

# LESSON PLANS WITH ADDED BITE!



**INSPIRE YOUR PUPILS AND DIVE  
INTO THE WORLD OF SHARKS**

**WITH THE SHARK BITES UNIT LESSON PLANS**

IN ASSOCIATION WITH





## Shark Bites Lesson Plan. Introduction

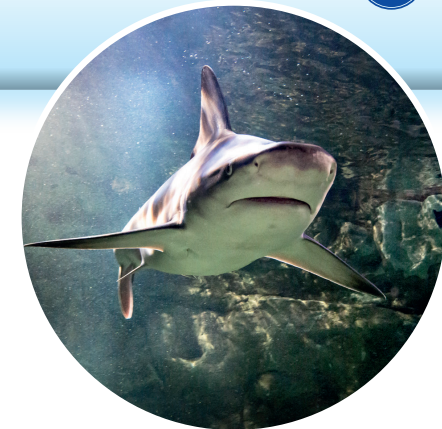


SEA LIFE in association with the Shark Trust have created a series of lesson plans with one goal in mind — making life easier for teachers. This is the first in the series, all based around Sharks, and has been created by teachers, proven in the classroom, and absolutely, positively, completely... free!

This is a great way to introduce the creatures of the sea to your classes, we hope you find the information here useful and your pupils enjoy learning about Sharks.

Once you've introduced the creatures to your class, why not meet them in real life with a school trip? You can continue the learning outside of the classroom after all the more they see, the more they'll learn!

To book your school trip today visit [www.sealife.co.uk/lessonplan](http://www.sealife.co.uk/lessonplan)



### Join the Shark Trust today!

Pup's Club members get a great shark pack and magazine as well as helping the Trust in their conservation work - [www.sharktrust.org/join](http://www.sharktrust.org/join)

Become a citizen scientist by collecting an eggcase from the beach and report your findings at [www.sharktrust.org/eggcase](http://www.sharktrust.org/eggcase)

To learn even more visit [www.sharktrust.org/juniors](http://www.sharktrust.org/juniors) to start your voyage of discovery. Although there's nothing like visiting an Aquarium, talking to the staff and finding more out more about sharks.



# Unit Planning Overview. Shark Bites Year 4

The Shark Bites unit provides a set of ideas to support teaching of the statutory requirements in animals, including humans for Year 4 of the English National Curriculum. The ideas and lesson plans can be adapted to suit your own curriculum plan and can easily be adapted to support teaching and learning under other curricula. Sharks are inherently engaging for young people, as our experience of providing educational experiences for thousands of classes each year tells us, we hope that you and your pupils will try out the Shark Bites unit and enjoy learning more about these amazing animals.

Shark Bites 1 – Shark Detectives <a href="#">Teacher Notes</a> <a href="#">Activity Pack</a>				
What can we learn from a shark's mouth? Is there a tooth for all reasons?				
Key Words		Learning Objectives		
Molar, incisor, canine, denticles, predator, prey, omnivore, carnivore, pescivore, molluscivore.		<ul style="list-style-type: none"> <li>I know the names of different teeth in our mouths and understand the jobs they do</li> <li>I understand that different animals have different types of teeth for different diets</li> </ul>		
Introduction	Activity	Extension	Plenary	Assessment
Powerpoint presentation/video introduction to sharks, adaptations and to open discussion about diets – humans and other animals.	My teeth. Food and tools – compare food texture, describe how it is to eat, match tools to food.	Extension through additional descriptive text and bonus questions.	Review investigation task and introduce shark diets and tooth types. Match shark teeth to foods.	Shark safari. What does it eat, where does it live?

Shark Bites 2 – The Shark's Toothpaste <a href="#">Teacher Notes</a> <a href="#">Activity Pack</a>				
Why do sharks not have toothbrushes? What would your dentist say to a ray?				
Key Words		Learning Objectives		
Plaque, enamel, crown, root, cavity.		<ul style="list-style-type: none"> <li>I understand about healthy teeth and healthy eating</li> <li>I know the different parts of the tooth</li> </ul>		
Introduction	Activity	Extension	Plenary	Assessment
Your teeth: introduce human teeth, milk teeth and adult teeth. Parts of the tooth, the jaw and tooth health. Introduce a shark jaw, tooth production.	Shark tooth maths. Worksheet on shark teeth maths challenge: calculate tooth count, monthly tooth loss.		Why is it important to clean our teeth?	Worksheets, calculations and tooth facts.

