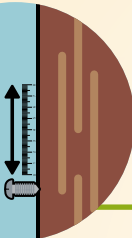




SCIENCE Quiz #3

Do you know your Science well? There are various misconceptions in Science, and some of them sound pretty convincing. Are you able to point out whether the eight statements below are facts or myths? Take on the challenge!

1



A nail placed in the side of a tree will remain at the same height as the tree grows.

FACT/MYTH?

2



You can distinguish planets from stars by looking at whether they twinkle. Stars twinkle and planets do not.

FACT/MYTH?

3



Identical twins have identical nuclear DNA, but their fingerprints differ.

FACT/MYTH?

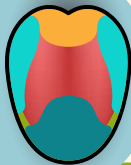
4



Pandan leaves repel cockroaches.

FACT/MYTH?

5



All parts of the tongue can taste all types of flavours.

FACT/MYTH?

6



Humans evolved most recently from the lineage of chimpanzees.

FACT/MYTH?

7



Your hands feel cold when you touch ice because the coolness from the ice travels to your hands and the heat from your hands travels to the ice.

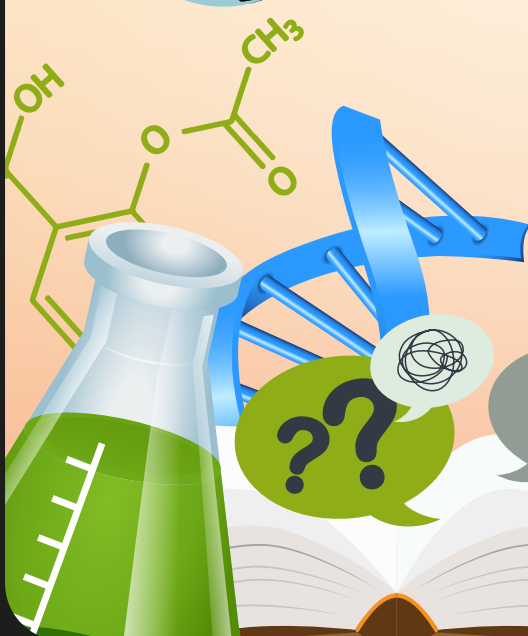
FACT/MYTH?

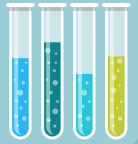
8



Goldfish only have a three-second memory.

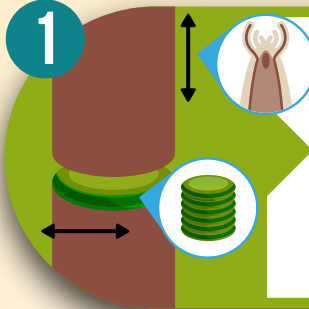
FACT/MYTH?





Answers

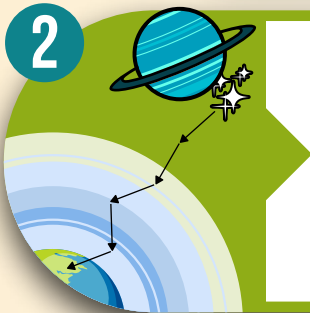
1



FACT

Trees grow in two basic directions—horizontally and vertically. The tree grows vertically through structures called apical meristems which are found only at the branch tips. Thus, the nail will not move up. Although the bottom part of the tree trunk does not stretch vertically, it expands horizontally. This growth in the diameter of the trunk will swallow the nail in just a few years!

2



MYTH

The twinkling effect is caused by the refraction of light as it travels through the many layers in our atmosphere. Since stars are so far away and appear so small from the earth, just a slight movement of light due to refraction gives the illusion that stars flicker or twinkle. Planets appear bigger from here and the twinkling effect is not as obvious to our eyes. However, in Singapore and other places with higher light and air pollution, not only stars, but planets too can appear to twinkle.

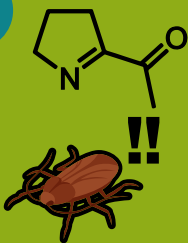
3



FACT

Identical twins have identical nuclear DNA as they are formed when a fertilised egg splits into two. Traits such as fingerprints will be similar, but not identical, because they are not fully determined by DNA. The prints are influenced by environmental factors during pregnancy like nutrition, blood pressure, position in the womb and the growth rate of the fingers at the end of the first trimester.

4

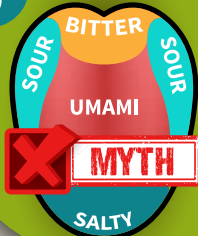


FACT

Chemicals like 2-acetyl-1-pyrroline in pandan leaves (*Pandanus amaryllifolius*), are effective in repelling cockroaches. Fresh leaves are stronger-smelling than dry ones, and hence, tend to have a greater repellent ability given their higher concentration of essential oils.

Answers

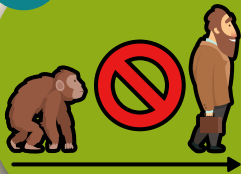
5



FACT

Basic tastes are detected by taste buds which are concentrated on the top of the tongue and roof of the mouth. There are thousands of tiny taste buds, and each has about 50–150 taste receptors that are sensitive to certain chemicals. Every taste bud can sense all the different flavours. The taste bud diagram that some of us are familiar with is a myth! Why do we say so? Well, try this out at home. Put some salt on the tip of your tongue. Then put some salt on any other part of your tongue. You should be able to taste the salty flavour regardless of where you place the salt!

6



MYTH

Humans did not evolve from chimps, but we evolved alongside chimps! Humans, chimpanzees and gorillas have all evolved from a common ape-like ancestor 5 to 8 million years ago.

7



MYTH

Science defines heat as a form of energy. A cooler object is in a state of lesser energy than a warmer object. Water in the freezer will turn into ice as heat energy leaves the water, and not because the coolness from the freezer travels into the water. In the same way, our hands feel cold when we touch ice because heat energy from our hands travels to the ice.

8



MYTH

The memory of goldfish can last not just for three seconds, but up to three months or even longer! Yes, these intelligent goldfish can remember things pretty well. Studies show that goldfish can find their way around a maze, and they know to gather when it is feeding time.