

Weather Wonders



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This issue of The Curious Atom is a celebration of how science connects with harmony, curiosity, and learning, offering a diverse collection of stories, activities, and experiments.

ABOUT THE COVER

A boy in a cap surrounded by whimsical weather elements like stars, lightning, an umbrella, the sun, an ice cream cone, a thermometer, and a playful cat, capturing the essence of weather in a vibrant and imaginative design.

Pg 9

Rain Cloud
in a Jar

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Meet Oddy! Our Curious Explorer



Hey friends! I'm Oddy the Octopus—curious, clever, and full of ideas! With my eight arms, I explore mysteries, solve puzzles, and bring science to life. Let's dive in and discover together.

Get in Touch

 curiobuddy.com



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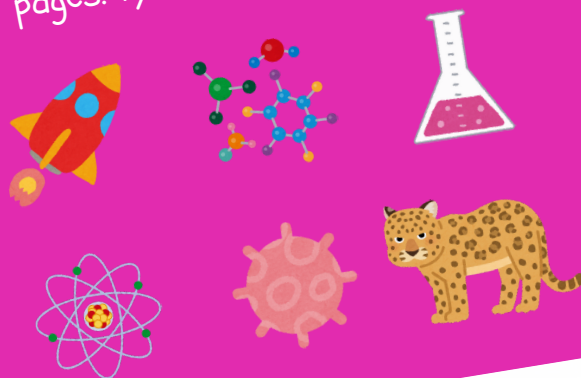
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For Parents

Encouraging curiosity and a love for learning is one of the greatest gifts we can give children. The Curious Atom (TQA) is crafted to nurture young minds through engaging science stories, hands-on activities, and fun experiments. Designed for ages 8-15, it makes learning enjoyable while motivating critical thinking and other 21st century skills in kids.

Challenge

Hunt for hidden science related objects like atoms, test tubes, and molecules scattered across the pages. Symbols are given below.



Welcome to the World of Weather!

At The Curious Atom, we're excited to take young readers on a fascinating journey through the science of weather! From sunny skies and fluffy clouds to thunderstorms, tornadoes, and snowstorms, this edition explores the forces that shape our world. Through engaging articles, hands-on experiments, and fun activities, kids will uncover the mysteries behind weather patterns, the water cycle and more.

Packed with colorful illustrations, exciting facts, and thought-provoking challenges, this edition is perfect for kids who love to explore and ask questions. Parents can feel confident that The Curious Atom nurtures curiosity, builds knowledge, and encourages critical thinking while making science fun. Get ready to dive into the wonders of weather and inspire the scientists of tomorrow!

About Us

The Curious Atom (TQA) is an exciting science magazine designed for curious minds aged 8-15. It blends fun and learning through colorful articles, hands-on experiments, brain-teasing puzzles, and fascinating science stories. Each issue explores themes like space, biology, chemistry, and technology, making science easy and engaging. TQA also highlights real-world applications, inspiring young readers to think critically and explore solutions for a better future. With interactive activities and captivating facts, The Curious Atom sparks curiosity, builds knowledge, and encourages creativity. Join us in making science fun and inspiring for the next generation of innovators!

SCAN HERE



C O L D W I N D E R S

When we think of cold weather, we might picture snowflakes falling gently or the frosty patterns on a winter morning window. But cold weather has a dramatic side too, full of extreme events that amaze and sometimes challenge us. Let's dive into the frosty world of hailstorms, blizzards, freezing rain, and icy wonders!

Hailstorms: Ice Balls from the Sky

Imagine this—you're playing outside on a sunny day, and suddenly, chunks of ice begin to fall from the sky! Hailstorms are like tiny ice cannonballs formed in warm weather. When strong winds carry raindrops into extremely cold areas of the atmosphere by updrafts in thunderstorms, this freezes the raindrops into hail. The hail can then fuse together with other hailstones. These ice pellets grow larger and eventually, gravity pulls them to the ground. Some hailstones can grow as big as baseballs!

The world's heaviest hailstone was a 2.25-pounds stone that fell in Gopalganj, Bangladesh in April 1986. In 2010, a hailstone weighing almost 1 kg (1.94 lbs) and 8 inches in diameter fell in South Dakota, USA—a world record!

