

Acknowledgements

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The project team included:

Leanne Rodine, RDH	Project Leader and Content Specialist
Sandy Gill, RDH	Content Specialist
Shelley Whalen	Program Secretary
Vickie McKinnon, RDH, BA	Manager, Oral Health Education, Project Advisor

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Oral Health Education accessed the following resources when preparing this manual:

- Crest Care School Program: A Dental Health Unit for Grade One Students – Teacher’s Guide
- Colgate “A Global Oral Health Education Program – Teacher’s Guide for Third Grade”
- National Institutes of Health “Open Wide and Trek Inside”
- Texas Department of Health “Tattletooth II” Series
- www.askeric.org/virtual/lessons
- www.themeday.com – lesson plans

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Table of Contents

Why Teach Oral Health?	5
The Oral Health Education Teacher Resource	6
How to Use the Teacher Resource	7
Oral Health Background Information	8
Two Sets of Teeth	8
Primary Teeth	8
Permanent Teeth	8
The Six-Year Molars	9
Structure and Function of Teeth	9
Structure	9
Structure of Teeth	9
Function	10
Types of Teeth and Their Jobs	10
Plaque: Destroyer of Teeth and Gums	11
Gingivitis	11
Cavities	11
Healthy Foods	12
Frequency and Consistency	12
Is Candy Rewarding?	13
Healthy Teeth and Gums	14
Brushing	14
Choosing a Toothbrush	15
Toothpaste	15
Flossing	15
Protecting Teeth	16
Fluoride	16
Calcium	16
Sealants	17
Smile Protectors	17
Ways to Keep Teeth Safe	18
A Knocked-Out Tooth!	18
A Visit to the Dental Office	19
Web Site References	20

Table of Contents

Learning Outcomes

Health and Life Skills Curriculum Chart 24

Integration of Curricula Chart 25

Grade Three Lessons

Lesson 1: Healthy Mouths are Happy Mouths 26

Handouts: I am Robo-Tooth
Mouth Model
How Does Robo-Tooth Brush?
Flossing with Robo-Tooth
My Dental Health Calendar
I Remember My Teeth

Lesson 2: Teeth Grow and Change 32

Handouts: Permanent Teeth
Primary and Permanent Teeth
Parts of the Tooth
Parts of the Tooth – Reference Sheet
Permanent Teeth – Reference Sheet
Incisor
Cuspid
Bicuspid
Molar
Parts of the Tooth Activity Sheet
Types of Teeth and Their Jobs
Types of Teeth and Their Jobs – Answer Key

Lesson 3: Let's Go To The Movies 38

Handouts: My Movie – Movie Strip
My Movie – Movie Frame

Lesson 4: Snacks That Make You Smile 43

Handouts: Chain of Decay
Food Groups
Vending Machine

Lesson 5: Sugars Cause Tooth Decay 48

Handouts: My Food Record
Sugar Causes Tooth Decay
My Food Record Totals
Foods That Make Me Smile

Lesson 6: To Brush or Not To Brush 55

Table of Contents

Lesson 7:	Fluoride – An Eggsperiment	59
Handouts:	Fluoride Eggsperiment The Chain of Decay	
Lesson 8:	An Incredible Tooth Story	66
Handouts:	Robo-Tooth's Exciting Zoo Adventure The Incredible Tooth Story	
Lesson 9:	Our Fabulous Smile Projects	69

Why Teach Oral Health?

Healthy children have the greatest opportunity to achieve their academic potential.¹ Healthy teeth and gums contribute in many ways to our daily lives. A healthy mouth promotes overall health, self-esteem, language development, social development, self-confidence, and conveying of emotions.

Poor oral health can have a direct impact on a student's learning, causing a decrease in school performance. Dental discomfort and infection may reduce a student's concentration and often results in increased absence from school. Poor oral health contributes to impaired speech development, reduced self-esteem, and poor social relationships.

“School-aged children often miss school because of dental problems... Those who do attend school with dental problems frequently report pain, fever, swelling, and lethargy, and they are often inattentive and distracted in the classroom. In addition, decayed or missing teeth can cause embarrassment.” A true solution to children’s dental problems, “...will require the cooperative efforts of all who work with children, including teachers, school nurses, child care workers, and parents.”²

As a teacher, you play a critical role in helping your students achieve good oral health. This manual is intended to assist you with this role. Oral health education can enable students to make well-informed healthy choices, build life-long dental health habits and attitudes, and develop behaviours that contribute to their overall health and well-being.