# Unit Planning Overview. Shark Bites Year 4

Shark Bites 3 – The Shark Feed <a href="#">Teacher Notes</a> <a href="#">Activity Pack</a>				
Who shares the world of the shark and who eats who? Where does the energy come from?				
Key Words		Learning Objectives		
Food chains, energy, producer, consumer, predator		<ul style="list-style-type: none"> <li>I can draw a food chain</li> <li>I can record my findings in a report including charts, graphs, tables</li> <li>I can talk about an example of an environmental change (plastic) on living things</li> </ul>		
Introduction	Activity	Extension	Plenary	Assessment
Introduction to food chains, terminology and energy flow.	Feeding experiment and make a food chain. Design experiment, conduct tests, record results.	Food webs, food chain energy flow.	Marine food webs and bioaccumulation. Plastics and possible impacts on sharks.	Recording of the activity in activity books.

Shark Bites 4 – Shark Champion <a href="#">Teacher Notes</a>	
Who's the shark champion? Who's got their teeth into the topic?	
Key Words	Learning Objectives
N/A	<ul style="list-style-type: none"> <li>I know the names of different teeth in our mouths and understand the jobs they do</li> <li>I understand that different animals have different types of teeth for different diets</li> <li>I understand about healthy teeth and healthy eating</li> <li>I know the different parts of the tooth</li> <li>I can draw a food chain</li> <li>I can record my findings in a report including charts, graphs, tables</li> <li>I can talk about an example of an environmental change (plastic) on living things</li> </ul>
Introduction	Assessment
This is a test of learning outcomes/ revision in the form of a fun quiz – pub quiz style. Set up small teams and distribute lined paper for answers.	The quiz includes opportunities for individuals to demonstrate learning on their own and as part of a team.

# Shark Bites 1. The Shark Detectives Teachers' Notes



## Focus Questions

What can we learn from a shark's mouth?  
Is there a tooth for all reasons?

## Learning Outcomes

- I know the names of different teeth in our mouths and understand the jobs they do
- I understand that different animals have different types of teeth for different diets

## Introduction 10-15 mins

Teacher Introduction:

Using your own resources introduce the topic with an interactive Q&A.

Alternatively, the Shark Trust have produced a powerpoint presentation to support this module.

Contact them at [sharkbites@sharktrust.org](mailto:sharkbites@sharktrust.org) to request a copy.

# The Shark Detectives Teachers' Notes



- Sharks are the ocean's greatest predators

---

- Sharks have evolved over 400 million years - they were around before, during and after dinosaurs

---

- Sharks have finely tuned senses and adaptations for hunting and capturing prey

---

- Hunting is about using their smell, taste, their ability to feel the movement of fish in their environment - they even have an extra sense - electroreception - to detect the heartbeat of fish that hide under the sand.

---

- But hunting is no good if you can't catch and eat your prey - this comes down to...Jaws!

---

- We'll come back to sharks later but first to a predator that is more intelligent, more adaptable, more successful in hunting out and eating their prey. Who am I talking about? You

---

- We are what we eat.

---

- Humans are adaptable because we can have many different diets - what different foods can we eat?



# The Shark Detectives Teachers' Notes



## Interaction:

Use the whiteboard to capture foods that we eat and link to names for types of diet – what do we call a meat eater, a fish eater, a plant eater? What do we call an animal that eats different diets (like humans)?



## Extention:

Discuss the difference between voluntary diets – i.e. vegetarianism – and adaptive diets – i.e. animals with narrow range of target foods. What are the advantages and disadvantages to specialising or generalising.

Hand out  
Tooth Toolkit pack  
and introduce  
first activity

# The Shark Detectives Teachers' Notes



## Activity 1

### Tools for the Job 20-30 mins

**Set Up:** Set up tables with pictures of different foods – e.g. Nuts, Steak, Apple, Crisps, Toffees, Chicken Drumstick. Also provide groups of pupils with a “toolkit” of knife, fork, nutcracker, tea strainer.

**Activity:** Allow pupils to create their word banks collaboratively then to create descriptions in their individual packs. This element can be used as opportunity to develop SPAG skills, sentence construction, handwriting, etc.

---

## End Lesson 5-10 mins (optional)

If time allows, pupils might write in their activity books about what sharks and humans have in common and how they are different.  
What can we learn from a shark's mouth?

Additional images of shark/teeth provided to test understanding:

- Describe teeth
- Describe diet
- Where might shark live?

