



The Science,
Nature & Poetry of

WATER

with Celia Berrell &
**science
RHYMES**
www.sciencerhymes.com.au

Water World



Our planet's mostly blue and white when seen from outer space as water colours-up our world ... and gives LIFE to our place.

White for clouds that swirl around and icy poles that freeze; and blue for lakes and rivers plus ... our liquid deep blue seas.



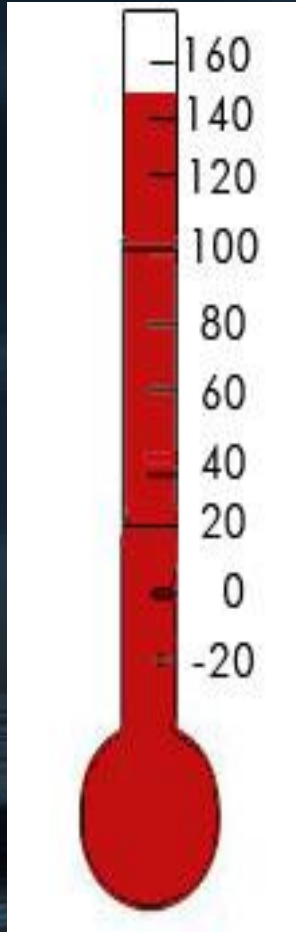
Earth is a **GOLDBLOCKS PLANET** because ...

It's not
TOO HOT!

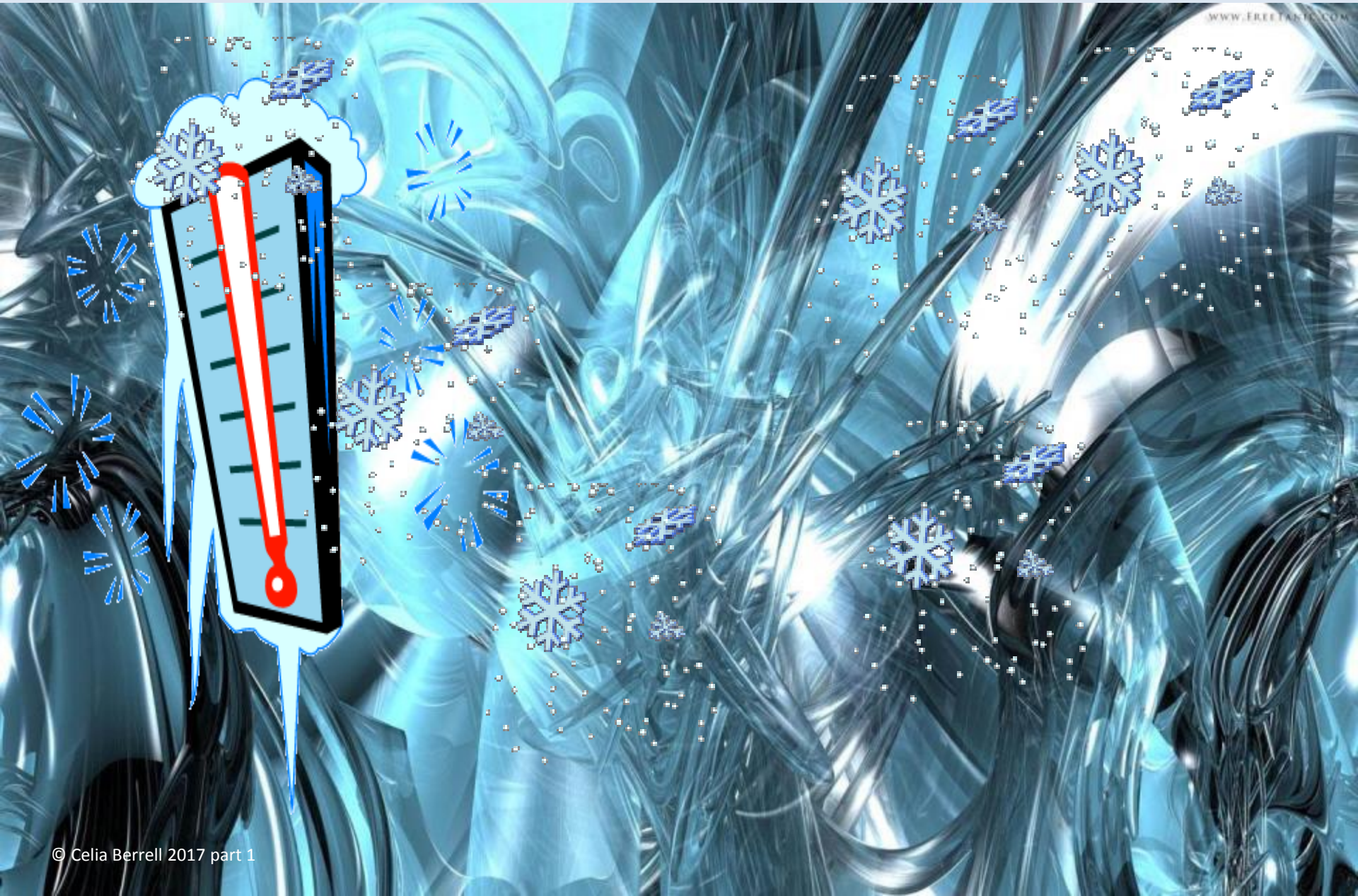
It's not
TOO COLD!



TOO HOT ... all our water would boil away



TOO COLD ... all our water would be solid ice



JUST RIGHT means ...

we have water
as a **GAS**

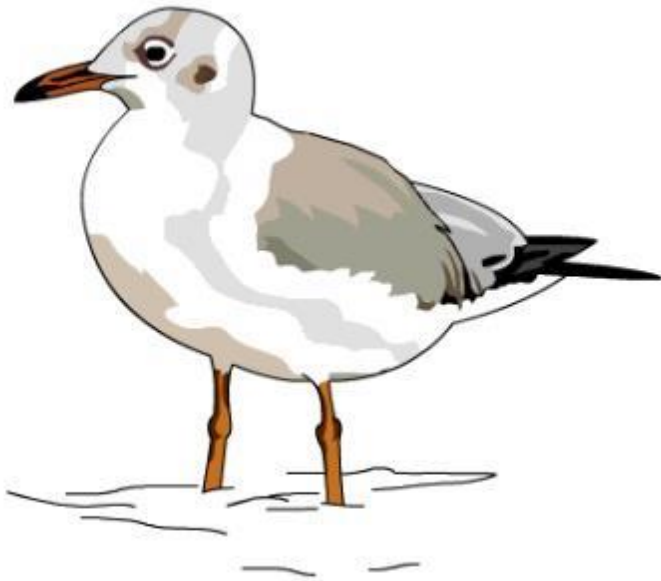
we have water
as a **SOLID**

and water
as a
LIQUID

A large flock of seagulls is shown in various stages of flight and swimming in the ocean. The birds are densely packed, filling the frame with their white and grey feathers and dark wings. The water is a deep blue, and the overall scene is dynamic and active.