1 Calgary Rocky View Comprehensive School Partnership. **Comprehensive School Health implementation and resource manual.** Calgary Health Region, 2001.




2 Amschler, D. **A Hidden Epidemic – Dental Disparities Among Children.** *Journal of School Health.* 2003 Jan; 73 (1): 38-40.

The Oral Health Education Teacher Resource

The *Oral Health Education Teacher Resource* has been developed by the Calgary Health Region to provide “user-friendly” lesson plans and activities, to assist teachers in addressing the general outcomes outlined in Alberta Learning’s *Program of Studies in Health and Life Skills*. This *Teacher Resource* also integrates oral health concepts into Alberta Learning’s Science and Language Arts Programs of Study.



Each K-3 lesson is designed to support one or more of the following general health outcomes, as quoted from the *Program of Studies in Health and Life Skills*:

Health Outcomes






-  **Wellness Choices Outcome** – Students will make responsible and informed choices to maintain health and to promote safety for self and others.
-  **Relationship Choices Outcome** – Students will develop effective interpersonal skills that demonstrate responsibility, respect and caring in order to establish and maintain healthy interactions.
-  **Life Learning Choices Outcome** – Students will use resources effectively to manage and explore life roles and career opportunities and challenges.

Each K-3 lesson may also support one or more of the following general outcomes for Science and Language Arts:

Science Outcomes

-  **Scientific Inquiry Outcome** – Students will use the process of scientific inquiry by asking questions, proposing ideas, observing, experimenting and interpreting evidence that is gathered.
-  **Problem Solving Outcome** – Students will use the process of scientific problem solving by identifying what is needed, proposing ways of solving the problem, trying out ideas and evaluating how things work out.











Language Arts Outcomes

-  **Exploring Thoughts and Experiences** – Students will listen, speak, read, write, view and represent to explore thoughts, ideas, feelings and experiences.
-  **Comprehension** – Students will listen, speak, read, write, view and represent to comprehend and respond personally and critically to oral, print and other media texts.
-  **Managing Information** – Students will listen, speak, read, write, view and represent to manage ideas and information.
-  **Artistry and Clarity** – Students will listen, speak, read, write, view and represent to enhance the clarity and artistry of communication.
-  **Respect, Support and Collaborate** – Students will listen, speak, read, write, view and represent to respect, support and collaborate with others.

How to Use the Teacher Resource

The *Oral Health Education Teacher Resource* is designed to help teachers meet the learning outcomes for oral health as specified or implied in Alberta Learning's Health and Life Skills curriculum. In addition, the lessons may be used to present or reinforce concepts from the Science and Language Arts curricula.

Icons, pictured below, are used to represent the general outcomes for Health and Life Skills, Science and Language Arts. To help distinguish which outcomes a lesson addresses, these icons will be found at the bottom of the introduction page for each lesson.

Health					
	Wellness	Relationship	Life Learning		
Science					
	Inquiry	Problem Solving			
Language Arts					
	Exploring Thoughts and Experiences	Comprehension	Managing Information	Artistry and Clarity	Respect, Support and Collaborate

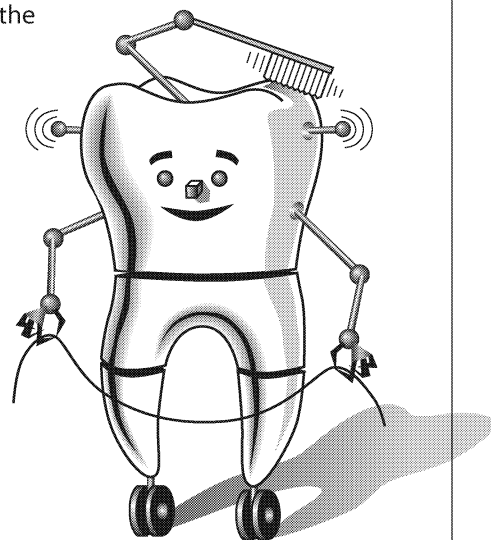
At the start of each grade there are two charts. One is a Health and Life Skills Curriculum Chart, which lists the general and specific outcomes from the Health and Life Skills curriculum that each lesson addresses. The other chart is the Integration of Curricula Chart, which lists the outcomes for Health and Life Skills, Science, and Language Arts that each lesson addresses.

The lessons are in an order that has the first lesson as an introduction lesson, the next few lessons as focusing on dental concepts, and the last lessons often being review lessons. But teachers may decide on the order and may choose to do only some lessons.

