
Green-Schools
An Taisce
When the River meets the Sea
A resource for inland schools working on the Global Citizenship:
Marine Environment theme

Global Citizenship means…

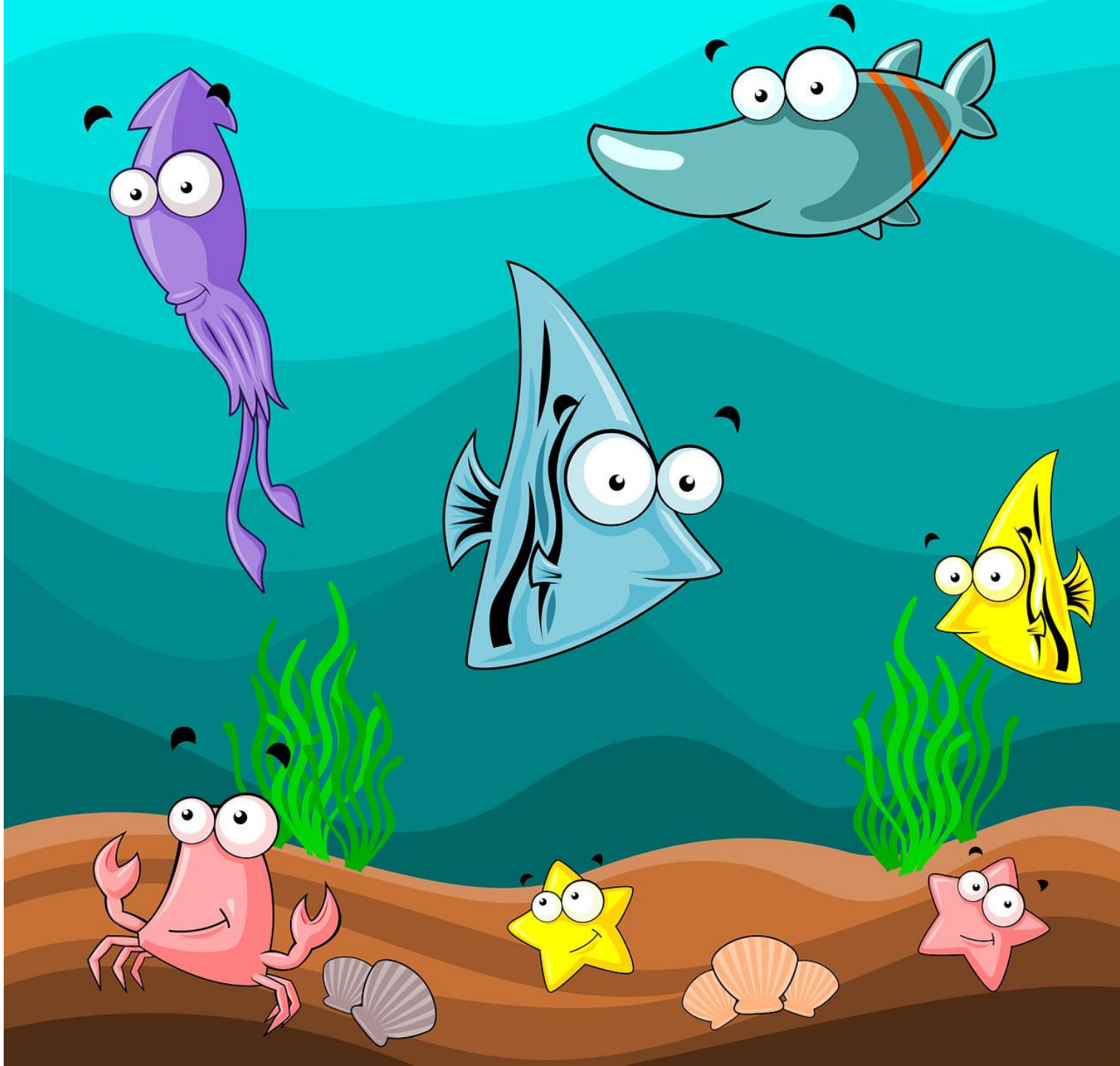
- being a citizen of the whole world community.
- Thinking about how you are connected to other people in other places and countries around the world.
- Understanding the impact your actions have for people, animals and the environment in other parts of the world.

Marine Environment means…

- Anything to do with the sea or the ocean.
- Marine can refer to beaches, coasts, deep sea, open ocean, shallow seas, coral reefs etc.