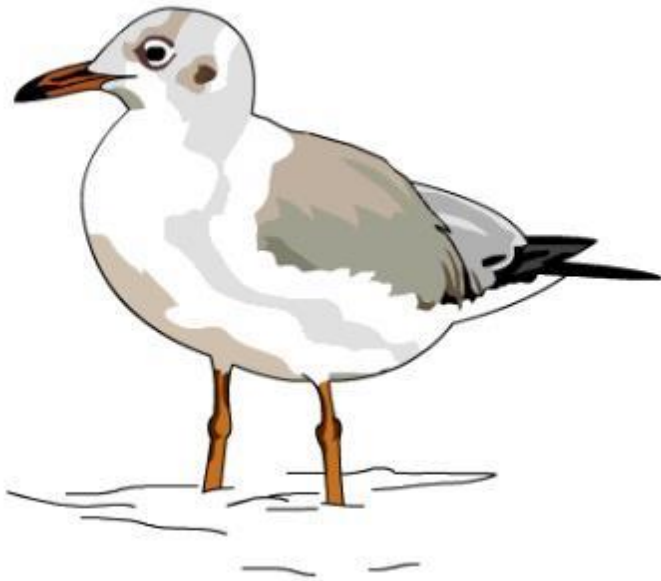
Doing SCIENCE with SEAGULLS

SOLID, LIQUID or GAS?



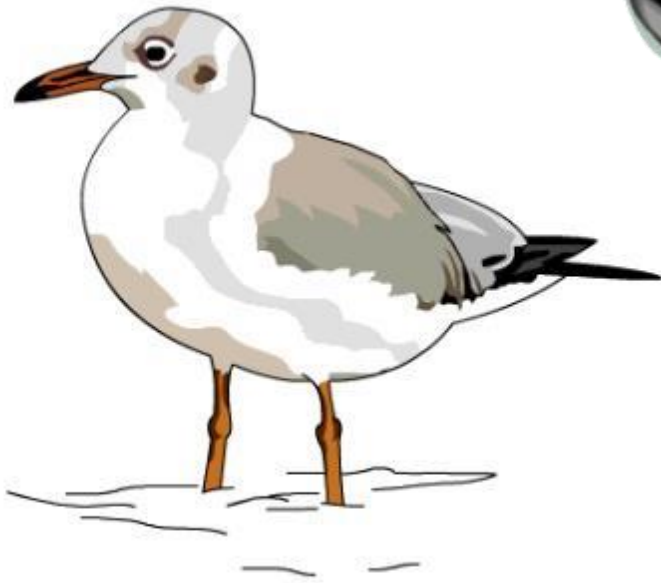
Standing still =
low energy

SOLID, LIQUID or GAS?



Standing still = **SOLID**

SOLID, LIQUID or GAS?

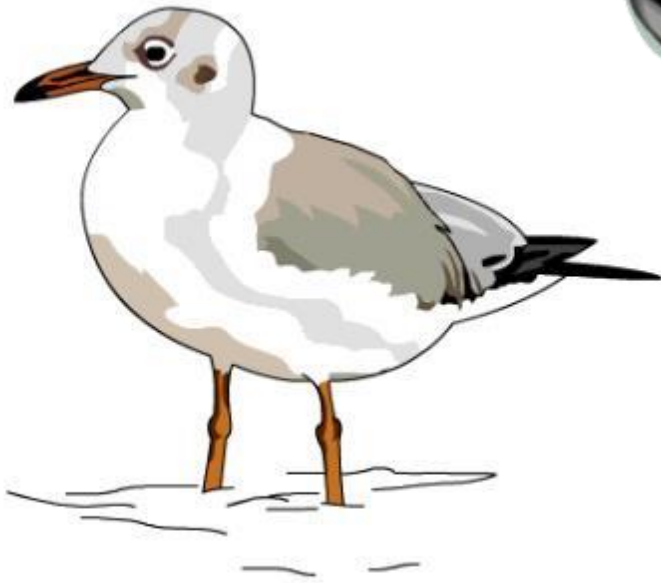


Standing still = **SOLID**



Walking =
medium energy

SOLID, LIQUID or GAS?

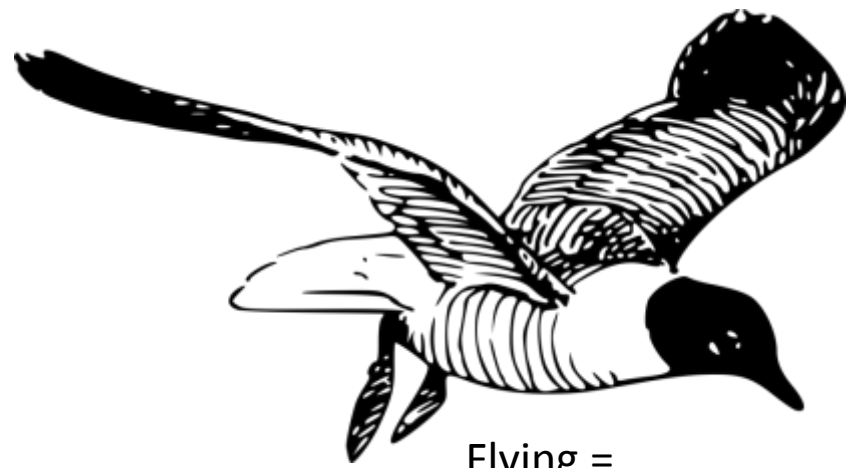


Standing still = **SOLID**

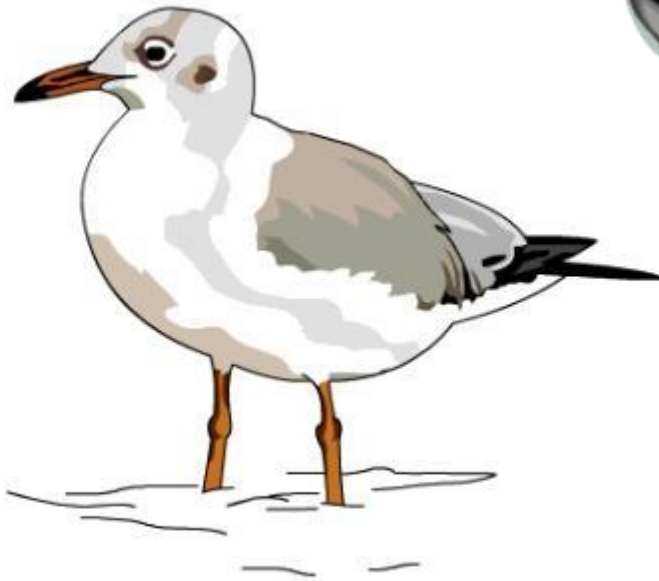


Walking = **LIQUID**

SOLID, LIQUID or GAS?



