



CPS Math & Science "Everyday Stuff"
Channel 5 Question Archive

February 29, 2008

Q: Which African American's ideas improved upon the first light bulb?

A: Lewis Howard Latimer was the original draftsman for Thomas Edison. Latimer invented a method of making carbon filaments for the electric incandescent lamp.

February 28, 2008

Q: Which African American's invention helps fire fighters today?

A: Garrett Morgan invented the "gas inhalator" that allows fire fighters to enter burning buildings without harm from smoke or fumes.

February 27, 2008

Q: Which African American is responsible for today's blood banks?

A: Charles Drew. He discovered methods of separating blood cells from plasma. They could then be frozen separately for later use.

February 26, 2008

Q: Which is more: being given one million dollars, or one penny the first day, double that penny the next day, then double the previous day's pennies and so on for a month?

A: Well, $2^{30} - 1 = 1,073,741,824 - 1 = 1,073,741,823$ pennies. That's more than a billion pennies! If we divide this number by 100 (remember, there are 100 pennies in a dollar), we can find how many dollars this is $\$1,073,741,823$ divided by 100 = $\$10,737,418.23$. That's almost eleven million dollars.

February 25, 2008

Q: Why do you see lightning before you hear the thunder? What causes thunder?

A: The speed of light is much faster than the speed of sound. Light speed is 186,000 miles per second. The speed of sound varies, but is approximately 770 miles per hour.

Q: Why do objects appear further away than they really are in a car's side mirror?

A: The side mirror in a car is slightly curved. It is the same as looking into the back of a spoon.

February 21, 2008

Q: Can sounds be heard in outer space?

A: No. Sound requires a medium (material) to travel through.

February 20, 2008

Q: Do all animals have ears to hear?

A: Some insects use their antennae; bees sense vibrations through their bodies; snakes sense vibration through their bones; fish sense vibrations through a tube called a lateral line.

February 19, 2008

Q: What causes rain to fall from clouds?

A: Clouds are made of water vapor. As the clouds rise higher, they begin to cool off. Water vapor starts to condense into droplets. When the droplets become larger and heavier they fall back to the Earth as rain (or snow or sleet...).

February 18, 2008

Q: Why do astronauts float when they are in orbit?

A: It is NOT because there is no gravity in outer space. The Earth's gravitational force is what keeps the spaceship in orbit. The astronauts are actually constantly falling toward the Earth. It is the same feeling a person experiences dropping down the big hill of a roller coaster or rapidly descending in an elevator. What is different is that the spaceship is not just falling. It is also moving horizontally, so fast that it follows the curve of the Earth's surface.

February 15, 2008

Q: What makes candy sour?

A: Citric acid is used as a food additive. It's found in many plants and animals.

February 14, 2008

Q: Why don't spiders stick to their own webs?

A: Not all parts of a spider's web are sticky, and the spider knows where to step.

February 13, 2008

Q: Why do bees have stuff that looks like hair on their legs?

A: Bees use these hairs to gather plant pollen.

Q: Why can't a person tickle himself?

A: The answer lies at the back of the brain in an area called the cerebellum, which is involved in monitoring movements. The cerebellum can predict sensations when your own movement causes them but not when someone else does. When you try to tickle yourself, the cerebellum predicts the sensation and this prediction is used to cancel the response of other brain areas to the tickle.

February 11, 2008

Q: Why do migratory birds fly in a V-formation?

A: There are two well-supported and complementary explanations for why birds fly in formation. One is to conserve energy. It is actually less work for the birds behind the leader. They take advantage of the air pressure changes created by each of the wings of the lead bird. The other explanation is that the formation facilitates orientation and communication among the birds. The relative importance of these two explanations shifts as various purposes of flights are considered. The first is probably more useful during long migratory flights and the latter more so during local feeding flights.

February 8, 2008

Q: Why do apple slices turn brown after being cut?

A: Fresh cut apples turn brown when iron-containing chemicals inside apple cells react with oxygen in the air. The oxygen supports reactions between enzymes and proteins in the tissue, forming compounds with the familiar brown coloring. We see this every day when iron objects rust, or when scabs on cuts turn brown. This browning occurs in nearly all plant materials and is responsible for the color of tea, coffee, and cocoa.

February 7, 2008

Q: How can you use the Sun to tell time?

A: The Sun moves across the sky during the day (really Earth rotates). So the shadow of an object will move from one side of the object to the other as the Sun moves.

February 6, 2008

Q: Why do you have a shadow?

A shadow is formed when an object blocks a light source.

February 5, 2008

Q: What causes wind?

A: The uneven heating of the Earth's surface.

February 4, 2008

Q: Why does the moon shine?

A: The moon has no light of its own. It is actually a reflection of light from the sun.