

# Rockpool explorer (Inside)

## Sustainability Goals:



**Subject links:**  
Science, Drama

Age: 5-7

**Curriculum links:**  
UK wildlife, Biodiversity, Habitats, Ecosystems, Outdoor learning, Environment, Creativity

## Ocean Literacy Principles:

5. The ocean supports a great diversity of life and ecosystems

## Learning Objectives:

- To be able to identify animals found in UK rockpools
- To learn how animals are adapted to their habitat
- To group animals by comparing and contrasting physical features

## Resources provided:

- [Life in a rockpool video](#)
- [Rockpool image reel](#)
- [Rockpool Fact File](#)
- [Rockpool spotter sheet](#)
- [What's the difference? worksheet](#)
- [Curriculum links](#)

## Extra resources required:

Buckets, clear jars or trays (recycled plastic takeaway/butter tubs)

## Step 1

### Background

Rockpools are mini ecosystems. For a few hours each day they're cut off from the sea, providing a safe haven for wildlife while the tide is out. Every rock, crevice and clump of seaweed is important to the anemones, crabs, shrimps and small fish living there. The continuously-changing conditions caused by the tides make rockpools a challenging place to live, but animals living there have developed fascinating adaptations to survive. Exploring rockpools and their wildlife is an educational and exciting experience for young children. If you can access a local beach, use our [Rockpool explorer \(Outside\)](#) lesson instead.

## Step 2

### Set the Scene

#### 15 minutes – Introducing rockpools

Start by asking students if anyone has been or heard of rockpooling. Children should share ideas about what's involved, why people go rockpooling and the kinds of creatures that live in rockpools. Explain that in this lesson you'll be exploring rockpools as a habitat. Define the word 'habitat' and watch the [Life in a rockpool](#) video to set the scene.

## Step 3

### Activities

#### Activity 1: 15 minutes – What's it like in a rockpool?

Examine images of rockpools (not the creatures) in the [Rockpool image reel](#), explaining that rockpools are challenging places to live. Write the words, sun, rain, people, waves, tides, shelter and space on the board. Split the class into small groups and assign each group a word, and ask children to discuss ideas of how their word would affect the conditions in a rockpool. For example, the sun increases water temperature in the pools, which can make them hotter and cause the water to evaporate.

Discuss ideas and answers as a class – use information provided in the [Rockpool Fact File](#) to support the discussion.

#### Activity 2: 5 minutes – Virtual rockpooling

Explain that you're going to go on a virtual rockpool trip. Hand out the [Rockpool spotter sheet](#) and watch the [Life in a rockpool video](#), ticking off creatures spotted as you go along (there are a few tricky species!).

You can watch the [labelled rockpool video](#) on YouTube to identify all the creatures.

## Step 3

### Activities (continued)

#### Activity 3: 15 minutes – Get to know a creature

Use the [image reel](#) to introduce a few of the key creatures and share some fun facts about them. Try to match the creatures in the image reel to the images on the [spotter sheet](#).

#### Activity 4: 15 minutes – Creature features

Use the [What's the difference? sheet](#) to compare and contrast characteristics of animals, comparing two animals at a time. Go through an example as a class before students have a go independently. For example, limpets and crabs both have hard shells, but crabs have lots of legs and limpets don't. Use the [spotter sheet](#) as a reminder of which animals live in rockpools.

## Step 4

### Extend

#### 20–30 minutes – Animal charades

In an open space, like an assembly hall or outside, split the class into around four groups and allocate a marine animal to each group. Students will need to recall what their animal looks like and how it moves.

Groups should create a 3D animal using all the children to create its body. For example, to create a jellyfish, some children could act as tentacles and some children form the body. Groups should work together to think about how they can all play a part in the 3D sculpture. Students also need to consider how the animal moves and how it feeds. After 5–10 minutes, each group should take it in turns to act out their 3D animal in front of the class, much like charades. The other groups should guess the animal. The group performing will then explain how they worked together as a team and the different elements they tried to incorporate. Discuss how these key characteristics and features of the animals demonstrate how they've adapted to their environment.

## Step 5

### Reflect

#### 5 minutes

What is a habitat? Can you describe what a rockpool looks like? Why are rockpools challenging places to live? Can you name some rockpool creatures?