Flying =
high energy



Standing still = **SOLID**

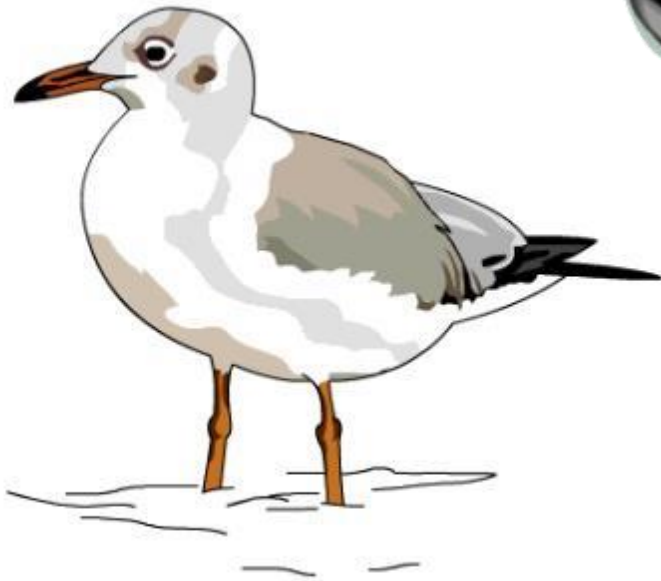


Walking = **LIQUID**

**SOLID, LIQUID or
GAS?**



Flying = **GAS**



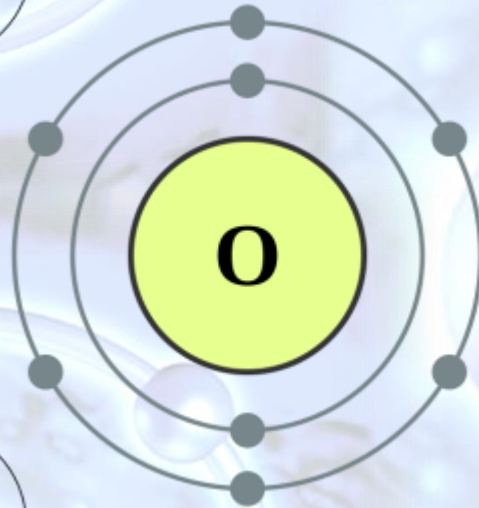
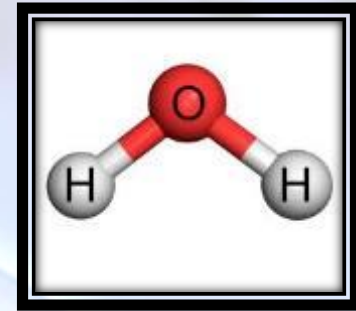
Standing still = **SOLID**



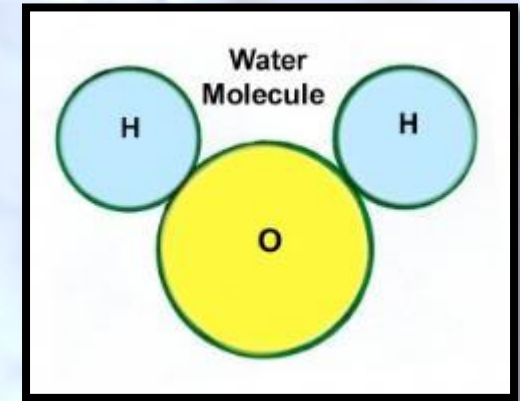
Walking = **LIQUID**

WATER molecule

H_2O



HYDROGEN (2) + Oxygen

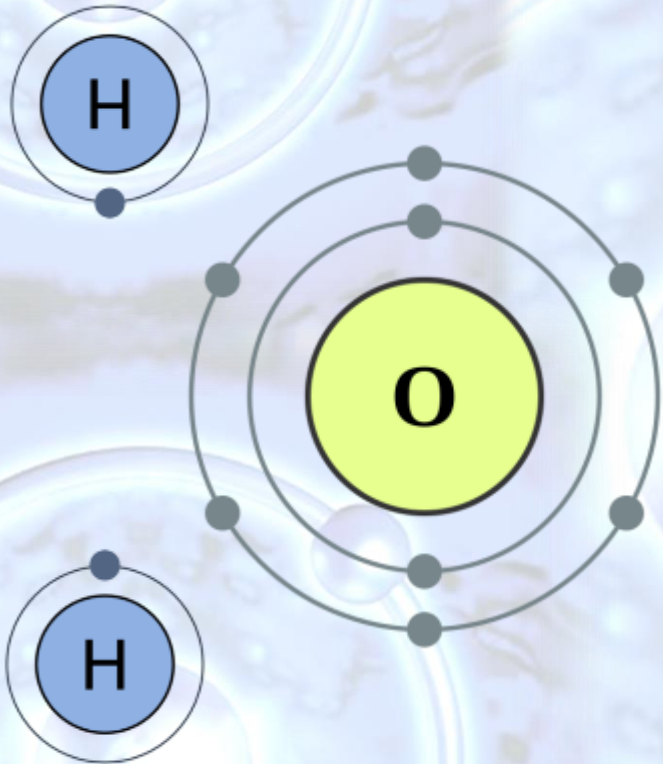


Atoms and molecules need **energy** (such as **HEAT**) in order to move around and change from solid to liquid to gas.

