Ocean Literacy and importance

Recommended style of activity	
Public engagement: Family drop-in activity (using props); structured group activity (using cards)	**Schools:** Class activity using props and/or cards
Suggested age range: 8 years to adult (use age appropriate cards/props)	
Approximate time : 5 minutes as a family drop-in activity; 10-15 minutes as a structured group or class activity.	

Background Science

In this activity you will explore how the ocean has a major influence on our daily lives, even for those of us who don't live by the sea. Gaining an understanding of the ocean's influence on you and your influence on the ocean can be seen as an improvement in your 'Ocean Literacy' - a concept that was developed in America in the early 2000s. This could be appreciating how your rubbish might end up in the ocean and realising that half of the oxygen we breathe comes from the ocean!

There are 7 core principles to Ocean Literacy:

1. Earth has one big ocean with many features.
2. The ocean and life in the ocean shape the features of earth.
3. The ocean is a major influence on weather and climate.
4. The ocean makes earth habitable.
5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably linked.
7. The ocean is largely unexplored.

Some of these principles are highlighted by examining a series of props or information cards which explain the importance of the ocean across a range of areas from food and medicines, to climate regulation and cultural importance. Once you start thinking about it, it seems remarkable that we call our planet 'Earth' given how important the ocean is and even more so when you recall that around 71% percent of the surface is covered by it!

The cards can be used as an introductory activity, where participants are encouraged to have conversations around the topic by sharing the information they have discovered.

The props can be used in a more informal way to spark thoughts and discussions around ocean importance.

Scottish Curriculum links (CfE):

I can apply my knowledge of how water changes state to help me understand the processes involved in the water cycle in nature over time. **SCN 2-05a**

Having explored the substances that make up Earth's surface, I can compare some of their characteristics and uses. **SCN 2-17a**

By contributing to experiments and investigations, I can develop my understanding of models of matter and can apply this to changes of state and the energy involved as they occur in nature. **SCN 3-05a**

Having explored the ways journeys can be made, I can consider the advantages and disadvantages of different forms of transport, discussing their impact on the environment. **SOC 2-09a**

Plus links with Higher Geography: Physical Environments: Atmosphere and Higher Environmental Science: Earth's Resources—Hydrosphere:

Kit List:

For running the structured activity with cards:

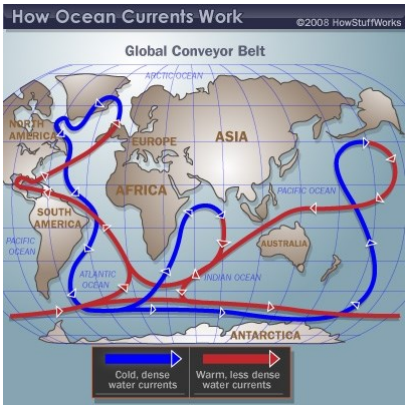
- Printed copy of the age-appropriate cards, cut out into individual cards (included in this pack: 16yrs+ cards followed by 8-16yrs cards)
- Blu-tack or similar for fixing cards to walls
- 1 worksheet per person (included in this pack)
- Pens or pencils

Stick the cards onto the walls before the group arrives. Ask individuals to fill in the blank spaces on their worksheets by identifying the pictures and adding facts to them. Give enough time for individuals to have gathered a few pieces of information, then ask them to group together and have conversations which enable them to fill in the remaining spaces. Running the activity like this can act as an ice-breaker or encourage conversations within a quiet group. Alternatively, you can give everyone enough time to fill out their worksheets then gather together to discuss as a group.

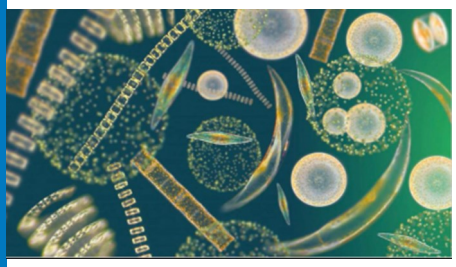
For running the activity with props:

Gather props or pictures which represent each of the different cards (for example we used a plastic pet syringe for 'medicines' and a cushion with a 'breathe in the ocean' slogan for the oxygen). Hand out to individuals or groups and lead discussions on the items.

*This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 678760 (**ATLAS**). This outcome reflects only the author's view and cannot be held responsible for any use that may be made of the information contained therein.*



The ocean transports heat across the planet. Warm water moves from the equator to the poles in huge currents, a bit like a stream of water in the ocean. This helps to keep the planet at a good temperature and also has a big effect on our weather.

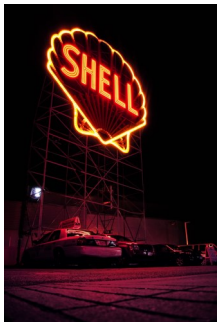


Just like plants on land take in CO_2 and give out oxygen, so do things that live in the sea. There are tiny creatures called phytoplankton which actually produce half of the oxygen that we breathe in! They're also very important as lots of other creatures in the ocean eat them – they're the base of a lot of marine food chains.

Photo by Piet Bastine on Unsplash

Experiencing the sea, shoreline or ocean has benefits for health and wellbeing. Many people associate the sea with a sense of calm. For others it is a fun place to play or a place for sport. For island or coastal nations the ocean plays a major role in culture and heritage as well.

