

Water from the Tap: Fun Facts & Science

When did people start bathing?

Paris, Long Ago



1 Bucket/Day

Moscow, Long Ago



Now:
Clean water for health!



Why do we wash with water?



How do soap bubbles work?



Tiny air balls grab dust and smoke. Factories use them to clean minerals!



Why do we need to drink water?



Can water explode?



Yes! Fast heat makes steam pops from steam inside.



Why can ice skates slide?



Skates press ice, melting a thin layer. Water helps them slide!

Is water clear? Can iron be clear?



Deep water is dark. Very thin iron sheet can be clear like glass!

More fun water facts



Ice breaks pipes! Keep them warm.

Old cities had dirty water. Clean water made people healthy.

The Stove: Fun Facts & Science



When did people learn to make fire?



Long ago,
lightning

Later, rubbing
sticks

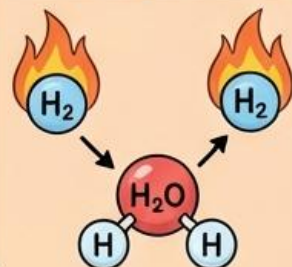
Now, matches.
Easy & safe!

Why do matches light?



Match heads have special
stuff. Rubbing makes it
hot & lights up!

Why doesn't water burn?



Water is made
from burning!
Hydrogen gas burns
to make water.
Water cannot burn.

Where does firewood go?



Smoke:
Tiny carbon bits

Steam: Water

Ash:
What's left

Why does the stove roar?



Hot air up.
Cold air in.
Wind inside makes
roaring sound!

Why does water put out fire?



Fire needs air.
Water covers fire,
keeps air away.
Like a blanket,
stops it!

Our body is like a stove



We breathe in air. Burn
to keep warm, just like a
stove burns wood!



Table and Stove: Fun Food Facts & Science

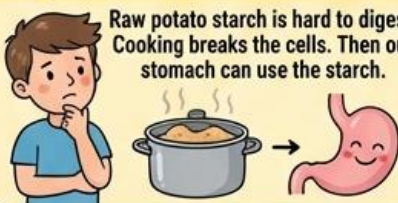
What is a potato?

A potato has lots of starch. Starch is white powder. We get it by crushing potatoes.



Why don't we eat raw potatoes?

Raw potato starch is hard to digest. Cooking breaks the cells. Then our stomach can use the starch.



Why do baked potatoes have hard skin?

Strong heat turns starch into dextrin—a glue that makes hard skin.



Dextrin is also used for stamps and labels.



Where does bread crust come from?

Starch on clothes turns to dextrin with a hot iron.

It makes a hard layer, like on potatoes.



Why does old bread get hard?

Flour has starch too. Baking turns starch into dextrin on the crust.



Bread has gluten. Gluten gets hard and brittle after hours. That's why old bread is hard.



Why does dough rise with yeast?

Yeast makes carbon dioxide bubbles.



Bubbles push the dough up like a balloon.

Why does beer fizz?

Beer has yeast too. Yeast makes carbon dioxide. When you open beer, bubbles rise and make foam.



What is soup?

Soup is mostly water. It has a little fat, gel, salt, and flavor. Meat and vegetables have lots of water too.



Why do we eat meat?

Meat has protein. Our muscles are made of protein. Without protein, we cannot grow or stay strong.



Man-made food



Scientists tried to make milk from mixed nutrients. But animals fed only man-made food died. Real food has vitamins—special things we need to live.

Milk in a bottle

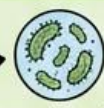
Milk has water, fat, sugar, protein, salts, and vitamins.



Cream is fat that floats up. Shaking cream makes butter.

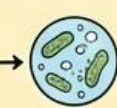


Why does milk go sour?



Bacteria in milk turn sugar into acid. Acid makes milk curdle. Boiling milk kills bacteria so it stays fresh longer.

Where do holes in cheese come from?



Bacteria in cheese make carbon dioxide—like in bread. Holes are bubbles' homes.

What did ancient people eat?



Long ago, people ate mostly meat. Later they learned to grow grains. Bread was first just crushed grain paste. Then someone used sour dough to make it rise.

How long have we drunk tea and coffee?