Lessons can be modified to be appropriate for each class, as abilities of the students may be different from the start to the end of the school year.

Before beginning a lesson, teachers are encouraged to read the Background Information, which provides current oral health information that will assist in teaching the lesson. In addition, web site references have been included at the end of the Background Information to help teachers and students access more information or activities, if desired.

Robo-Tooth, the mascot for this Teacher Resource, can be found throughout the pages. Robo-Tooth, a very smart robot, has much to tell students about taking care of their teeth. As a tooth, Robo-Tooth knows about the important functions that teeth serve and the importance of keeping them healthy. Robo-Tooth comes well equipped with a toothbrush and floss, always ready to clean away plaque germs!



Oral Health Background Information

The following information is intended to provide teachers with a general overview of basic dental concepts. Teachers are encouraged to read the Background Information, as it provides current oral health information that may assist in teaching. Before beginning a lesson, it may be helpful to review the specific information that pertains to the lesson activity.

Web sites are listed at the end of the Background Information. Teachers can use these web sites to access more information and expand on these basic dental concepts, if more information is desired.

Two Sets of Teeth

Primary Teeth

Primary teeth, also called baby teeth, begin to form before birth and start to erupt when a baby is about six or seven months old. By age three, children should have 20 primary teeth.

Between the ages of five and eight (Grades K to 3), children begin to lose their primary front teeth. The back primary teeth may remain in the mouth until a child is about twelve to fourteen years of age (up to Grade 9). Usually by age fourteen, children will lose all of their 20 primary / baby teeth. However, all children grow and develop at a different rate.

Primary teeth are lost when pressure from erupting permanent teeth cause the roots to dissolve. As the roots dissolve, the crowns of the primary teeth become loose and then they fall out. Many people feel that primary teeth require little care since they will be replaced. However, primary teeth do require routine preventive care and treatment services as necessary, so they are not lost prematurely.

Primary teeth are important for chewing, speech, and appearance, as well as to retain space for the permanent teeth and to serve as a foundation for the development of the jaw.

Permanent Teeth

Permanent teeth are meant to last a person's lifetime. These teeth begin to erupt between five to eight years of age. Therefore, in these early years, children need to begin developing life-long dental skills and habits to maintain healthy teeth and gums for their entire life.

Generally, the first permanent teeth to erupt replace the front primary teeth when children are between five to eight years old (Grades K to 3). About the same time, the first permanent molars, also known as the six-year molars, erupt behind the last primary teeth. By age fourteen (Grade 9) children will usually have 28 permanent teeth. The remaining 4 molars, often called wisdom teeth, can erupt starting at age sixteen to early adulthood. Counting the 4 wisdom teeth, an adult would have 32 permanent teeth.

Permanent teeth serve the important functions of helping us to chew, talk, and smile. The loss of any permanent teeth can be detrimental to these functions.

Oral Health Background Information

Children need to begin developing life-long dental skills and habits to maintain healthy teeth and gums for their entire life.

The Six-Year Molars

Six-year molars do not replace primary teeth but erupt behind the last primary molar. Because a primary tooth does not fall out as this tooth is erupting, these permanent molars are often mistaken as primary teeth. Therefore, students need to be aware of the importance of caring for these permanent teeth in order to maintain them for life. They need to be reminded, and assisted by parents, to reach the toothbrush back to these important teeth.

