



Snakes: An Introduction

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TOPIC: Snakes: An Introduction

THEME: Snakes

DEPARTMENT: Nairobi Snake Park & Aquarium



Kenyan sand boa (non-venomous)
Source: Nairobi Snake Park & Aquarium

Lesson Objectives

1. The learners shall describe a snake and its characteristics.
2. The learner shall distinguish between venomous and non-venomous snakes.
3. The learners shall appreciate the importance of snakes in the ecosystem.

Learning resources

1. Text
2. Video
3. Photo

Definition of a snake

Snakes are limbless, cold-blooded reptiles with long and cylindrical bodies. They have scales, eyes that have no lids and a forked tongue.

Snakes can be venomous or non-venomous.

Did you know? There are more than 3,000 species of snakes in the world. Snakes live in a variety of habitats, including tropical regions, deserts, forest and savannah except in extreme cold regions.



*Brown house snake (non-venomous)
Source: Nairobi Snake Park & Aquarium*

Characteristics of a snake

Snakes have some clear features that distinguish them from other reptiles. These features include:

- Snakes are vertebrates - animals with a backbone. The backbone is long and flexible.
- Snakes move by slithering - they wiggle their bodies to move.
- Snakes are covered with rows of scales. Scales - are hardened folds in the outer layer of the skin.
- Snakes have no ears or eyelids.
- Snakes use their tongues to smell
- Snakes hibernate for a period, they do not move, eat or drink during the cold season. This is referred to as brumation.
- Snakes shed their skin periodically all at once - a process known as moulting. They shed to remove parasites and scars and to allow growth.

External Parts of a Snake

A snake's body is made up of many parts with specific functions:

- **Head** - it holds the eyes, nostrils, mouth and special sensory organs.
- **Eyes** - Snakes have rods and cones in their eyes that enable them to see in two colours, blue and green.
- **Mouth** - The mouth houses the teeth and fangs for some snakes.
- **Jaws** - The jaws of snakes allow their mouths to open wide than their own bodies in order to swallow their prey whole. The jaws are not joined to the skull so the lower jaw can separate from the upper jaw.



African rock python (non-venomous)
Source: Nairobi Snake Park & Aquarium

- **Nostrils** - Snakes use their nostrils to breathe.
- **Fangs** - Venomous snakes use fangs to hold and quickly kill (inject venom) their prey.
- **Teeth** - Snakes use their teeth to hold on to their prey, making sure it does not get away. They also use them in defence when necessary.
- **Tail** - Snakes use their tails for defence, to grab on to things or to communicate.
- **Anus** - It opens to let waste come out, it also closes to keep infection out.
- **Scales** - Snakes use their scales for movement, protection and camouflage. They also protect them from dehydration.



Snake fangs
Source: Nairobi Snake Park & Aquarium

Adaptation of snakes

Snakes have different adaptations that help them to survive within their habitats. Some of these adaptations are:

- They have no appendages/limbs. Snakes do not have limbs like other animals. Instead, they move using their flexible body, which consists of a long spine with up to 400 ribs attached. Muscles connected to the ribs help snakes crawl, climb, and swim, and wide belly scales help them grip surfaces.
- Snakes have flexible jaw mechanisms. The jaws are not joined to the skull so the lower jaw can separate from the upper jaw allowing them to open their mouths very wide to swallow prey bigger than their heads.
- Snakes have teeth that are directed backwards to hook their prey and prevent it from sliding out of the mouth and escaping.
- Snakes have a forked tongue to allow them sweep a wider area and pick up odour particles from two different spots at the same time. The particles are delivered to a sensory organ in its mouth called **Jacobson's organ**. This organ helps the snakes to hunt and track prey.
- Snakes have a variety of patterns of colours for camouflage to mimic their environment for defence.

Reproduction

Snakes have different ways of reproducing, depending on the species:

Oviparous: These are snakes that lay eggs. For example Boomslang, Sand snakes, Mambas and Cobras. Brown house snakes can lay 10-20 eggs and African rock python lays 15-40 eggs.



