

LET'S SHARE A SMILE (LEVEL 3)

Description	Teach your child how to take care of her or his teeth and develop healthy oral hygiene habits.
Leading Question	How can we maintain healthy teeth?
Total Time Required	6.6 hours over 6 days
Supplies Required	Notebook/paper, pen/pencil, eggs, vinegar, water, soft drink (any), any toothpaste with fluoride (check the label), 4 jars or bottles with cap
Subjects	Science, Numeracy
Supervision	Medium
Learning Outcomes	Learners will be able to: <ol style="list-style-type: none"> 1. Demonstrate an understanding of the structure of a tooth. 2. Understand the functions of the different types of teeth. 3. Practice good oral hygiene habits. 4. Identify healthy Understanding good and bad foods for teeth. 5. Demonstrate an understanding of what causes tooth decay. 6. Understand and practice how to prevent tooth decay.
Previous Learning	NA

DAY 1

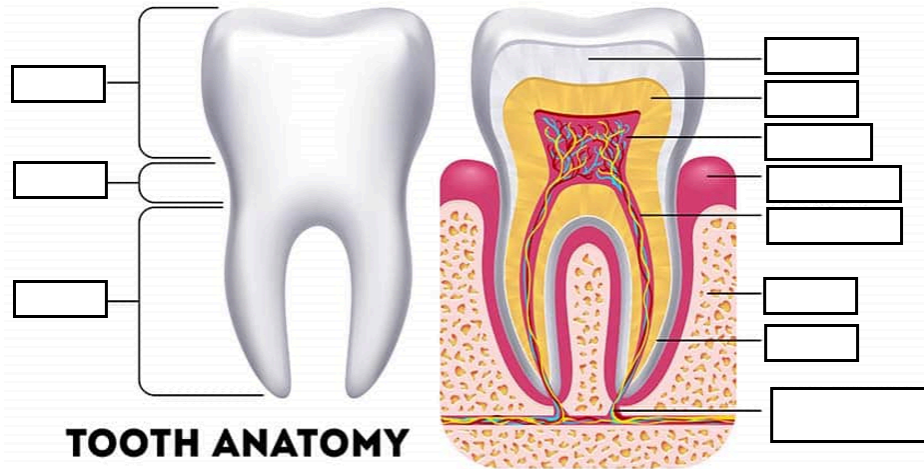
Today, you will learn about parts of a tooth and good oral hygiene habits.

Suggested Duration	Activity and Description
20 minutes	<ul style="list-style-type: none"> • Reflect on why you think teeth are important and write a paragraph on the importance of teeth and what you do to keep their teeth healthy (a list of healthy habits) (without looking at the table below). You can also write about a time when you hurt your teeth and describe how it felt and what you did to remedy their pain.
	<ul style="list-style-type: none"> • Compare your list of healthy teeth habits to the activities in this table: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Healthy teeth habits</div>

