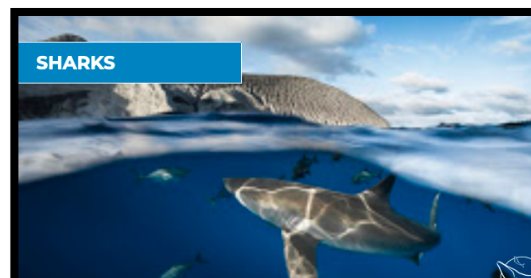




Lesson Summary

This lesson focuses on shark species, why they are important to the ecosystem and the threats they are facing globally.

This lesson will take 45 minutes to complete.



Subjects relevant to

English, Geography, History, Science and Social Science.

Learning objectives

From this lesson students will:

- Learn about sharks.
- Understand some of the issues impacting sharks.
- Discuss ways we can protect sharks.

Preparation

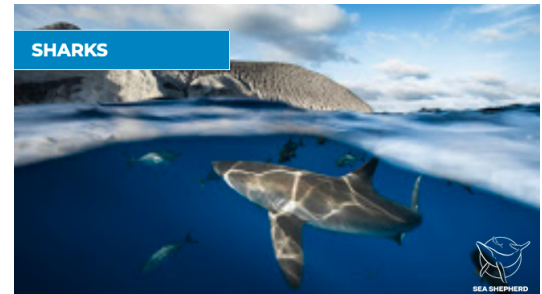
- This lesson has been designed to provide a complete lesson, but can be stopped at any time and split over multiple lessons, should you wish to include your own discussion/questions or incorporate the lesson activities.
- Each lesson has a lesson activity sheet with ideas on additional learning activities, which can be included in the lesson to enhance the learning experience.
- Depending on whether students are working in a classroom or remotely, you can choose to discuss questions in the class or use the online learning app.
- This digital lesson has an interactive option called student devices. If you choose this option ask the students to bring their mobile phones or tablets to the lesson.
- Should you choose the interactive option, it will run a quiz during the lesson. Recommendation: only use this interactive option in classes of up to 30 students.
- Students can sign up on their mobile device to the www.LessonUp.app. They will be asked for a PIN code (this will appear automatically on slide 3 and will also show at the bottom of the screen). Students who sign up under a false name may be removed by the teacher.
- Students who do not have a mobile device can join the quiz with another student.
- If student devices is turned ON, you can opt to turn the sound and the share screen ON or OFF. Further on you can choose if you want to 'show ranking after each quiz' question. Doing so will create a competitive element, but it can be distracting. Recommendation: turn the 'show ranking after each quiz' OFF.
- The abovementioned options will also show if you click on the PIN code at the bottom of the screen.



Lesson plan

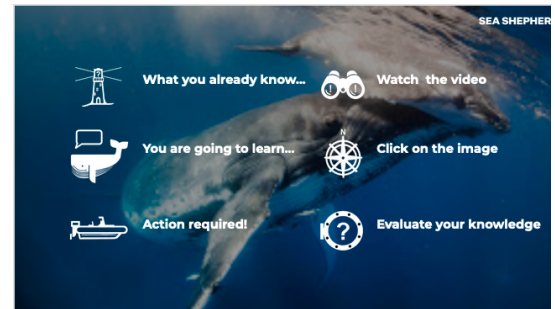
Slide 1 Introduction

This lesson is provided by Sea Shepherd. Sea Shepherd is a marine conservation organisation with a mission to protect the ocean and marine wildlife. Sea Shepherd works globally on a range of issues impacting the ocean, running numerous direct action campaigns each year. Sharks are one species that Sea Shepherd is fighting to protect.



Slide 2 Lesson action icons

During the lesson we will use these icons to identify the learning actions.



Slide 3 Lesson summary

In this lesson we will be talking about sharks, learn about the issues impacting them and how we can help keep them safe.



Slide 4 Sharks

Sharks have been on this planet for over 450 million years. That is well before dinosaurs even existed.

There are currently over 400 species of sharks.

Sadly one out of three shark species is facing extinction, which means they are disappearing from our ocean.



