



SUPER SCIENCE TRAVELLING QUIZ

We have all sat and watched the game-shows and thought, I know that one. If this is you, then you have a great chance to impress the whole family with your science and general knowledge skills.

Covering a multitude of topics, the Super Science Travelling Quiz is sure to bring out the Chris Tarrant in all of us.

SCORE SHEET

QUIZ						
Spies & Codes						
Biomimetic						
Inspiration						
Food						
Sound						
Space						
TW Live						
TOTALS						

Spies & Codes Quiz

1. What was the name of the machine that the Germans used in World War II to encrypt their radio messages?
a. Sphinx b. Enigma c. Mirage d. Mystery
2. Which of the following animals has been used for centuries by spies to send messages?
a. Hippo b. Giraffe c. Hare d. Carrier pigeon
3. In 1945 the Soviet Union gave the U.S. Embassy in Moscow a large wooden reproduction of the Great Seal of the United States. It hung over the ambassador's desk for seven years before what was discovered?
a. A listening device b. A pinhole camera c. A radiation detector d. A small homing device
4. In 1978 the Bulgarian dissident Georgi Markov was killed in London by which KGB designed weapon?
a. A keychain gun b. A poison-pellet umbrella c. A Fairbairn-Sykes fighting knife d. A poison-squirting button hole flower
5. The fastest and highest flying 'air-breathing' plane is a spy plane built for the CIA to gather intelligence. Which bird was the plane named after?
a. Dodo b. Blue Tit c. Blackbird d. Emu
6. Which of the following James Bond gadgets is still just science fiction?
a. Miniature ring camera b. Blue X-ray glasses c. Cigarette lighter communicator d. Pager
7. The Americans placed a listening device outside a Soviet military base disguised as what?
a. A woodpecker b. A tree stump c. A large mushroom d. A telephone box
8. Secret intelligence can be concealed by shrinking the information into a microdot. When was this cunning idea first tried out?
a. 1593 b. 1852 c. 1917 d. 1994
9. Which of the following gadgets was actually employed by KGB operatives during the Cold War?
a. Explosive milk bottle b. Weaponry detecting rake c. Lipstick pistol d. Ski pole gun
10. Many spies encode their messages so their enemies can't understand them. What is 'Science Year' written in Morse code?
a. 0- - - 0- -0-0
-0- 0- 0-000 000
-0-0 0-0 - - - - 0-
b. 000 0- 0-000 - -
- - - -0 000 0- - - -
00- - - - 0- -0
c. 0- 00 0-0 0- -0 - -
- 0-0 - 000 0 0- -
d. 000 -0-0 00 0 -0
-0-0 0 -0- - 0 0- 0-0

Answers: B, D, A, B, B, B, C, D

Biomimetic Quiz

1. Computer programmers use neural nets while trying to develop artificial intelligence. Which organ are neural net patterns based on?

- a. The Ear b. The Liver c. The Brain d. The islets of Langerhans in the pancreas

2. Speedo's Fastskin™ swimsuit has v-shaped ridges that reduce drag and turbulence in the water. What marine animal is this feature copied from?

- a. Tadpole b. Mermaid c. Great kelp seaweed d. Shark

3. What is 'RoboTuna'?

- a. A brand of tuna fish in a self-opening tin b. Arnold Schwarzenegger's latest film c. An energy efficient submersible robot from MIT modelled on the bluefin tuna d. A bionic tuna fish

4. Until the 19th century, paper was chiefly made from cotton or linen. Which animal's wood-based paper nest suggested the idea of using wood pulp to make cheap paper?

- a. Woodchucks - they generate a wood pulp used as nest material b. Wasps - they chew up wood and spit it back out again c. Origami pandas - almost extinct but still in some parts of China d. Paperclips - small termites which build papier-mâché nests

5. The Victorian Marc Brunel developed a revolutionary design for a tunnelling machine. He is said to have been inspired after observing a shipworm with a bony head that helped it to burrow whilst in prison for debt. What tunnel did Marc Brunel build?

- a. The Channel Tunnel b. The first tunnel under the Thames c. A tunnel from his prison cell to Brighton d. A tunnel under the Pennines for ramblers

6. In 1868 Michael Kelly patented which invention inspired by nature that helped to tame the Wild?

- a. The six-shooter revolver - inspired by the motion of tumbleweed plants b. The pony express - inspired by the relay based hunting patterns of vultures c. Saloon bar doors - inspired by the rapid opening of cactus flowers d. Barbed wire - inspired by the thorny hedges used to pen in cattle

7. Not all designs inspired by nature work. In the 19th Century, inventors attempted to make human-powered flying machines by directly copying the feathers and flapping wings of birds. Why did these never work?

- a. The wax sticking the feathers together always melted b. Human muscles are too weak to lift the weight of a human in this way c. When feathers are removed from a bird, they no longer have any lift d. People couldn't run fast enough to achieve a good take off speed

8. Scientists are designing a new syringe needle that will cause less pain as it pierces the skin. Which animal feature is the highly serrated edge of this needle copied from?