Blizzards: The Snowstorm Giants

Blizzards are snowstorms on steroids. With howling winds (45 miles per hour or faster), freezing temperatures (below 10 °F), and heavy snowfall, these icy storms can blanket cities in white within hours. In 1888, the Great Blizzard of New York left snowdrifts as high as 50 feet and changed how cities prepare for extreme weather. Blizzards are not just cold but can be dangerous if you're stuck outdoors without proper gear. Fun fact: Penguins in Antarctica experience "ice blizzards" regularly, with winds strong enough to knock over an adult human!



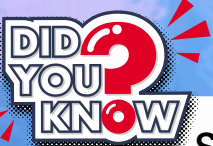
The coldest temperature ever recorded on Earth was a staggering -89.2°C (128.6°F) in Russia's Vostok Station in Antarctica on 21st July, 1983.

Freezing Rain: The Invisible Danger

Freezing rain may look harmless, but it's a sneaky kind of winter weather. This occurs when rain falls through a layer of freezing air, turning roads, trees, and power lines into icy sculptures. In Canada, the Ice Storm of 1998 was so intense that it knocked out power for nearly 3 million people and coated entire cities in a thick layer of ice. The 5 days of freezing rain caused \$650 million in damages (the costliest ice-storm ever)!

Igloos and the Ingenuity of the Inuit

Speaking of extreme cold, did you know some people have adapted brilliantly to freezing climates? The Inuit, native to the Arctic, use blocks of snow to build igloos, which are surprisingly warm inside. Snow traps air, creating insulation to keep the freezing winds out. Traditionally, the temperatures in the Arctic have ranged between 0–50 °F. These clever shelters were often temporary homes during hunting trips. However, due to global warming, the Inuits are finding themselves in a warmer world.



Some of the coldest places in India include Drass, Siachen Glacier, Leh, Spiti Valley, Gulmarg, Manali, Lachen, and Auli.

From icy skies to snowbound landscapes, cold weather extremes remind us of the power and beauty of nature. While these phenomena can be harsh, they also show how humans and animals adapt to survive and thrive in chilly conditions. So next time you bundle up for winter, remember—you're stepping into a world of frosty wonders!

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QUIZ!

What is common between N_2O , CO_2 , fluorocarbons, and CH_4 ?

They are greenhouse gases

They are pollutants that help reduce global warming

They are essential components of Earth's crust

They only exist in space

● Loading...

What causes the seasons to change?

The distance of Earth from the Sun

The tilt of Earth's axis

The size of Earth's orbit

The gravitational pull of the Moon

● Loading...

Which of these is a type of precipitation?

Hail

Fog

Thunder

Lightening

● Loading...

What is the term for the boundary between two different air masses?

Fault Line

Front

Rift

Tide

● Loading...

Rainiest Place on Earth

Mawsynram in Meghalaya state in North-east India is considered the wettest place on the planet. It records on an average annual rainfall of 467 inches! Isn't it astonishing?!



Which natural wonder is found in the northern hemisphere and creates colourful lights in the sky?

Tornadoes

Tsunamis

Aurora Borealis

Meteor Shower

● Loading...



Hurricanes and cyclones are the same type of storm but are called different names in different regions.

True

False

● Loading...

TRUE

FALSE

Lightning always strikes the ground.

True

False

● Loading...

The ozone layer helps protect Earth from harmful UV rays.

True

False

● Loading...

Antarctica is the driest continent on Earth.

True

False

● Loading...

Climate change only affects the temperature of the Earth.

True

False

● Loading...