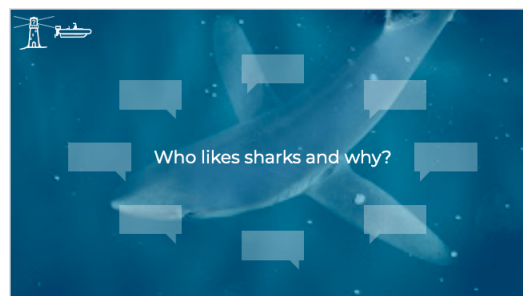


Slide 5 Do you like sharks?

Ask students who likes sharks and why?

Who doesn't like sharks and why?

Discuss what shark species they know and any facts they know about them.



Slide 6 Whale sharks

The largest shark is called the Whale shark. These sharks grow up to 13m (42.6feet). They are slow movers compared to other shark species and they filter feed, mainly on plankton.

Like some of the whales, they swim with their mouth open to collect plankton from the ocean. The water flows out via their gills. There are only 3 species of shark that filter feed.

Status - Endangered

Filter feeders are the whale shark, basking shark and megamouth shark.



Slide 7 Hammerhead sharks

Hammerhead sharks are called this because of the shape of their heads.

Ask students if they know what a group of sharks is called? Answer: A school.

Hammerhead sharks will swim together during the day. At night when it's time to hunt they head their own way.

Hammerhead sharks can grow to about 6m (19.7feet) long and weight up to 600kg (1,300lbs).

Hammerhead sharks have eyes on the sides of their head, which means they can see above and below themselves all the time.

There are several species of hammerhead sharks, the greater hammerhead and scalloped hammerhead are currently listed as critically endangered. Smooth hammerheads are listed as vulnerable, but with declining populations will soon be classified as endangered.





Slide 8 Great White Shark

The Great White Shark is the one most people know. It has become famous for its mean looking teeth.

Great white sharks can measure up to 8m (26.2 feet) long and weight over 3,000kg (6,613lbs). They can live up to 70 years.



Slide 9 Tiger Shark

Tiger sharks get their name from the markings on their bodies. Can you see these dark spots that run in strips down their body.

They like the tropical warm waters. They can measure up to 5m (16.4feet) in length and can weigh up to 600kg (1,322lbs).



Slide 10 Warmer waters

Sharks prefer to live in warmer waters, but some have adapted over the years to live in cooler waters. But you most likely won't find sharks somewhere as cold as the Artic (North pole) or Antarctica (South pole).

With the ocean warming up, due to climate change, this means sharks are moving into new areas that used to be too cold for them.



Slide 11 Pups

Ask students if they know what a baby shark is called? Answer: It's called a Pup.

All sharks hatch their young in eggs, most sharks like the great white shark hatch the egg inside mum and the baby develops until it is born.

Other species of shark lay eggs that they hide in rocks or coral to protect them until they are ready to hatch.





Slide 12 Shark teeth

We talked about how whale sharks eat by filter feeding, but most shark species have teeth.

Shark teeth are embedded into their gums, rather than bone like ours. We have one row of teeth, sharks have several rows of teeth.

A shark can lose a tooth every 8 - 10 days. When they lose a tooth a new one moves up from the row behind.



Slide 13 What do sharks eat?

Ask students: "What do you think sharks eat?"

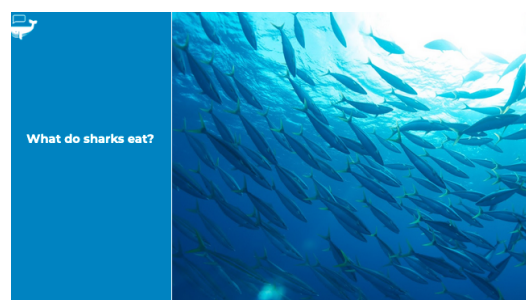
Most sharks are carnivorous. Carnivores mean they like to eat other animals. Sharks will eat fish, dolphins, whales, seals, sea turtles and sea birds.

Most sharks will find easy targets of sick and weak fish, or what they can find on the ocean floor that has already died. If there is no easy meal then they will hunt for their favourite foods – fish and seals.

How do you think sharks know if something is going to taste good and is food? How do you know if food is going to taste nice? – You have to try it.

Most sharks can only tell if something is food by taking a test bite and then they decide if their meal is edible or rubbish and have to leave it. Younger sharks are more likely to take test bites as they are learning to hunt.