	<table border="1"> <tr> <td>1.</td> <td>Brushing teeth twice a day</td> </tr> <tr> <td>2.</td> <td>Brushing teeth for 2 to 3 minutes</td> </tr> <tr> <td>3.</td> <td>Avoiding sugary drinks and candies</td> </tr> <tr> <td>4.</td> <td>Cleaning tongue (prevents bad breath)</td> </tr> </table>	1.	Brushing teeth twice a day	2.	Brushing teeth for 2 to 3 minutes	3.	Avoiding sugary drinks and candies	4.	Cleaning tongue (prevents bad breath)																																
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10 minutes	<p>Record data on the Healthy Teeth Observation table for days 1 to 5 of the project:</p> <ol style="list-style-type: none"> 1. Make the table below in his/her notebook or on a sheet of paper. 2. All the activities mentioned in the table are to be done on a daily basis and recorded with a tick mark during the week of the project. <p>Healthy Teeth Observation Table</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Monday</th> <th>Tuesda y</th> <th>Wednesda y</th> <th>Thursda y</th> <th>Friday</th> <th>Saturda y</th> <th>Sunday</th> </tr> </thead> <tbody> <tr> <td>Brushing teeth twice</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Brushing teeth for 2 to 3 mins</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Avoid Sugary drinks and candies</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Clean tongue (prevents bad breath)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Show the Healthy Teeth checklist every day to the guardian/supervisor to ensure that you have followed good oral hygiene habits on the previous day. Also, discuss whether you faced any problems while following oral hygiene habits.</p>	Activity	Monday	Tuesda y	Wednesda y	Thursda y	Friday	Saturda y	Sunday	Brushing teeth twice								Brushing teeth for 2 to 3 mins								Avoid Sugary drinks and candies								Clean tongue (prevents bad breath)							
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10 minutes	<ul style="list-style-type: none"> • What do you think the inside of a tooth looks like? • Draw the structure of a tooth without looking at it. 																																								
10 minutes	<ul style="list-style-type: none"> • Then look at the image, compare it and then make the required adjustments or draw a new figure as shown on image 1 below in your 																																								

notebook. Use the word bank to attempt to label the diagram of the tooth in their notebook.

- Image 1:



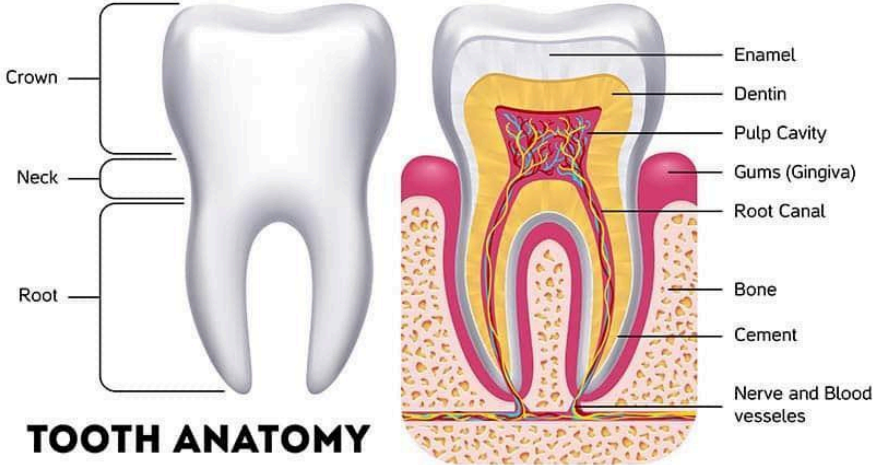
TOOTH ANATOMY

WORD BANK

Enamel
Neck
Root canal
Gums
Crown
Pulp cavity
Dentin
Bone
Cement
Root
Pulp containing nerves and blood vessels

Source: <https://www.trianglepediatricdentistry.com/all-about-primary-teeth/>

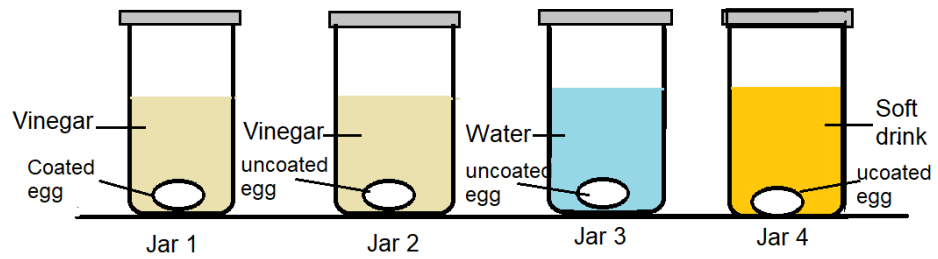
Once the learner has attempted to label the diagram, they should compare it with the labelled diagram in image 2.