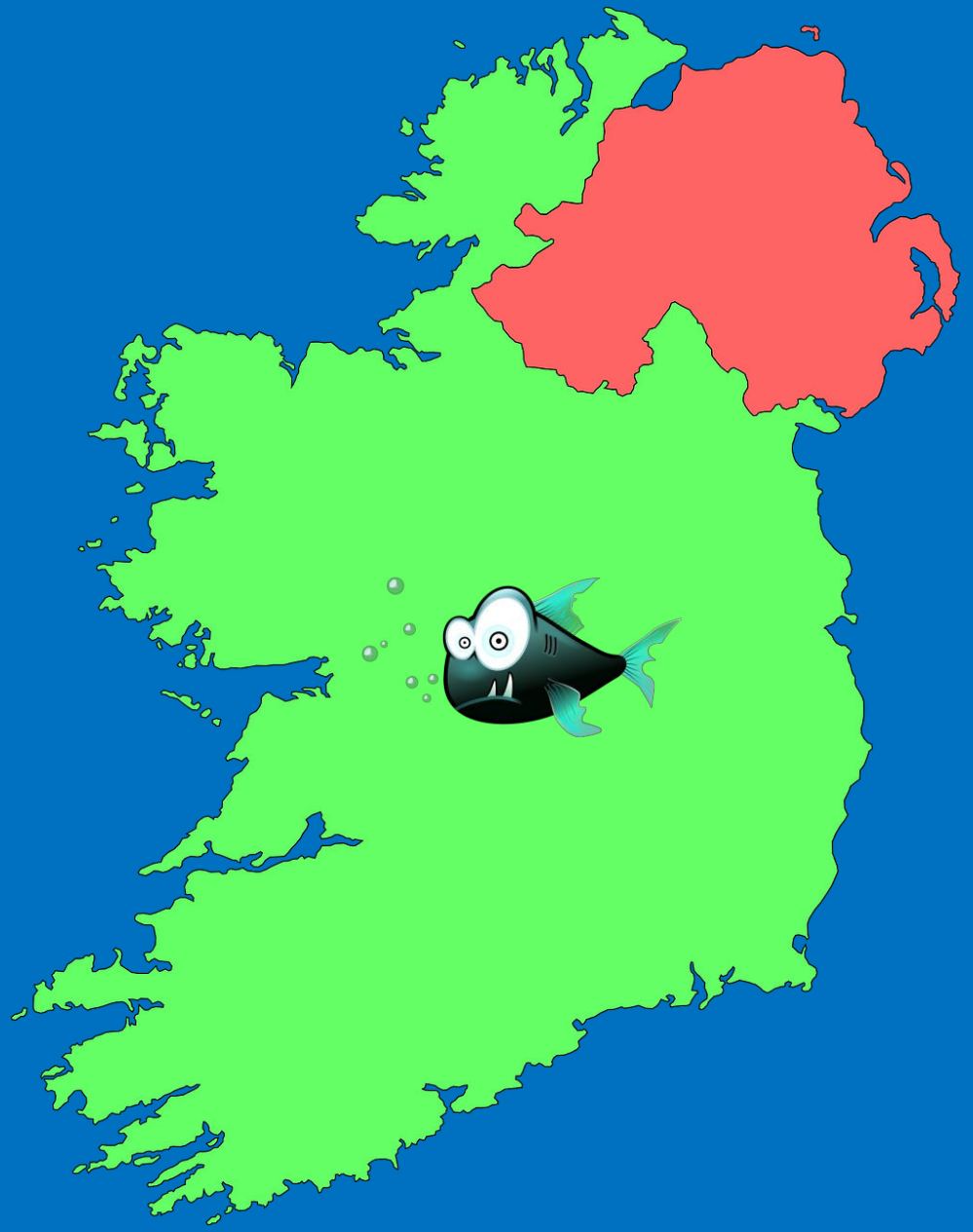
For this Green Flag you will...

- Be learning about how litter gets into the sea and harms sea life
- Find out about different types of sea creatures
- Try to cut down on plastics that are polluting the ocean
- Learn about how climate change and overfishing affects our ocean