That's the reason why sharks bite strange things like surfboards, buoys and other ocean rubbish, mistaking it for food. When they realise their mistake, they head off in search of real food.

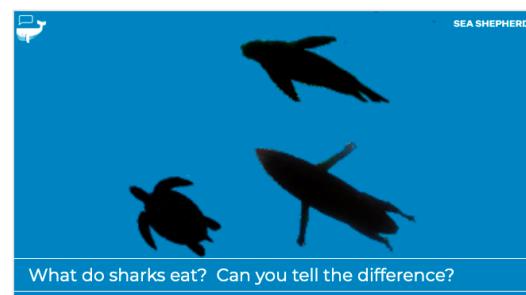


Slide 14 What do sharks eat?

While most people fear sharks, we are definitely not their favourite food.

Have a look at this image do you think a shark would be able tell the difference.

Do you know what each of these are? Seal, surfboard and sea turtle.





Slide 15 Sound

Sharks can hear really well. They have millions of hair cells in their ear that help them sense vibration in the water. This allows them to detect sounds from far away.

Sound travels further under water so sharks can hear from long distances away. Sharks can detect the movement of a fish or marine animals splashing around in the water.

Which is why it is not a good idea to go in the water, when sharks are in the area, if there are seals or fish schools in the area, or if someone is catching fish. The shark will hear the noise of the fish and seals and come to investigate looking to see if there is anything to eat.



Slide 16 Electoreception

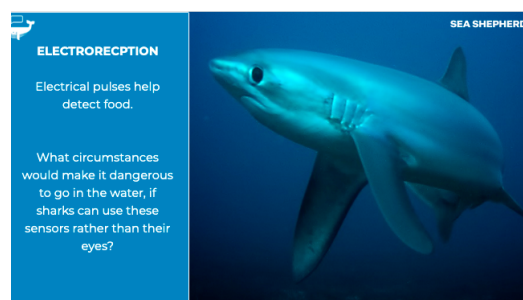
Sharks also have something called electoreception.

Around their face they have tiny black dots that are like sensors, they pick up on electrical pulses. When they get close to prey these sensors help to guide the shark to the exact location.

Sharks don't use their eyes to see close up, they roll their eyes back into their head to protect them and use their sensors to guide them to their prey

Which is why it is not a good idea, if sharks are know to be in the area, to swim at dusk or dawn, or when the water is murky. They won't be able to see you, they will just sense a shape and might mistake you for food.

See the Lesson Activity Sheet – Electoreception Activity.



Slide 17 Smell

Sharks have an amazing sense of smell and can detect blood in the water miles away. They can use this to seek out injured marine wildlife to feed on.

Which is why we shouldn't go swimming near people who are fishing. The fish will attract the sharks.





Slide 18 Fins and movement

How do sharks move through the water?

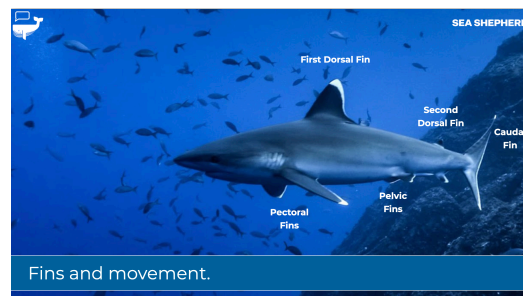
The shark's fins help it to move through the water and give it balance.

They have a number of different types of fins. (See diagram)

Without fins the shark would just sink to the ocean floor and drown.

This optional video can also be accessed on youtube to show shark movement:

https://youtu.be/U2x8sM_QSow

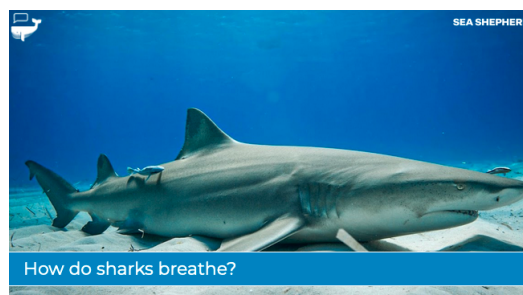


Slide 19 How do sharks breathe?

Ask students: "How do you think sharks breathe?"