## Step 6

### Follow up

To learn more shared characteristics of animals complete the [Grouping animals](#) lesson. To explore environmental conditions and creatures of another habitat, take a look at our [Life in the deep](#) lesson.

# Rockpool Fact File

**Rockpools are found across the UK. They are fascinating habitats and provide a home to a diverse range of plants and animals that have adapted to live in this harsh, ever-changing environment.**

## Harsh conditions



**Changing tides** – The area is covered with water twice a day at high tide and drained of water twice a day at low tide. Only the pools retain water. When there is no water, this leads to two main problems:



**Drying out** – Lack of water can cause animals to dry out especially on hot or windy days.



**Lack of oxygen** – Some animals, like fish, need to be in the water to breathe. Other creatures, like crabs, can breathe both in and out of the water.



**Waves** – Rockpools are often found on exposed coastlines and animals have to be able to withstand strong waves.



**Sunlight** – As the rockpools are shallow, on strong sunny days the sun can heat the water in the pools and evaporate some of the water. This can lead to increased salinity in the pools.



**Rain** – Rainwater can reduce the salinity of saltwater in the pools.



**People** – When people walk along the coast and through the pools they can accidentally stand on creatures. People can also harm creatures when picking up and returning them when rockpooling.



**Competition** – The competition is high in rockpools due to creatures fighting for space during low tide. This is bad news for creatures ending up in the same pools as their predator.

# Rockpool Fact File

## Why are rockpools great to live in?

The rocky substrate provides a hard surface for seaweeds to attach. These seaweeds provide shelter and food for many other species. The cracks and crevices in the rocks and under boulders provide shelter for animals.



Rockpools  
© MCS/Rachel Wyatt

## Adaptations

Animals living in rockpools have to be well adapted to cope with the harsh ever-changing environment and high competition for space.



© Matt Barnes

**Anemones** have tentacles which they use to catch tiny food particles and plankton floating in the water. When the tide is out they curl up into a ball shape to avoid drying out and conserve energy.



© Richard Harrington

**Limpets** have many adaptation features. They have a strong foot gluing them to the rocks, which helps protect them from waves, and a hard shell to protect from predators. They are able to store water under their shells to be able to breath out of water and avoid drying out at low tide.



# Rockpool Fact File

## Adaptations



**Crabs** have a hard shell which helps protect them from predators and strong waves. Their sharp claws are used for feeding and fighting off predators or competition.



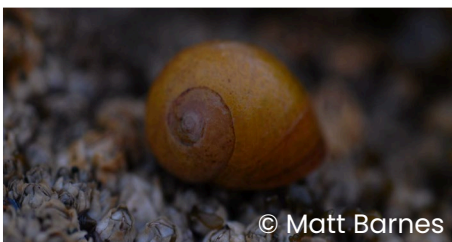
**Barnacles** are attached to the rocks with their heads, and once attached they can't move. Along with their hard outer shell, this protects them from waves. They have a door-like structure which is closed at low tide and open during high tide. When covered by water, they eat with their feet.



**Sea scorpions** have a sharp spine to deter predators and competition.



**Blennies** have slime-covered skin to help them slide between rocks and to help them stop drying out if temporarily caught out of water.



**Sea snails** are very varied and different sea snails are adapted to different parts of the rocky shore, this reduces competition for food.

# Rockpool Fact File

## Zones

Rocky shores can be split into different zones depending on exposure to water. This determines the diversity of species in each zone.



**Subtidal zone** is the area covered by water at all times and not affected by the tides.



**The lower shore** is normally always underwater but exposed during large Spring tides.



**The middle shore** is uncovered by the tide twice a day. It experiences the most wave action so animals here need to be hardy.



**The upper shore** is above the high tide mark because this area only gets covered with water on really high tides. There are fewer species found here.



**The splash zone** is at the very top of the shore and is influenced by salt spray.

**Subtidal  
zone**

**Lower  
Zone**

**Middle  
Shore**

**Upper  
Shore**

**Splash  
Zone**



# Rockpool Fact File

## Grouping animals

**Animals are grouped according to their physical and behavioural characteristics.**



### Fish

Are cold blooded aquatic vertebrates which use gills to breathe.