## Plenary Session 10-15 mins

Review: What have we learnt? Key points:

- Omnivores have a range of teeth for different foods
- Our mouth is made up of incisors, canines, pre-molars and molars
- Not all animals are omnivores, some have very particular diets

Expand: Meet the sharks - Introduce four sharks (with the kitchen tools):

1. **Mako Shark** – lives in open water, where there are lots of small fish. Need to trap fish (like a fork picking up pasta), note the backward facing teeth so that fish cannot escape
2. **Nurse Hound** – lives on the seabed, shellfish and crabs, Need to crush food (like a nutcracker)
3. **Basking Shark** – roams the ocean, eats plankton, loads of tiny animals. Note often called vegetarian as they don't eat fish but plankton is both animal and plant. Need to filter food from water (like a tea strainer)
4. **Great White Shark** – lives near the coast (seals spend time on land), eat seals and big fish. Too big to eat in one so they have to cut their food (like a knife) Note the serrated edges of teeth like a steak knife (and fresh incisors on 8 year olds!)



# Shark Bites 1. The Shark Detectives Activity Pack



## Investigation 1 Eat your words!

In your group make a word bank (think of as many words as you can) to do with eating food. Look at the pictures of food on your table and the tools that we use to help eat food for clues.

Verb Bank (words that describe how we eat)

**Chew**

Adjectives Bank (words that describe food)

**Crunchy**



# The Shark Detectives Activity Pack



## Talking about Food

Pick three of the foods on the table. Using your word banks write a sentence to describe what it feels like to eat each food. Really try to imagine eating the food from first putting in your mouth to swallowing. Try to use as many of your words as possible and think about which part of your mouth you would use when eating.

**Food 1:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Food 2:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Food 3:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# The Shark Detectives Activity Pack



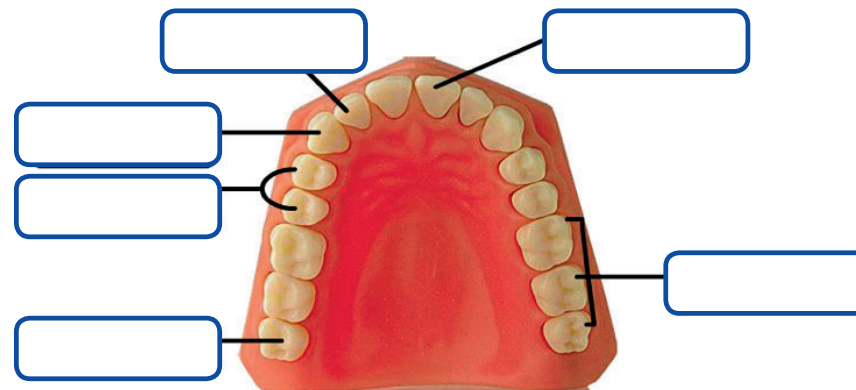
## Investigation 2

### The name's in the frame

When we eat we use different teeth for different things. Feel around your mouth with your tongue. Your different teeth are all specialised for different foods and different eating actions (biting, cutting, tearing, chewing, crunching)

In this investigation, we are going to name the teeth from our identity parade. Fill in the labels with the names of the different teeth.

Correctly label the teeth in this diagram



- Central Incisor
- Canine
- Premolars
- Molars
- Lateral Incisor
- Wisdom Tooth

## Bonus Questions

Which animal gives its name to the canine tooth?

~~~~~

How many teeth do you have as a child?