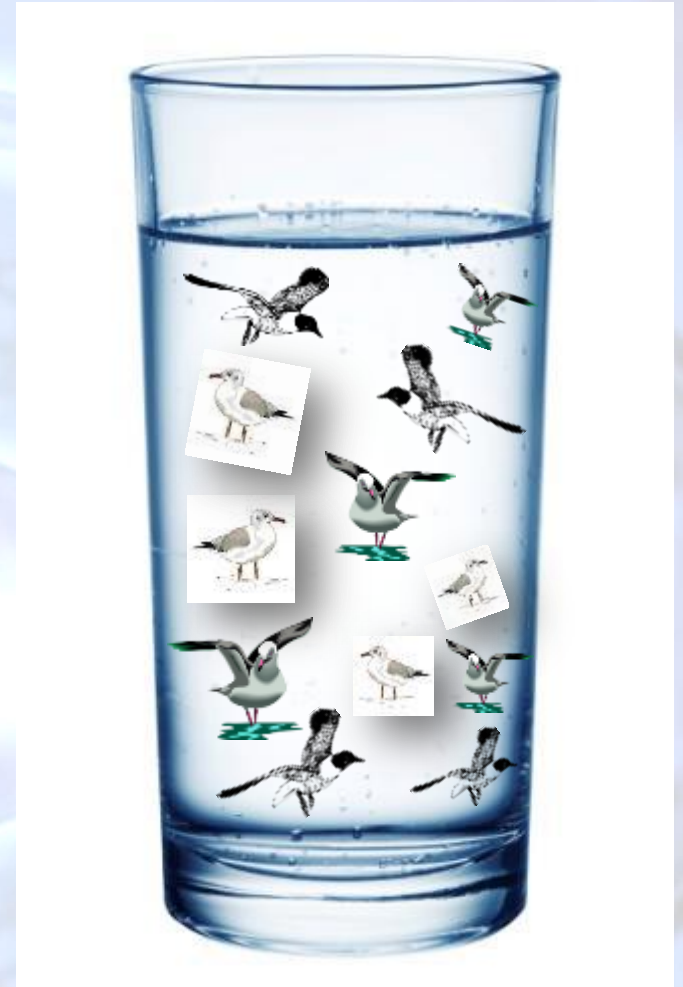


WATER molecule

H_2O



HYDROGEN (2) + Oxygen



In a glass of water, some molecules will have **HIGHER ENERGY** others **LOWER ENERGY**.

A large flock of seagulls is shown in various stages of flight and standing on a body of water. The birds are densely packed, with many in flight, their wings spread wide. The water is a deep blue, and the sky is not clearly visible, suggesting a very large and active colony. The overall scene is one of intense natural activity.

**A seagull that's just taken-off
has EVAPORATED into the air!**

E V A P O R A T I O N



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Breaking Free

by Celia Berrell

There's millions
of molecules
of water in a puddle.
They all have
different energies
and jiggle in a muddle.

Some molecules
will keep their "cool"
(vibrating fast – they're NOT).
While others
vibrate extra-fast.
Like crazy, zany, HOT!

Hot molecules
can leap out of
that liquid into air.
Transforming into water gas.
EVAPORATION's there.

With breezes moving air away
and Sun's warmth from the skies,
more water molecules break-free.
That puddle slowly dries.



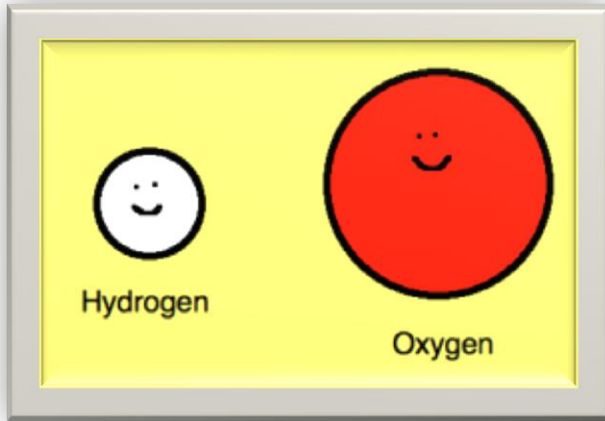
WATER



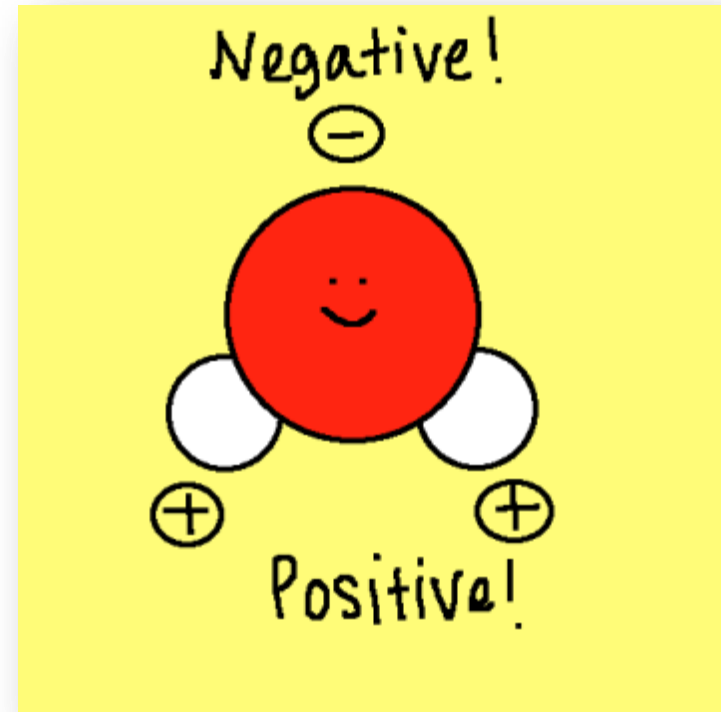
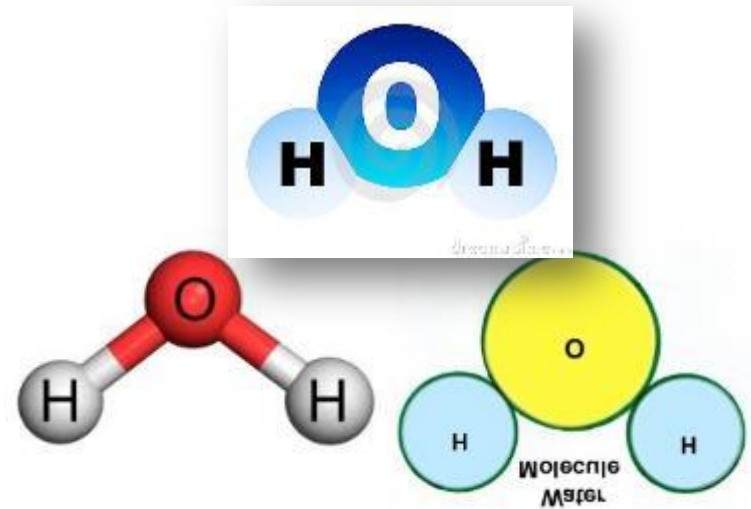
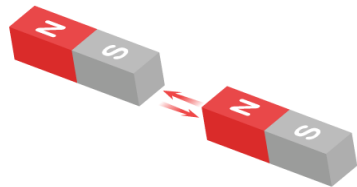
is scientifically WEIRD!