### Echinoderm

Their name comes from the Greek for spiny skin. They have radial symmetry. Starfish, sea urchins and sea cucumbers are all echinoderms.



### Crustaceans

Are a type of arthropod. The most famous crustacean on land is the woodlouse. In the ocean, common well known crustaceans include crabs, barnacles, and lobsters.



### Molluscs

Are soft bodied, un-segmented animals with a large muscular foot, including, snails, slugs, shellfish and octopuses.



### Cnidaria

Their distinguishing feature is their cnidocytes (stinging cells), which are used predominantly for capturing prey. Examples of cnidaria include jellyfish and anemones



### Sea squirts

Also called ascidians, belong to the subphylum Tunicate. They are predominantly fixed to a substrate and can live individually or in colonies. Their common name comes from their ability to eject water from a siphon when touched.



### Sponges

Belong to the phylum Porifera, meaning pore bearer, as their bodies are full of pores which circulate water through them.

The animals in the rockpool spotter guide can be grouped into the following groups:

**Fish** - Tompot blenny, sea scorpion, pipefish

**Echinoderm** - Cushion starfish

**Crustaceans** - Prawn, Shore Crab, Velvet swimming crab, Hermit crab, Barnacles

**Mollusc** - Grey top shell, Common periwinkle, Common limpet, Dog whelk

**Cnidarian** - Beadlet anemone

**Sea squirt** - Star ascidian

**Sponge** - Breadcrumb sponge



# Rockpool Spotter Sheet

Name: \_\_\_\_\_

\_\_\_\_\_



Barnacles



Common limpet



Painted top shell



Toothed top shell



Common starfish



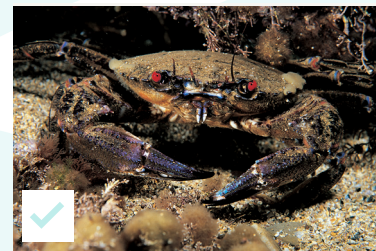
Cushion star



Beadlet anemone



Snakelocks anemone



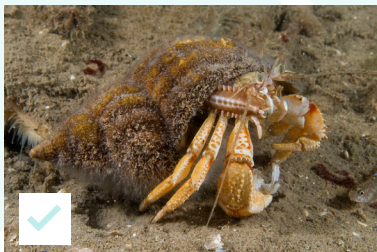
Velvet swimming crab



Montagu's crab



