogs and bear undergoes hibernation or winter sleep during hard winter season.**

**(iii) Physiological adaptations - Adaptation of body systems presents in an organism that allows it to perform the certain biochemical reaction, e.g. warm-blooded animals are able to keep the constant body temperature.**

Animals that live in a very cold or hot climate must possess special features to protect themselves against extreme cold or heat. The features and habits that help an animal to adapt to their surrounding are a result of the process of evolution. According to their habitat animals adapt themselves. These animals may be grouped as polar region and tropical rainforest animals.

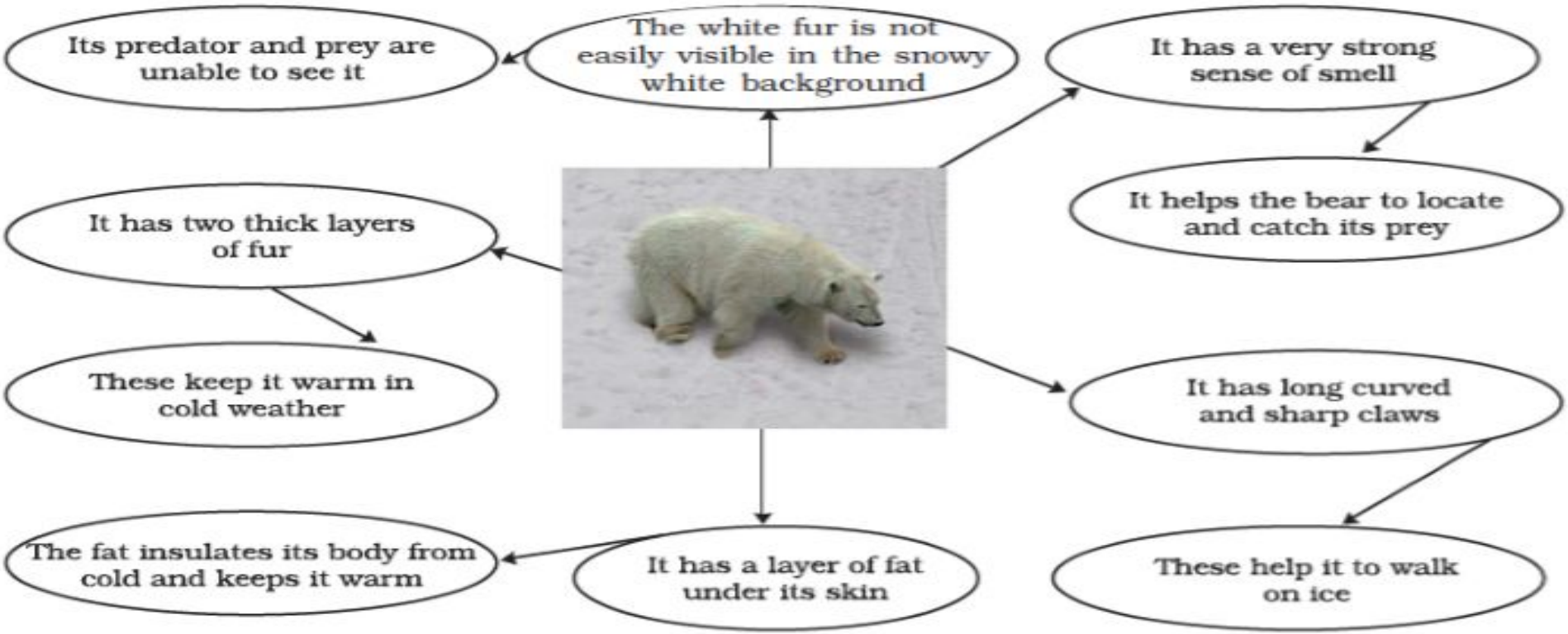
# Polar Regions-

- Polar region are covered with snow and it is very cold for most part of the year. Sun does not set at the pole for six months and sun does not rise for other six months.
- Temperature goes as low as -37 degree C in winters.

**Polar bears have white fur (to protect them from their predators and helps them in catching prey).**

- **They have two thick layers of fur to prevent from extreme cold. They also have layer of fat under the skin. Due to which they are fully insulated. They move slowly and rest often to avoid getting overheated.**
- **During warm days, cooling is required in their body so they go for swimming.**

- **They have wide and large paws which help it not only swim well but also walk easily in the snow.**
- **It can close its nostrils for long and can remain under the water for long durations.**
- **It has strong sense of smell so that it can catch its prey for food.**




**Pic shows adaptations of polar bear.**

**Penguins also live in polar region.**

**Pic shows huddled penguins.**

- **They are also white and merge well with the white background. It also has thick skin and a lot of fat to protect it from cold.**
- **Penguins huddled together to keep warm. They have a streamlined body, webbed feet which make them good swimmers.**

- **Other polar birds and animals: fishes, musk, oxen, reindeers, foxes, seals, whales and birds.**
- **Fishes remain under cold water for long to prevent from cold.**
- **Birds migrate to warm regions when winter sets in and come back after winter is over.**

- **India is one of the destinations for these migratory birds.**
- **Siberian crane from Siberia comes to Bharatpur in Rajasthan and Sultanpur in Haryana.**

# Migration -

**Migration is the seasonal journey taken by different animals or birds to escape the extreme climatic condition and the search of food, e.g. Siberian cranes migrates towards warmer region in the autumn by travelling several thousands of kilometers.**

They are seen in Bharatpur, Rajasthan and Sultanpur, Haryana and sometimes in wetland of North-East and other parts of India. Migratory birds / sometimes travel as much as 15000 km to escape the extreme climatic condition of their habitat.

**These birds fly high where the wind flow is helpful and cold conditions allow them to disperse the heat generated by their flight muscles. These birds have a built in sense of direction and know in which direction they have to travel. Some birds use landmarks to guide them.**

Some birds are guided by the sun during daytime and by stars during night. Some birds can use the magnetic field of the earth to find the direction. Besides birds, some fishes, insects and mammals also migrate seasonally in search of more hospitable climates.

# PLENARY -

**Q. The polar bear are white in colour. Explain why.**

**A. Polar bear have white fur. This is an adaptation of polar bear to blend it with the white background of ice or snow. This helps them to protect from their predators and also to catch their prey.**

**Q. Write two common adaptive features of a polar bear which help in keeping it warm.**

**A. Adaptive features of a polar bear that help in keeping it warm are as follows**

- **They have two thick layers of white fur.**
- **They have layer of fat under their skin.**

# ASSESSMENT / EVALUATION -

**Q. Name two animals each that live in polar region.**

**A. Polar regions - Polar bear/penguin/ reindeer/musk oxen.**

**Q. Some birds migrate from one place to another. What are these birds called? Why do the birds migrate?**

**A. Migration is the seasonal journey taken by different animals or birds to escape the extreme climatic condition and the search of food, e.g. Siberian cranes migrates towards warmer region in the autumn by travelling several thousands of kilometers.**

**Some birds are guided by the sun during daytime and by stars during night. Some birds can use the magnetic field of the earth to find the direction. Besides birds some fishes, insects and mammals also migrate seasonally in search of more hospitable climates.**