Whimsical Wonders of the Sky

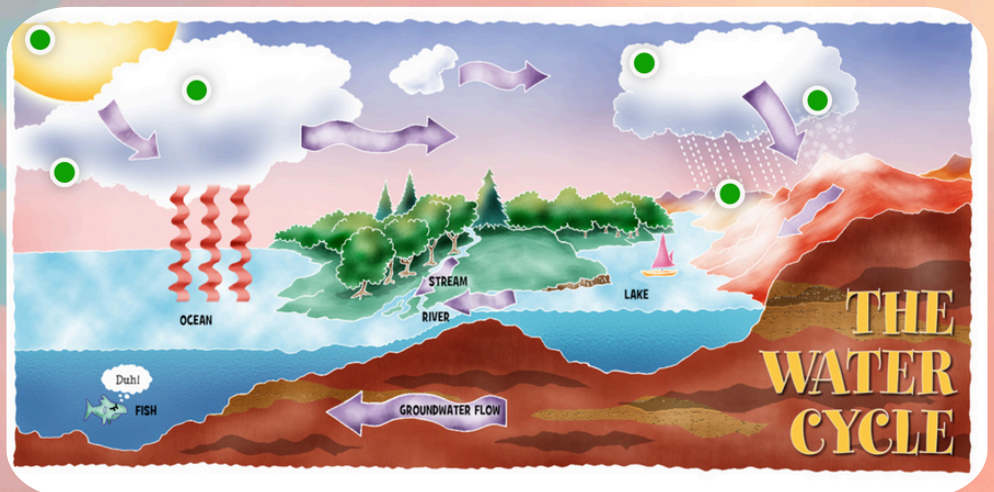
All About Clouds

Have you ever looked up at the sky and imagined shapes in the fluffy white clouds? Maybe a dragon, a castle, or even a dancing elephant? Clouds are more than just sky art—they are an essential part of Earth's weather and water cycle. Let's dive into the magical world of clouds and explore their fascinating secrets!

What Are Clouds?

Clouds are collections of tiny water droplets or ice crystals that float in the sky. They form when warm, moist air rises, cools, and condenses into water or ice. Depending on their shape, size, and height, clouds can look puffy, wispy, or layered.

Cloud Trivia:
Did you know that there are ten main types of clouds? Cumulus, stratus, and cirrus are just a few. Each type tells us something about the weather!



How Are Clouds Formed?

It all starts with the water cycle, nature's recycling system. The Sun heats water in rivers, lakes, and oceans, turning it into vapour. This vapour rises into the atmosphere, cools down, and condenses into tiny droplets, forming clouds. Eventually, when these droplets combine and grow heavy, they fall back to Earth as rain, snow, or hail.

When we think of storms, our minds often go to the chaos and intensity they bring to the natural world. But storms have long been a powerful metaphor in literature, symbolizing upheaval, transformation, and even reconciliation.

One must-read in this regard is *The Tempest* by William Shakespeare. Written in the early 17th century, this iconic play uses a literal storm to set the stage for themes of revenge, magic, love, and redemption. The tempest in the play, conjured by Prospero's sorcery, serves as a force of both destruction and renewal.



and Their Magic

Science Fact:

A single cumulus cloud can weigh as much as a million pounds! Don't worry, though—it's spread out across the sky, so it doesn't come crashing down.

**Fog, Mist, Dew, and Snow: Clouds That Come Close!**

Fog and Mist: These are like clouds that touch the ground! Fog is denser, making it hard to see, while mist is lighter and often forms over lakes or fields.

Dew: Ever noticed tiny droplets on grass in the morning? That's dew—water vapor that condenses directly onto cool surfaces at night.

Snow: When water vapor in the clouds freezes into crystals, it falls as snow. No two snowflakes are exactly alike!

Historical Trivia:

In 1803, Luke Howard, an amateur meteorologist, classified clouds into categories we still use today! He's known as the "Father of Meteorology."

DID YOU KNOW?

Fun Facts About Clouds

- ✓ **FACT** • Some clouds, like nimbostratus, bring steady rain, while others, like cumulonimbus, can cause thunderstorms.
- ✓ **FACT** • The highest clouds, called noctilucent clouds, form 50 miles above Earth and glow in the night sky.
- ✓ **FACT** • Snowflakes start as tiny ice crystals in clouds and grow as water vapour freezes onto them.

DIY Science Activity: Make a Cloud in a Jar!**What You'll Need:**

- A clear glass jar
- Warm water
- Ice cubes
- Hairspray

Steps:

Fill the jar with warm water (about $\frac{1}{3}$ full). Spray a quick burst of hairspray into the jar—this provides particles for water vapour to cling to. Immediately place a lid/strainer with ice cubes on top of the jar. Watch as a cloud forms inside the jar!

**What's Happening?**

The warm water creates vapour, which cools and condenses when it hits the cold air below the ice. The hairspray particles act as "seeds" for the vapour to turn into droplets, just like in real clouds!



Can You Imagine?