There are two ways sharks can breathe:

- When the shark swims through the water, the water flows through the shark's gills and the oxygen is taken from the water.
- When they are resting many shark species can suck water into their gills and remove the oxygen. They don't need to be moving.



Slide 20 Why are sharks important to the ocean?

Ask students: "Do you know why sharks are important to the ocean?"

Sharks help to keep ecosystems in balance. Their scavenger behavior helps to keep the ocean floor clean of dead sea-life so the water doesn't become dirty.

Sharks also help to control other species that prey on smaller fish, especially around reefs. Those smaller species are the ones that help to keep the reef healthy. Which means we need sharks to keep reefs and corals healthy.

Ecosystem means a biological community of interacting organisms and their physical environment. Which is a community of living beings that work together with their environment. Like a reef, with corals, fish and sharks,





Slide 21 Why are sharks endangered?

Ask students: "Why do you think 1 out of 3 sharks are at risk of disappearing from the ocean?"

The main reason is us. Humans!
Every year we kill over 100 million sharks.



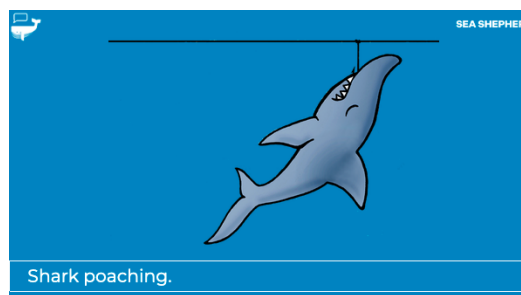
Slide 22 Illegal poaching

Fishing operations are set up to take sharks illegally. These poachers (illegal fishermen) catch sharks to sell their meat and fins.

Fins are used to make shark fin soup and herbal remedies.

If we want to stop sharks disappearing from the ocean we have to stop eating them.

Teacher's note: Shark meat has many names around the world. Use the local name for shark meat that the children may know.



Slide 23 By-catch

Sharks are often caught in the nets of the big fishing vessels (industrial fishing). The nets are so big they catch everything in their way.

Most sharks trapped in the fishing nets will not survive. If they can't move and are crushed in the nets, they won't be able to breathe very well. Being caught in a net causes injuries and pain for the animals caught. Even though they might still be alive when freed from the net, most of them will not survive.

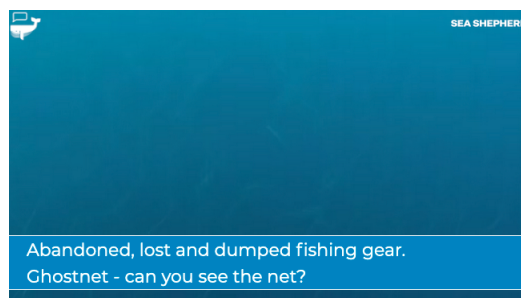


Slide 24 Entanglement

Each year a lot of fishing gear is lost or left behind in the ocean by fishing vessels. These nets float in the ocean catching marine wildlife, including sharks.

Imagine sharks swimming along and all of a sudden they get caught in fishing nets and lines. They can't get free unless someone helps them.

Ask students how we can help stop the sharks and other marine wildlife becoming entangled?





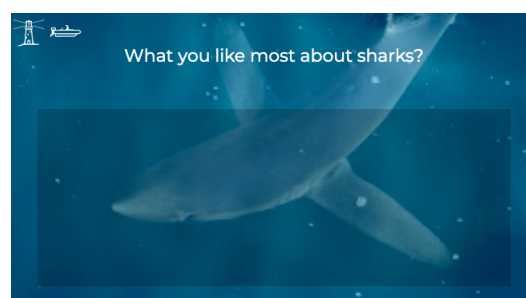
- By helping to clean up fishing gear from the ocean.
- Making the fishing vessels clean up their own fishing gear properly.

Teacher's note: Each year 640,000 tonnes of fishing gear is lost, abandoned or discarded at sea by the commercial fishing industry.

Slide 25 What do you like most about sharks?

Ask students to answer the following question using www.LessonUp.app or write down on paper:

"What do you like most about sharks?"



Slide 26 What is making sharks disappear?

