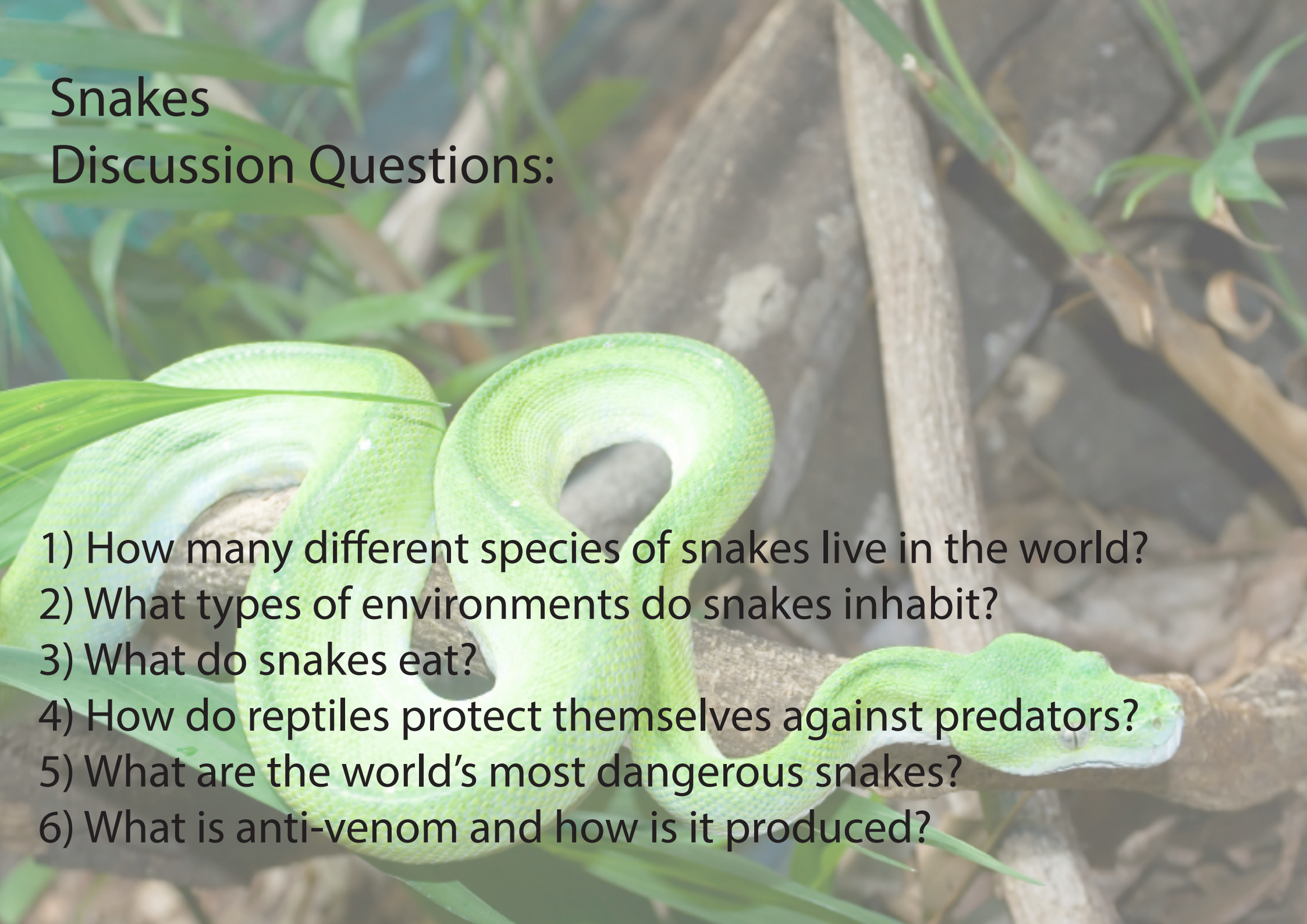


# Snakes

## Discussion Questions:

- 1) How many different species of snakes live in the world?
  - 2) What types of environments do snakes inhabit?
  - 3) What do snakes eat?
  - 4) How do reptiles protect themselves against predators?
  - 5) What are the world's most dangerous snakes?
  - 6) What is anti-venom and how is it produced?
- 
- A vibrant green snake with a white underbelly is coiled on a tree branch. The snake's body is tightly wound, forming several loops. The background is a soft-focus natural setting with green leaves and brown branches.

# Snakes

There are about 3500 known species of snakes living in the world today. They are found on every continent, except Antarctica. However snakes are not found on some islands such as New Zealand, Iceland and Ireland.

Snakes inhabit a variety of environments. They have adapted to life in tropical rainforests, mountainous regions, grasslands, swamps and deserts. Some snakes can even live in the ocean!



# Snake Offspring

Snakes are reptiles. Most reptiles are *oviporous*, which means that they lay eggs. Their eggs often have a soft, leathery exterior. Once a clutch of eggs is laid the mother generally does not care for the young. An exception is the python which wraps its body around the eggs to protect them and regulate their temperature.

Some snakes are *ovoviviporous*, which means that they carry their eggs inside their bodies. The egg shells thin and disappear by the time the offspring are fully developed. These snakes then give birth to live babies. Species such as boas, rattlesnakes and garter snakes are born in this way.