KNOW THE FACTS

If you could be a type of cloud, which one would you be—fluffy like a cumulus, wispy like a cirrus, or a towering storm cloud like a cumulonimbus?

Question to Ponder:

Why do you think clouds sometimes look white and other times grey? Share your thoughts in the next edition!

Clouds may seem ordinary, but they hold the key to understanding our weather and climate. Keep looking up and wondering!

SHAPE OF EARTH

Earth's Shape causes uneven heating which in turn results in wind flow and water flow. The differential heat causes seasonal and temperature change.

The tilt of Earth causes a part of earth to be away from Sun while the other to be closer. This explains opposite seasons in two hemispheres.

During the equinox (the time of year when the amount of daylight and nighttime are approximately equal), the Sun passes directly overhead at noon on the equator.

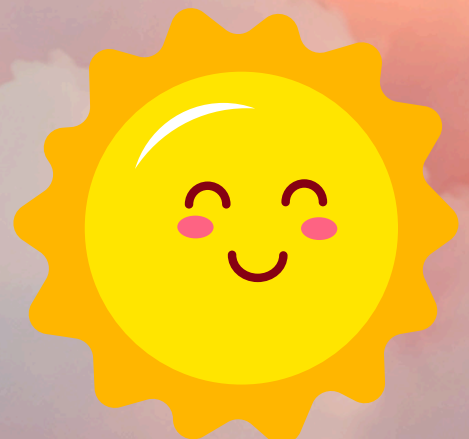
Because the Earth rotates on its axis, circulating air is deflected toward the right in the Northern Hemisphere and toward the left in the Southern Hemisphere. This deflection is called the Coriolis effect.

DID YOU KNOW?

Which layer of the atmosphere do airplanes typically fly in?

- A. Troposphere
- B. Stratosphere
- C. Mesosphere
- D. Thermosphere

Answer: B



Freezing Facts - Fun Facts about Cold Weather

- ✓ **FACT** • During the winter, the Earth is much closer to Sun than in the summer.
- ✓ **FACT** • Some animals, like frogs and certain insects, produce natural antifreeze to survive freezing temperatures!
- ✓ **FACT** • The phrase "a storm in a teacup" originated when people exaggerated blizzards in Europe in the 1800s.
- ✓ **FACT** • 2 centuries ago, humans endured a "Year without Summer" as an aftermath of 5 volcanic eruptions in Mount Tambora in Indonesia which blocked the sunlight from coming to the earth. The eruption caused global temperatures to decrease by 0.4–0.7 °C (0.7–1 °F).

CHILLY CROSSWORD



Across

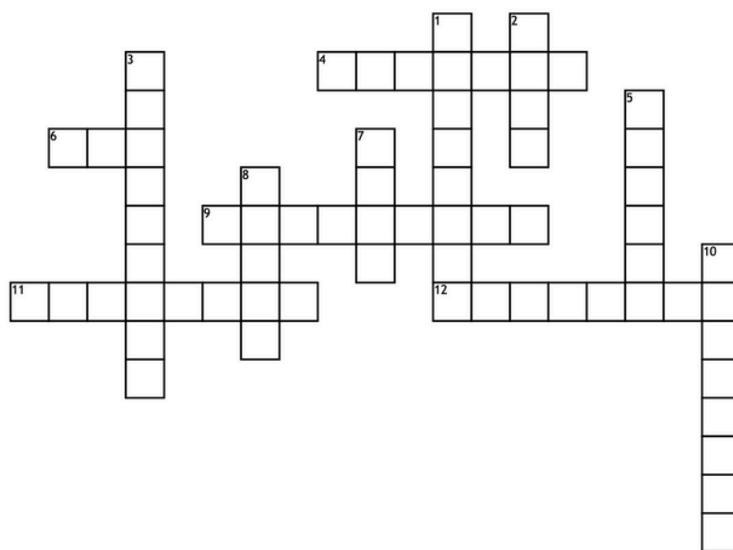
4. Circular system of winds in the tropics, also called a hurricane or typhoon

6. Fine droplets of water suspended in the air, reducing visibility

9. Massive storm with spinning winds and an "eye" in the center

11. Weather phenomenon where the air feels sticky due to moisture

12. A sudden burst of heavy rain, often during storms



Down

1. A strong storm with heavy snow and high winds

2. Soft white flakes that fall in winter

3. Bright flash in the sky caused by electrical discharge

5. Warm ocean current that affects global weather patterns

7. Frozen rain that falls as hard ice pellets

8. Strong winds that blow in a straight line, often during thunderstorms

10. Temperature drop causing rain to freeze on surfaces like roads



Twist!

