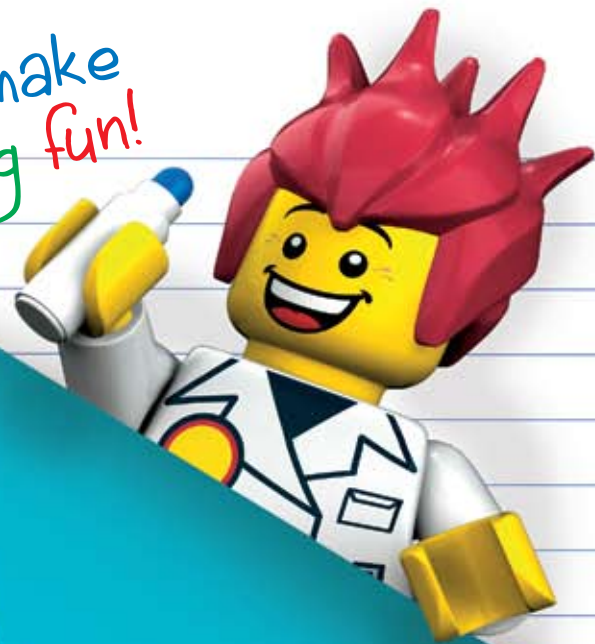


Let's make
learning fun!



education
EXPERIENCES

This book belongs to: **Teacher**

Class: **Atlantis Submarine Voyage**

Education Objectives

Your visit to LEGOLAND® Windsor will provide an opportunity for your pupils to:

- Understand what it is to be an active scientist by developing and trying out the key skills of observation and recording.
- Understand that there are different habitats under the sea and that fish have adapted many different ways to survive in these situations.
- Be able to identify, from the colouring and shape of fish, the ways in which they are adapted to their habitat.
- Develop and demonstrate their understanding of adaptation through the hands on activity.
- Relate the hands on activity in the workshop to their experience on the Atlantis ride at LEGOLAND Windsor.

Activities have been tailored to the relevant National Curriculum key stage (KS1 or KS2).

National Curriculum Mapping

This resources corresponds to the following areas of the National Curriculum:

KS1

Science

KS1 Sc1: 1, 2b, 2f, 2g, 2h, 2j
KS1 Sc2: 1b, 1c, 2a, 4b

Design & Technology

KS1: 2d, 2e, 3a, 3b

KS2

Science

KS2 Sc1: 1a, 1b, 2f, 2h, 2i, 2j, 2l
KS2 Sc2: 1a, 1c, 5b, 5c





Dear Class,

We've heard that you are all coming on a school trip to LEGOLAND® Windsor. We're really looking forward to seeing you, and we're sure that you will have a great time with us! There are lots of exciting things to see and do in the Park. Your teacher will tell you more about them.

One of the great things about your visit is a special workshop that you will be taking part in. Here you will learn about the amazing world of sea life, and make your own fish models out of LEGO®. You will also get to go on the brilliant [Atlantis Submarine Voyage](#) ride, where you will take a trip in a submarine, and watch real fish swim among giant LEGO models in our enormous Ocean Tank!

Other pupils have already made some brilliant LEGO fish models, but I bet you can do better than them, especially if you prepare for the workshop. Before you come and visit us, find out as much as you can about different sorts of fish, and how they are suited for life in the water.

We know you're going to love learning how to think like a scientist at LEGOLAND Windsor!