Tea came to Europe around 1610. Coffee came later. People thought they were medicine. Now we drink them for fun.

How did people eat long ago?



No forks—people ate with hands. No plates—they used bread slices as plates. Forks and plates came only 300 years ago.



KITCHEN SHELF SCIENCE & MATERIALS!



WHY ARE THINGS MADE OF DIFFERENT MATERIALS?



Different materials have different strengths. Some are hard, some are soft. Some rust, some don't. We choose materials based on how we use things.

WHY DOES IRON RUST?



Iron rusts in wet air. Rust eats iron slowly.



To stop rust, we paint iron or coat it with tin or zinc.

WHAT ARE THINGS MADE OF?



Most 'iron' things are not pure iron. They are iron mixed with carbon. Pure iron is soft. Mixed with carbon, it becomes strong steel or cast iron.



Heavy cast iron stove

WHY DO TIN CANS NOT RUST EASILY?



Tin protects iron from air and water.

But if the tin layer is scratched, iron will rust there.

IS THERE YELLOW COPPER?



Most copper is red. But brass is copper mixed with zinc. Brass is yellow and does not rust like iron.

WHAT ELSE IS MADE OF CLAY? & HOW IS A CLAY POT MADE?

Clay can make pots, bricks, dishes, and even cement. Clay contains aluminum—a light, strong metal used for planes and pans.



SPINNING
WHEEL



Clay is mixed with water and sand. It is shaped on a spinning wheel. Then it is dried and baked in a kiln to make it hard.



Cupboard: Fun Facts & Science



Who invented fine china?

Chinese people made fine china over 1700 years ago. Europeans learned later.



Böttger in Germany discovered how to make white china.

What is the secret of china?

Use white clay, fine sand, feldspar.
Fire it at high temperature twice.



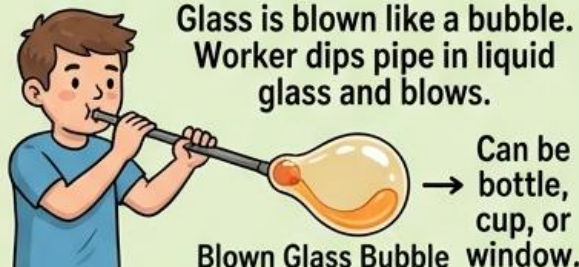
Is there anything made of sand?

Yes! Glass is made from sand.
Sand, soda, and lime melt to make liquid glass.



How are glass things made?

Glass is blown like a bubble.
Worker dips pipe in liquid glass and blows.



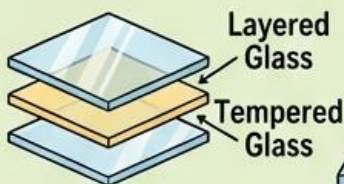
Unbreakable glass



Layered Glass

New glass won't break easily. Some has plastic layers inside.
Some handles hot and cold well.

Can't Tempered glass



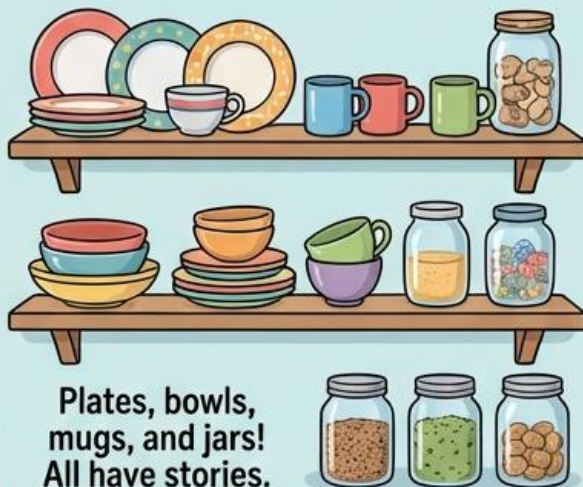
Some handles hot and cold well.



Hot glass dish without cracking.

More Cupboard Fun

Look for different types of dishes.
Plates, bowls, mugs, and jars!



WARDROBE WONDERS & SCIENCE FACTS!