Brown house snake
Source: Nairobi Snake Park & Aquarium

Viviparous: These are snakes that give birth to young ones. For example Kenyan sand boa, Gaboon viper and Puff adder which lays 30-70 snakelets.



Gaboon viper
Source: Nairobi Snake Park & Aquarium

Categories of snakes

Snakes can be venomous or non-venomous.

Venomous snakes have a triangular shaped head while non-venomous snakes have rounded heads. Venomous snakes have fangs with sets of teeth, and kill their prey with venom.

Non-venomous snakes are fangless, kill their prey by constriction and have sets of teeth.

Diet

All snakes are carnivores feeding on other animals. Snakes eat live prey, which they grab and swallow whole without chewing. They swallow their prey from the head using their detachable jaws.

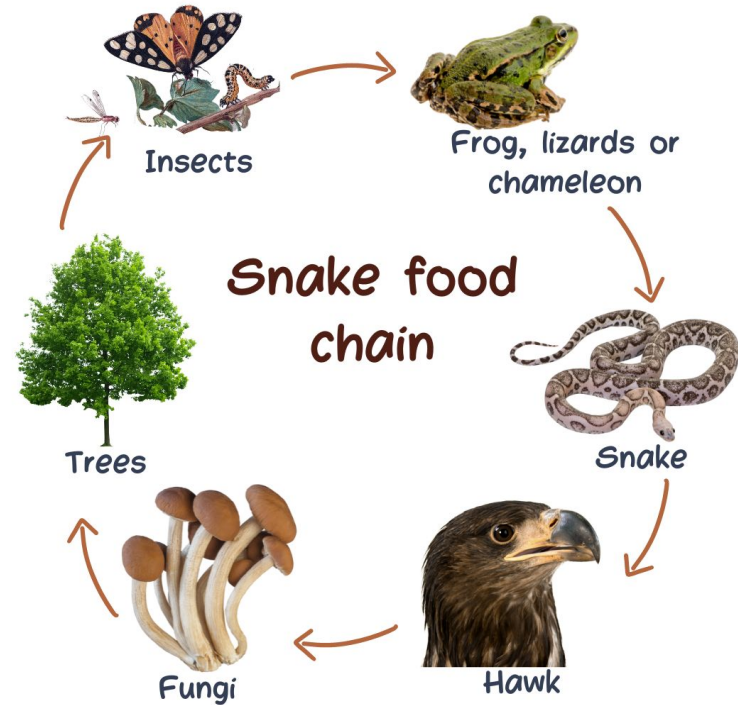
Snakes choose their food based on the size of their body. Smaller snakes, for example the Green tree snakes eat rodents, birds and insects. Bigger snakes such as African rock python eat larger prey for example deer and pigs, and even humans.

Some other species of snakes have special diets and have adapted to eat specific foods, for example egg-eating snakes eat only eggs.

Importance and benefits of snakes

Snakes play an important role in the ecosystem:

1. They regulate the population of their prey and predators thus maintaining a balance in the food chain.
2. Snakes are a tourist attraction in zoos and parks.
3. Snakes produce anti venom which is used in the pharmaceutical industry for treatment of people and pets who have been bitten by a venomous snake.



Snake food chain

Source: Nairobi Snake Park & Aquarium

First Aid for a snake bite

Snakes inject venom through their fangs when they bite a person or an animal. In order to save the person:

- Lay or sit the person in a neutral position of comfort.
- Remove rings and watches
- Reassure the victim
- Identify or take note of the colour of the snake
- Call the ambulance, or take the victim to the hospital for emergency attention.

Conservation

Conservation of snakes is important to maintaining balance in the ecosystems. Various strategies can be used to protect snakes, which include among others:

- Creating awareness on the importance of snakes.
- Protecting and restoring snake habitats.

Role of Nairobi Snake Park and Aquarium

The Snake park and Aquarium at the Nairobi National Museum works to house rescued and confiscated reptiles, educate visitors and for recreation and research purposes.