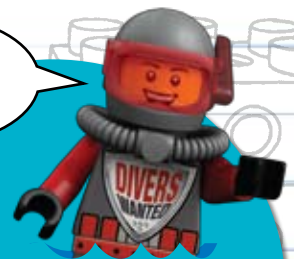
See you soon

Professor Albrick

Professor Albrick
Dept. LEGOLAND Learning
LEGOLAND Windsor



**WOW
FACT!**



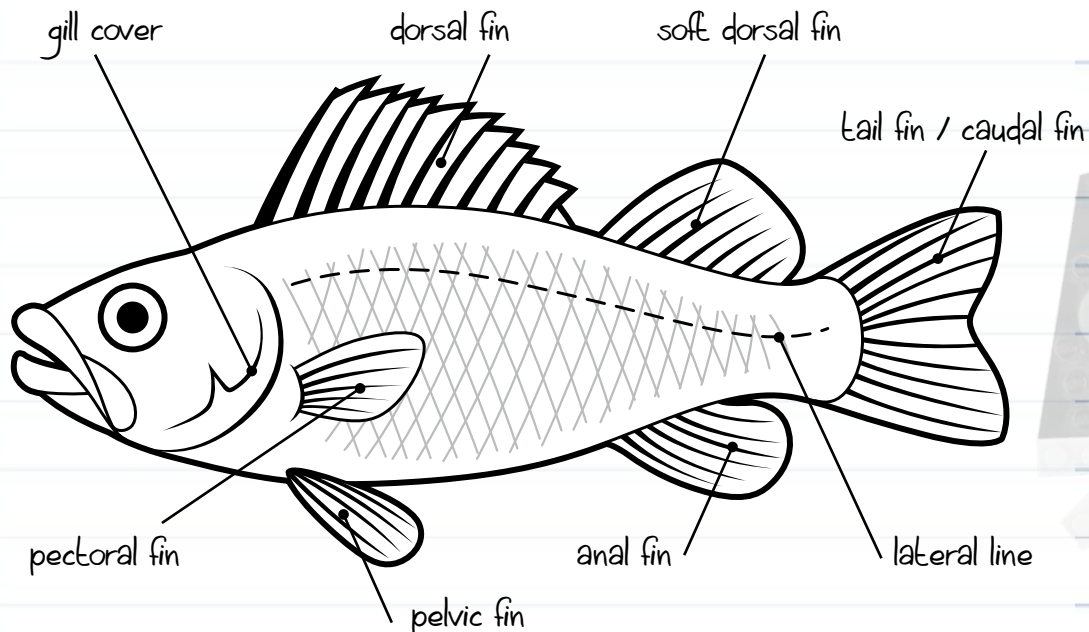
**The Ocean Tank
holds 780,000 litres
of water – the same
amount as 390 fire
engines!**

Distributed in the UK by LEGOLAND Windsor Park Ltd, Winkfield Road, Windsor, Berkshire SL4 4AY. These materials are fully protected by international copyright. They may be photocopied for educational use within the purchasing institution. All other rights reserved. LEGO, the LEGO logo, the Minifigure and LEGOLAND are trademarks of the LEGO Group. ©2011 The LEGO Group.

Introducing fish

- ▶ With around 32,000 species, fish make up more than half the world's vertebrates (animals with a backbone) – more than mammals, birds, reptiles and amphibians combined.
- ▶ Fish are found in almost all bodies of water, from high mountain streams to the depths of the ocean.
- ▶ They breathe using gills which extract oxygen from water.

External features of a fish



Classification of fish

There are two main types of fish:

1) Osteichthyes

- ▶ There are over 30,000 different species including seahorses, salmon, clownfish and tuna
- ▶ These fish have bony skeletons and thin fins
- ▶ To reproduce, most bony fish lay a large number of eggs and then do little to care for their offspring

2) Chondrichthyes

- ▶ There are over 300 species consisting of sharks and rays
- ▶ These fish have skeletons made of cartilage and thicker fleshy fins
- ▶ Their tough skin is covered with tiny tooth-like scales, which gives it a rough feel like sandpaper

WOW FACT!

The whale shark is the world's largest fish. It grows up to 12m long – as long as three family-sized cars!

Activities before the visit

- ▶ Show your pupils the map of LEGOLAND Windsor. Discuss their expectations of the visit and any concerns, e.g. what to do if they are separated from the group or they feel unwell during the day.
- ▶ Talk about the activities that will take place.
- ▶ Read out the introductory letter in this resource, and the 'Wow Fact!' boxes throughout, to stimulate pupils' interest in the world of sea life.
- ▶ Give your pupils the worksheet included with this resource to fill in. This will be a good introduction to the work on the research card that they will receive as part of the workshop.



Being a scientist

- ▶ With the whole class or in small groups, get pupils to discuss the question "What do scientists do?"