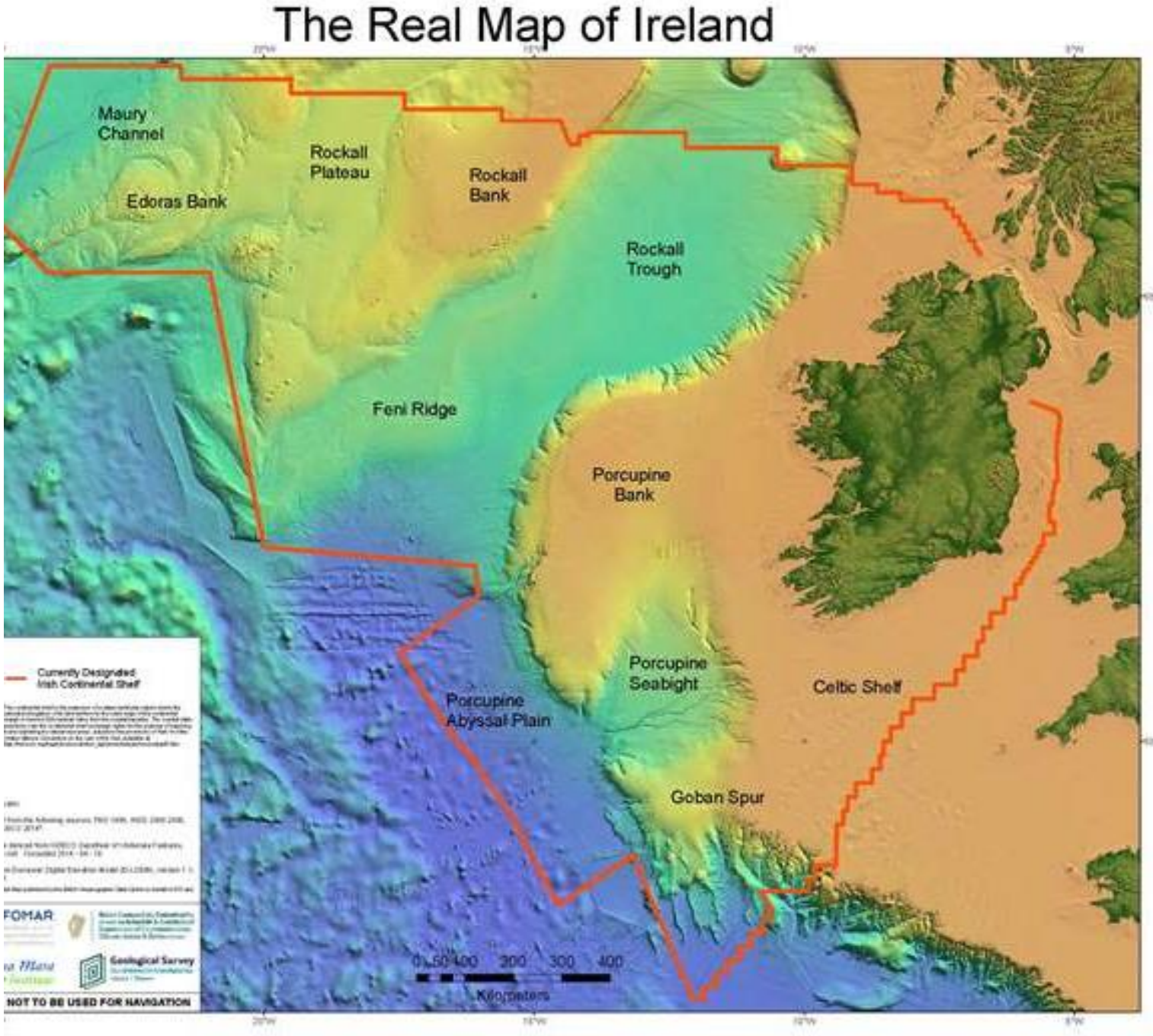
But wait...We don't live anywhere near the sea!

Does your county have a coastline?



Well...did you know?

- In Ireland you are never more than about 100 km from the sea, or about a 1 hour 40 minute drive!
- Ireland has 6226 km of coastline
- Ireland's ocean territory is 10 times the size of its land territory
- Things you do in the middle of the country directly affect our oceans
- Without the oceans we wouldn't even be here!



Hands up!