- a. porcupine quills b. snake fangs c. piranha teeth d. mosquito proboscis

9. Bees are incredibly industrious creatures, not only do they produce honey but they also construct honeycomb. Honeycomb is very strong and has been used as the basic design for what structure?

- a. The Eiffel Tower b. The Pyramids c. The Large Binocular Telescope in Arizona d. The International Space Station

10. Joseph Paxton was the Victorian architect who designed the glass covered Crystal Palace building for the Great Exhibition of 1851. What design feature for his glasshouses did he copy from the giant African lily, *Victoria regia*?

- a. The curving shape of the lily's petals was duplicated on the roof to catch rainwater b. The giant lily pad's array of supporting cross ribs inspired the strong iron frames c. The noise absorbent flooring was based on the cells which made up the leaves d. The foundations were shaped like the roots of the aquatic lily to provide stability

ANSWERS: C, D, C, B, B, D, B, B, D, B, D, C, B

Inspiration Quiz

- Legend has it that when Archimedes discovered his law of buoyancy he was in the bath. It is thought that he leapt out of the bath shouting. What did he shout?
a. Banzai b. Doh c. Eureka! d. Where's the soap?
- Isaac Newton was one of the greatest physicists of all time, and one of his most important discoveries concerned the force of gravity. Bizarrely, Newton is thought to have been inspired by a piece of fruit. Which fruit?
a. Mango b. Banana c. Apple d. Watermelon
- Velcro was invented by George de Mestral who took the sticky idea from nature - what inspired the invention?
a. Burs (stickyweed) sticking to his socks after a walk in the woods b. Burs (stickyweed) sticking to his socks after a walk in the woods c. His pet gecko sticking to the inside of its tank d. Sticks
- Which famous scientist and inventor said "Genius is 1% inspiration, 99% perspiration"?
a. Faraday b. Einstein c. Edison d. Franklin
- Love inspired Alfred Bird's invention. His wife had an allergy to eggs, but loved desserts. Which alternative form of a popular 'eggy' dessert did he invent?
a. Custard Powder b. Meringue c. Souffle d. Rhubarb Crumble
- Science Fiction sometimes predates and inspires science! What did Arthur C. Clarke envision which has become a reality?
a. Text messaging b. Geostationary satellites c. Formula One racing cars d. X Box games
- Which ancient Greek was the inspiration behind 'modern' medicine, being the first person to attribute disease to physical causes - rather than considering it a punishment from the gods?
a. Medicus b. Hippocrates c. Subtractus d. Phlegmium
- Darwin's idea about evolution was partially inspired by animals on the Galapagos Islands. He found 14 similar species of one animal not found on the mainland and he concluded that one type had evolved into many others. What were these animals?
a. Earthworms b. Finches c. Giraffes d. Mystery
- Edward Jenner developed one of the first vaccines. He showed scientifically that an exposure to cowpox immunised someone against fatal smallpox. How did he find this out?
a. He noticed that milkmaids did not have a reaction to smallpox b. He noticed that cows did not have a reaction to smallpox c. He noticed that people with a diet containing lots of beef did not have a reaction to smallpox d. He noticed that people who had had chickenpox did not have a reaction to smallpox
- One element in the periodic table is named after the German for goblin. It got its name because miners sometimes unexpectedly died while mining it. Originally it was thought that the mines haunted but now it is known that it was arsenic poisoning because arsenic was also present. What is this element?
a. Krypton b. Tantalum c. Cobalt d. Gold

Answers: C, C, B, B, C, A, B, B, B, A, C

Food Quiz

1. About 25% of people have a really good excuse for hating the taste of vegetables. What is it?
a. They were never forced to eat their vegetables as children so they didn't get used to the taste. b. A Supertaste gene makes them extra sensitive to the bitter taste in vegetables. c. What we really hate eating is influenced by our mother's cravings while pregnant.
2. Eating food high in sulphur makes farts smellier. So eating which of the following will produce the stinkiest fart?
a. Beans b. Meat c. Fruit cake
3. How are Brazil nuts shelled without them breaking?
a. Macaw monkeys are trained to crack them without eating them. b. They are dipped in liquid nitrogen before being dropped so that only the shells break. c. They are steamed to soften the shell and then a giant rolling pin is rolled over them.
4. Domestic turkeys can't fly. Why is this?
a. They're too fat. b. Their muscles can't generate enough energy. c. Their bones are too dense.
5. Sprouts - you either love them or hate them. But how do they grow?
a. On the branches of the sprout tree - like fruit. b. Below the ground on the roots as nodules - like peanuts. c. Budding off the stem of the sprout plant - like leaves.
6. What is a belch or a burp?
a. The same as a fart, but the gas just comes out the other way. b. Gas that's been swallowed. c. Gas trapped in the food that is released as it is digested in the stomach.
7. Our Christmas dinner, like any other dinner, takes about 5 seconds to reach the stomach. It spends 2 to 4 hours there before entering the small intestine, where it can linger for up to 6 hours before moving on to the large intestine. How long does it spend in there?
a. 3 hours b. 10 hours c. 18 hours
8. Plants can have hair as well as animals, but it can look quite different and occur in some very unexpected places. Which fruit is actually 'hairy' all the way through?
a. Apple b. Banana c. Satsuma
9. Chocolate contains a mood lifting chemical (phenylethylamine), antioxidants that stop fat going rancid (polyphenols) and a small amount of caffeine. But how much chocolate can you really eat as part of a healthy diet?
a. A bar a day keeps the blues away and those antioxidants keep you healthy b. Two or three bars a week will satisfy your cravings without doing any damage c. None at all as even a bar a week contains too much fat and caffeine
10. What is the most likely reason for Father Christmas always being represented with a red nose?
a. Lapland is so cold it has given him a permanently red nose b. He's very colour coordinated - his nose matches his outfit c. That traditional glass of sherry has increased the blood flow to the skin giving his nose a red glow