~~~~~

How many teeth do you have when you are an adult?

~~~~~

## Clues - The identity parade:

**Incisor - aka Mack the Knife**  
a sharp character, at the front of the pack. A serrated edge gives him extra cutting power.

**Molar - aka Jimmy the Crusher**  
a real tough nut, flat and wide. Great when it comes to the crunch.

**Canine - aka Butch the Shredder**  
pointed and sharp, hangs out at the edges but always useful when things get tough.



# The Shark Detectives Activity Pack



## Investigation 3 The tools for the job

On your table there are four kitchen tools. Below are some foods that a shark might find in the sea. Next to each food, draw the tool that would be best to help you eat the food. In the final column, write where in the sea you might expect to find this type of food (e.g. open sea/ seabed/ near the coast/ on the sea surface)

|                                        |  |  |
|----------------------------------------|--|--|
| <b>Anchovy</b> (little, slippery fish) |  |  |
| <b>Tuna</b> (big fish)                 |  |  |
| <b>Plankton</b>                        |  |  |
| <b>Crab</b>                            |  |  |
| <b>Mussel</b>                          |  |  |
| <b>Seal</b>                            |  |  |



# The Shark Detectives Activity Pack



## Investigator's Notes

Use this page to make extra notes on the lesson:

A series of ten horizontal dashed lines for writing notes.

## Shark Bites 2. The Shark's Toothpaste Teachers' Notes



### Focus Questions

Why do sharks not have toothbrushes?  
What would your dentist say to a ray?

### Learning Outcomes

- I understand about healthy teeth and healthy eating
- I know the different parts of the tooth
- I can use my maths skills to solve real-world problems

### Introduction 15-20 mins

Teacher Introduction:

Use the presentation to introduce and link topic to shark theme.

Using your own resources introduce the topic with an interactive Q&A.

Alternatively, the Shark Trust have produced a powerpoint presentation to support this module. Contact them at [sharkbites@sharktrust.org](mailto:sharkbites@sharktrust.org) to request a copy.



# The Shark's Toothpaste Teachers' Notes



- Sharks are the ocean's greatest predators
- Sharks have evolved over 400 million years - around before, during and after dinosaurs
- Sharks have finely tuned senses and adaptations for hunting and capturing prey
- But hunting is no good if you can't catch and eat your prey - this comes down to...Jaws!
- Different sharks have different teeth depending on what kind of food they usually eat
- Sharks don't have bones, their skeleton is made of cartilage - wiggle your ears, that's cartilage - more flexible and less rigid than bone.
- Great for swimming but when it comes to teeth there is a drawback. No bone for teeth to grip onto. (You could demonstrate by setting a "tooth" - e.g. lollypop stick in plaster and putting one in blue-tac)
- So sharks teeth are less fixed and they fall out easily. They rely on their teeth so they have a continual supply of new teeth.
- That means sharks have a lot of teeth in their lifetime - how many sets will you have?  
How many teeth will you have in your life?

# The Shark's Toothpaste Teachers' Notes



## Activity 1

### Shark Tooth Challenge 15-20 mins

**Challenge:** Show video message from Aquarist who has a problem that can be solved with maths:

I have five sharks in my tank. They eat fish from a pole and sometimes they lose teeth, which fall down to the bottom of the tank. The boss has asked if we can send out a tooth to 285 schools in the local area. He asked me how long it would take to collect up enough teeth from my tank. So here is what I know:

- These sharks are thought to have 2000 teeth in their lifetime
- There are 60 teeth in the front set – 30 on top, 30 on bottom jaw
- There are 7 full rows of teeth behind the front set
- They live for an average of 11 years

So what I need to know is:

Roughly how long will it take for my 5 sharks to lose 285 teeth?

**Activity:** Hand out worksheets and set challenge to pupils. More able pupils may have steps removed from the worksheet to extend the challenge.

## Plenary Session 5 mins

**Review:** How did you do? Discuss real-world problem solving, estimation, averages, etc.

## Introduction to Activity 2

Introduce tooth structure using the following resource (or other):  
<http://www.childrensuniversity.manchester.ac.uk/interactives/science/teethandeating/structure/>

