



LIGHTNING STRIKE



FAST FACTS

- Lightning occurs around the world about 100 times for every second, of every day.
- Lightning releases as much as five gigajoules of energy.
- The fear of lightning is called "astraphobia".
- Lightning often strikes twice in the same place. Tall, isolated objects can be hit many times a year.

THOSE of you who live in Southern Tasmania may have been awoken earlier this month by the thunderstorm that raged on the morning of May 6.

It was quite dramatic, with lightning flashing, thunder rumbling and the clattering sound of hail stones making a huge racket.

It was the heaviest rainfall Hobart has experienced for a while as well, with 124mm recorded in a 24-hour period on kunanyi/ Mt Wellington.

The storm led to power outages and flooding in some locations.

We hope your house did not suffer any water damage.

Perhaps your school was one which had to close for the day.

If you live in other parts of state, no doubt you have experienced a thunderstorm at one time or another.

Severe thunderstorms happen more often around Tasmania's north coast, because Bass Strait is a good source of moisture and the coastline is surrounded by hills.

Of course the storms experienced interstate, particularly in northern Australia, are usually much bigger than what we see.

Tasmania receives an average of one lightning strike per square kilometre per year, compared to up to 50 in Australia's tropical north.

But what causes lightning?

It is important to point out, first of all, that lightning causes thunder.

A lightning strike can heat the air around it to 28,000° Celsius - that's hot.

This extreme increase in heat causes the air to expand so fast that it creates a booming soundwave - thunder.

Lightning is a discharge of electricity.

There are two different sorts of electric charges, and scientists have labelled them "negative" and "positive".

These names were chosen to indicate that the two types of charges are somehow opposites to each other.

Scientists do not know exactly how they differ from each other, but they know that positive and negative charges attract, or pull together, while similar charges (two positives, or two negatives) repel, or push each other away.

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Image: iStock/ Yuricazac



An experiment for the bright sparks

You might like to try a static electricity challenge. All you need is some play dough, a pencil, a small rectangular-shaped piece of paper (10cm X 15cm) and a plastic ruler.

Roll some play dough into a ball.

Push the blunt end of the pencil into the play dough, so it stands up.

Fold the paper in half lengthways, and then across to create creases.

Place the paper on top of the pointy end of the pencil where the two creases intersect.

With a bit of luck the paper should sit on the pencil like a little roof.

Now rub one end of the ruler with different materials to create static electricity, and circle it around the paper.

What happens?

Which material works best?

Children's University Tasmania members can earn stamps in their passport for this challenge at the discretion of their school/ hub coordinators.

A bolt of electricity

FROM PAGE 1

Have you ever rubbed your head with a balloon and made your hair stand up.

This happens because rubbing the balloon creates a small electric charge.

Perhaps you have bounced on a trampoline with a friend, and then brushed against each other and felt an electric shock.

These are examples of static electricity.

Lightning is also caused by static electricity.

Thunderstorm clouds contain water droplets, snow, hail and ice, which are thrown around by turbulence - strong winds - within a cloud and crash into each other.

These collisions cause tiny particles called electrons to be knocked off some water and ice crystals as they rise to the top of

the clouds. This separates the positive and negative charges in the cloud.

When an object loses an electron it is left with a positive charge.

When an object gains an electron it gains a negative charge.

The positive charges form at the top of the cloud and the negative charges at the bottom.

Lightning happens when too many negative charges build up in a cloud, and link up with positive charges.

In cloud-to-ground lightning, a flow of negative charge, called a "step leader", rushes towards the Earth.

The positive charges at the ground are attracted to this negative charge.

This electrical charge concentrates around anything

that sticks up in the air - mountains, single trees and isolated tall buildings.

When they meet, generally a powerful current of electricity carries positive charge up into the cloud which we see as a lightning bolt.

This is called the "return stroke".

Lightning is basically a giant spark. but cloud-to-ground lightning is only one kind.

Lightning can also happen in the atmosphere, either within a single cloud or between clouds.

In fact most lightning happens within clouds.

Thunderstorm clouds are called "cumulonimbus", and are a dense cloud formed by water vapor carried by powerful upward air currents.

In certain conditions these clouds are capable of producing

tornadoes. The reason more lightning occurs in the tropics is because cumulonimbus clouds require moisture, an unstable air mass and the lifting force of heat to form.

The humid and hot conditions in the tropics create massive amounts of warm, moist air, which rises into the atmosphere.

For the same reason, thunder storms generally happen more often in spring and summer, than in cooler months.

We see the flash of lightning before we hear the thunder, because light travels much faster than sound.

We can see lightning almost immediately, even when the storm is far away from us.

As a rough guide, thunder needs about three seconds to travel one kilometre.

On that basis, if you were to see

lightning and then hear thunder nine seconds later, the lightning is three kilometres away from your location.

You can work out the distance by dividing the numbers of seconds between seeing lightning and hearing thunder by three.

Lightning is dangerous.

But being struck by lightning is very unlikely.

Even so, if you hear thunder it is best to head indoors.

If you find yourself outdoors during a storm, stay away from trees.

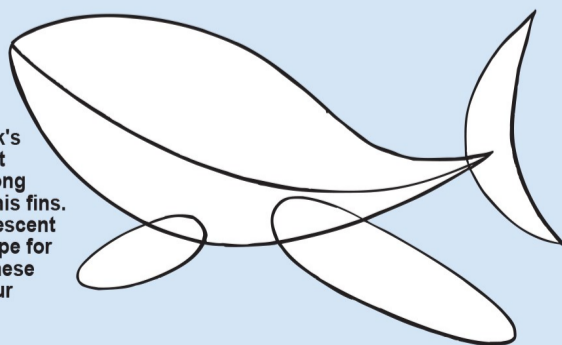
Have you heard about dry lightning?

In hot and dry conditions during summer, Tasmania is vulnerable to dry lightning.

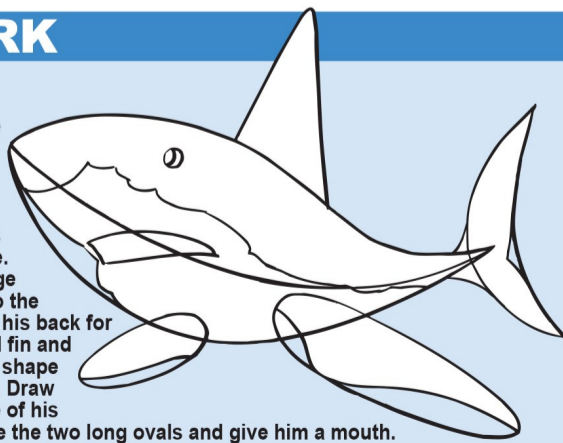
Dry lightning occurs when rain evaporates before it reaches the ground, so lightning strikes dry vegetation and sparks bushfires.

How to draw a GREAT WHITE SHARK

Using a pencil draw a leaf shape for your shark's body. Next add two long ovals for his fins. Draw a crescent moon shape for his tail. These will be your guides.



Inside the leaf shape draw a line to define his underside. Add a large triangle to the middle of his back for his dorsal fin and finish the shape of his tail. Draw the shape of his fins inside the two long ovals and give him a mouth. Add his eye using two small circles.



Draw lines down the length of his fins and finish his mouth by giving him some teeth. Add two more small fins near his tail and draw some lines just behind his mouth for gills. Rub out all the lines you don't want and ink him in with a pen or fine tipped texta. To finish off, just add some colour.