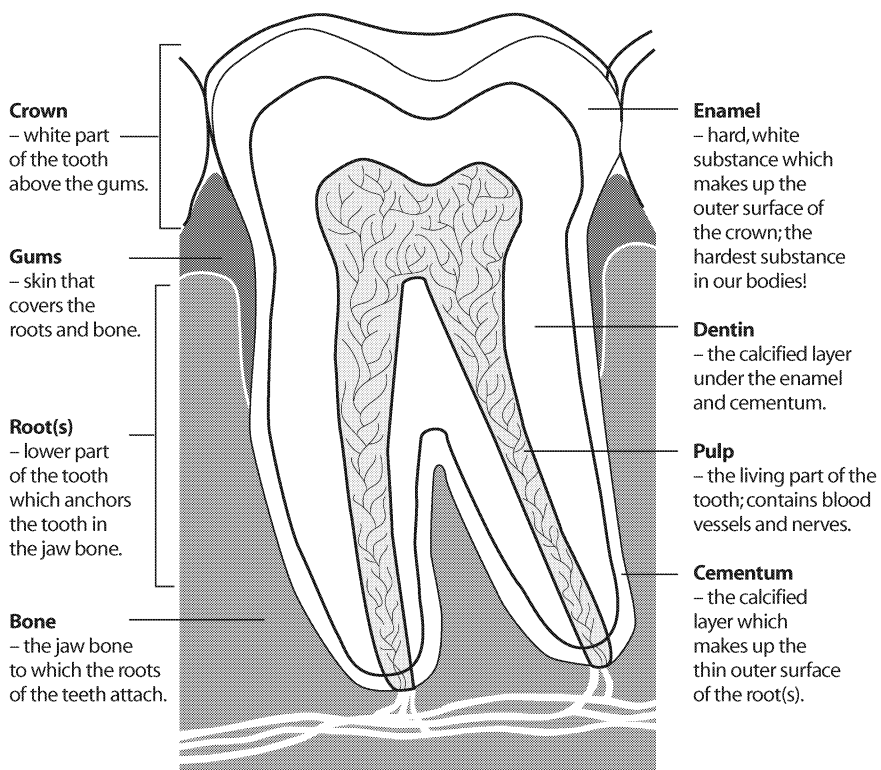
Structure and Function of Teeth

Teeth are the first step in the digestive system. Each tooth is uniquely shaped to perform different functions for eating.

Structure

All teeth have a basic structure regardless of their shape.

Structure of Teeth



Oral Health Background Information


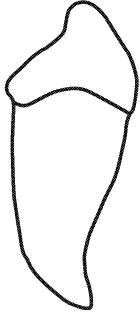

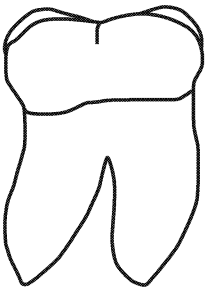
Teeth serve the important functions of helping us to chew, talk and smile.

Function

There are 4 different types of teeth, each shaped differently depending on their specific job for eating.

Types of Teeth and Their Jobs

Shape and Name

Incisor	Cuspid or Canine	Bicuspid or Premolar	Molar
			
Position front	corner	side	back
Job cutting	holding and tearing	holding and tearing, chewing and grinding	chewing and grinding
Numbers 8 – primary 8 – permanent	4 – primary 4 - permanent	0 – primary 8 - permanent	8 – primary 12 - permanent

Note: The 8 primary molars are replaced by the 8 permanent bicuspid. The 12 permanent molars do not replace any primary teeth but erupt behind them.

Oral Health Background Information

Even young children may get gingivitis.

This disease is preventable and is easily reversed by brushing thoroughly twice a day and flossing daily.

Plaque: Destroyer of Teeth and Gums

Plaque is a constantly forming film of bacteria that sticks to the tooth surfaces and along the gumline. Plaque forms in our mouths regardless of whether we are eating or not – plaque forms all the time.

Plaque may cause two diseases in our mouths: gingivitis and cavities.

Gingivitis

Gingivitis is a disease of the gums caused by toxins accumulating around the gumline. When plaque collects and is not removed by brushing and flossing, toxins are produced which irritate the gums.

If a person has gingivitis, their gums may be:

- Red in colour
- Puffy / inflamed / swollen
- Bleeding easily with brushing

Healthy gums are:

- Light pink or light brown in colour (not red)
- Flat and tight around teeth
- Not prone to bleeding easily

Even young children may get gingivitis. This disease is preventable and is easily reversed by brushing thoroughly twice a day and flossing daily. However, if red, swollen, bleeding gums do not improve, then a professional cleaning is required by the dental hygienist at the dental office.

Periodontal disease, or periodontitis, is an advanced form of gum disease that is more serious than gingivitis. It involves irreversible damage to gums and the destruction of supporting bone and periodontal ligaments, resulting in the loss of permanent teeth.

Cavities

Cavities, or tooth decay, are holes in the teeth caused by frequent exposures of the tooth surface to acid. Plaque digests sugars and starches in foods to produce acid. This acid attack can last for at least 20 minutes, dissolving some of the tooth surface. Repeated acid attacks break down the tooth surface to form a cavity.

Plaque works with foods in this process:

Plaque + sugar / starches = ACID

Repeated acid attacks + teeth = CAVITIES

Oral Health Background Information

When choosing a snack, select nutritious foods rather than sticky, sugary treats.

Cheese is a highly recommended snack that helps prevent cavities.

Save sweets and treats for special occasions; do not include as part of regular daily meals and snacks.