History of Mirrors



Long Ago:
Metal Mirror

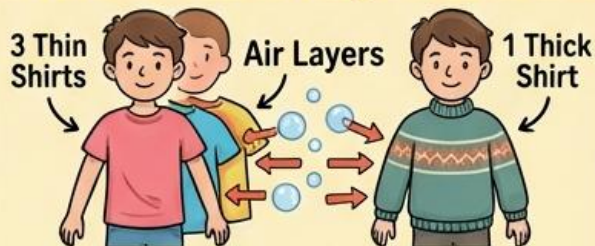


Later:
Venice Glass
Mirrors

Mirrors made of metal, then glass with metal behind. Venice famous for glass mirrors!



How Clothes Keep Us Warm



Clothes keep body heat in. Air between layers traps heat! Three thin layers warmer than one thick.

Air Walls for Warmth!



Why Not Wool in Summer?



Wool = Too Warm & Wet
Double windows wet and hot.



Cotton & Linen = Dry & Cool
Cotton and linen dry fast, let air through.

Why Not Wool in Summer?



Why We Wear Undershirts



Undershirts add warm air layer. Easy to wash, protects hard-to-clean outer clothes.

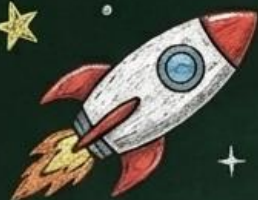
Undershirt:
Air Layer



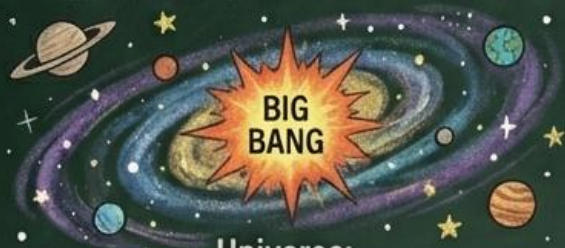
Easy to Wash!



Chapter 1: Space Exploration



What is the universe?



Universe:
Huge space, stars, planets, mysteries.
Big explosion started it. Still growing!

Why are stars different colors?



Blue = Very Hot!



White = Hot



Red = Cooler



Sun: Yellow
(Not too hot/cold)

Why are stars different colors?



Blue =
Very Hot!

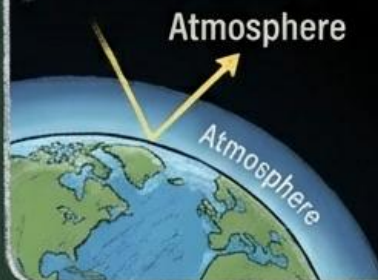


White =
Hot



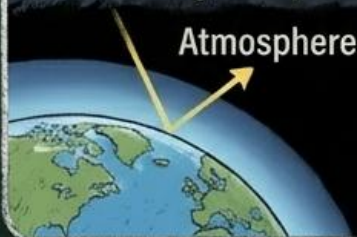
Red = Cooler

Why is space dark?



No air to
reflect light!
Looks black.

Why is space dark?



No air to
reflect light!
Looks black.

Why do planets look round?



Gravity pulls
to center.
Makes them
round like balls!

Why do planets look round?



Gravity pulls
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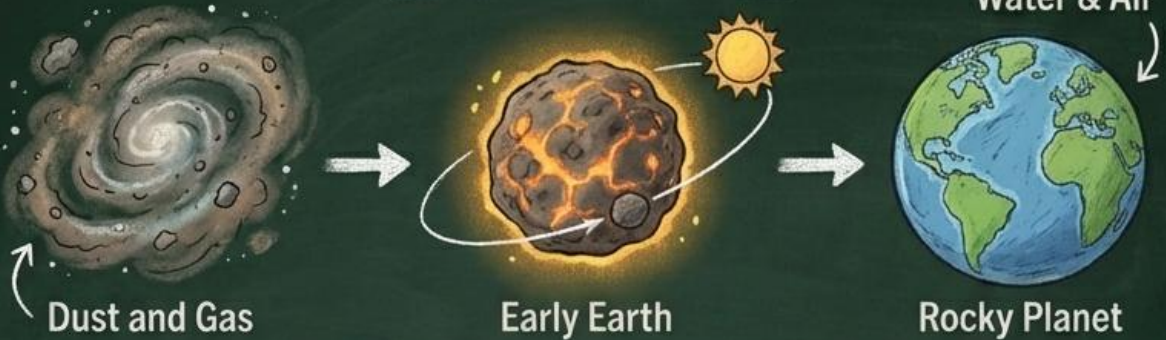
What is a black hole?



