

# The Shark's Toothpaste Student Sheet



## LESSON 2

### Activity 1 - Shark Tooth Challenge 15-20 mins

**Challenge:** Read aloud the scenario from an aquarist who needs to estimate how long it will take to collect enough shark teeth.

Students must use the information provided to calculate and justify their answer.

I have five sharks in my tank. They eat fish from a pole, and sometimes they lose teeth, which fall to the bottom of the tank.

The aquarium has asked if we can collect up to 285 shark teeth from the tank.

I need to work out how long it will take to collect this many teeth.

Here is what I know:

- These sharks go through around 20,000 teeth in their lifetime
- Each shark has 60 teeth in the front set (30 on the top jaw and 30 on the bottom jaw)
- There are seven rows of teeth behind the front set
- Each shark lives for an average of 11 years

How many teeth does one shark have at one time?

How many teeth does a shark use in its lifetime?

How many teeth does one shark lose per year?

How many teeth do 5 sharks lose per year?

How many teeth do they lose per month?

How long does it take to collect 285 teeth?

# The Shark's Toothpaste - Tooth Structure Investigation

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Read the following paragraph and highlight the names of the different parts of the tooth.

Students should also identify the function of each part and explain how it contributes to the health of the tooth.

The tooth is made up of four main layers. The soft pulp in the centre contains nerves and blood vessels and is surrounded by a harder layer called dentine. The outer surface of the tooth is protected by enamel, which is the strongest substance in the human body. The tooth sits in a socket in the jaw and is supported by the gums.

Tooth decay occurs when bacteria (plaque) build up on the surface of the tooth. These bacteria feed on sugars from food and produce acid as a waste product. This acid gradually breaks down the enamel, the protective outer layer of the tooth, forming a cavity.

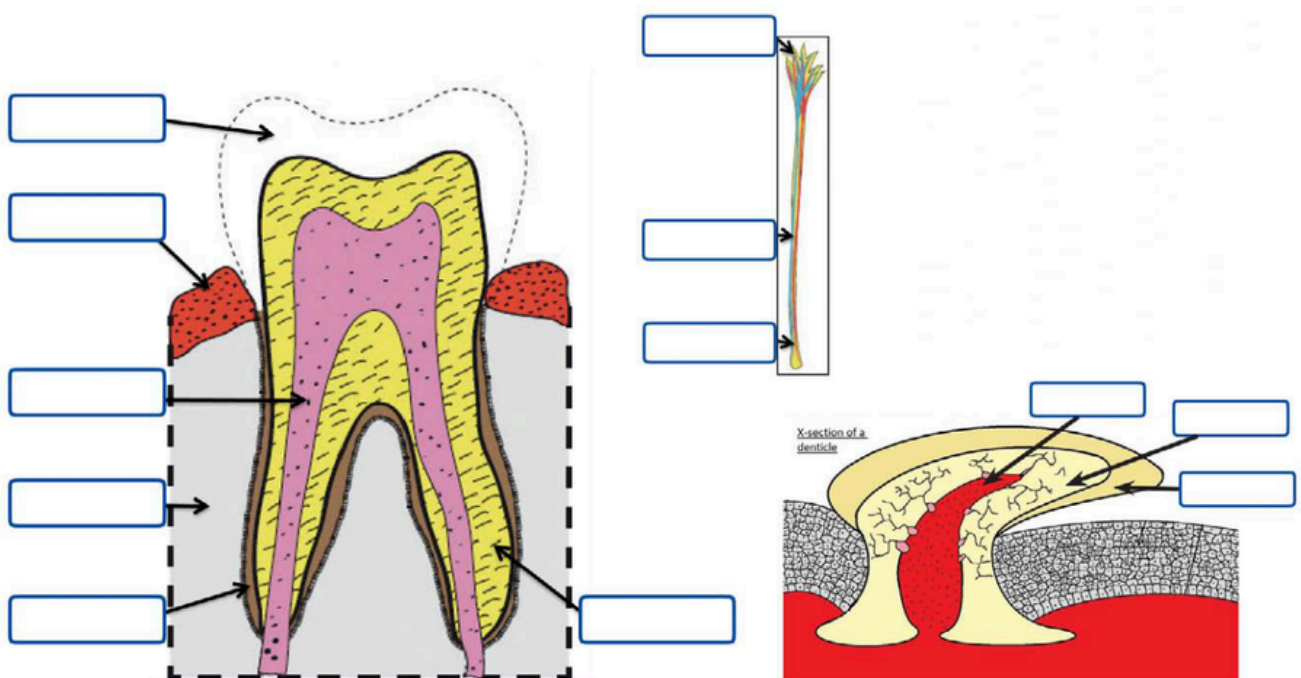
As the enamel wears away, the softer inner layers of the tooth become exposed and are more easily damaged. If decay continues, it can reach the dentine and eventually the pulp, where nerves are located.

When plaque is not removed, it can harden into tartar. Tartar traps bacteria against the gums, which can lead to irritation, infection, and gum disease. Unhealthy gums are less able to support teeth, increasing the risk of tooth loss.

Tooth decay can be prevented by removing plaque and reducing sugar in the diet. Brushing teeth with fluoride toothpaste helps strengthen enamel and protects against acid damage.

Unlike humans, sharks do not need to clean their teeth in this way because they continually replace them. This means damaged or worn teeth are regularly replaced with new ones.

**The map of the tooth: Fill in the boxes to label the different parts of the teeth – human and shark. Explain how each part supports the function and health of the tooth.**



# The Shark's Toothpaste - Tooth Structure Investigation

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Structure - Human Tooth	Colour in diagram	Function (Stage 3 level)
	Dotted outline (top)	
	Outer yellow layer	
	Yellow layer under enamel	
	Pink centre	
	Red area around tooth	
	Brown layer on root	

Structure - Shark Tooth	Colour in diagram	Function (Stage 3 level)
	Smooth pale yellow outer edge	
	Pale yellow inner layer (cracked pattern)	
	Red centre	

Structure - Nerves	Visual cue in diagram	Function (Stage 3 level)
	Coloured branching lines at the top	
	Long, thin central strand	
	Rounded tip at the bottom	

# The Shark's Toothpaste - Cavity Wars

## Cavity Wars – The Battle for Healthy Teeth

Plaque bacteria constantly form on the surface of your teeth. These bacteria feed on sugars from food and produce acid as a waste product. This acid can damage tooth enamel, leading to tooth decay over time.

Your teeth need to protect themselves from this process so they can stay strong and healthy. If plaque bacteria could “give instructions”, what actions would increase tooth decay? Write five instructions the plaque “commander” might give to damage teeth.

1.

2.

3.

4.

5.

## Bonus Questions

Why do sharks not need toothpaste?

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Which chemical in toothpaste helps strengthen enamel?

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Name a food that contains calcium.

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Where in the sea might acid damage calcium-based structures? (Clue: Nemo's home)

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