More About Tornadoes

Tornadoes are one of nature's most powerful and destructive forces. They form during severe thunderstorms, especially in areas where warm, moist air from the Gulf of Mexico meets cool, dry air from Canada. This sharp contrast creates instability in the atmosphere, making conditions ripe for tornado formation.

As the warm air rises and the cool air sinks, wind shear—winds blowing at different speeds and directions—causes the air to start spinning horizontally. Updrafts in the storm tilt this rotating air into a vertical column. This creates a mesocyclone, a rotating section of the storm that can produce a funnel cloud.

When the funnel cloud stretches downward and touches the ground, it officially becomes a tornado. These twisting columns of air can have wind speeds ranging from 65 to over 300 miles per hour, causing immense damage to anything in their path.

Tornadoes vary in size and strength and are measured using the Enhanced Fujita (EF) Scale, ranging from EFO (weak) to EF5 (devastating). Meteorologists closely monitor thunderstorms and use radar to detect rotation, giving early warnings to help save lives.

Understanding how tornadoes form helps scientists improve predictions and safety measures, giving communities more time to prepare for these natural disasters.

Help Manny figure out what to do and what not to in case of a tornado. Tick the 'Do' boxes and put a cross in the 'Do Not' boxes.



Watch the weather news and stay alert. ☐

Play outside when tornado approaches. ☐

Seek shelter in a safe area like a basement. ☐

Keep an emergency kit handy. ☐

Look out from the window and watch for the tornado. ☐

Hi there! I'm Kanira, your weather explorer. If you look outside the window, what do you notice? Do you see blue skies and sun? Or do you see dark clouds and rain? Sometimes, you may even see snow. Weather is like a mood swing for the sky—it changes all the time, keeping us guessing! But why does weather change? Let's find out together.

Activity Alert!

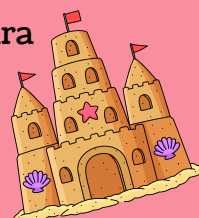
Make a weather journal! Every day, write or draw what the weather looks like. Add fun stickers for sunny, rainy, or windy days. You can even make a chart to spot patterns.

Your Turn!

I want to hear YOUR weather stories! Did you build a snowman? Or maybe you made the perfect sandcastle in the summer? Send us your stories and pictures, and you could be featured in the next edition of our magazine!

Remember, weather is nature's way of keeping things exciting. So, look outside and enjoy the wonders of the world around you!

XOXO, Kanira



I Wonder Why

With Kanira, Our Weather Explorer

Why Does Weather Change?

The weather depends on a mix of things happening in the air. The sun heats up the Earth, but not evenly. Some places get warmer, and some stay cooler. This creates winds, clouds, and rain. It's like nature's very own magic show!

Why Do We Have Seasons?


Did you know the Earth is tilted? Yep, it leans a bit on its axis like it's doing a cool dance move. Because of this tilt, the Sun's rays hit different parts of the Earth at different times of the year, giving us seasons.

Spring: Flowers bloom, and trees wear green again. Don't you love spotting butterflies fluttering around?

Summer: It's the time for ice cream and swimming! The Sun is shining bright and warm.

Autumn (or Fall): Leaves turn golden and fall to the ground—perfect for jumping into leaf piles!

Winter: Cold weather means cozy sweaters and maybe snow to play in if you're lucky!



@living_by.the_lens




#Introvert

Leopards tend to be solitary and avoid interaction with others, except when mating.

Elegant Eyes

Unlike other big cats, leopards have big round pupils that seem to glow in the dark. Their night vision also offers an advantage in catching their prey.



@living_by.the_lens

Leopards are majestic and elusive big cats that generally live in grasslands, forest, tropical regions, savannas and mountainous regions. They eat mainly anything from rodents, reptiles, deer, birds, gazelles, monkeys and even jackals.

Cough, Cough!