Healthy Foods

Children should learn early in life that they can make healthy food choices to help ensure good overall and dental health. Learning how and why to make the best food and snack choices will help their teeth and bodies grow and develop in a healthy way.

Sugary foods such as cookies, cake, and candy are not the only foods that cause cavities. Other foods containing sugars and starches – like chips and crackers, breads and cereals, even fruits – can play a role in tooth decay. The starches break down into sugars and the same acid is produced by the plaque.

Frequency and Consistency

The more frequently foods containing sugars and / or starches are eaten in a day, the more often the teeth will be exposed to the cavity-causing acid. The effects of this acid are cumulative, with more enamel being dissolved with each exposure. The duration of the acid attack is affected by the length of time it takes to consume and on the retentiveness of these sugary / starchy foods. An acid attack begins as soon as a sugary / starchy food is eaten, and it lasts for at least 20 minutes after eating is completed. Foods that are consumed slowly over a long period of time, such as sipping a can of pop throughout the day, will extend the length of the acid attack. As well, sugary / starchy foods that are retentive, such as sticky candies, will cause the acid attack to last as long as the food is stuck on the teeth. For this reason, sugary / starchy, sticky foods are the most harmful to teeth.

It is not realistic to give up eating every food which contains sugars and / or starches. In fact some of these foods – such as fruits, and breads and cereals – are nutritious food choices and are needed as part of a healthy, balanced diet. So instead of eliminating these foods, here are some things to keep in mind:

1. When choosing a snack, select nutritious foods rather than sticky, sugary treats. Encourage raw vegetables, cheese, popcorn, nuts, and fruits. Cheese is a highly recommended snack that helps prevent cavities.
2. Save sweets and treats for special occasions; do not include as part of regular daily meals and snacks. While children need snacks as part of their daily diet, it is important to remember that snacks do not mean treats.
 - Snacks ≠ treats
 - Snacks = nutritious, delicious foods
 - Treats = sugary / starchy, with little or no nutrients
3. When eating sugary / starchy foods, it is best to save them and eat them with meals and brush afterwards.

Oral Health Background Information

Candy rewards can increase the risk of tooth decay.

4. If brushing immediately after eating is not possible, then choosing to do one of the following can help to prevent cavities:

- Rinse with water (helps rinse out the sugar / starch).
- Eat a piece of cheese (neutralizes the acid).
- Chew sugar-free gum, especially gum with Xylitol (weakens the acid and removes the food).

Is Candy Rewarding?

Using candy as a reward can contribute to children's tooth decay. More sugar eaten throughout the day increases the number of acid attacks on the teeth. Consider low cost, non-food rewards such as stickers, pencils, sugar-free gum, extra privileges, or verbal praise. If candy is given, encourage children to save the treat until lunchtime and to rinse with water immediately after eating the candy.

Oral Health Background Information

Brushing should take at least 2 minutes of time and needs to be done at least every morning and night.

Until children are at least 8 years old, parents should brush their children's teeth and gums at bedtime.

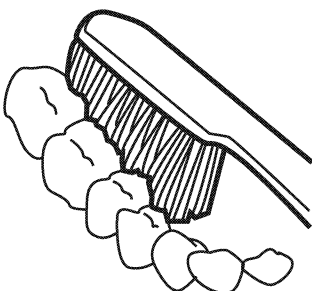
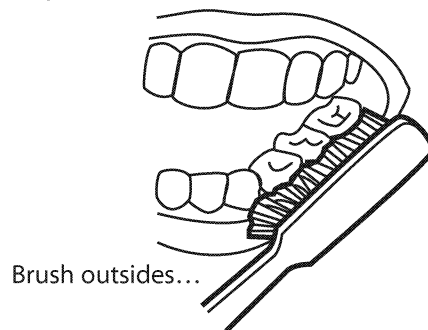
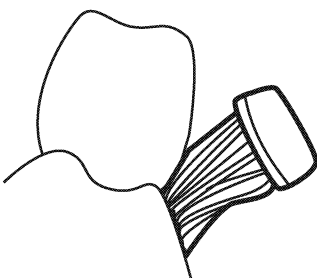
Healthy Teeth and Gums

The best way to keep a mouth healthy is to thoroughly remove plaque everyday. Brushing and flossing are the most effective methods for removing plaque.

