

# Let's examine the seashore



**Geological Survey**  
Suirbhéireacht Gheolaíochta  
Ireland | Éireann



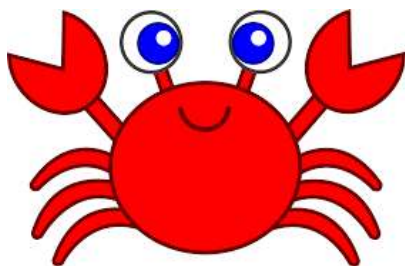
**Comhairle Cathrach  
& Contae Phort Láirge**  
Waterford City  
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Your job today is to investigate the beach after the tide went out. You are going to find out what kinds of rocks, animals and plants are found here.

Doing so you will learn a little bit about Geology, Biology and Geography

Along the way you will meet a few of the environments and characters that can be seen around the Copper Coast



# Sea

First let's have a look at the seashore.

Can you draw a picture of how the seashore looks today? On your picture draw in the **Cliffs, Sand** and **Sea**.

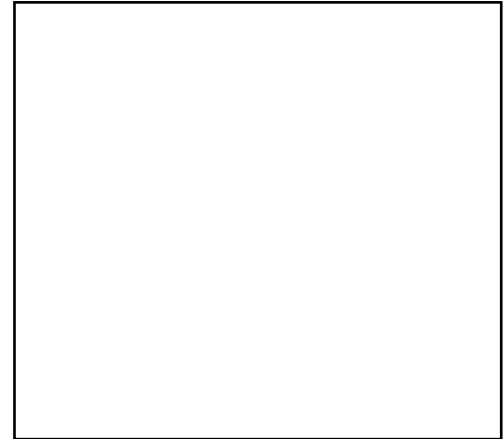
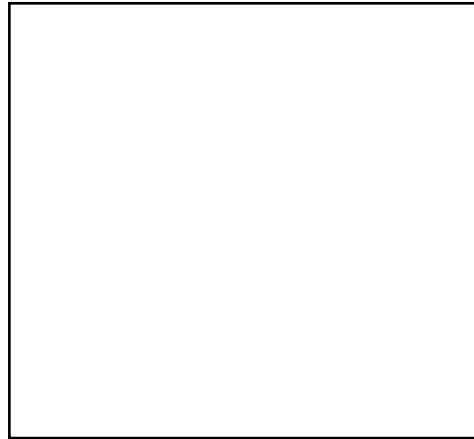
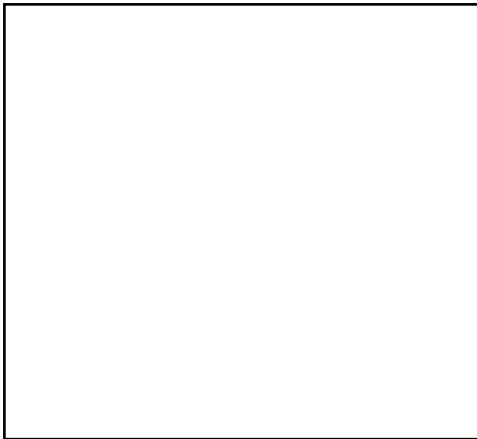
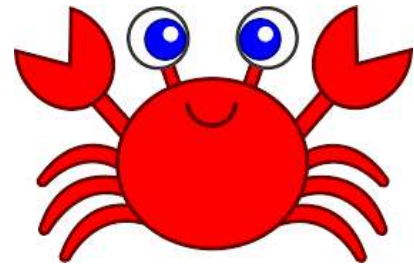


The sea has left many clues of what animals have visited the shore.

Can you help our seashore friends to discover what animals are on the seashore and what they are doing?

First let's help **Cormac the Crab** to find three colours of Seaweed?

You can draw the shape and the colour of the seaweeds you find in these boxes.



Ireland's three main colours of seaweeds are red, green and brown.

These three colours make up some 500 different seaweeds found around 3171kms of coastline.

**Question** - Can you eat seaweed?



**Sean the Sand Piper** has had a busy morning feeding on the shellfish along the tide mark.

You can help Sean find the right shell he needs.



Sean has given us some clues for what kind of shells he needs.

One shell looks like a **little hat and has a pointed top.**

The second shell is **long and looks like a razor.**

Another shell looks like a **snail shell you would find in your garden.**

Draw out the shells found in the boxes below, for help naming them check out the key at back of this book:

A large, empty rectangular box with a black border, intended for drawing a shell.A large, empty rectangular box with a black border, intended for drawing a shell.A large, empty rectangular box with a black border, intended for drawing a shell.

## The stones on the beach and the rocks in the Cliff

Rosy the Geologist needs your help to find and identify the stones on the beach so she can make a better map of the coast's geology.

Can you find three different coloured stones on the beach?

What shape are they? What do they feel like? Are they rough or smooth?



You can draw them here and make notes

Now look at the cliffs around the beach.

See if the stones you find on the beach are similar to the rocks in the cliffs.