Follow up with looking after your teeth:

Why do we clean our teeth? (breath, rotten teeth, minty fresh, etc.)

Why do teeth go rotten?

Introduce activity sheet (comprehension exercise)

## Activity 2 How to kill a tooth - 10-15 mins

Colour in and label diagram of the tooth structure – 1 for human, 1 for shark. Based on the paragraph, complete the tooth decay flowchart.

## End Lesson 5-10 mins (optional)

If time allows, pupils might write in their activity books about their tooth cleaning targets.

# The Shark's Toothpaste Teachers' Notes



## Shark Tooth Maths Challenge Calculations

Challenge: How long should Andy tell his boss it will take to collect 285 teeth?

Shark tooth facts

- These sharks are thought to have 2000 teeth in their lifetime
- There are 60 teeth in the front set – 30 on top, 30 on bottom jaw
- There are 7 full rows of teeth behind the front set
- They live for an average of 11 years

How many teeth are in each shark's mouth at any one time?  $60 \text{ (set)} \times 8 \text{ (rows)} = 480$

How many teeth will a shark lose in a lifetime? (assume he dies with a full mouthful of teeth)  $2000 - 480 = 1520$

How many teeth will a shark lose each year?  $1520 / 11 = 138$

How many teeth will 5 sharks lose each year?  $5 \times 138 = 690$

How many teeth will fall out each month?  $690 / 12 = 57$

How many months will it take to get enough teeth for 285 schools?  $285 / 57 = 5$



## Shark Bites 2. The Shark's Toothpaste Activity Pack



### Activity 1 The Shark Tooth Challenge

Working on your own, use your maths skills to work help Andy the Aquarist get an answer for his boss. Remember: take one step at a time and show your working...

#### Blacktip Reef Shark Facts

- These sharks are thought to go through 2000 teeth in their lifetime
- There are 30 teeth in each row – both top and bottom jaws
- There are 7 rows of teeth behind the front set
- They live for an average of 11 years

How long should Andy tell his boss it will take to collect 285 teeth? **Answer**

How many teeth are in each shark's mouth at any one time? **Answer**

Roughly how many teeth will a shark lose in a lifetime? (assume he dies with a full mouthful of teeth) **Answer**

How many teeth will a shark lose (on average) each year? **Answer**

How many teeth will 5 sharks lose each year? **Answer**

How many months will it take to get enough teeth for 285 schools? **Answer**



## The Shark's Toothpaste Activity Pack



### HOW TO KILL A TOOTH

Read the following paragraph, highlighting the names given to parts of the tooth.

The tooth is made up of 4 distinct layers. The soft pulp in the centre, containing the nerves, is surrounded by a harder dentine layer. This is protected by the crown, which is covered in enamel. The tooth sits in the socket within the jaw and is held in place by the gums.

Tooth decay happens when bacteria (plaque) are allowed to build up on the tooth surface. The bacteria feed on sugars and, as they eat the sugar, they produce acid as a waste product. This acid reacts with the calcium in the tooth, destroying the enamel and forming a small hole called a cavity. The softer inner layers of the tooth are then unprotected from further acid erosion.

When plaque dies it can harden and, over time, a build up of dead plaque forms a solid layer called tartar. This often happens between teeth and near the gums when teeth are not cleaned properly or flossed. Tartar can trap other bacteria in the gums and cause red swelling and gum disease called Gingivitis. Unhealthy gums are less able to support teeth so tartar can lead to loose and missing teeth.

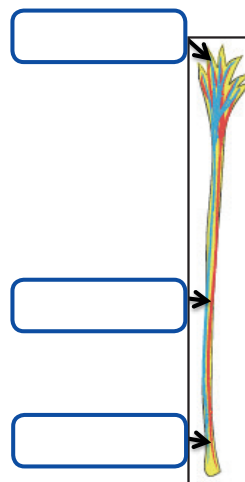
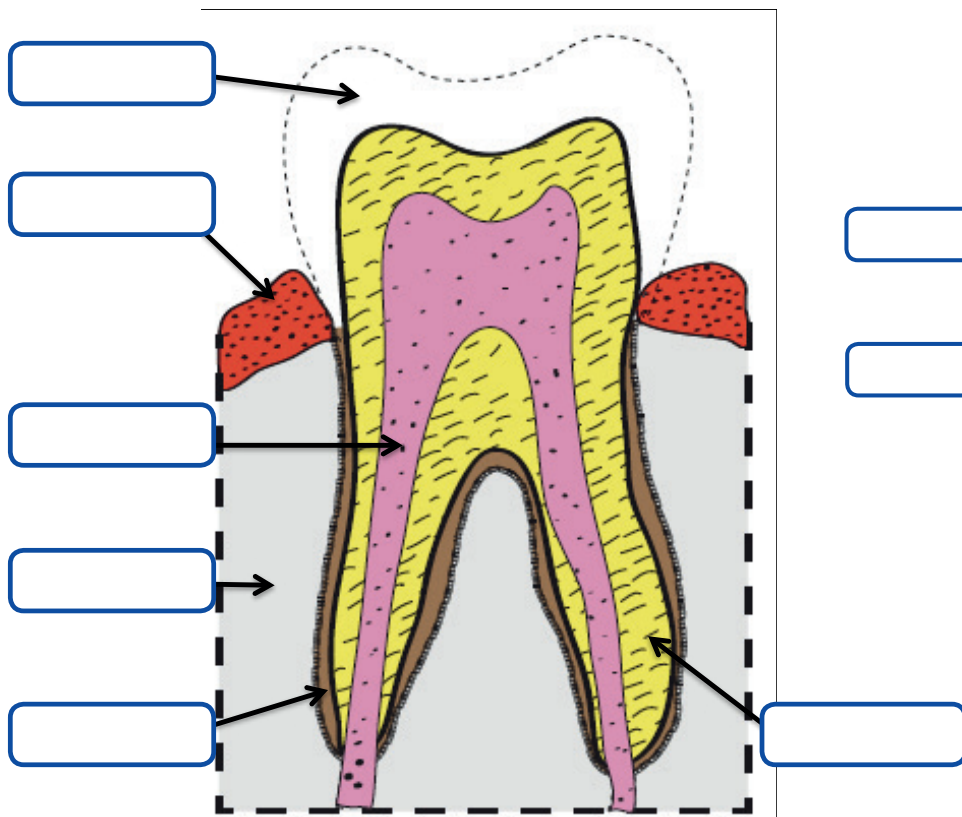
Tooth decay can be prevented by reducing the amount of acid attacking the teeth and by building a strong defensive layer of enamel. Toothpaste containing fluoride helps to build stronger enamel and removes plaque bacteria. Removing the food from bacteria by cutting down on sugar is also very effective.

Alternatively, simply replace your teeth on a regular basis like a shark. No toothpaste required (also sharks never eat sweets!)

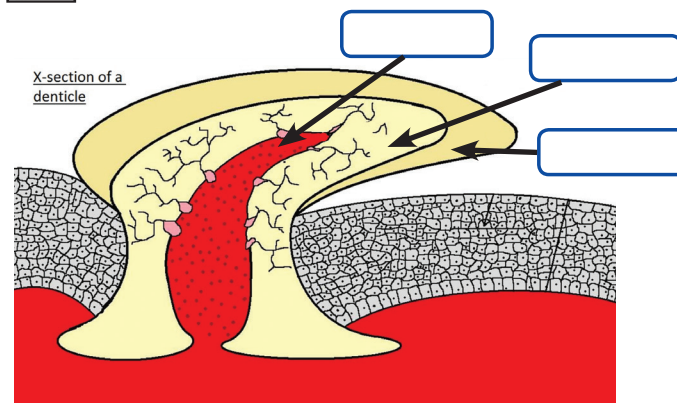
# The Shark's Toothpaste Activity Pack



**The map of the tooth** Fill in the boxes to label the different parts of the teeth - yours and a sharks



**Amazing Fact**  
 Shark enamel contains fluoride, which we have to add by using toothpaste. Sharks have built in toothpaste!