1. It has strong SURFACE TENSION

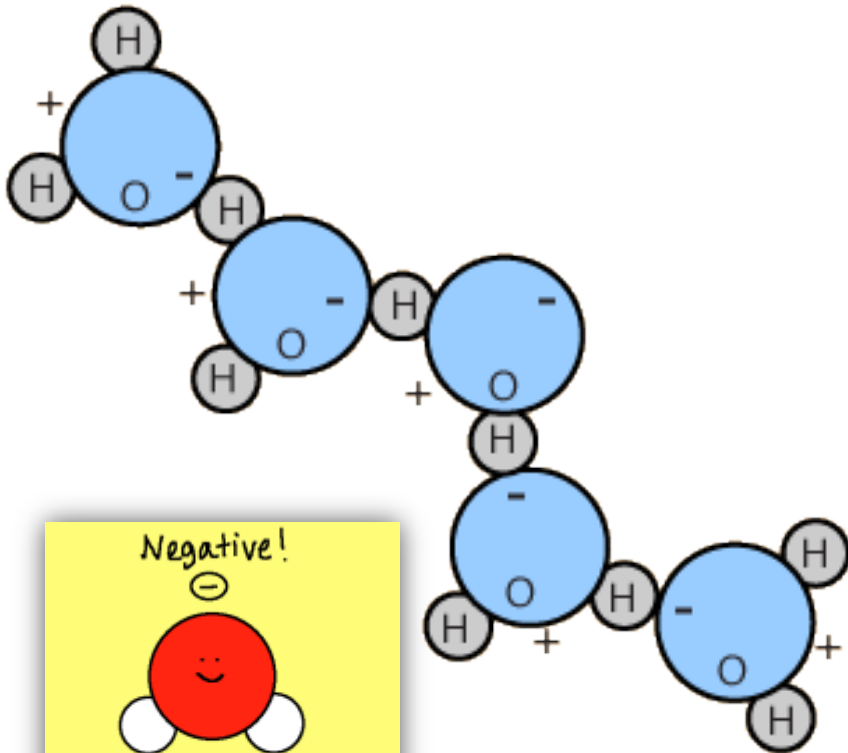
WATER molecules
behave a bit like **magnets**



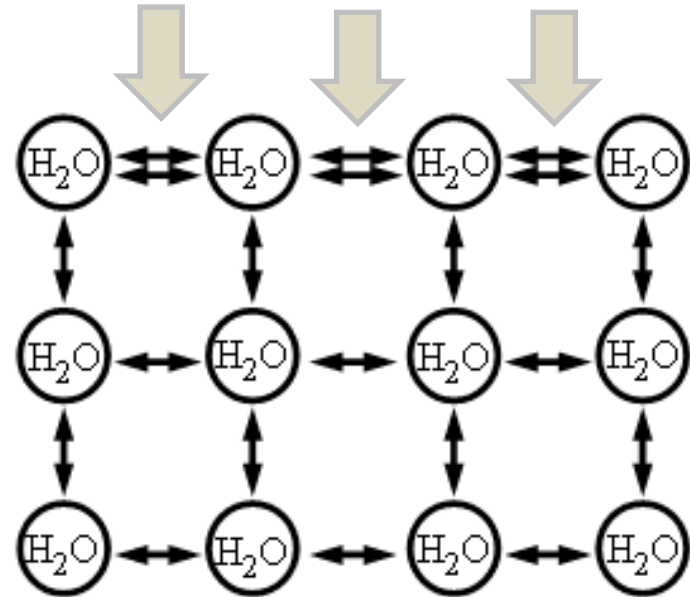
WATER is a
POLAR MOLECULE



So they bond together
in special patterns

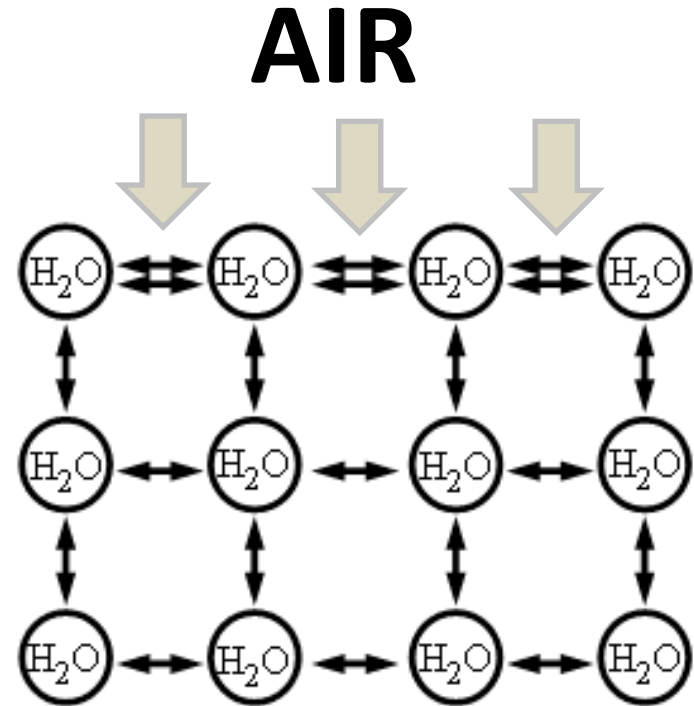


AIR



Where water touches the air,
their bonds are twice as strong.

Surface Tension



In air, water behaves as though it has a kind of skin ...

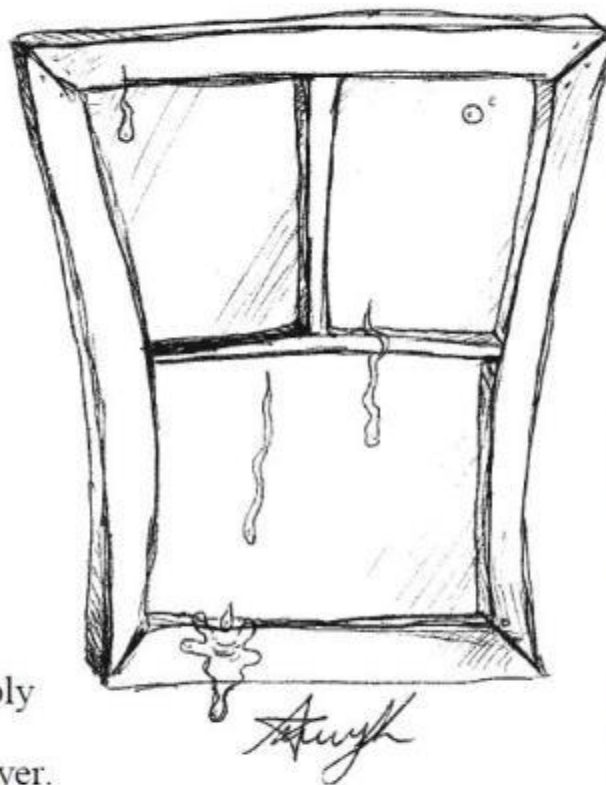
Water Droplets

(structure and properties)

Where liquid water meets the air
it has a surface tension.
An outer layer of molecules
that all have strong attraction.

Water droplets round in shape
like beads will often form.
Hanging on a cobweb's threads
like jewels in the dawn.