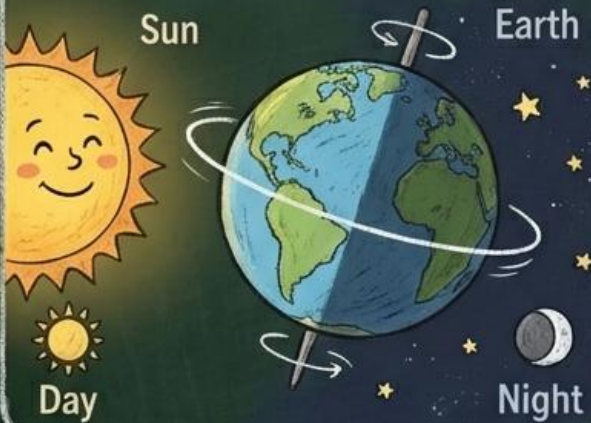
Strong gravity!
Light cannot
escape.
Scientists study
with special tools.

Chapter 2: Earth Secrets

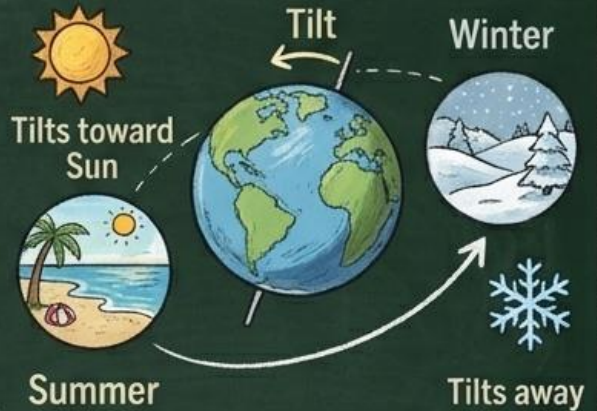
How was Earth made?



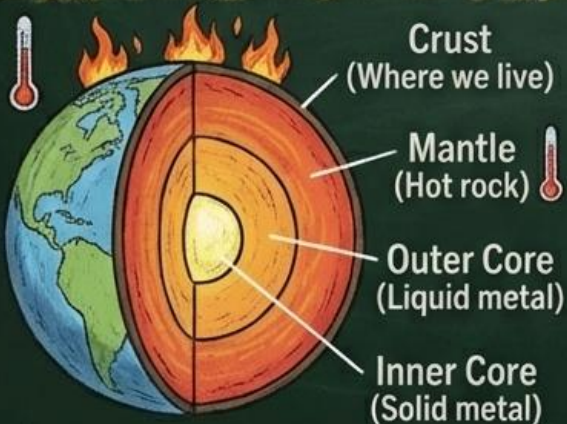
Why do we have day and night?



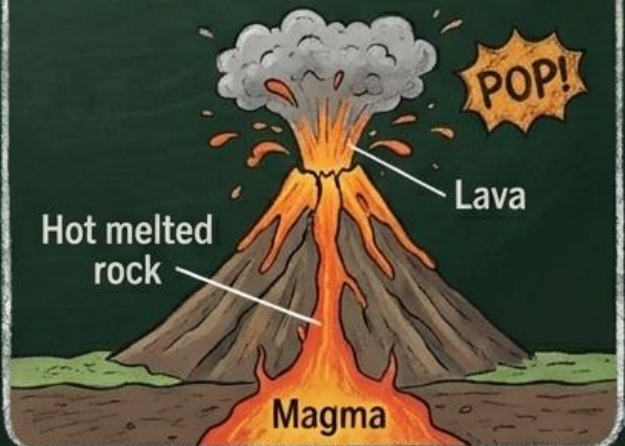
Why are there seasons?



What's inside Earth?



Why do volcanoes erupt?



Chapter 3: Nature Wonders

Why do birds fly south in winter?



In cold weather, birds fly to warmer places to find food. This trip is called **MIGRATION**.

How do flowers grow?



