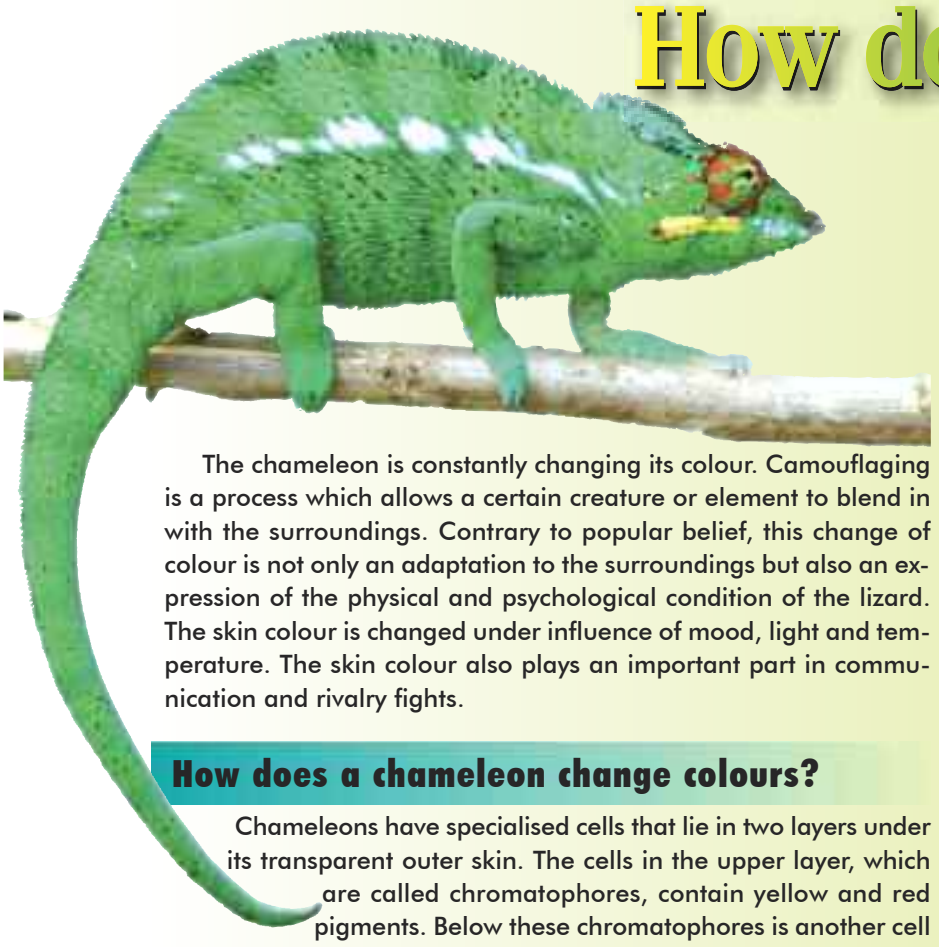
DID YOU KNOW?

# How does a chameleon change colour?



The chameleon is constantly changing its colour. Camouflaging is a process which allows a certain creature or element to blend in with the surroundings. Contrary to popular belief, this change of colour is not only an adaptation to the surroundings but also an expression of the physical and psychological condition of the lizard. The skin colour is changed under influence of mood, light and temperature. The skin colour also plays an important part in communication and rivalry fights.

## How does a chameleon change colours?

Chameleons have specialised cells that lie in two layers under its transparent outer skin. The cells in the upper layer, which are called chromatophores, contain yellow and red pigments. Below these chromatophores is another cell layer. Cells of the layer are called guanophores and they contain the colourless crystalline substance "guanin". These guanophores reflect amongst others the blue part of incident light. If the upper layer of chromatophores is yellow, the reflected light becomes green (blue + yellow). A layer of dark melanin containing melanophores is situated even deeper under this blue and white light reflecting guanophores. These melanophores influence the lightness of the reflected light. The approximate time for a colour change is about 20 seconds.

## Why does this happen?

Chromatophores change because they get a message from the brain. The message tells the cells to enlarge or to shrink. These actions cause cell pigments to mix – just like paint. A chemical called melanin also helps chameleons turn colour. Melanin fibres can spread like spider webs through layers of pigment cells.

## What factors influence these colour changes?

Chameleons change colour to blend in with their surroundings besides helping them to communicate better among their species.

**Light:** Say when a brown chameleon decides to rest in the sun, its brain will send a message to tell the yellow cells to enlarge than the blue cells. This combination of shades turns the chameleon green. This lighter colour helps the skin reflect bright sunlight.

**Temperature:** Suppose if a chameleon is cold, it might turn a darker colour. Because, dark colours absorb more heat than light ones. Thus it can survive in cold conditions with its sweater shield.

**Mood:** Varying moods cause most changes in a chameleon. E.g. if a panther chameleon gets angry, red and yellow replace its normal colours. A chemical called melanin rises toward the skin's surface, causing areas of the skin to darken.

Thus a chameleon can easily blend in its surroundings with its very own nature given its power of colours!

## Why do people blush when they're embarrassed?

Blushing is a nervous reaction that triggers tiny blood vessels in your skin to widen. This allows more blood to flow to your skin and creates that reddening effect that you seem to know all too well. Blushing just happens to be your way of reacting to a particular situation. Some people may not visibly blush, but react differently e.g. tapping fingers or clearing throat. Whatever the reasons, everybody does go pink in the cheeks!

## Why do people have different skin tones?

The outer layer of the skin has special cells, which produce a pigment called melanin. The amount of melanin in the skin determines whether one is light or dark. Another pigment, carotene, found in the inner layer of skin determines how yellow one's skin tone is. People with lighter complexion have just a little melanin while the one's with a darker skin tone, have more melanin. The genes one inherits, determines the amount of these pigments in the skin.

## Why do some get a runny nose while eating a spicy meal?


Eating can stimulate the automatic nervous system to release the compound named Acetylcholine, which prompts increased production of saliva, stomach acid and mucus. The spicier the meal, the greater the reaction.

## Why does human body need water?

Human body consists of 60 per cent of water. This water is not like ordinary water as it contains specific substances, which are vital to our body. The water acts as a conductor of heat and also helps cleaning the body from inside. It washes out the toxins (harmful substances) from the body and regulates blood circulation. Whatever losses occur during this process are made up by food and liquid intakes.