And on a pond small insects simply
walk along its top.
Their tiny feet don't break that layer.
Along the top they hop.



A raindrop on a window-pane
will slide towards the ground.
As water is a fluid that
can easily move round.

It leaves behind a trailing tail
as it goes trickling past.
Because that surface tension makes
it stick upon the glass.

I like to pick out two big drops
and guess their moving pace
to see which one will trickle first
and win the window race.



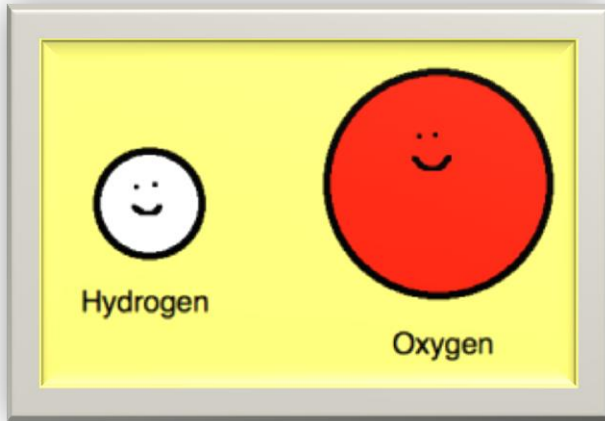
WATER



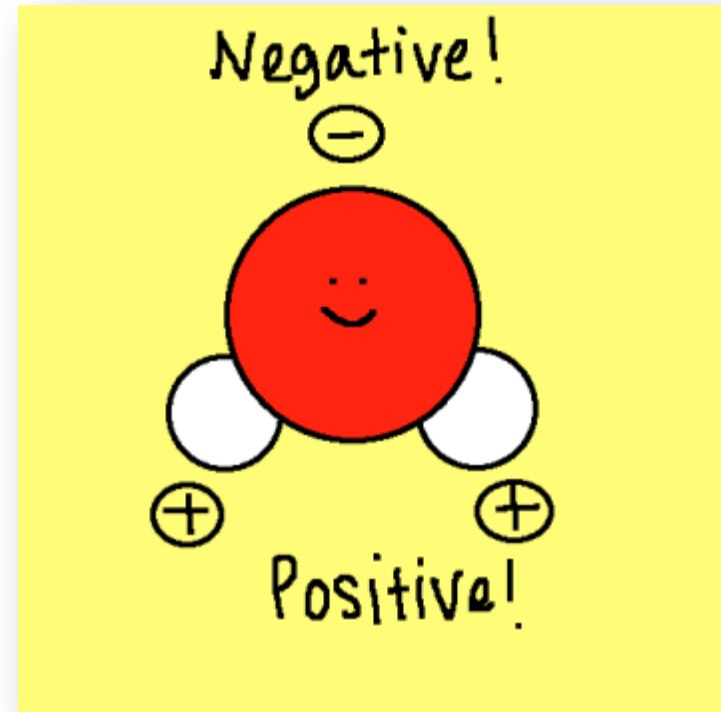
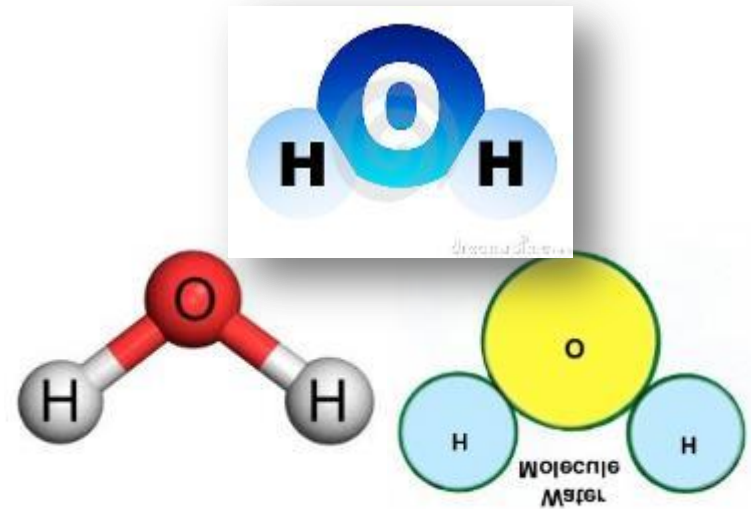
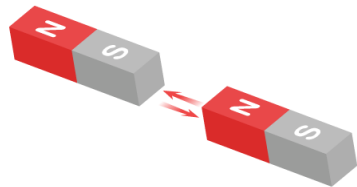
is scientifically WEIRD!

2. It has strong CAPILLARY ACTION

WATER molecules
behave a bit like **magnets**

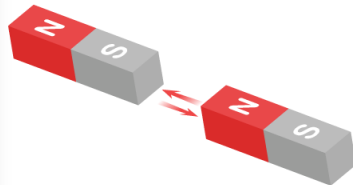
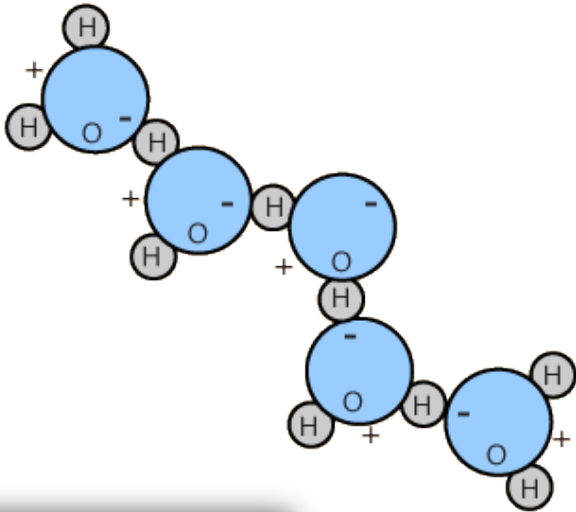


WATER is a
POLAR MOLECULE



WATER molecules

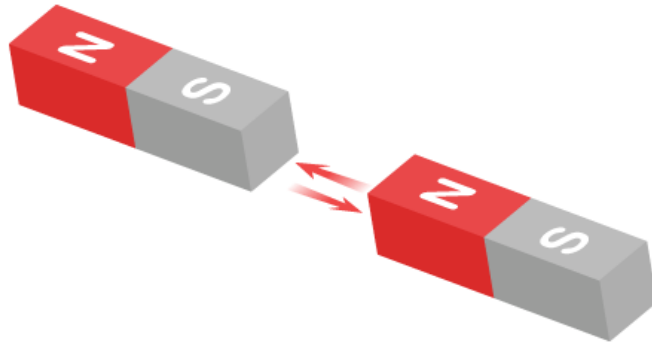
are attracted to each other



COHESION

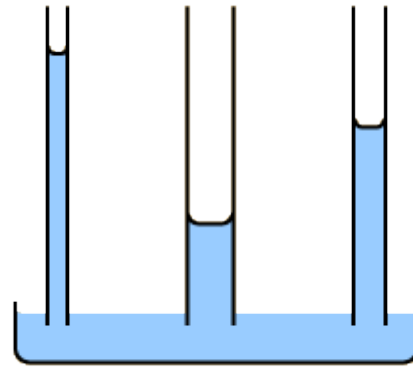
WATER molecules

are strongly attracted to different substances too



ADHESION

Capillary Action



Water's cohesion & adhesion allows it to defy gravity and mop up our spills and give cut flowers a drink!