# The Shark's Toothpaste Activity Pack



## Cavity Wars - the Battle for Healthy Teeth

Plaque bacteria are at war with your teeth. They want to destroy your teeth, cause you pain and force you to go to the dentist!

Your teeth need to defend themselves from the attackers so that they can stay in your mouth and enjoy a long, healthy life.

If they could speak to you, what would the commander of the plaque army tell to do/not to do so that they could destroy your teeth?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

## Bonus Questions

Why do sharks not have toothpaste? \_\_\_\_\_

What chemical in toothpaste builds strong enamel? \_\_\_\_\_

Name a food that you can eat that contains calcium \_\_\_\_\_

Where in the sea does acid attack calcium? (Clue: Nemo's Home) \_\_\_\_\_



## Shark Bites 3. The Shark Feed Teachers' Notes



### Focus Questions

Who shares the world of the shark?  
Who eats who in the sea?

### Learning Outcomes

- I can draw a food chain
- I can make careful observations and record my results accurately
- I can record my findings in a report including charts, graphs, tables
- I can talk about an example of an environmental change (plastic) on living things

### Introduction 10-30 mins

Teacher Introduction:

Using your own resources introduce the topic with an interactive Q&A.  
Alternatively, the Shark Trust have produced a powerpoint presentation to support this module. Contact them at [sharkbites@sharktrust.org](mailto:sharkbites@sharktrust.org) to request a copy.

### Teacher Notes

NB there are a couple of opportunities for extension here so this could be extended over two lessons.





## The Shark Feed Teachers' Notes



- Sharks are the ocean's apex predators

---

- Sharks, like us, need to get energy from food

---

- What do sharks eat?

---

- How does their diet relate to their teeth? Different sharks eat different things.

Hand out Food Chain Investigation pack and introduce lesson activity

### Interaction:

Use the whiteboard to capture animals that we find in the sea? Do we know what they eat? Can we build a simple food chain from three animals (and one plant): Plankton, Shrimp, Mackerel, Mako Shark (Producer, Primary consumer, tertiary consumer, apex predator)

### Extention:

If you're feeling daring, grab a mackerel from the local fishmonger and perform a dissection for the class. Look at the gills, the shape of the body, the fins, etc. The mackerel is a fast swimming, streamlined fish, which needs a lot of oxygen and eats a lot of small prey. You can quite easily remove the stomach and organs if you wish and relate them to the children's own biology. It's not to everyone's taste but most kids love it!

## The Shark Feed Teachers' Notes



### Activities

**Link the Link & Catch of the Day** 20-40 mins

**Link the Link:** Pupils prepare for the science activity by completing the food chain comprehension in their activity pack.

### Catch of the Day:

**Set Up:** Set up tables with the equipment: Washing up bowl (rectangular), plastic beads (50), stirrer, stopwatch, fishing nets, plastic tweezers.

**Activity:** Encourage pupils to think about how they can make the test fair: stirring speed, standard procedure, direction and duration of "feeding", position of the net in the water (standard depth). Allow them to run tests and collate results. First they need to devise a fair test – do this by allowing them to compete and let them think about how to make it fair!

The Activity requires the children to devise a fair test and then take five measurements (or one per person in the group). These results can then be plotted on a bar graph (along with a mean value) and then be used to complete the table in their activity books.

### Plenary Session 10-15 mins

**Review:** What have we learnt? Key points:

- Food chains transfer energy from the sun up to predators
- Food chains in the sea have the same properties (links) as those on land
- A fair test means making sure that the conditions for the experiment don't influence the result
- Results can be made easy to understand using charts and tables

### Extension:

By referring to the results table you can have a conversation about what happens to small pieces of plastic in the sea. Small animals take up plastic in small quantities but it remains in their bodies. Through the food chain the amount of plastic in the diet is magnified so large animals at the top of the food chain are eating large amounts of plastic (which can be harmful) through eating their normal food.