Their answers may include:

- ▶ Explore how things work
- ▶ Ask questions
- ▶ Observe
- ▶ Think
- ▶ Test ideas through experiments
- ▶ Measure
- ▶ Record
- ▶ Check what they find out

Talk about scientists who study animals (zoologists). Explain that their work is important because there are still lots of things we don't know about animals, e.g. how do birds find their way over long distances?

Explain that there are new types of animals and fish being discovered all the time. Use a web search to find some animals that have been discovered in the last few years.

Use 'hands on' observation of mini-beasts or a photo/web-based activity, looking at where different animals live, to explain what an animal's habitat is.



**WOW
FACT!**

In 1938, fishermen caught a coelacanth, a fish that scientists thought had been extinct for 65 million years!

During your visit

The Atlantis workshop

- ▶ After welcoming the class, the Education Host will lead the pupils through a presentation about fish and their habitats and how they have adapted to living underwater. It includes plenty of opportunity for interaction from the children.
- ▶ Pupils will then have the opportunity to make a LEGO® fish model, relating their design ideas to what they have learnt during the presentation. A plenary session at the end allows pupils to share ideas and discuss what they have created.



Atlantis ride

- ▶ At the Atlantis Submarine Voyage ride, pupils will be given priority entry so there will be no waiting, and will be given a 'research card'. They will see a huge variety of fish during the Atlantis Submarine Voyage – their task is to choose a fish to study and fill in information from their own real-life observations.



Rockpools

- ▶ In the rockpool area at the end of the ride, pupils can get up close to a variety of unusual sea creatures, such as sea cucumbers, spider crabs and starfish.



Information boards

- ▶ Information boards that focus on marine conservation are located around the rockpool area. They are a great source of information about the variety of life under the sea, and the threats faced by sea creatures.

**WOW
FACT!**

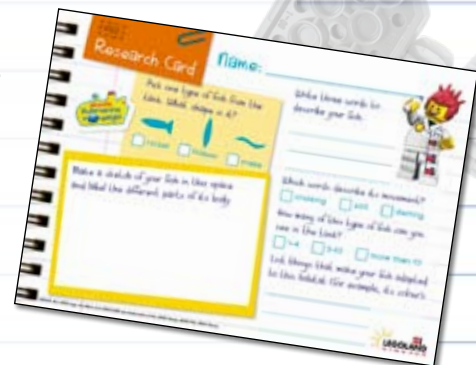


The first submarine was invented in 1620, and tested in the Thames. It was powered by oars, and travelled at a depth of 4-5 m.

Activities after the visit

Research cards

- ▶ The research cards that pupils will receive during their visit to Atlantis include ideas for follow-up activities relating to marine habitats and conservation. Pupils can research these using books or the internet.



Exploring the sea

- ▶ Discuss the reasons that people are unsuited to life in the sea, in comparison with fish. Use this as a way to start a discussion about technology that people use for exploring the oceans, such as submarines, scuba diving equipment, and sonar. Ask pupils how these things make up for people's physical limitations in water.

Undersea worlds

- ▶ Introduce pupils to the legend of Atlantis. Explain that in many of the stories about Atlantis, the world that was created had an underwater land where people lived. They might be able to relate this to other stories they know about undersea worlds, such as The Little Mermaid. In pairs ask the pupils to discuss the ways people could have lived under the sea. For example, "How would they breathe?" and "What would they eat?". Ask them to write short stories about people living under the sea.



Create a sea creature

- ▶ Using the Atlantis trip and other follow-up activities as an introduction, ask the children to use junk modelling to create their own underwater sea creature. Use a variety of question prompts to assist with their designs:

"How does the creature see?"

"How does the creature hear?"

"How does the creature move?"

"What colour is your creature?"

"What does it eat and how does it catch its prey?"

"How does it rest?"

**WOW
FACT!**



The whale shark is the world's largest fish. It grows up to 12m long – as long as three family-sized cars!

Fish bodies

▶ Add the words from the list to the correct part of the fish's body:

- Gill cover
- Eye
- Tail fin
- Lateral line
- Dorsal fin
- Pectoral fin

▶ Next to each one, write whether the body part is used for swimming, breathing or sensing the world around it.