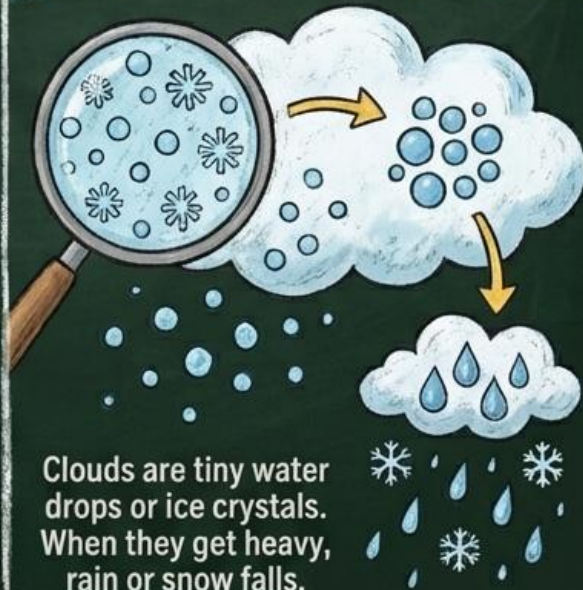
Seeds need soil, water, and sun. Roots go down, and stems go up. Leaves use sunlight to make food.

Why do trees lose leaves in autumn?



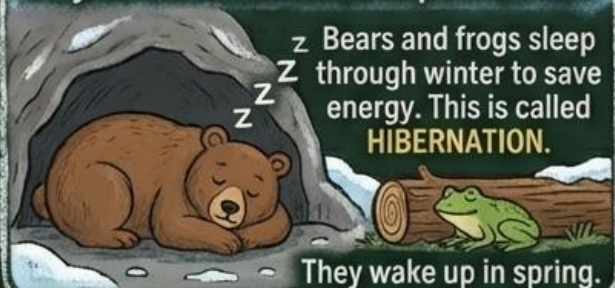
In winter, water can be frozen. Trees rest and save energy by dropping leaves. New leaves grow in spring.

What are clouds made of?



Clouds are tiny water drops or ice crystals. When they get heavy, rain or snow falls.

Why do some animals sleep all winter?



Bears and frogs sleep through winter to save energy. This is called **HIBERNATION**.

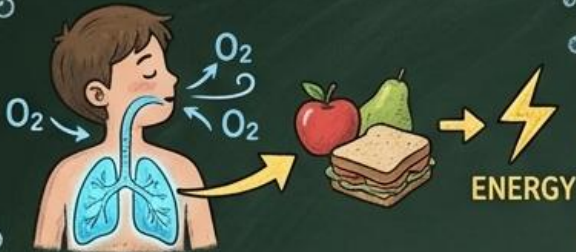
They wake up in spring.



Chapter 4: Body Secrets



Why do we breathe?



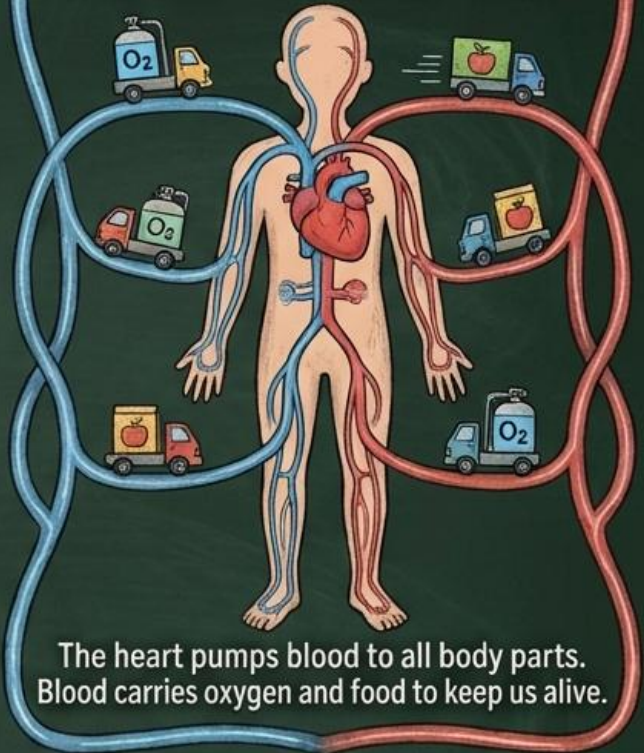
We breathe to get oxygen. Oxygen helps our bodies make energy from food.