### End Lesson 5-10 mins (optional)

If time allows, pupils might write in their activity books about what sharks and humans have in common and how they are different.

# Shark Bites 3. The Shark Feed Activity Pack



## Activity 1 Link the Link

### Food chains

A food chain describes the transfer of energy from the sun to plants to animals. Animals and plants in a food chain are given names depending on what they do. Fill in the missing words below:

Energy in the sea comes from \_\_\_\_\_. Plants that turn the sun's energy into food are called \_\_\_\_\_.

Animals that get their energy by eating plants or smaller animals are called \_\_\_\_\_. \_\_\_\_\_ consumers eat plants while \_\_\_\_\_ consumers eat animals. Larger animals that kill and eat smaller animals are often called \_\_\_\_\_ with the one at the top of the food chain called the \_\_\_\_\_ predators.

Sharks are usually but not always apex predators.

Predator

Producer

Consumer

Secondary

Primary

Apex

The Sun

We can also represent a food chain in pictures. Use the terms that you used above to label the pictures:

The Sun - Plankton - Shrimp - Mackerel - Mako Shark

## The Shark Feed Activity Pack



### Activity 2 Catch of the Day

On your table you have the equipment for the catch of the day experiment. Check and tick that you have everything:

Washing up bowl

Plastic Beads

Stirrer

Stopwatch

Fishing Net

Tweezers

The Question is...

What is a better way to feed on small pieces of food – straining or picking?

Your Challenge:

Design a fair test that will allow you to measure how much food (plastic beads) a straining feeder (the net) can collect.

Then design a fair test to compare how much food a picking feeder (the tweezers) can collect.



# The Shark Feed Activity Pack



How do we perform a fair test?

What do we need to do to make it fair?

Think about how you could make it unfair. Think about what will affect the number you catch.

Where in the water are the beads? How many beads are there to start with?

How do you compare the different feeding styles? What equipment do you have to help make it fair?

Work out a protocol and write it down.

Do 3 “feeds” for each feeding style – work out average “energy” per feed.

|           | Feed 1 | Feed 2 | Feed 3 | Average (mean) |
|-----------|--------|--------|--------|----------------|
| Straining |        |        |        |                |
| Picking   |        |        |        |                |

Display your results as a bar graph (including the average)

Based on your test, which is the better way to feed on small pieces of food?

## The Shark Feed Activity Pack



When a primary consumer feeds they pick up energy that producers have converted from the Sun's energy. The energy that a primary consumer eats is partly used up and partly stored.

What do you use energy for? Can you think of three things?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

How do you store energy?

\_\_\_\_\_

Stored energy passes to a secondary consumer when they eat primary consumers. This is how energy moves through the food chain. Bigger animals need more energy to live and grow so they need to take in more.

We are going to call our filter feeder the Primary Consumer and our picker feeder the secondary Consumer. Use the results from your experiment to

Use your results to fill in the table below:

We have assumed that each primary consumer eaten by a secondary consumer is worth 50 beads of stored energy and each secondary consumer eaten by a predator is worth 500 beads of stored energy. Remember:

# The Shark Feed Activity Pack



Use your results to fill in the table below:

We have assumed that each primary consumer eaten by a secondary consumer is worth 50 beads of stored energy and each secondary consumer eaten by a predator is worth 500 beads of stored energy. Remember:

Sun    Producer    Primary Consumer    Secondary Consumer    Predator

|                                      | Primary (Filter) | Secondary (Picker) | Predator |
|--------------------------------------|------------------|--------------------|----------|
| A: Energy in each Food Item (bead)   | 1                | 50                 | 500      |
| B: No of Food Items per feed         |                  |                    | 4        |
| C: Energy per feed (A x B)           |                  |                    | 2000     |