Life in the sea is specially adapted to different conditions. Scientists think that some of these adaptions can help us make new medicines including anti-cancer drugs. An anti-leukemia drug derived from a sponge was the first marine-drug approved for cancer treatment in 1969.

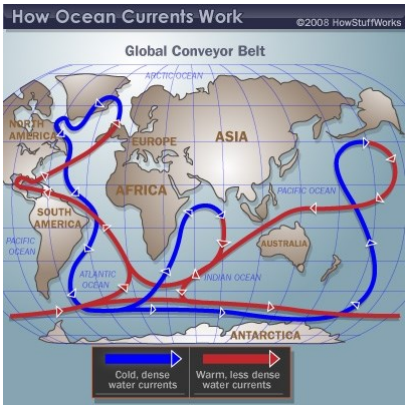


A lot of the energy which we use in our daily lives comes from the ocean. New technologies such as wave or tidal power use the energy of the sea itself, while oil and gas are taken out from under the sea-floor. Some of the oil was originally tiny marine animals and phytoplankton which sank to the sea floor after they died and slowly turned into oil over millions of years.

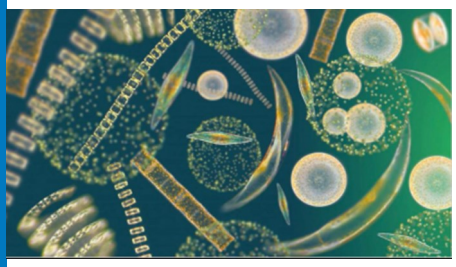
Every day**,** billions of people around the world eat fish as part of their meal. Are you one of them? How much of your food comes from the sea?

Photo by Axel Ahoi on Unsplash

You may think that the days of transport by ships are over but in fact over 90% of products bought and sold globally are transported by ships, including cars. Many people still travel by sea for business or holidays too.



The ocean moves heat across the planet. Warm water moves from the equator to the poles in huge currents, a bit like a stream of water in the ocean. This helps to keep the planet at a good temperature and also has a big effect on our weather—just think of the water cycle!



Just like plants on land take in CO_2 and give out oxygen, so do things that live in the sea. There are tiny creatures called phytoplankton which actually produce half of the oxygen that we breathe in! They're also very important as lots of other creatures in the ocean eat them – they're the base of a lot of marine food chains.

Photo by Piet Bastine on Unsplash

Many people enjoy the fresh air and exercise from a walk on the beach and find watching the waves peaceful. For others it is a fun place to play or a place for sport. For people who have grown up by the sea, it can be a very important place. Countries which have explored the sea in the past (or are exploring it today) also find it very special.

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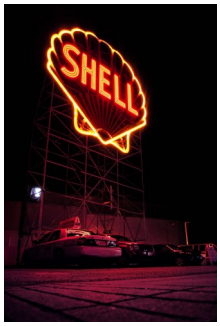


A lot of the energy which we use in our daily lives comes from the ocean. We are making new power stations which use the energy of the sea itself like wave and tidal. Oil and gas are taken out from under the sea-floor and burnt to make energy. Some of the oil was originally tiny marine animals which sank to the sea floor after they died and slowly turned into oil over millions of years.

Every day**,** billions of people around the world eat fish as part of their meal. Are you one of them? How much of your food comes from the sea?

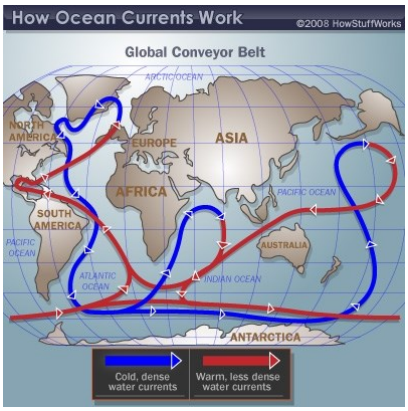
Photo by Axel Ahoi on Unsplash

Have you ever seen a picture of a ship with huge steel boxes called ‘shipping containers’? Over 90% of things bought and sold around the world are moved by ships, including cars! People still travel by sea as well to get to other countries or to go on holiday.

Ocean Importance Worksheet

Fill in the blank spaces to reveal how important the ocean is!

Turn over for more.



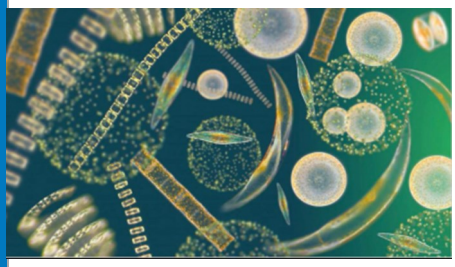


Photo by Piet Bastine on Unsplash

Ocean Importance Worksheet

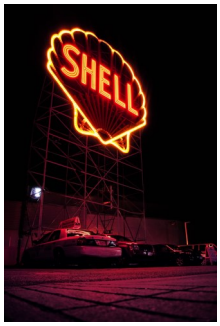


Photo by Axel Ahoi on Unsplash

Other thoughts on the importance of the ocean...