	 <p style="text-align: center;">TOOTH ANATOMY</p> <p>Source: https://www.trianglepediatricdentistry.com/all-about-primary-teeth/ Image 2: labelled tooth structure</p>
<p>5 minutes</p>	<p>How many parts in the labelled diagram did you get right? Calculate the percentage of right answers. (hint: divide the number of right answers by the total number of parts and multiply the result by 100)</p>

DAY 2

Today, you will carry out an experiment with the objective of learning about what causes tooth decay and how to prevent it.

Suggested Duration	Activity and Description
<p>10 minutes</p>	<ul style="list-style-type: none"> Brainstorm and list down in your notebook the food you think can cause tooth decay along with a brief explanation. You will get the answer to this question after the experiment.
<p>40 minutes</p>	<ul style="list-style-type: none"> Get four jars or bottles with caps Pour vinegar in two of them and pour water in one, and a soft drink in the other one. Coat one egg with fluoride toothpaste and gently drop it in a jar with vinegar. Gently drop 3 uncoated eggs into the jars with vinegar, water and soft drink, making sure that the eggs don't break while dropping them in the jar. Close the jars and let the eggs stay for 5 days.



- Look at all the eggshells in the four jars and record changes to eggshells in terms of color and texture on the tooth decay experiment table above. Make sure to watch for the condition of the eggshell coated with toothpaste in the jar with vinegar very carefully as it is important to compare that with the condition of the uncoated eggshell in the vinegar jar.
- Note down the condition of the eggshells on each day for a total of 5 days.
- Note: Eggshells are one of the best substitutes for teeth as they are made up of the same chemicals (calcium carbonate) as the tooth enamel. You can choose to add other solutions such as milk, lemonade, tea/coffee for comparison.
- Copy the table below in their notebook to record any changes to the eggshells every day. Record any changes to the color and/or texture of the eggshells. If there is no change observed, write “no changes”.
- Note: Add more columns if more solutions are added to the ones mentioned already

Tooth decay observation table

DAY	JAR WITH VINEGAR	JAR WITH WATER	JAR WITH ANY SOFT DRINK	JAR WITH VINEGAR AND AN EGG COATED WITH TOOTHPASTE
1				
2				
3				
4				
5				

15 minutes	<ul style="list-style-type: none"> ● Numeracy activity: <ul style="list-style-type: none"> - Let's assume that the uncoated "tooth" in vinegar decays at a rate of 2% per hour, how many days it reaches 100% decay? (Hint: there are 24 hours in a day) - Answer this question: <ul style="list-style-type: none"> ○ After learning that soda is bad for your teeth, Sami reduced his consumption of soda to 1/5th the previous amount. What fraction of the original amount does he now consume?
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DAY 3

Today, you will record experiment data on the healthy teeth observation table.

Suggested Duration	Activity and Description
20 minutes	<ul style="list-style-type: none"> ● The learner will smile at strangers, neighbours, friends and family, and observe and record their reactions. They can come up with a list of words to describe smiles, or they can "collect" smiles with pictures that they draw. ● The learner can try doing the same without smiling and note the difference between people's reactions to smiles and to other gestures.
30 minutes	<p>They will use their observations from this experiment to write a funny story (to make people smile :)) that continues one of the following beginnings:</p> <ul style="list-style-type: none"> ● They say smiling is contagious... ● Some smiles are funnier than others... ● One day I woke up with animal teeth...
10 minutes	<p>If conducting the project on a classroom setting, ask learners to read each other stories and give feedback based on (if learners are developing the project at home, then parents can help with this):</p> <ul style="list-style-type: none"> - What was funny about the story and why? - What would make it even funnier?
20 minutes	Learners will have time to make their stories even funnier!

DAY 4

Today, you will learn about the types of teeth and their functions.