Water's Groovy Trick

by Celia Berrell

A Thorny Dragon's crazy coat has scary spikes and grooves of note. This makes him look quite weird and cute. And acts as lizard's drinking suit!

Capillary action is a way that water moves through narrow grooves. Its surface tension climbs and clings. Especially to narrow things.

To get a drink our lizard stands beneath a clump of soggy sand. The water finds his groovy skin then moves to mouth and trickles-in.



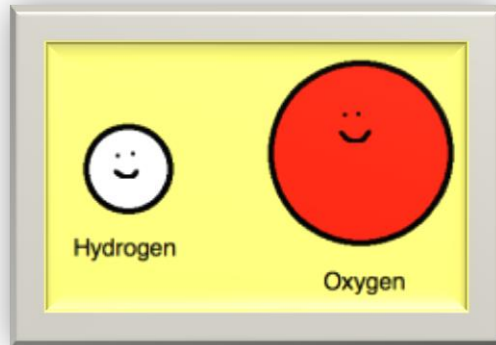
WATER



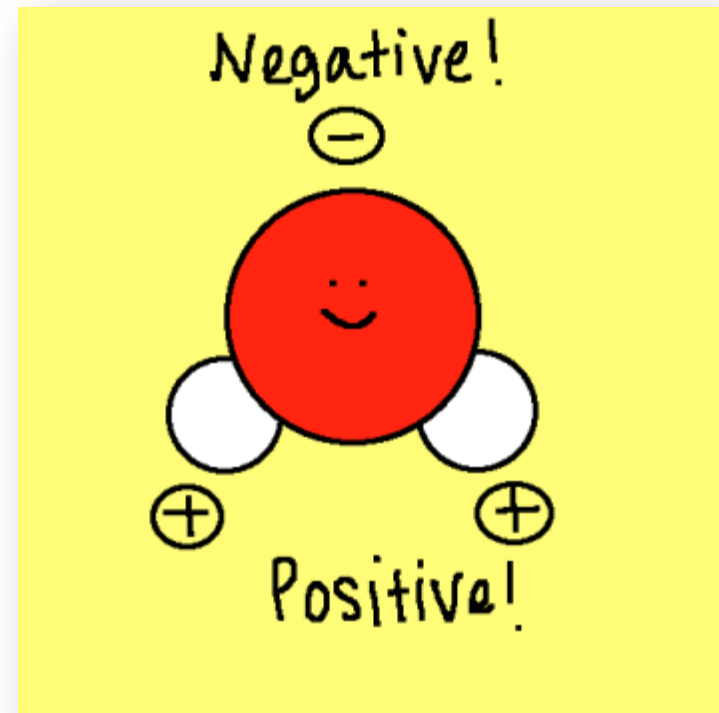
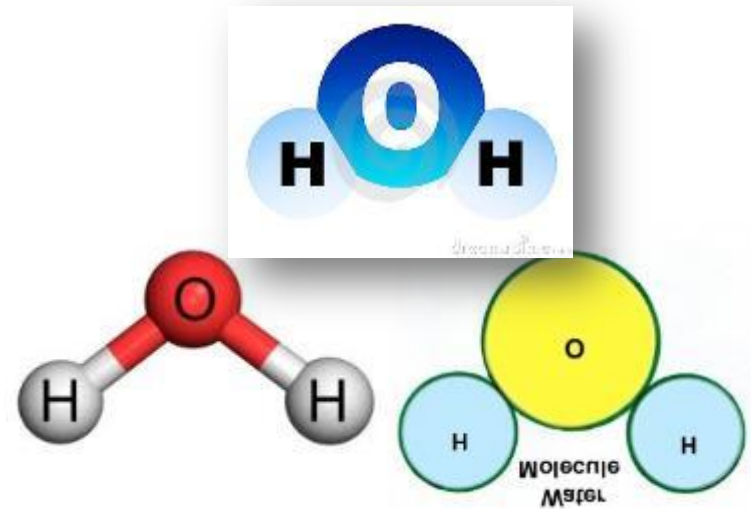
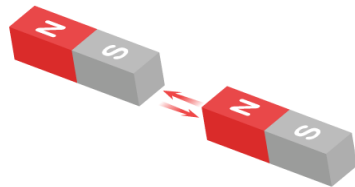
is scientifically WEIRD!

3. It is a SENSATIONAL SOLVENT

WATER molecules
behave a bit like **magnets**

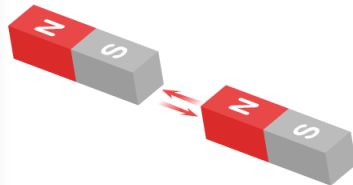
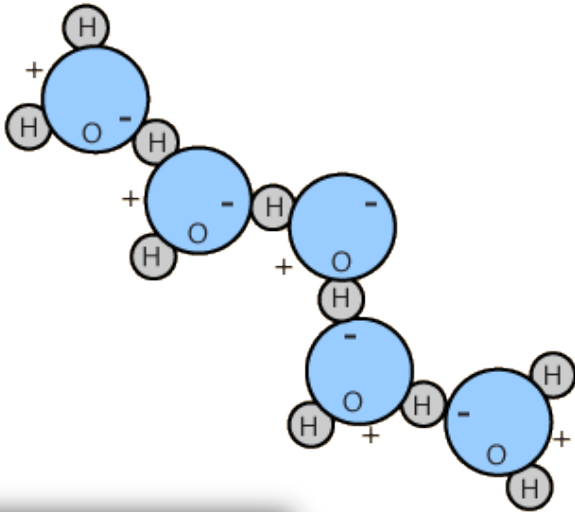


