



HOW IS PAPER MADE OUT OF TREES?

It's made from "soup"! Soupy wood pulp, that is. To make paper from cut trees, machines at a paper mill remove bark and discard it, **chop the wood into tiny chips, then mix them with water.** For some kinds of paper, chemicals and heat help break apart the wood. Bleach may be added to whiten the brown, soupy "pulp." The pulp flows onto a moving screen. Water drains away, then more water gets pressed out. The fibers begin to cling to one another. **Once the pulp dries, its fibers stick together as paper.**

But add water, and their grip slips. **That's why wet paper isn't strong.**



DO YOU THINK A PIECE OF PAPER WEIGHS ANYTHING? WHY OR WHY NOT?



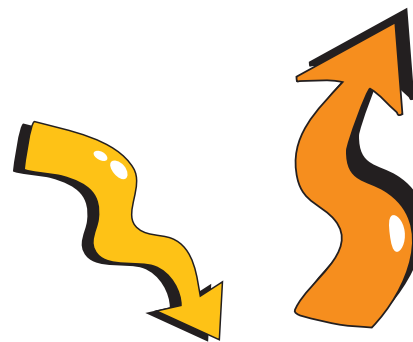
IF YOU COULD HAVE A BOOKSHELF IN ANY SHAPE, WHAT SHAPE WOULD IT BE?



Think of a first sentence for a book that would make you really want to keep reading.



WHY DOES IT MATTER WHEN PEOPLE RETURN LIBRARY BOOKS?



Why is paper usually smooth, not furry?





HOW DO CLOUDS STAY UP IN THE SKY?

Clouds float in the atmosphere because the droplets that make them are very small and light, and wind keeps pushing up against them.

Clouds are a bit like a swarm of bees.

A swarm isn't solid, but each bee is. Likewise, clouds may look solid, but they are made of millions of tiny water droplets. The droplets are so small that a hundred of them might fit on the period at the end of this sentence.

Gravity pulls these droplets toward Earth. But very small objects have a lot of surface area compared to their weight. That causes lots of friction as they move through the air, slowing their fall and making them "float." (That's why dust and smoke particles seem to float too.) Upward-blowing air currents also keep droplets aloft.

In time, droplets collide and form bigger drops. When they become too heavy for wind to keep them afloat, **they fall down as rain.**



WHAT SOUNDS DO DIFFERENT TYPES OF WEATHER MAKE?



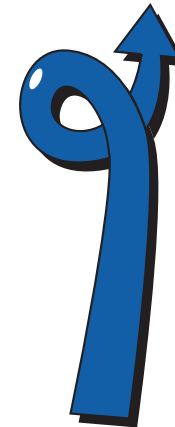
WHAT THINGS ARE DIFFERENT WHEN THE WEATHER IS COLD INSTEAD OF WARM?



If clouds could rain something besides water, what would you like it to be?



Can you touch a rainbow?



Where do puddles come from?





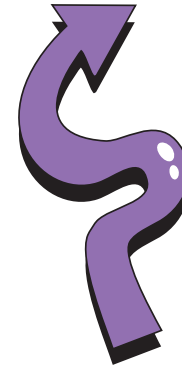
HOW DO FLOWERS GET THEIR SCENT?

Flowers make chemicals that are useful in attracting whatever kind of insects or birds will visit and pollinate them. The fragrance is **a mixture of compounds** that a plant produces, which is often strongest in the flower's petals. Petals can be used in making perfumes.

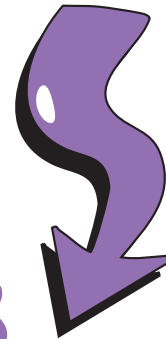
A flower in full bloom tends to have a stronger scent than a bud has. Scientists believe that a plant will produce the most scent **when it is ready for pollinators to visit**. For example, many plants that are pollinated by moths tend to produce the most scent in the evening or at night, when moths are most active, while **plants pollinated by bees produce the most scent during the day**, when bees are active. A bud likely has less scent than a blooming flower because it has not fully developed yet, and so it's not yet ready for pollinators to visit.



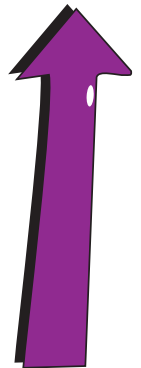
IF YOU WERE GOING TO PLANT A GARDEN, WHAT WOULD YOU DO FIRST?



WHY DO PEOPLE GROW GARDENS?



IF YOU HAD MAGIC SEEDS, WHAT WOULD YOU WANT THEM TO GROW INTO?



Which of these grow on trees:
lemons, corn, pineapples, olives,
potatoes, flowers?



HOW DO TREE RINGS FORM?

Under a tree's bark is a layer called the cambium, which is the **only living part of the trunk**. This layer grows, adding new wood to the tree.

A different kind of wood grows during the summer than in the fall. In the summer, the wood grows fast. It tends to be soft and light in color. In the fall, a denser kind of wood grows. This wood is more watertight and prevents the tree from drying out in the winter.

So, in many kinds of trees, especially in areas with harsh winters, **each year can be counted with a light area and dark area** that go all the way around the tree, forming a ring.



WHY MIGHT IT BE HELPFUL TO KNOW THE AGE OF A TREE?



Would you be more likely to see an orange tree in Florida or Alaska? Why?



Describe the feel of tree bark.



WHAT DO BOTH HUMANS AND TREES NEED TO GROW?



What would a forest look like if you were the size of an ant?



What would happen if trees didn't have roots?





CAN YOU REALLY HEAR THE OCEAN INSIDE A SHELL?

Nope, you aren't holding a shell full of captured sea sounds. With a conch shell held to your ear, **you may think you hear ocean waves and winds**—but that's an illusion!

You're really hearing echoes or reflections of the sounds around you at the moment. Those sounds bounce around off the smooth surfaces inside **the shell's spiraled pathways**, then back to your ear. Sounds may get louder or softer in the process.

Don't have a shell handy? Hold the open end of an empty jar to your ear. It doesn't have the spirals of a conch shell, but **you may hear a sound like a breeze**—or the echoes of people asking what you're doing with that jar over your ear!

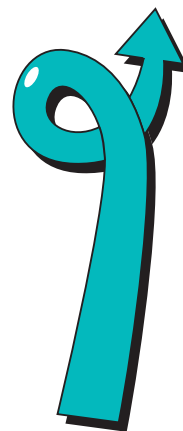


FLAGS WAVE, PEOPLE WAVE, AND THE OCEAN HAS WAVES. HOW ARE THESE WAVES ALIKE?

WHAT WOULD IT BE LIKE TO LIVE IN THE OCEAN?



Where might you see a seashell besides at the beach?



What does sand feel like?



Why do you think some things float in water?