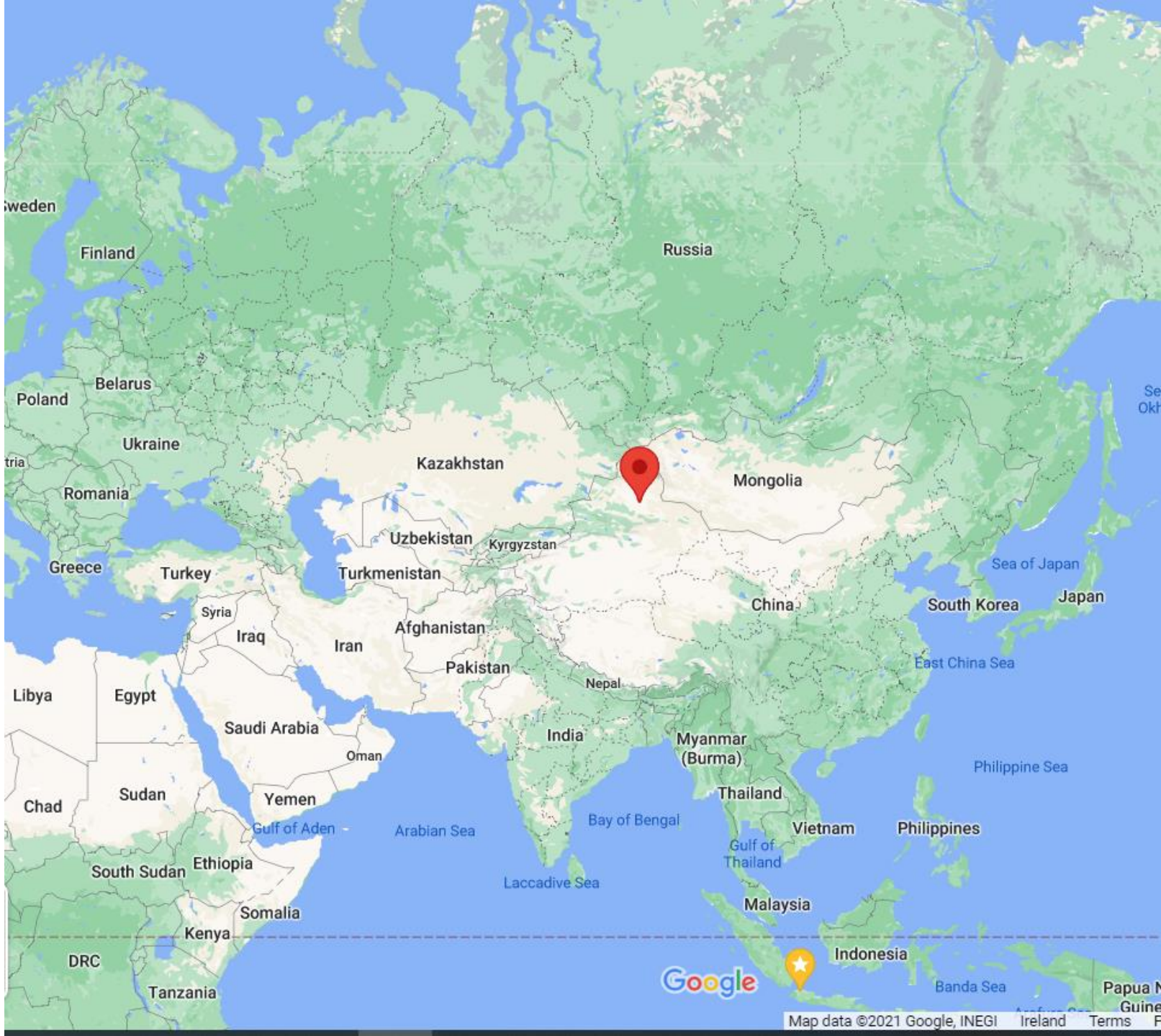
Where do you think is the farthest place on the planet from the sea?

2,500 km!

The farthest point on land from any ocean is located in north-western China, near the city of Ürümqi, and is approximately 2,500km from the coast.

That's the same as driving from the top to bottom of Ireland, five times!

This is called the Eurasian "**Pole of Inaccessability**" because it is so difficult to get to!




Why is the ocean important?

Earth is a Blue Planet

Did you know that 71% of the planet's surface is actually covered in water?

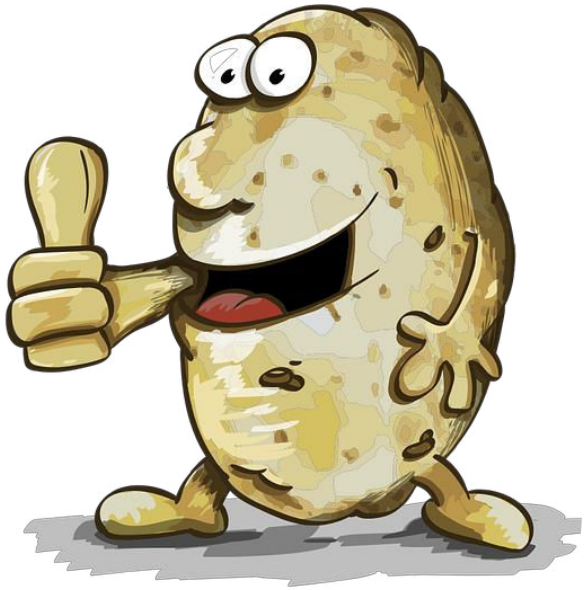
And that 97.5% of that water is ocean?