Leopard calls sound like somebody with a raspy throat coughing loudly. They can be heard up to 3 kilometers away.



Leopards can leap up to 6m forward through the air and around 3m straight up! That's a LONG jump!

My Spots

Leopards have spots called rosettes on their bodies. They are called so as they resemble the shape of roses.



Get To Know:

Leopards

Photography by Raunak Gupta

Hide and seek is my least favourite game. I am always spotted!

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The Curious Chronicles of Jungle Grove

Ch-16: Mandy Wonders about Weather

Mandy the Monkey woke up to loud thuds against the roof. She rushed to the window and gasped. Small chunks of ice were pelting down from the sky, bouncing off leaves and branches. "It's a hailstorm!" Mandy exclaimed.

Her mother, Monica, entered the room with a worried look. "School is canceled today, Mandy. It's too dangerous to go out in this weather," she said, handing Mandy a cozy blanket.

Mandy didn't mind staying home. She curled up on the couch with her tablet and decided to learn more about the icy weather outside. As she scrolled through an article, she discovered that hailstorms form when raindrops are carried upward by strong winds into freezing areas of the atmosphere, turning them into ice. She was amazed to read that some hailstones could grow as big as grapefruits!

Curious to know more, Mandy continued reading about other forms of extreme cold. She learned that snowfall occurs when water vapor freezes into ice crystals and falls gently from the sky, covering the ground in a soft, white blanket. Blizzards, on the other hand, are snowstorms combined with strong winds, creating low visibility and freezing conditions.

STORY



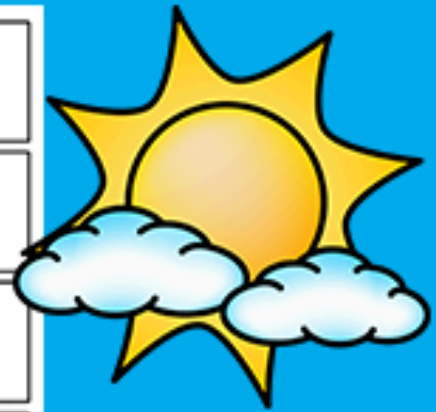
Mandy's mom joined her with a cup of hot cocoa. "Did you know that wearing layers, gloves, and hats can protect us from frostbite during such weather?" Monica said. She also taught Mandy the importance of staying indoors, keeping warm, and having emergency supplies ready during extreme cold events.

Later in the afternoon, the whole family gathered in the living room to watch a documentary about the

Arctic. Mandy marveled at how polar bears and seals survived in freezing temperatures and how humans built warm shelters in icy regions.

As the hailstorm slowed down, Mandy felt safe and warm at home. She snuggled closer to her parents and smiled. Even though the weather outside was harsh, the day had turned into a cozy and educational adventure.

Weather Vocabulary



Science Story

GUARDIANS OF ENERGY

In the lively town of Greenfield, a group of curious kids noticed something troubling—streetlights left on during the day, dripping taps, and old machines using up too much energy. Concerned about waste and rising power bills, they decided to form “Power Patrol”—a team dedicated to saving energy and protecting the planet.

They started by spreading awareness in their school, making posters with catchy slogans and fun facts about energy conservation. They organised a ‘Switch-Off Challenge’ to see which family could save the most energy in an week. Inspired by their ideas, parents and teachers joined in, and soon the whole town began participating.

The team didn’t stop there—they conducted experiments to demonstrate renewable energy, built solar ovens, and even helped the mayor set up a plan for installing solar panels at the community center. Their efforts not only reduced the town’s energy use but also taught everyone how small actions can lead to big changes.

Greenfield became a shining example of energy conservation, and Power Patrol became local heroes.



December 14
**National Energy
Conservation Day**



Science News

Sci Comic

NEWS

UPDATE

NASA's Parker Solar Probe

Makes History With Closest Pass to Sun. An artist's concept showing Parker Solar Probe. Operations teams have confirmed NASA's mission to "touch" the Sun survived its record-breaking closest approach to the solar surface on Dec. 24, 2024.

NEWS

UPDATE

On January 21, 2025

A large alignment in the evening with Mars, Jupiter, Uranus, Neptune, Saturn, and Venus. This is a good time to look, especially after the moon reaches its Last Quarter phase and rises at midnight.