Common shore crab



Hermit crab



Shanny



Pipefish



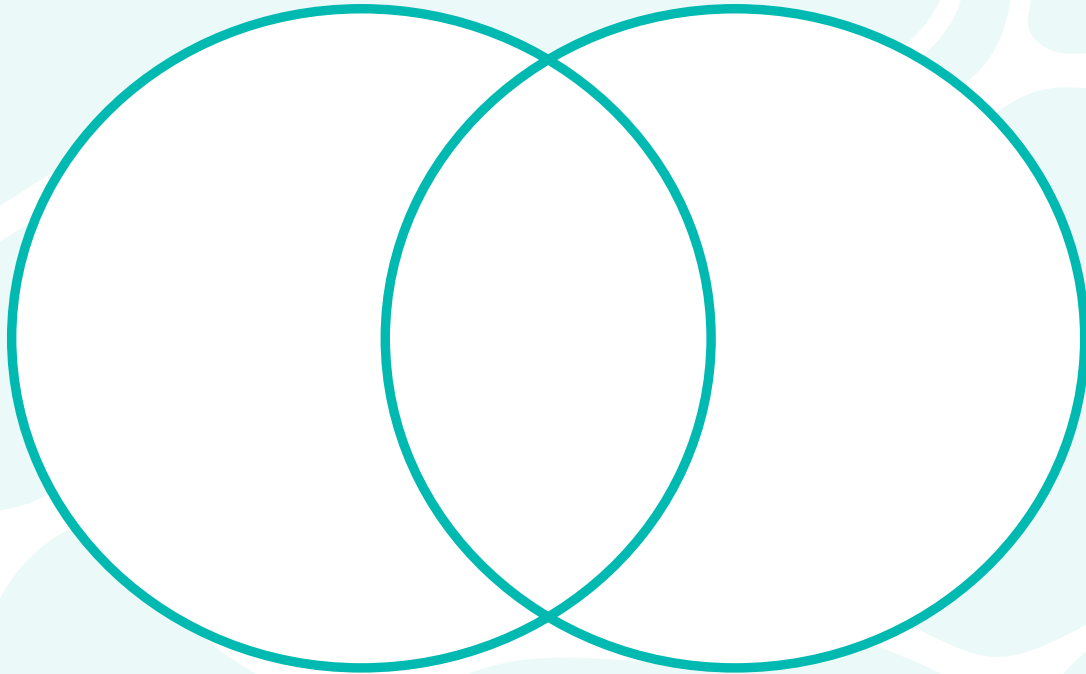
Prawn

# What's the difference?

Name:

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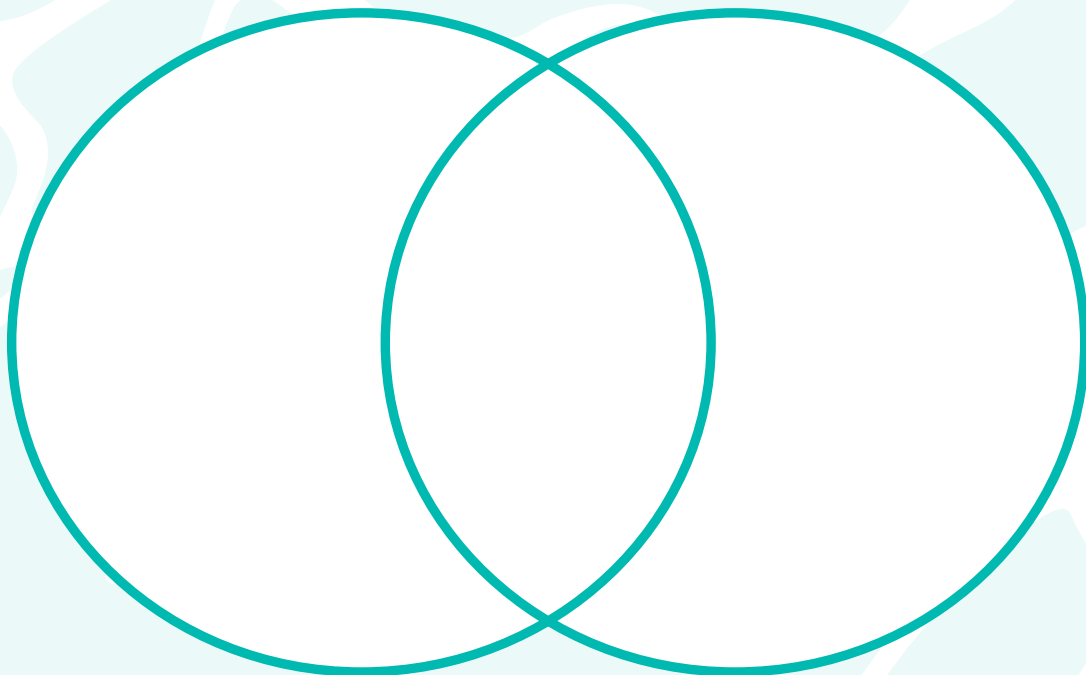


Creature 1

Creature 2

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Creature 1

Creature 2

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## Curriculum links

### England

#### Science

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- Identify and name a variety of plants and animals in their habitats, including micro-habitats

### Wales

#### Science

- I can recognise that plants and animals are living things which grow.
- I can explore relationships between living things, their habitats and their life cycles.
- I can explore the environment, make observations and communicate my ideas.

#### Expressive Art

- I have the freedom to choose and explore how I can use my voice, movement, and expression in role play and drama.
- I use drama to explore real and imaginary situations, helping me to understand my world.

### Scotland

#### Sciences

- I explore and discover the interesting features of my local environment to develop an awareness of the world around me.
- I can distinguish between living and non-living things. I can sort living things into groups and explain my decisions.
- By exploring a natural environment different from my own, I can discover how the physical features influence the variety of living things
- I can distinguish between living and non-living things. I can sort living things into groups and explain my decisions.

#### Expressive Art – Drama

- I have developed confidence and skills in creating and presenting drama which explores real and imaginary situations, using improvisation and script.