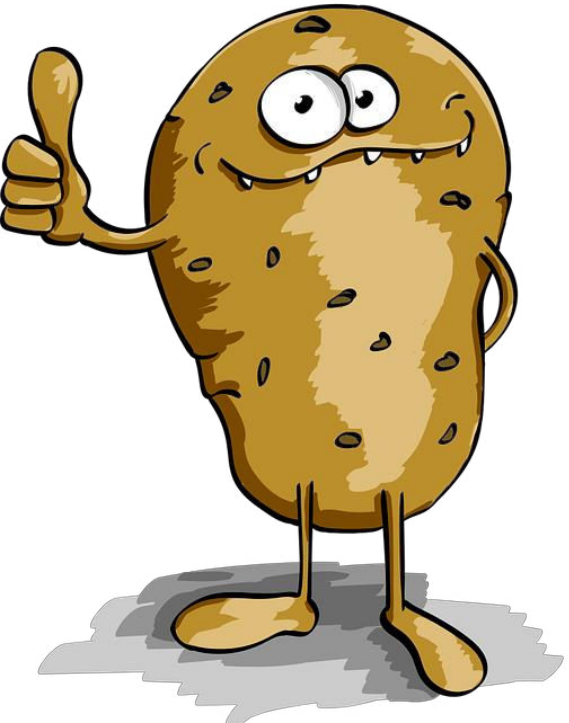
Our watery beginnings

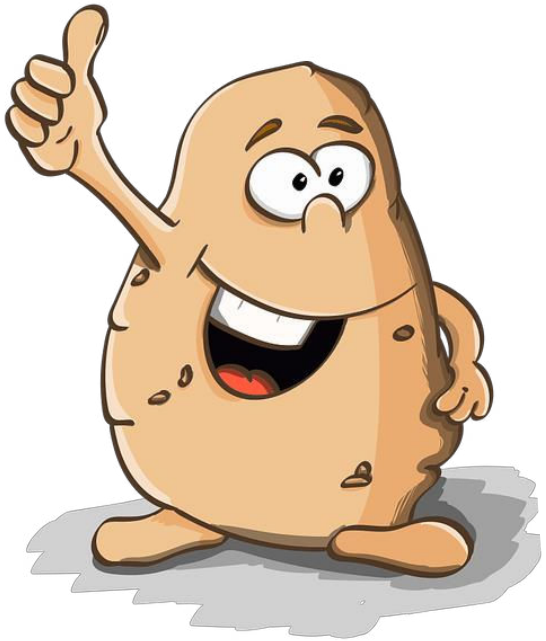
Life evolved in the oceans, starting about 4 billion years ago!

Living things were very simple to begin with, but as millions of years passed they became bigger, more complex and better adapted to different environments.

So our ancient ancestors (and those of all animals) came from the sea!







We are water!

Our bodies are made of water and we need water to live.

Humans can survive for several weeks without food but only a few days without water!

A new-born baby is 75% water – about as wet as a raw potato!

We dry out as we get older, and elderly people are only about half water.

The Water Cycle

Water from the ocean evaporates to form clouds. These clouds rain down, and replenish our lakes, rivers and groundwater (water stored in caves under the Earth's surface).

Without the ocean we would have no water to drink, to wash with, or to grow crops!

The ocean, weather & climate

- Hands up – can you explain the difference between weather and climate?
- Weather is what we see day-to-day and hour-to-hour – it might be raining in the morning and sunny in the afternoon.
- Climate is the general temperatures and weather patterns we can expect over a very long period of time (30 years or more).
- The ocean plays a big part in our weather and climate.
- Ocean currents move heat around the world, transporting warm water away from the equator and cold water away from the North and South Poles.
- The ocean also soaks up extra heat and carbon dioxide out of the atmosphere – if it didn't do this the planet would be extremely hot and inhospitable.

Take a breath…where does your oxygen come from?

People often think that all of the oxygen in the air comes from trees and forests.

Trees “breath out” oxygen, and they are vital for the health of our planet – but in fact **more than half** of the oxygen in our atmosphere comes from the ocean!

It is produced by algae (seaweeds) and phytoplankton (tiny floating plants) that live in our seas!