NEWS

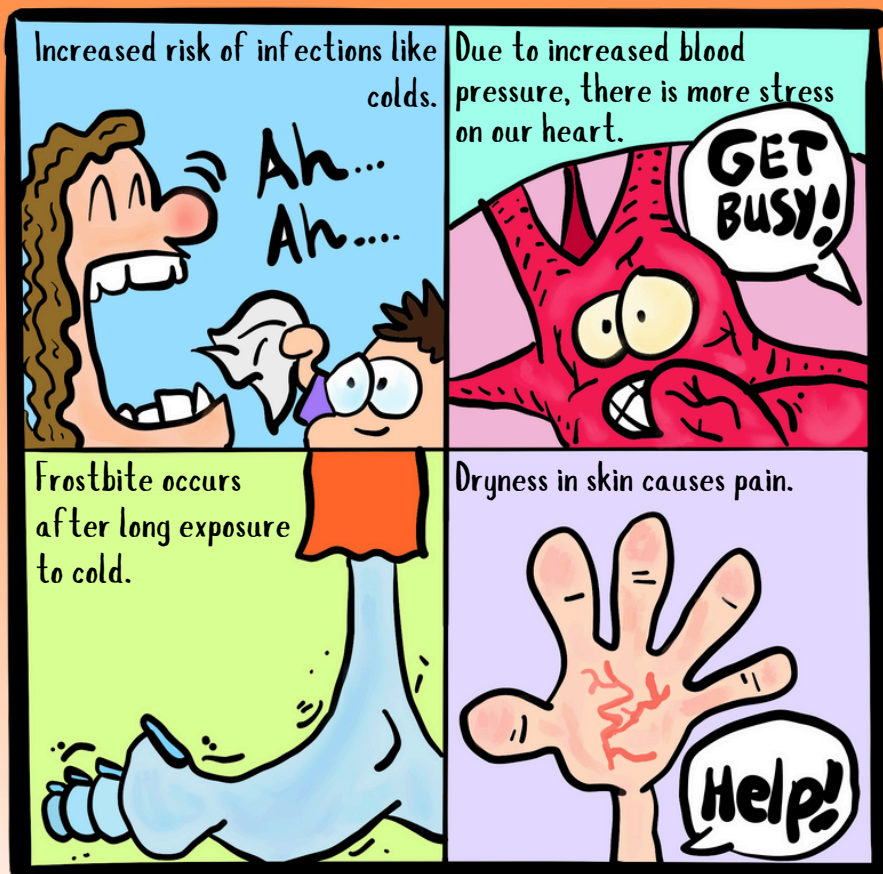
UPDATE

Perseid Meteor Shower

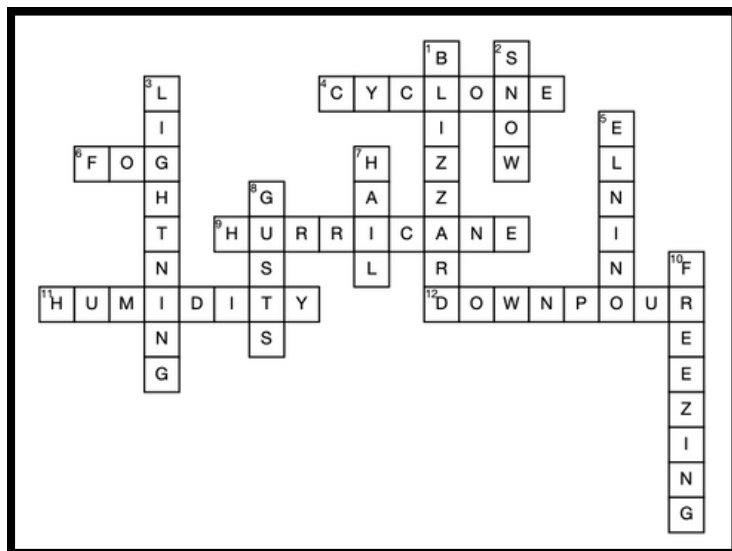
In 2025, that period falls on the night of August 12 to the morning of August 13—but unfortunately, the peak will occur just days after a full moon this time around, meaning that fainter meteors are likely to get washed out.

Crossword Solution

Page 11



Serious health issues may arise due to cold weather.



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