Suggested Duration	Activity and Description															
10 minutes	<p>You will now learn about different types of teeth and their functions:</p> <ul style="list-style-type: none"> • The learner will examine their mouth and identify the different types of teeth they have and draw them in a smiling mouth • The chisel-shaped front teeth are called incisors; the sharper teeth on either side of incisors with one pointy tip (or cusp) are called canines; the teeth that come after canines and have two points or cusps are called premolars; the wider back teeth with four or five points/cusps are called molars. <div data-bbox="695 676 1179 999" data-label="Image"> <p>The diagram shows a top-down view of a human mouth with the tongue retracted. Labels with lines pointing to specific teeth are: 'Incisors' at the front, 'Canine' on the side, 'Premolars' between the canines and molars, and 'Molars' at the back.</p> </div> <p>Source: https://www.smileinla.com/four-different-types-of-teeth-their-function/</p>															
20 minutes	<p>Think about the different roles different teeth play. He or she will eat different things throughout the day like an apple or any other item and observe the process and the different roles teeth play.</p>															
40 minutes	<p>The learner will create a table or list detailing the function of each tooth type in the process of eating</p> <table border="1" data-bbox="467 1346 1409 1654"> <thead> <tr> <th>Tooth type</th> <th>Food type</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Incisors</td> <td></td> <td></td> </tr> <tr> <td>Canine</td> <td></td> <td></td> </tr> <tr> <td>Premolars</td> <td></td> <td></td> </tr> <tr> <td>Molars</td> <td></td> <td></td> </tr> </tbody> </table>	Tooth type	Food type	Function	Incisors			Canine			Premolars			Molars		
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DAY 5

Today, you will learn about the types of teeth and their functions.

Suggested Duration	Activity and Description															
10 minutes	Think about how animals use different teeth and how teeth functions differ depending on whether animals are herbivores (plant eaters), carnivores (meat eaters), or omnivores (plant and meat eaters).															
20 minutes	Compare the functions of some teeth in humans with animals <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Function</th> <th>Human tooth</th> <th>Animal tooth</th> </tr> </thead> <tbody> <tr> <td>Cut food (first bite)</td> <td></td> <td></td> </tr> <tr> <td>Tear through meat</td> <td></td> <td></td> </tr> <tr> <td>Tear and grind food</td> <td>e.g. premolars</td> <td>e.g. tearing and chewing soft food (or toys in dogs)</td> </tr> <tr> <td>Crush and grind food</td> <td></td> <td></td> </tr> </tbody> </table>	Function	Human tooth	Animal tooth	Cut food (first bite)			Tear through meat			Tear and grind food	e.g. premolars	e.g. tearing and chewing soft food (or toys in dogs)	Crush and grind food		
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15 minutes	On day 5 (or 6), review healthy teeth observation table and discuss with a family member: <ul style="list-style-type: none"> ● What percentage of the healthy practices listed has the learner followed each day? ● Has the learner adopted more or less healthy practices as the days went by? Or is there no pattern? Why do you observe this? ● How easy or difficult were the healthy teeth practices to follow, and why? 															

DAY 6

Today you will complete the experiment on tooth decay.

Suggested Duration	Activity and Description
40 minutes	<ul style="list-style-type: none"> ● Remove the eggs from the jar and note down the final condition of each eggshell in the four jars in the tooth decay experiment table. ● What can you conclude from this experiment? How do coated and uncoated eggs compare? What can you say about the effect of different fluids on our teeth? Note down the observations and conclusions in your notebook ● Write down in your notebook what he/she thinks caused the changes in the condition of the eggshells soaked in vinegar and soft drinks. ● Explanation: <ul style="list-style-type: none"> - Observe that the eggshells in vinegar and soft drinks will be affected the most. There will be cracks and holes on the surface or the surface may be completely damaged. The eggshells in water and milk (if used) will remain unaffected. The eggshell coated with fluoride toothpaste will be less affected than the uncoated egg in the jar with vinegar. Eggshells soaked in coffee/tea (if used) will show brown/yellow stains. - The guardian/supervisor can explain that the bacteria in our mouth convert sugary foods into acids. These acids dissolve the tooth enamel resulting in holes in the tooth which are called cavities. Vinegar contains acetic acid and soft drinks contain phosphoric acid which dissolves the chemical in the eggshells causing damage to the eggshells. The egg coated with fluoride toothpaste is less affected as fluoride is good for preventing tooth decay. - You should be able to appreciate that even though the egg was coated with fluoride toothpaste, there was still some damage that was observed. Hence, we should avoid sugary drinks in addition to brushing our teeth twice daily. The more sugar we consume, the more acid gets produced which leads to tooth decay. On the other hand, foods like carrots, apples and cucumbers have a cleansing effect on teeth and hence are good for teeth.
30 minutes	<ul style="list-style-type: none"> ● Produce a creative flipbook, poster, or manual serving as the how-to guide for healthy teeth that must answer the following questions in one paragraph or more: <ul style="list-style-type: none"> - How many teeth do adults have? What are the different types of teeth adults have? - Why are teeth important from a health and social perspective? - What are three steps we can take to maintain healthy teeth? - What foods or habits must be limited or avoided to maintain healthy teeth?