WATER is a
polar molecule with
HYDROGEN BONDS



WATER molecules

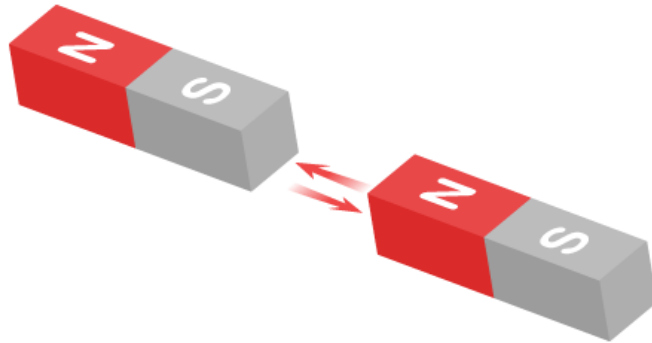
are attracted to each other



HIGH COHESION

WATER molecules

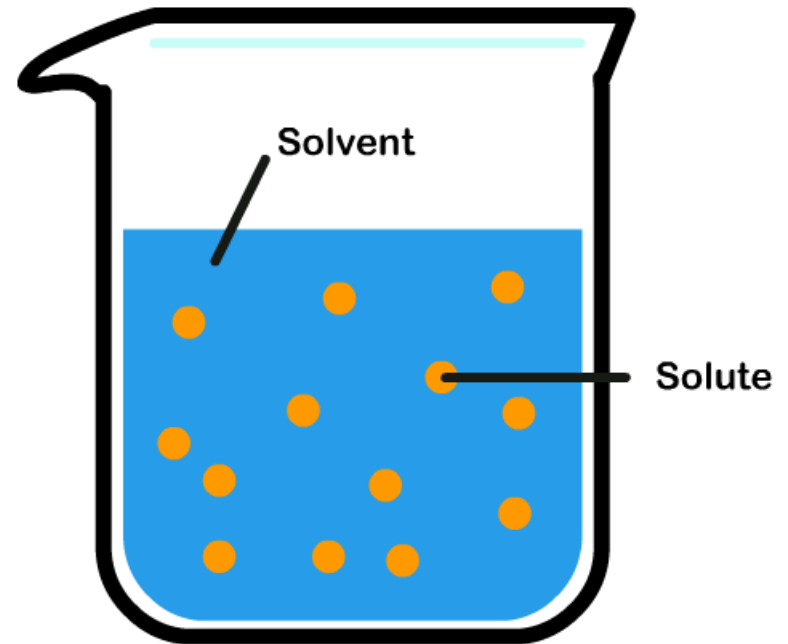
are strongly attracted to different substances too



HIGH ADHESION

WATER dissolves

more things than any other substance



Solution

a **SUPER SOLVENT**

A Water Welcome

by Celia Berrell

**Water is the friendliest
of substances I know.
It's found within all living cells
and helps the plants to grow.**

**It welcomes many other things
dissolving them within.
Like sugar, tea and coffee.
With a stir, they all join in.**

**I gently touch the surface of
some water in a pond
and watch it hug my finger like
we've made a friendship bond.**

**And as it flows and trickles
it will make a happy sound.
As though it's greeting everything
within the world around.**



WATER – Part 1

Solid - Liquid - Gas

Evaporation - Surface Tension - Capillary Action - Solvent
for National Science Week 2017

sharing science rhymes
and science information for
**Whitfield State School's
POETRY CLUB**

Includes poems by Celia Berrell:

Water World

Breaking Free

Water Droplets

Water's Groovy Trick

A Water Welcome

Website links referenced:

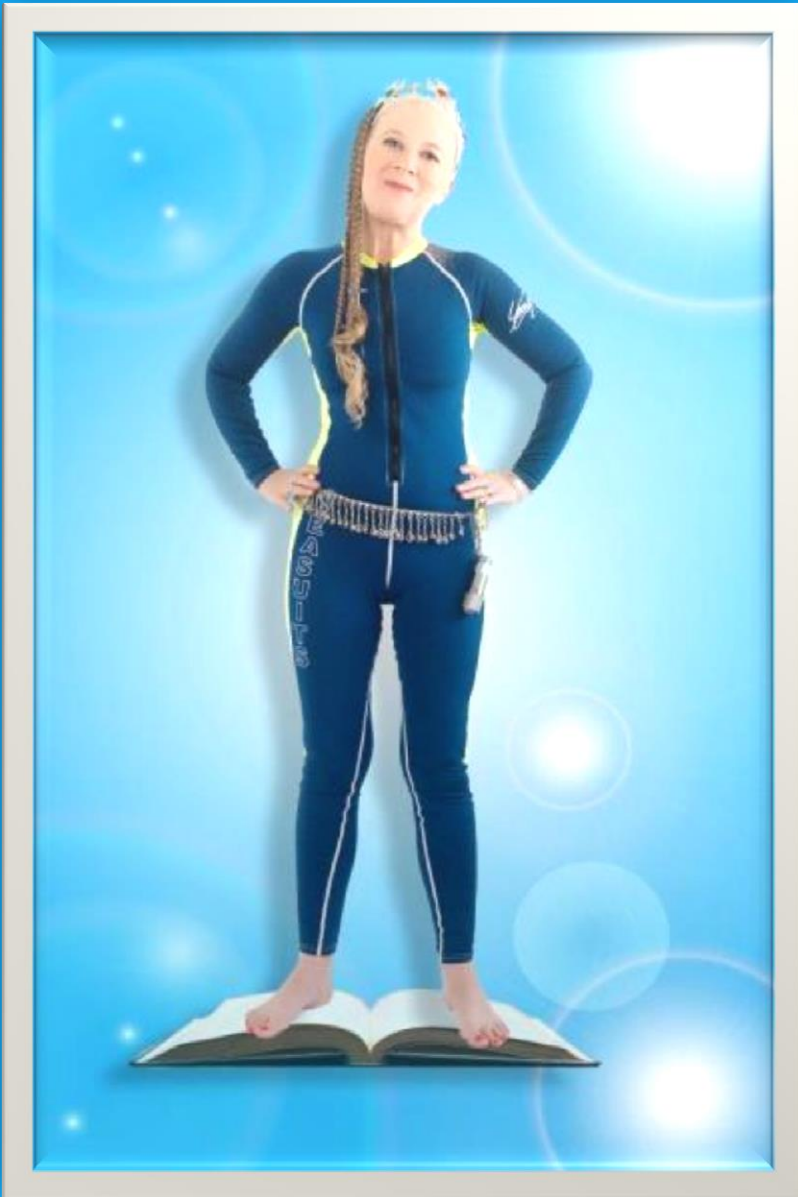
<http://www.thewildlifediaries.com/australian-reptiles-gallery>

<http://sciencewithme.com/learn-about-solutions/>

<http://www.oprah.com/health/Health-Benefits-of-Touching>

And thank you to all the creative artists who
donate their images free of charge via
Microsoft ClipArt & www.morguefile.com





**Celia Berrell
writes**



Her poems are found in
CSIRO's *Double Helix*
magazines



and school textbooks



Australia



Ireland



Canada



India



Malaysia

**and YOUR POEMS can be shared
on the Science Rhymes website**

www.sciencerhymes.com.au