Try and match the stones you find on the sand to the rocks in the cliff.

Most of the stones on the beach come from the cliffs nearby and are a similar colour and texture. This is because rocks are broken off these cliffs during storms and smoothed by the waves into the pebbles you see on the sand today.

**Question** Are any rocks out of place, if so how you think they got here?

**Did you know** that all of the metals and minerals that you use every day come from rocks just like these ones?

One very important metal that was found in the cliffs along this coast was Copper.

**Can you name one use for Copper?**

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## The sand on the beach

Pick up a hand full of sand and rub it between your fingers. How does it feel?

Can you see three different colours in the sand?



What are they?

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The different colours in the Sand come from the materials that Sand is made of.

Every handful of sand is unique to the beach that it is found on due to the influence of the local rocks on the sand type.

The white colour in the sand comes from Quartz (A mineral which is often found in rocks) or calcium carbonate (a mineral made of dissolved shells)

Darker colours come from very small parts of the local rocks and other dark coloured minerals.

**Question to ask** Why should we not take too much sand off the beach?

## The birds

Charlie the Chough needs your help to find materials for her nest. To help us find them, Charlie has kindly given us clues to what she needs.



First material needs to be soft for the lining of the nest.

**What is it?**

The second material needs to be strong to hold the nest together.

**What is it?**

Do you know where Charlie is going to build her nest?

- a) Tree
- b) Cliff
- c) Sea

## Rubbish on the beach and in the Sea

Billy the environmental worker is very busy working around the coast, but he needs help to find a little bit of litter.



Could you help him find something that might have come from a boat and the land?

Name one piece of rubbish that came from the land?

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Can you name one piece of rubbish that came from the sea?

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## **Some Suggested Answers to questions**

**Is Seaweed edible?** - Yes, seaweed can be consumed in many ways. One popular way is the use of Nori (thin sheets of black seaweed similar to dillisk) in Sushi.

**Are any rocks out of place, if so how did they get here** Transported by the sea from other beaches

**One use for Copper** Electric wire, mobile phones, pipes etc

Charlie will build her nest in cracks and crevices in the **cliff**

A hard material for her nest might be **Twigs,**

A soft material for her nest would be **wool, mud or moss**

A piece of litter from the sea might be a **fishing net**

A piece of litter from the land might be a **crisp packet**

**What kind of birds can be found on the coast?**

Cormorant (*Phalacrocorax carbo*)

Peregrine (*Falco peregrinus*)

Herring Gull (*Larus argentatus*)

Chough (*Pyrrhocorax pyrrhocorax*)

**Why Should we not take sand off the beach?** Because sand is a **non-renewable resource** over human timescales, sand suitable for making

concrete is in high demand. 50 billion tons of beach sand and fossil sand is used each year for construction. Taking sand off the beach often removes it for a very long time and can damage the beach.

**Why do some beaches have stones of different colours to the surrounding cliffs?**

Because the waves and tide bring stones from other beaches to this one.

## What kinds of shells can you find?

Guide adapted from [Coastmonkey.ie](http://Coastmonkey.ie)

Razor Shell *Ensis silqua*



Common Whelk *Buccinum undatum*



Common Periwinkle *Littorina littorea*



Great Scallop *Pecten maximus*



**Common Limpet (*Patella vulgata*)**



**Common Cockle *Cerastoderma edule***







## Key to Common Seaweeds

	Bladder Wrack <i>Fucus vesiculosus</i>		Limpet <i>Patella vulgata</i>
	Sea Lettuce <i>Ulva lactuca</i>		Sea Anemone <i>Urticina felina</i>
	Gutweed <i>Enteromorpha intestinalis</i>		Barnacles <i>Chthamalus stellatus</i>
	Serrated Wrack <i>Fucus serratus</i>		Dog Whelk <i>Nucella lapillus</i>
	Eggwrack <i>Ascophyllum nodosum</i>		Edible Periwinkle <i>Littorina littorea</i>

### Key to Common Rock Types found in the Copper Coast



	<p>Andesite Pebbles</p> <p><i>Volcanic Rock</i></p>		<p>Rhyolite Pebbles</p> <p><i>Volcanic Rock</i></p>
	<p>Breccia</p> <p><i>Volcanic Rock</i></p>		<p>Sandstone</p> <p><i>Sedimentary Rock</i></p>
	<p>Mudstone</p> <p><i>Sedimentary Rock</i></p>		<p>Limestone</p> <p><i>Sedimentary Rock</i></p>
	<p>Conglomerate</p> <p><i>Sedimentary Rock</i></p>		<p>Quartz</p> <p><i>Metamorphic Rock</i></p>

## Rock types and the Rock Cycle

There are three types of rock.

Igneous/volcanic Rocks - rocks created from cooled volcanic magma

Sedimentary Rocks - rocks made of sediment, compressed particles of other rocks and bits of sea shells

Metamorphic Rocks - rocks made when other rocks are changed through intense heat and pressure