Answers: B, B, C, B, B, C, B, B, C, B, C

Sound Quiz

- 1. Why does sound travel faster through metal than through air?**
 - a. The atoms in metal are closer together increasing the speed that the vibrations can travel through it.
 - b. Metal conducts electricity, which helps the sound move along.
 - c. Metal is rigid so the sound can travel easily in straight lines.
- 2. Is it quiet in space?**
 - a. Yes, sound needs to travel through something - because space is a vacuum sound can't move through it.
 - b. Yes at any single point it is generally extremely quiet, because distances between heavenly bodies and spacecraft are so vast.
 - c. No, it's very noisy because the Sun and other stars are constantly blasting out material in huge explosions - the atmosphere protects us from this noise.
- 3. Recent research has shown that if you listen to some classical music it may...**
 - a. Improve your balance.
 - b. Improve your spatial awareness.
 - c. Make your hair and nails grow more quickly.
- 4. Why are women's voices higher than men's?**
 - a. By listening to their mothers, women learn to speak with a higher voice.
 - b. Women have smaller lungs so less air is blown passed the vocal chords when speaking.
 - c. Women have shorter vocal chords and the length of the chords affects the pitch of the sound.
- 5. A minidisk has about one fifth of the memory of a CD, but they both play about 75 minutes of music. How can this happen?**
 - a. The information on the minidisk is compressed and some information is lost.
 - b. The information for the bass of the music is lost when recording onto minidisk.
 - c. The information stored on minidisk is in a magnetic form and this takes up less space.
- 6. A scratched CD will still play while a vinyl record won't. Why is this?**
 - a. A CD player contains an error-correction system which can spot an analogue scratch when compared with the digital music.
 - b. Because of the frequency of the laser light, it can't see the scratch
 - c. The information on a CD is held in strips, if the scratch doesn't cross the strip it won't affect the music.
- 7. Which is the loudest (188 decibels) and farthest-travelling (850 km) sound in the animal world?**
 - a. Elephant trumpet
 - b. Howler monkey howl
 - c. Whale song
- 8. Which of the following musical sounds has been known to shatter a wine glass?**
 - a. Singing a top note
 - b. Plucking a double bass
 - c. Blowing a tuba
- 9. The noise level of an everyday conversation is around 60db and your hearing can be damaged by sounds of around 90db. But what is the average decibel level at a rock concert?**
 - a. 80 decibels
 - b. 120 decibels
 - c. 400 decibels
- 10. A singer is giving an open-air concert and a family sitting in their garden 1700m away can hear the concert. The singer starts singing a song, how long after this do the family first hear her? (Given that, speed = distance/time and the speed of sound through air = 340m/s)**
 - a. 3 seconds
 - b. 5 seconds
 - c. 15 seconds

Answers: A, A, B, C, A, A, C, A, B, B

Tomorrow's World Live Quiz

1. Where would you weigh least?

- a. Top of Mount Everest b. Centre of the Earth c. In Australia d. In an aeroplane

2. Uranus is a blue green colour because it contains what gas?

- a. Hydrogen b. Nitrogen c. Methane d. Carbon Dioxide

3. The nearest star to Earth is...

- a. The Sun b. Mars c. Alpha Centauri d. Betelgeux

4. What does the E stand for in $E=mc^2$?

- a. Energy b. Einstein c. Electronvolts d. Entropy

5. How many millions of years ago did the dinosaurs become extinct?

- a. Dinosaurs were never alive - it's just a conspiracy b. 12 c. 65 d. 950

6. Which animal has killed more people than any other?

- a. Great White Shark b. Mosquito c. Piranha Fish d. Funnel Web Spider

7. Cooking salt is really the chemical...

- a. sodium bicarbonate b. carbon dioxide c. sulphur dioxide d. sodium chloride

8. The violin beetle is called this because...

- a. It makes a sound like a violin b. It eats violins c. It looks like a violin d. It was named after Mr. Violin

9. How much poo does an elephant produce each day?

- a. Elephants only poo once a week b. 20 kilograms c. 150 kilograms d. 1 tonne

10. The driest place in the world is...

- a. The Sahara desert in North Africa b. The Atacama desert in Chile c. The Antarctic d. Death Valley, USA

Answers: B, C, A, A, C, B, D, C, C, B