| D: Energy for Activity (90%) C x 90% |                  |                    | 1800     |
| E: Energy Stored (10%) C x 10%       |                  |                    | 200      |

You can see how predators get more energy from less food items as they are eating the energy that has passed up the food chain.

## Bonus Questions

Our table says that a predator has to eat 4 secondary consumers to get 2000 energy units.

How many primary consumers would they need to eat to get this much energy? .....

Do you think that would be easier or harder? .....

A basking shark is a huge filter feeder. How do they get enough energy to live? .....

Where in the sea does acid attack calcium? (Clue: Nemo's Home) .....



## The Shark Feed Activity Pack



### Investigator's Notes

Use this page to make extra notes on the lesson:

A series of ten horizontal dashed lines for writing notes.



# Shark Bites 4. The Shark Champion



## Focus Questions

Have you got your teeth into the topic?

## Learning Outcomes

Review of the unit – teeth, feeding and food chains.

## Introduction

Teacher Introduction:  
Set up class for quiz session. We have provided a set of questions, the format of the session is up to you.

You could divide the class into teams or have individual answer sheets. See 16 questions that are provided on following page.

End Lesson – 5-10 mins (optional)

Introduce some of the threats posed to sharks and what we can all do to make sure they are around for the future.

Sharks threatened by breakdown of food chains, habitat destruction and fisheries.

Shark slow growing and late to reproduce, if they are caught in large numbers they cannot reproduce quickly enough and populations shrink.

## What can you do:

- Discover more about sharks and share what you learn with others
- Join the Shark Trust and help conservation
- Get involved - collect data for citizen science projects - e.g. Great Eggcase Hunt
- Raise money for Shark Projects

# Shark Champion Quiz.



- 1. How long have sharks been around?**  
A. 400 years B. 4 million years C. 400 million years
- 2. What do you call an animal that only eats plants?**
- 3. What do you call a person that only eats plants?**
- 4. Name the three main types of tooth in your mouth?**
- 5. What is a sharks skeleton made from? Which part of your body is made from this?**
- 6. An animal (like you) that eats a varied diet is called what?**
- 7. What type of shark is this and what food would it eat?**
- 8. How many teeth does a Blacktip Reef Shark go through in a lifetime?**
- 9. How many teeth are in an adult human mouth (as long as they keep their teeth clean)?**
- 10. What chemical is found in a sharks tooth and in toothpaste?**
- 11. What does this chemical help to do?**
- 12. What is the name given to hardened plaque?**
- 13. What attacks the enamel to form cavities in your teeth?**
- 14. Give me three ways to keep your teeth healthy?**
- 15. What do you call something that turns sunlight into energy?**
- 16. Energy in a food chain flows from the \_\_\_\_\_ to the \_\_\_\_\_**

**ANSWERS**  
Click to show

Total **23** Points

# Shark Champion Quiz.



- 1. How long have sharks been around?** ① 400 million  
A. 400 years B. 4 million years C. 400 million years
- 2. What do you call an animal that only eats plants?** ① Herbivore
- 3. What do you call a person that only eats plants?** ① Vegetarian
- 4. Name the three main types of tooth in your mouth?** ③ Molar, Canine, Incisor
- 5. What is a sharks skeleton made from?** ① Cartilage, Ears  
**Which part of your body is made from this?** ① Nose
- 6. An animal (like you) that eats a varied diet is called what?** ① Omnivore
- 7. What type of shark is this and what food would it eat?** ② Mako, Fish
- 8. How many teeth does a Blacktip Reef Shark go through in a lifetime?** ① 2000
- 9. How many teeth are in an adult human mouth (as long as they keep their teeth clean)?** ① 44
- 10. What chemical is found in a sharks tooth and in toothpaste?** ① Fluoride
- 11. What does this chemical help to do?** ① Strengthen enamel
- 12. What is the name given to hardened plaque?** ① Tartar
- 13. What attacks the enamel to form cavities in your teeth?** ① Acid (from plaque digesting sugar)
- 14. Give me three ways to keep your teeth healthy?** ③ Cut Sugar, Clean Teeth, Floss, Dentist, etc.
- 15. What do you call something that turns sunlight into energy?** ① Producer
- 16. Energy in a food chain flows from the \_\_\_\_\_ to the \_\_\_\_\_** ② Sun to predators

Total **23** Points