Ask students to answer the following question using www.LessonUp.app or write down on paper:

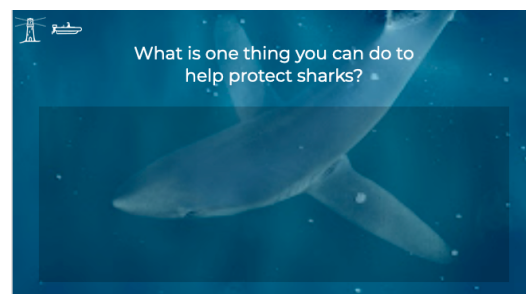
"What is one issue that is making sharks disappear from the ocean?"



Slide 27 What can we do to help sharks?

Ask students to answer the following question using www.LessonUp.app or write down on paper.

"What is one thing you can do to help protect sharks?"





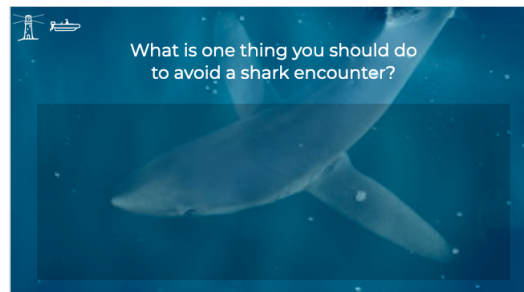
Slide 28 Avoiding possible shark encounters.

Ask students to answer the following question using www.LessonUp.app or discuss in the classroom.

“What is one thing you should do to avoid a shark encounter?”

Alternatives previously discussed:

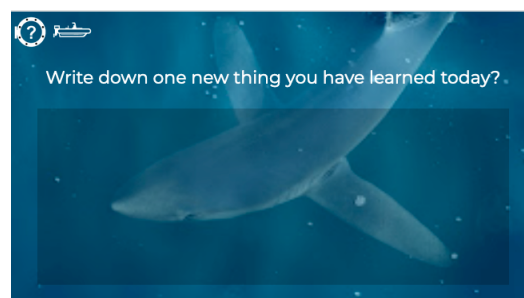
- If sharks are in the area don't go in the ocean.
- Don't swim near anyone fishing.
- Don't swim near seals if sharks are around.
- Don't swim or surf near bait balls – schools of baitfish.
- Don't go in the water if you have an open wound that is bleeding.
- If there is poor light where you can't see the shark – dawn and dusk are times when sharks are more likely to be feeding.
- Don't swim if the water is murky.



Slide 29 What did you learn?

Ask students to answer the following question using www.LessonUp.app or discuss in the classroom:

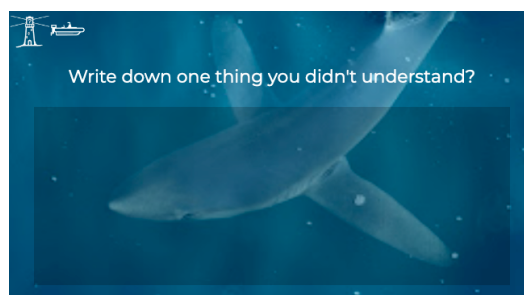
“Write down one new thing you have learned today?”



Slide 30 What don't you understand?

Ask students to answer the following question using www.LessonUp.app or write on paper.

“Write down one thing you didn't understand?”





SHARKS

TEACHERS LESSON GUIDE

TEACHERS RESOURCES: JUNIOR SCHOOL (Age 5-8)



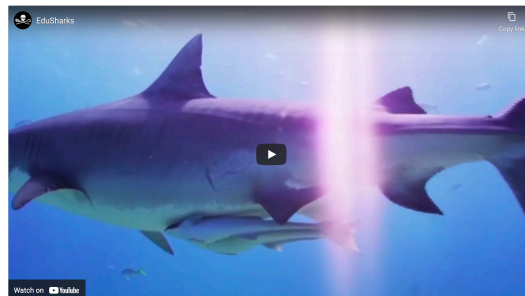
Slide 31 Learning activities

Sea Shepherd Lesson Activity Sheets provide additional lesson activities or discussion topics to expand the learning experience.

Optional fun video.

Show this video (1.31 mins), which shows different shark species.

<https://youtu.be/GyHMo0ZcoJc>



Slide 32 Close



YOUR FEEDBACK

We value your feedback and would be pleased to hear your thoughts about this lesson and activities. Any comments, suggestions or requests for further information can be sent to education@seashepherdglobal.org.