Why do we blink?



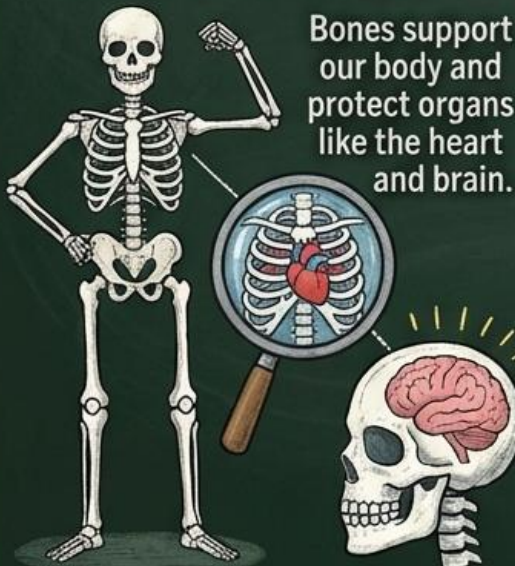
Blinking keeps our eyes wet and clean. It protects them from dust and dirt.

How does our heart work?



The heart pumps blood to all body parts. Blood carries oxygen and food to keep us alive.

What are bones for?



Bones support our body and protect organs like the heart and brain.

Why do we cot sleer?



Why do we need sleep?



Sleep helps our body and brain rest. It helps us grow and remember what we learn.

Chapter 5: Life Wonders

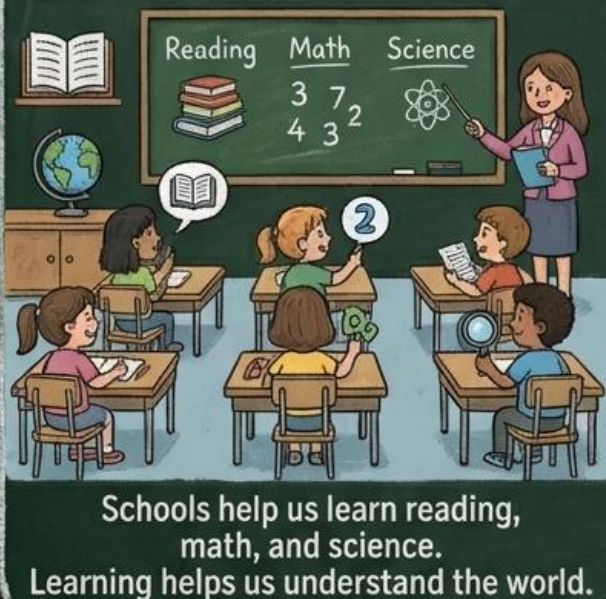
Why do we use money?



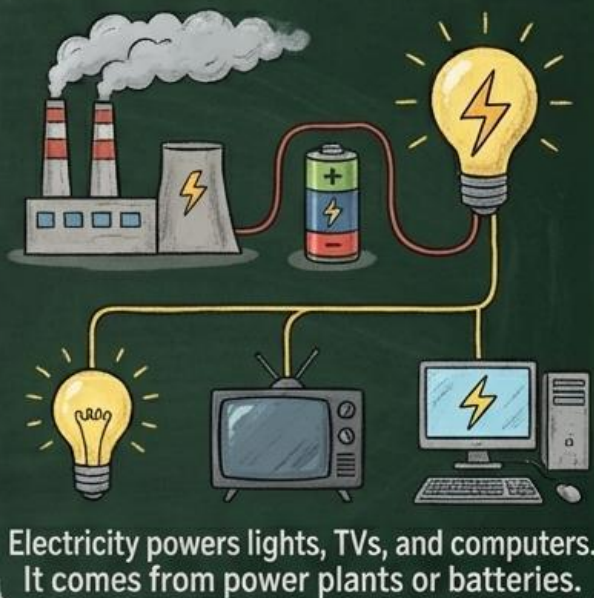
How do phones work?



Why do we have schools?



What is electricity?



Why do we need rules?