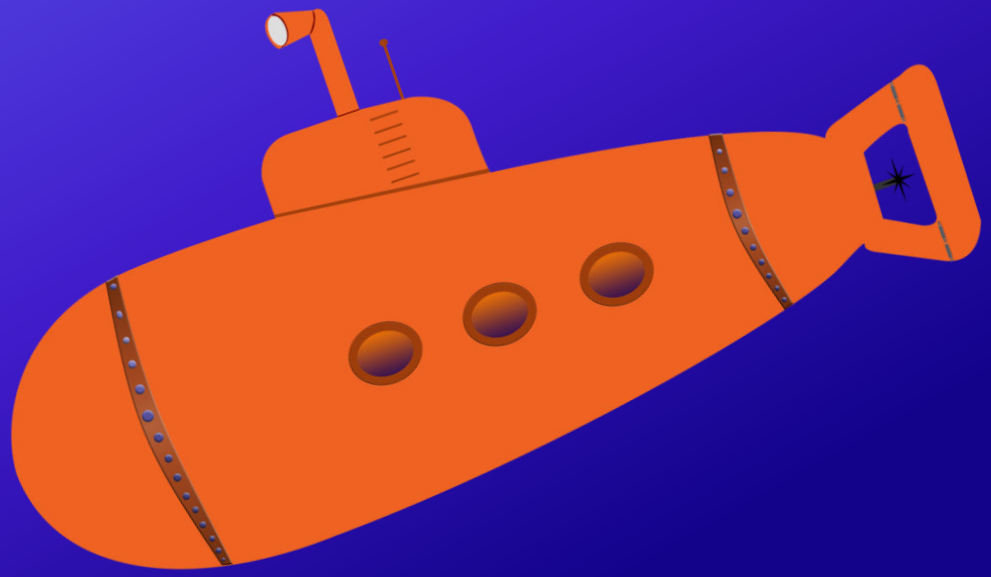



Ocean life & livelihoods

- The ocean is home to hundreds of thousands of species, many we haven't even discovered yet!
- Billions of people rely on the ocean for food, and for jobs.

