



2024 National Science Quiz

ROUND ONE: Multiple Choice

QUESTION 1

How was Australia's tallest mountain, Mount Kosciuszko, formed?

- A. Volcano
- B. Continental collision
- C. Australia drifted over a lump in the mantle
- D. Asteroid impact

ANSWER: C

Australia drifted over a lump in the mantle (the part between the core and the crust). Most of the world's mountain belts are the result of two continents colliding (e.g. the Himalayas) or volcanism. The mountains of Australia's Eastern highlands – stretching from North-eastern Queensland to Western Victoria - are an exception!

QUESTION 2

Australia's developing a green steel industry that uses hydrogen for fuel instead of coal. What extra element needs to be added to make steel?

- A. Nitrogen
- B. Helium
- C. Chromium
- D. Carbon

ANSWER: D

Steel is a mixture of iron and carbon, and sometimes some other stuff.

QUESTION 3

What did the Gunditjmarra people farm, in the shadow of Budj Bim?

- A. Yam daisies
- B. Eels
- C. Kakadu plums
- D. Kangaroo grass

ANSWER: B.

Known locally as kooyang, Eels were farmed in a vast network of canals, dams and weirs built over thousands of years.

QUESTION 4

Which of the following elements is named after where it was first discovered?

- A. Hydrogen
- B. Helium
- C. Lithium
- D. Beryllium

ANSWER: B

Helium is named after the Sun. It was originally discovered as a particularly bright yellow colour in the rainbow of sunlight.

QUESTION 5

Pick the totally true statement about insects.

- A. Insects like dung beetles help clean up animal poo by eating it but then they are deadly to humans.
- B. Insects like mosquitoes help by spreading great jokes but they can also spread diseases.
- C. Insects like moths help by eating redback spiders around your house but some moths can eat your clothes.
- D. Insects like flies help by pollinating plants but some flies are pests that eat fruit.

ANSWER: D

Insects like flies help by pollinating plants but some flies are pests that eat fruit.

ROUND TWO: How Many? (Closest answer wins)

QUESTION 1

How many ways can you put six identical lego bricks together?

ANSWER: 658,869,076,800

QUESTION 2

How many neck bones does a giraffe have?

ANSWER: Seven. Despite its length, giraffe's necks are made up of just seven large bones known as cervical vertebrae.

QUESTION 3

How many grams of salt are there in one litre of seawater (on average)?

ANSWER: 35 grams

The simplest way to work it out is by evaporating the water from seawater. That's not the only way – research vessels use CTD machines. These huge science experiments are lowered deep into the ocean, and they measure electrical conductivity, temperature and depth – hence the name CTD. From these measurements, scientists can calculate the saltiness of the water very accurately, without having to collect samples at every depth. Although, CTDs usually also have bottles to collect water at different depths as well.

QUESTION 4

How many elements are on the periodic table?

ANSWER: 118

QUESTION 5

How many moons are in the Solar System? (as of July 2024)

ANSWER: 288

Earth: 1 Mars: 2 Jupiter: 95 Saturn: 146 Uranus: 28 Neptune: 16

ROUND THREE: True or False

QUESTION 1

True or false? A bluebottle isn't one animal, it's a colony of lots of animals all working together.

ANSWER: True

QUESTION 2

True or False? The coldest place in the Universe is the Boomerang Nebula.

ANSWER: False

QUESTION 3

True or false? The Sun was warmer back when the Earth was formed, 4.5 million years ago.

ANSWER: False. The Sun is actually warming up!

QUESTION 4

True or false? Black asphalt roads can't be recycled.

ANSWER: False.

QUESTION 5

True or false? Bushfires can cause tornadoes.

ANSWER: True. It was first recorded during the devastating 2004 Canberra bushfires.

ROUND FOUR: Tea Break (no questions this round)

Watch and learn: it's experiment time!

ROUND FIVE: Mixed Question Round

QUESTION 1

CSIRO has an air archive, consisting mostly of tanks filled at Kennaook/Cape Grim. Where do the oldest samples come from?

ANSWER: Scuba diving shops

QUESTION 2

What's the biggest native animal that lives in Australia (HINT: it has to spend at least some time on land to count)?

ANSWER: Saltwater crocodile.

Some crocs can get up to 6m long, versus a Red Kangaroo which is the largest mammal and strictly land based.

QUESTION 3

Who was the first woman in space?

ANSWER: Valentina Tereshkova

Soviet cosmonaut, Valentina Tereshkova. Her radio call was sign 'Chaika' ('seagull') and she was 26. Her photographs of Earth and the horizon were later used to identify aerosol layers within the atmosphere.

QUESTION 4

According to the Meriam people living on Mer (Murray) Island in the Torres Strait, what does it mean when the stars are blue and twinkling rapidly?

ANSWER: A storm is approaching. It indicates storms are approaching. Moisture in the atmosphere will make stars appear blue because water absorbs the redder and greener wavelengths. Twinkling indicates that there's lots of wind up high - so the weather is probably changing.

ROUND SIX: Aussie Scientists (CSIRO STEM Professionals in Schools Round)

QUESTION 1

Who's the scientist and inventor on the \$50 note?

ANSWER: David Uniapon

QUESTION 2

What science is Dr Cathy Foley, Australia's Chief Scientist, famous for?

- A. Engineering
- B. Physics
- C. Quantum physics
- D. Biology

ANSWER: C. Quantum physics

QUESTION 3

Terry Tao is regarded as possibly the greatest living expert in what area of study?

ANSWER: Mathematics

QUESTION 4

What kind of telescope did Ruby Payne-Scott use?

ANSWER: Radio telescope

QUESTION 5

Howard Florey helped invent which important medicine?

ANSWER: Penicillin

QUESTION 6

Elizabeth Blackburn won a Nobel Prize in 2009. What category was it?

ANSWER: Physiology or Medicine

ROUND SEVEN: Rapid Round

QUESTION 1

Which end of a battery do electrons flow out of?

ANSWER: Negative end.

Electrons flow from the negative end of the battery through the wire and the light bulb and back to the positive end of the battery.

QUESTION 2

What's the driest continent?

ANSWER: Antarctica.

Antarctica is almost entirely desert.

QUESTION 3

How many legs does a butterfly have?

ANSWER: Six.

Butterflies have six jointed legs, a pair of antennae and three body parts called a head, thorax (chest), and abdomen (tail end). The four wings and the six legs of a butterfly are attached to its thorax.

QUESTION 4

Which planet is the hottest?

ANSWER: Venus.

Even though Venus isn't the closest planet to the Sun, it is still the hottest. It has a thick atmosphere full of the greenhouse gas, carbon dioxide and clouds made of sulfuric acid. The gas traps the heat.

QUESTION 5

What chemical makes the burning sensation when you eat a chilli?

ANSWER: Capsaicin.

Capsaicin is the chemical substance in a chilli pepper that causes the burning sensation. It binds to a receptor in your mouth and on your tongue called TRPV1 – the same receptor that tells you when something on your skin is too hot. Capsaicin is a hydrophobic molecule, thanks to its hydrocarbon tail, so if you reach for a glass of ice-cold water, you're not going to wash any capsaicin away. In fact, you'll end up distributing it around your mouth, making the pain even worse.