	<p>Present the guide to your family or peers and get feedback from them. Feedback from family members or peers will include:</p> <ul style="list-style-type: none"> ● What did they love about the guide? ● Any questions they have for the learner? ● What have they learned from the guide? ● What new oral practices are they willing to adopt to prevent tooth decay? ● Any suggestions for improvement?
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Additional enrichment activities:	<ul style="list-style-type: none"> ● You can take this short quiz to test his/her knowledge of tooth health. The guardian/supervisor can dictate the questions to the learner and the learner will have 20 minutes to answer 10 questions. The guardian/supervisor can use the answer key to check the answers (or the learner can do it themselves): <p>Healthy teeth quiz</p> <ol style="list-style-type: none"> 1. Name two things you can do to avoid getting cavities 2. How many times in a day should you brush your teeth? 3. Name two foods that cause tooth cavities 4. Why do we use toothpaste to brush teeth? 5. How long should you brush your teeth? 6. What hard, tough substance covers the crown of the tooth? 7. Choose the correct answer <ol style="list-style-type: none"> a. What part of the tooth does dentin protect? b. Gum c. Root d. Pulp e. Crown 8. What does pulp contain? 9. Which doctor checks our teeth? 10. How often should we see a tooth doctor? <p>Answer key</p> <ol style="list-style-type: none"> 1. Brushing your teeth regularly and avoiding sugary food/drinks 2. Twice daily (in the morning and before going to bed) 3. Soft drinks, sugar candies 4. Fluoride in toothpaste helps prevent tooth cavities 5. You should spend 2-3 mins each time you brush 6. Enamel 7. c. Pulp 8. Pulp contains nerves and blood vessels 9. Dentists are doctors of teeth
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	<p>10. At least once a year</p> <ul style="list-style-type: none"> Share your results and what you have learned about maintaining healthy teeth with your family. You may also quiz them on healthy teeth using the quiz you just completed!
Modifications for simplification	<ul style="list-style-type: none"> Learners can reduce the number of tasks and activities in this project and only conduct the main experiment with egg shells and track the healthy teeth habits of their family members.





ASSESSMENT CRITERIA

By the end of the project, a majority of my learners were able to:

- Identify the different parts of a tooth.
- Complete the quiz successfully.
- Complete the daily checklist activities successfully.
- Describe good oral hygiene habits.
- Explain the causes and preventive measures of tooth decay.

APPENDIX 1

Types of human teeth

	Incisor	Canine	Premolar	Molar
				
Position in mouth	Front	Either side of incisors	Behind canine	Back
Description	Chisel-shaped (sharp edge)	Slightly more pointed than incisors	2 points (cusps), 1 or 2 roots	4 or 5 cusps 2 or 3 roots
Function	Biting of pieces of food	Similar function to incisors	Tearing and grinding food	Chewing and grinding food

Source: <https://biology-igcse.weebly.com/human-teeth-and-dental-decay.html>