## What do snakes eat?

Snakes are carnivorous. They capture their prey by either constriction (squeezing their prey) or envenomation (by injecting poison with their fangs). Snakes then swallow their prey whole, head first so that limbs do not get stuck along the way! Some snakes even swallow their prey live.

A snake has specially adapted bone structure that helps it swallow prey that is bigger than the width of its own body. Not only can the jaw unhinge from the skull, the two halves of the jaw itself are elastically connected so that they can spread wide apart to accommodate large prey.

The powerful muscles along the body move with a rippling effect to force the prey down into the digestive tract. Once a snake has swallowed its prey it will need to rest quietly while the food digests. The snake will not need to eat again for many weeks.



# Moulting

Our skin is constantly renewing itself. You can't see it but we lose tiny pieces of the outer layer of our skin every day. When we grow, our skin grows with us. We are constantly generating new skin. Some animals lose the outer layer of their skin all at once, revealing freshly generated skin underneath. This process is called *moulting* but when snakes moulit it is called *shedding*.

Snakes shed their skins a couple of times a year when they are adults. When they are younger it happens more frequently to accommodate their growth. The whole outer layer of skin will be released, including the film that covers their eyes.

When the snake's body is ready to begin the shedding process its body will release a milky substance just under the outer layer of skin. This makes the skin look a bit dull for a few days. It also makes the eyes look cloudy. The substance helps the old skin separate from the new skin underneath.

In a few days the snake will begin to rub itself against hard surfaces to pierce the old skin near the top of its head. The skin usually comes away in one piece as the snake wriggles free. A partial shed may cause problems for the snake, especially if the skin around the head and the eye caps do not come away cleanly.



Milky looking eyes mean that the snake will be ready to shed its skin in a few days.



The old skin usually comes away in one piece.

# Protection Against Predators

Snakes need to protect themselves from predators that are larger than themselves.

Many snakes rely on camouflage. They tend to be a similar colour to their surroundings, with markings that help them to blend in. When they are under attack they will rear up and strike with their fangs.

Some snakes have developed habits that warn off potential predators. A cobra will rear up and flatten its neck, exposing two large eye-like markings on the front and back of its neck. It makes the snake look like a much bigger and scarier animal, hopefully frightening off the predator in the process!

A rattlesnake will curl itself into a circle and raise its tail. When it shakes its tail it makes a rattling noise. This is enough to frighten some predators away. It also distracts the opponent, giving the snake more time to strike when threatened.



Left: A rattlesnake raises its tail to warn off potential predators.

Right: A king cobra rears up and flattens its neck to reveal a large hood to frighten away predators.



# Some of the Most Venomous Snakes in the World

Inland taipan

Eastern brown snake

Coastal taipan

Tiger snake

Black tiger snake

Beaked sea snake

Death adder

Australian Copperhead

Cobra

King Cobra

Blue bellied black snake

Red bellied black snake

Eastern diamond-backed rattlesnake

Black whipsnake

Black banded sea krait

In which  
continents  
would you find  
these snakes?



# Some of the Most Venomous Snakes in the World

Inland taipan ... .. Australia

Eastern brown snake ... .. Australia

Coastal taipan ... .. Australia

Tiger snake ... .. Australia

Black tiger snake ... .. Australia

Beaked sea snake ... .. Australia

Death adder ... .. Australia

Australian Copperhead ... .. Australia

Cobra ... .. Asia

King Cobra ... .. Asia

Blue bellied black snake ... .. Australia

Red bellied black snake ... .. Australia

Eastern diamond-backed rattlesnake ... .. Northern America

Black whipsnake ... .. Australia

Black banded sea krait ... .. Asia



# The Australian Environment



Why are so many of Australia's animals so venomous?

The majority of the Australian continent is arid. Animals have adapted to this dry environment in order to help them survive.

When food is scarce, it is an advantage to have a very toxic venom, as this will increase the animal's chances of being fed.

This is the main reason why so many of Australia's snakes are so venomous. They need to ensure that their strike will paralyse their prey quickly. It could be a long time before they get another chance in such harsh conditions.

The same principle applies to many other venomous animal species that live in Australia.

# Anti-Venom

Anti-venom is made from snake venom. It is used to treat snake bite victims. However, antivenom is species specific. The antivenom made from the venom of a brown snake, for example, will only work on a victim of a brown snake bite. Antivenoms have been produced for each of the most poisonous snakes.

Snake venom is collected by snake handlers who milk the snake. The snake is held around the head and directed to a glass jar with a latex membrane stretched over the top. The snake bites into the membrane and the venom is injected into the jar. The venom is treated and freeze-dried into a powdered form.



Next, very small doses of venom are given to horses. Over time the doses are gradually increased and the horses build up antibodies in their blood which fights the venom.

Scientists then take a small amount of the horse's blood. They extract the antibodies and these are then used to make the antivenom serum.

When the antivenom is injected into the patient it attacks the venom, neutralising its effects.

# First Aid for Snake Bite

- 1) Call for an ambulance.
- 2) Apply a firm bandage to the limb, beginning over the site of the bite.
- 3) Apply a splint to immobilise the limb.
- 4) Keep the patient still and calm. (Keeping still helps to slow the spread of the venom in the body.)
- 5) Transport the patient to hospital or medical centre. (Ambulance is best as they carry anti-venom.)

