

**Read this information in conjunction with Powerpoint Presentation 4 – Adaptations of Marine Animals****Slide 1**

An adaptation can be physical (what an animal looks like) or behavioural (how an animal acts).

**Slide 2**

All animals need to find a place where they are safe, where they can eat and where they can reproduce. It's all about survival – and not getting eaten.

**Slide 3**

(First – read the slide)

A marine environment is very harsh – all these things make life more difficult.

**Slide 4**

Humans are definitely not adapted to live in the ocean – to go into the sea we need specialized diving equipment like this or a submersible. *(we talked about this in PPT 1 – Ocean World)*

**Slide 5**

Humans collect oxygen from the air into our lungs. Fish do not have lungs, but their gills can take oxygen from water. There is very little oxygen in water – so fish have to be very efficient. Gills can take in amazing amounts of oxygen – this is an example of developing a different part of a body to deal with survival. All fish have gills.

**Slide 6**

Sharks are fish – so they have gills too – but different species of shark have different adaptations. The sharks which live near the surface of the ocean have 5 gills to absorb oxygen from the water. Other sharks, which live deep in the Ocean, have adapted to have 6 gills as there is less oxygen in the deeper water.

**Slide 7**

(First – read the slide)

Sharks have adapted to life in the dark by having an extra gill. Extra water passes over the six gills and the shark can absorb a bit more oxygen than if he only had five gills.

**Slide 8**

Marine Mammals and Marine Reptiles have not got gills so they go to the surface to breathe.

**Slide 9**

*(Read the slide - about the colour of the fish first)*

This is an Angler Fish – it lives very deep down in the Ocean. It has adapted an extra 'organ' on the top of its head which sticks out and has a flashing light on it. This is called a photophore. The flashing light can be seen in the water, but the Angler Fish is camouflaged in the dark. Small fish get attracted to the light – come towards the Angler Fish and it gobbles them up.

**Slide 10**

This is the Angler Fish's cousin – the Hairy Angler – because it is so dark he can't see to catch his dinner – so the hairs which cover his body are adapted to pick up the vibrations in the water of the food he wants to catch. He can work out the size and distance from the vibrations – and it helps him to find his food.

**Slide 11**

This deep sea fish has a photophore (light organ) underneath its chin. It pushes the photophore out in front of him into the dark, then it gradually pulls it back towards its mouth. Poor little fish get fooled by the light and follow it. Another easy meal for the Dragonfish!

**Slide 12**

How would you like to meet up with a strange Deep Sea Octopus? Luckily this photo was taken from a submersible – with the humans safely inside. There seem to be two large flaps on the side of its head – perhaps they help it to swim? Perhaps you can think of another reason why it is adapted this way? How do you think these flaps help the animal survive in the deep Ocean?

**Slide 13**

All animals are adapted in different ways. On the top left photo the Orca Whale is showing how big and sharp its teeth are – its teeth are adapted to eat meat, as it is a carnivore. The photo on the right is a walrus. It lives on the land – but gets its food from the sea – so it is a Marine Mammal. Its strange teeth help it to move across ice, and to find other walrus.

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The whiskers on the walrus are highly adapted. The Walrus eats clams which it collects from the seabed. The walrus uses its sensitive whiskers to find the clams.

**Slide 15**

All seabirds are adapted in different ways too. The albatross (top left) has the widest wingspan of any bird. The albatross can fly for two years over the Ocean, just occasionally landing in the sea to eat its food. It returns to land only to reproduce. These birds fly around mainly in the Southern Ocean, where the winds are very strong.

A penguin (bottom left) swims underwater to find its food. Its body is streamlined to help it swim quickly in the water, and in its mouth it has bristles on its tongue to hold on to the fish it catches for its dinner.

The turtle has to breathe at the surface – but has adapted to holding its breath underwater without oxygen for up to 6 hours.

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Marine Iguanas live on the land at night and sit in the sun during the day. They are cold blooded reptiles, so only warming up in the sun gives them enough energy to move. They go underwater using **strong tails** to push them along. They search for food as they swim down to the seabed and scrap algae from the rocks with their **sharp claws**. They get rid of the salt they've swallowed when underwater in the salty sea, by **sneezing** – that's what the white mark above the nose is – in this picture – it's the dried salt that has been sneezed out. (Three adaptations in this animal – look at the words in bold)

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Not all fish look alike – fish come in all shapes and sizes

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A Flatfish for example – is born as a round ‘normal’ looking fish – but within a few days of birth, one eye has moved around to the other side of his head, and its mouth goes to one side too. The body flattens out and the fish ends up flat with a camouflage pattern on the upper side, with both eyes and the mouth on one side. It has adapted in this way so it can hide flat on the sandy sea bed.

**Slide 19**

A Hammerhead shark has adapted a very strange head – it has a 360° view and can see any fish that it wants to eat, coming up from behind it. It doesn’t look like a ‘normal’ shark at all.

**Slide 20**

Sharks and Rays are cousins, they had a common ancestor, but they have adapted in different ways. The Ray’s fins have turned into a skirt-like structure that look like wings. This means the ray can hide under coral for protection from predators, as its almost flat body can squeeze underneath.

**Slide 21**

This crocodile fish is very strangely adapted. Although it is called a crocodile fish, it’s not related to a crocodile, which is a reptile. Where a crocodile has legs, this fish has fins. Its eyes also move around individually looking in different directions. It lays on flat coral or sand and stays very still. Its body is camouflaged so fish don’t see it and it snaps its mouth open and shut very quickly to catch its dinner.

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Thank you for listening.