



St. Aloysius' College  
(Autonomous) Jabalpur

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Topic:-

# Hibernation

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# Synopsis

- Introduction
- Why Do Animals Hibernate?
- How Do They Survive?
- The Hibernation Process
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# Introduction

## What is Hibernation?

- Hibernation is the way that some animals adapt to the **climate** and **land** around them during **winter**.
- A hibernating **animal** will **enter** into a very '**deep sleep**'.
- While in a state of **true hibernation**, the animal will appear to be **dead**.
- During hibernation, the animal's body processes, like breathing, slow down, and they **survive** on **stored food** or **fat**.
- There is **no movement** and it takes a long time for the animal to wake up.



# Why Do Animals Hibernate?

- It is a survival strategy
- Dropping into a deep hibernation means animals are using less energy
- Food is scarce
- Animals skip the cold seasons



# How Do They Survive?



- All Animals require energy to do things such as walk, run, and hunt for food.
- Animals also need energy to run the basic functions of the body, such as respiration, metabolism, etc.
- It is how an animal is able to store and utilize this energy which determines whether or not that animal is capable of hibernating.
- How do they do it?



# The Hibernation Process



- During the fall months the animals eat more food than usual because they will live on this fat while they hibernate.
- During hibernation the animals live on the fat first, and leave the muscle alone. This way when the animal comes out of hibernation they are as strong as they were before they went into hibernation.
- In the fall animals find a spot to hibernate and start preparing for their deep winter sleep. They find a safe place because during hibernation, enemies can get them easier.



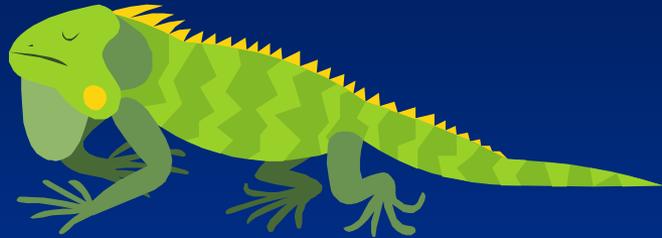
# Body temperature for cold-blooded animals during hibernation - Poikilothermic

*Poikilothermic* – body temperature may fluctuate widely

- “Lower” vertebrates and invertebrates
- Cold-blooded animals do not have a body temperature like humans do. Our body temperature is usually 98.6 degrees Fahrenheit. Cold-blooded animals’ body temperature stays the same as the outside temperature.
- These animals come in and out of hibernation when the temperature is comfortable for their body.



# Cold-Blooded Hibernators



## Amphibians and reptiles :

Deep protected rock crevices, burrows of other animals.

**Lizards:** hibernate by going into underground burrows for hot months (if they are in the desert) or for the cold months (if they are in a colder area.)



**Snakes:** congregate in deep caverns

Snakes look for caves, holes in the ground, or cracks in rocks to sleep in.



# Cold-Blooded Hibernators



**Bees:** Bumble bees hibernate, honey bees do not. Although honey bees and bumble bees are very closely related, their winter behaviors are very different. A colony of honey bees will live throughout the entire winter, actively keeping the nest warm and safe.



**Frogs and Toads:** They hibernate in different ways depending on their location. Some dig holes or find cracks in logs or rocks. Some hibernate underwater. One fun fact about frogs is that a half frozen frog will survive! Some toads dig into soft soil with hind feet nearly 1 meter deep.



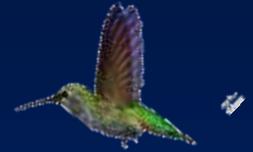
# Body temperature during hibernation for warm blooded animals – Homeothermic

Homeothermic – body temperature strictly regulated

- Mammals and birds
- When an animal hibernates their body temperature drops very low to match the weather outside.
- Your normal body temperature is 98.6 degrees Fahrenheit.
- Imagine that you are a hibernator and it is 30 degrees Fahrenheit outside; your body temperature would drop to 30 degrees Fahrenheit.



# Warm-Blooded Hibernators!



**Hummingbirds** : The metabolism of hummingbirds can slow at night or at any time when food is not readily available: the birds enter a **hibernation**-like, deep-sleep state (known as torpor) to prevent energy reserves from falling to a critical level.



**Bats** hibernate in hollow trees, caves, buildings, or old mines. Bats wrap their tails around themselves and curl into a ball while they hibernate.



# Warm-Blooded Hibernators



## Squirrels/Chipmunks

Not true hibernators

Squirrels do not hibernate, but they do sleep a lot!" Squirrels do not hibernate in winter, but they do not like bitter cold weather, so they will stay hunkered down in their den or drey when it is really cold, opting to stay warm with their friends rather than venture out.



## Bears

Not true hibernators- "sleep lightly"

It is a common misconception that bears hibernate during the winter. While bears tend to slow down during the winter, they are not true hibernators. Black bears, Grizzly bears and Brown bears do go into a deep sleep during the winter months, known as torpor.



**True hibernators** : Some bat species, dormouse (does not attract the attention of predators because its body temperature is so low that it gives off no body odor. Hibernates up to nine months), hedgehog

**False hibernators** : Gray squirrel (active only briefly on cold days), Eurasian badger (lethargic during cold spells)

# References

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Thank You