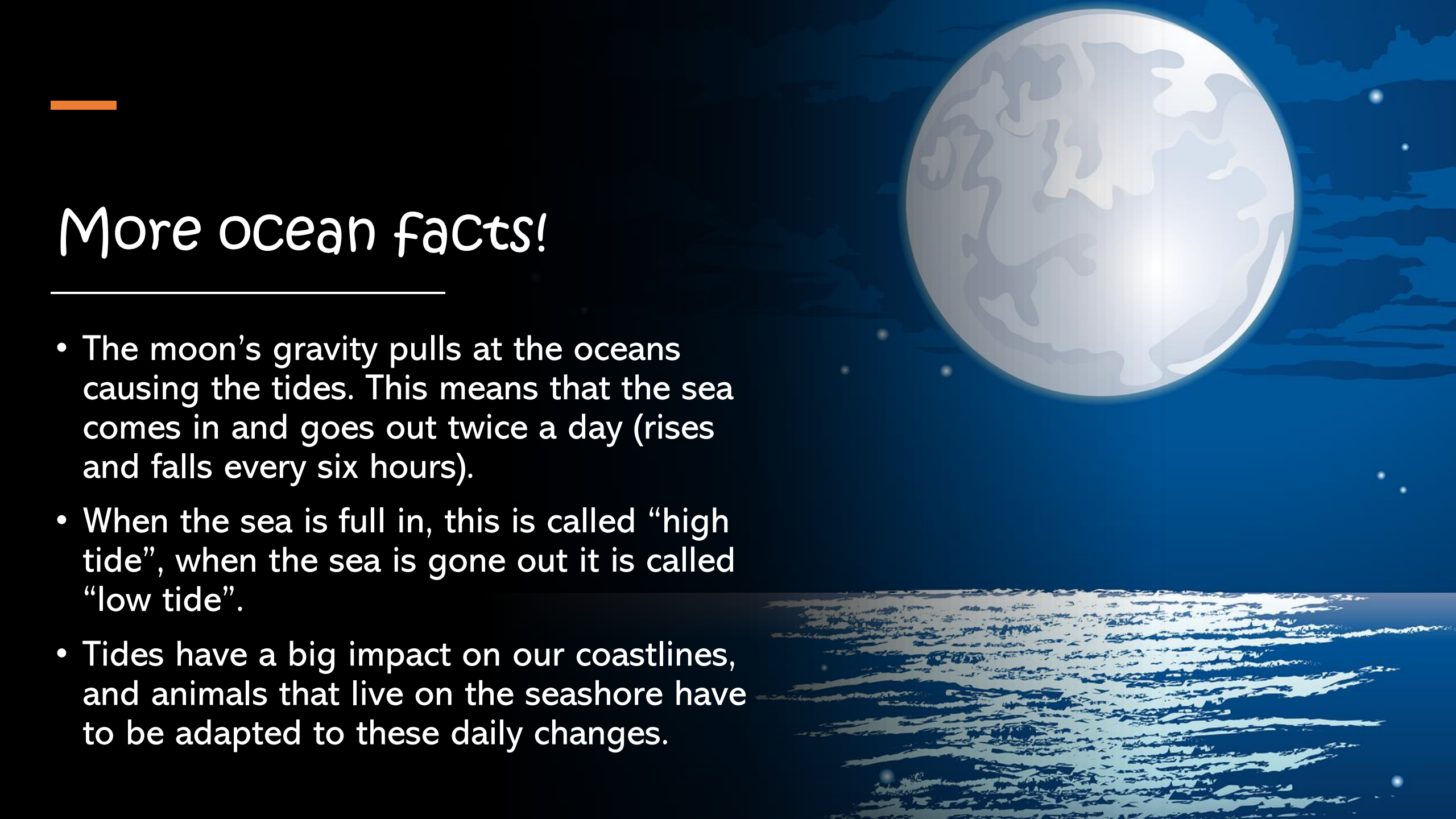

Facts about the ocean

- The ocean is made of saltwater.
- Over billions of years, salt and other minerals have been carried into the oceans by rivers, and have seeped up from openings in the Earth's crust on the seabed, making it salty.
- The deepest part of the ocean is the "Challenger Deep" in the Mariana Trench, in the western Pacific ocean.
- The Challenger Deep is 36,200 feet (11 kilometres) deep.



More ocean facts!

- The moon's gravity pulls at the oceans causing the tides. This means that the sea comes in and goes out twice a day (rises and falls every six hours).
- When the sea is full in, this is called "high tide", when the sea is gone out it is called "low tide".
- Tides have a big impact on our coastlines, and animals that live on the seashore have to be adapted to these daily changes.



Do we affect the ocean? Yes!

- Even the deepest parts of the seabed have litter ☹
- Litter gets into the ocean by being washed down drains, flushed down toilets, carried by rivers, carried by animals or blown in by the wind.
- Anything we flush down the toilet or pour down the sink ends up in the ocean too.
- Litter can travel long distances, so even if you don't live near the sea you can impact it!

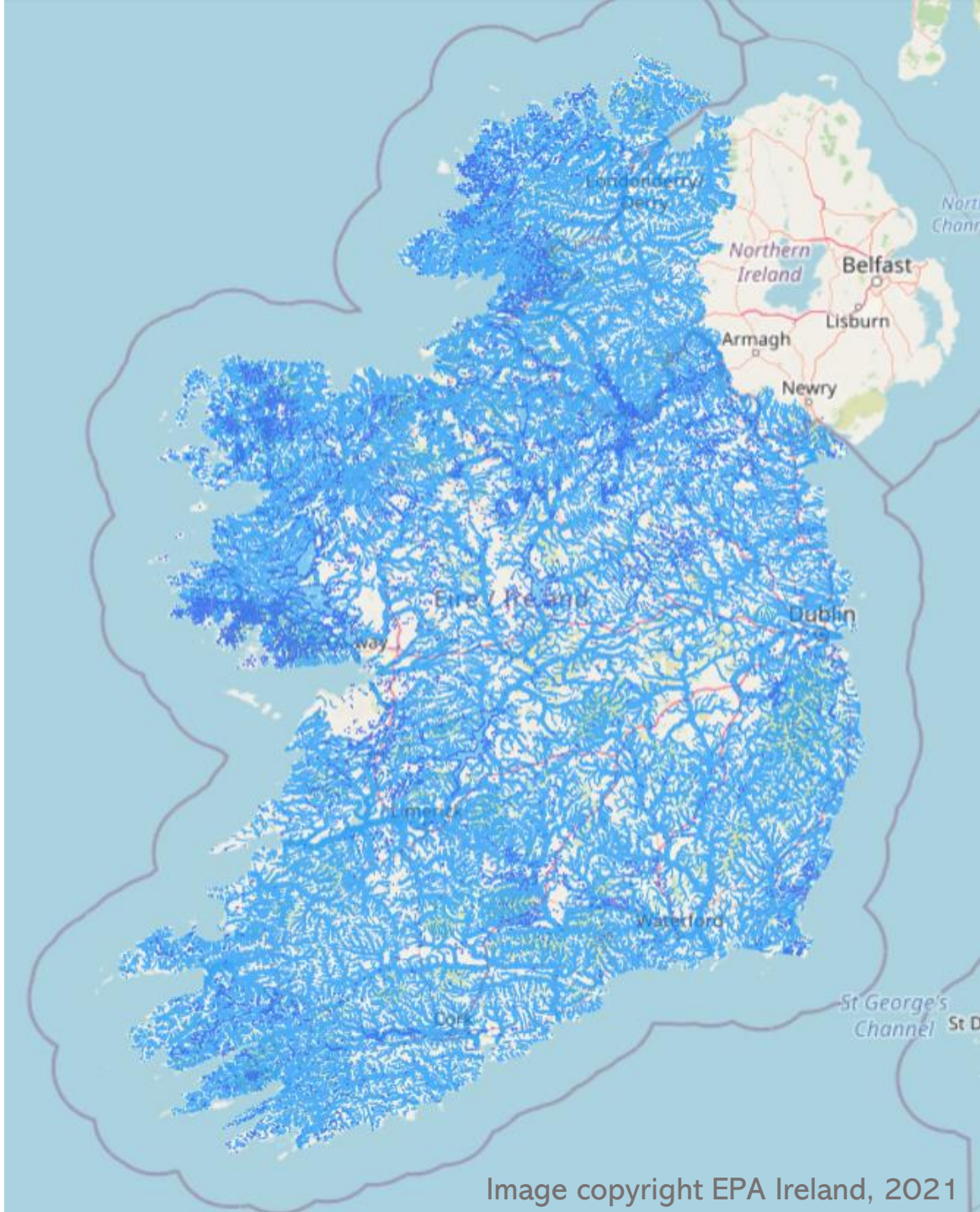

How rivers link inland places
to the sea

Rivers connect us to the sea

- Rivers rise out of the ground usually in upland places (like mountains). The place where a river rises is called the "**source**".
- Rivers carve a path in the land as they journey downhill towards the ocean. The further they get from the source, the wider and slower they get as they join up with other rivers and streams.
- The point where a river meets the sea is called the "**mouth**" of the river.
- We need to take care of our rivers (and our ocean) by preventing litter and pollution.

Ireland's rivers

- Ireland has 73,000 km of river channels
- Enough to go around the Earth twice!
- The longest river in Ireland is the River Shannon (360 km!)
- What's the closest river to you? Find out where that river rises and where it meets the sea! Does it join up with other rivers along the way?



What are the differences between rivers and the sea?

Activity: Answer the questions (hands up or write on a sheet of paper):

- Taste – what does river water taste like? What about the sea?
- Smell – what are the different smells?
- Sound – what kind of sounds do you hear?
- Touch – what might you feel? Crunchy sand? Soft moss?
- Sight – what kind of things do you see near rivers/at the sea?
- What animals do you see at the river/seaside?
- What activities or games do you do at the river/seaside?
- How does being at the river/sea make you feel?

Lifecycle of a salmon

- A salmon starts out life as a tiny egg, hidden in the loose gravel in cool, fast-running rivers during winter-time.
- The baby salmon hatches and lives in the river for a year, feeding, growing and undergoing several important physical changes.
- After about a year it undergoes another change as its body prepares for life at sea, this is called “smolting”.

Journey to the ocean

- The following summer the young salmon makes the journey down river and enters the sea for the first time.
- It swims north to the Norwegian Sea where it feeds and grows for 1 – 3 years.
- It then returns to the very same river it hatched in, jumping upstream to get to the breeding grounds to produce its own offspring.

Swimming home

- Salmon use the Earth's magnetic field, the smell of the river and the smell of other salmon to find their way home.
- These hardy fish have to survive predators, fishermen and dams to get back to their breeding grounds.
- Salmon can travel 3000 km on their ocean journey!

Fun facts!

- Salmon aren't the only animals that travel between the river and the sea - lamprey make a similar journey, while the European eel starts out life in the Caribbean sea, before crossing the Atlantic Ocean and journeying up our rivers. Why not do a project to find out more about these amazing animals?
- Fish that can live both in salty and freshwater are called Euryhaline – YOU-ree-HAY-line.

Now you understand how we are ALL connected to the ocean - how can YOU help our marine life?

- Always put your rubbish in the correct bin.
- Look after your local lake or river – do a clean up or raise awareness about litter problems!
- Only flush the 3 Ps (pee, poo and paper!) down the toilet.
- Only eat sustainably caught fish and shellfish.
- Do a project to find out more about your local river and its journey to the ocean. What kind of wildlife live in your river?
- Do a project on sea-life to find out more about our amazing oceans!
- Hold an action day to raise awareness in your school and community about the importance of the ocean.
- Complete the **Comparison Worksheet** – compare rivers and the sea and think about your connection to both!

Green-Schools

An Taisce

The Green-Schools Global Citizenship Marine Environment theme is proudly supported by the Department of Housing, Local Government and Heritage.

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
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