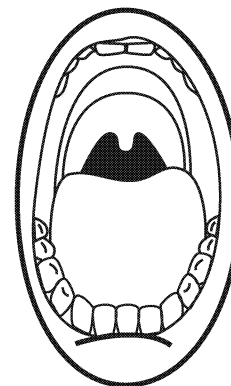
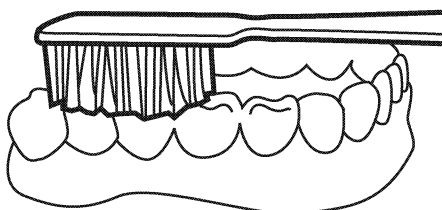
Brushing

Brushing removes plaque from the teeth, gums, and tongue. When placing the toothbrush, the bristles should be directed at a 45-degree angle to the teeth, pointing toward the gums. One recommended toothbrushing method is to move the brush in small circular motions, counting 10 circles in each spot. Only light pressure should be used – hard scrubbing should be avoided. All areas need to be brushed – the outside (cheek side), the inside (tongue / palate side), and the tops (chewing surfaces) of the teeth. Brushing should take at least two minutes of time. The tongue should also be gently brushed.

Brush both teeth and gums, holding the bristles at a 45-degree angle



Chewing surfaces...



Tongue

Oral Health Background Information

Fluoride toothpaste prevents cavities by making tooth enamel stronger.



Reminders:

- **Use no more than a pea-sized amount**
- **Do not swallow**
- **Spit out after brushing**
- **Keep out of reach of young children**

Brushing needs to be done at least every morning and every night. Until children are eight years old, their manual dexterity may not be fully developed so they need to have an adult help with brushing, at least once in the day, preferably at bedtime.

Ideally, children should brush their teeth after every time they eat, but this is not realistic. If children eat sugary / starchy foods at school and are not able to brush, encourage them to have a drink of water to help rinse out the sugar / starch.

Choosing A Toothbrush

Dental health professionals recommend using soft-bristled toothbrushes to remove plaque effectively from the teeth and gumline, while avoiding tooth abrasion and gum trauma. Toothbrushes come in a variety of sizes. Children should use toothbrushes small enough to access every tooth surface.

Manual toothbrushes and electric toothbrushes are both effective. Both require manual dexterity and proper technique to effectively remove plaque. Electric toothbrushes do not automatically brush children's teeth. However, advantages of using an electric toothbrush include:

- Motivation for children to brush due to the fun nature and novelty of the electric toothbrush.
- Some electric toothbrushes have timers to encourage children to brush longer.
- Some electric toothbrushes may be helpful for children with physical disabilities.

Toothpaste

Fluoride in toothpaste strengthens tooth enamel, making the tooth surfaces more resistant to cavity-causing acid. Brushing every morning and night with a fluoride toothpaste helps to prevent cavities. Toothpaste does not clean the teeth – the mechanical action of a toothbrush and floss removes plaque.

A pea-sized amount of toothpaste, or less, should be used on the toothbrush. Children under six years of age should have an adult dispense the toothpaste. Toothpaste should be spit out and not swallowed, and should be kept out of the reach of small children.

Flossing

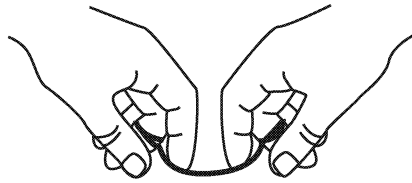
Daily flossing can help prevent cavities and gum diseases like gingivitis. Since toothbrush bristles cannot clean all tooth surfaces, flossing is needed once a day to remove plaque and food from between the teeth and under the gumline.

Parents should be flossing their children's teeth. Children may begin to floss on their own starting at age ten (Grade 5), and even then they may still need adult help.

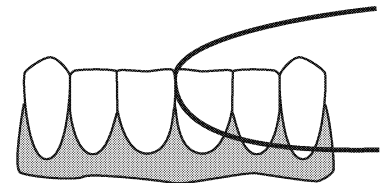
Oral Health Background Information

Flossing is needed once a day to remove plaque and food from between the teeth and under the gumline.

Fluoride is a mineral that helps prevent cavities.



Pinch floss with thumbs and index fingers, to help guide the floss.



Curve the floss in a "C" shape and gently move up and down the side of each tooth.

Protecting Teeth

Fluoride

Fluoride is a mineral that helps prevent cavities in three ways:

1. Fluoride becomes part of the tooth structure, making the tooth enamel stronger and therefore more resistant to acid attacks.
2. Fluoride is retained in the saliva and inhibits the plaque bacteria from producing acid.
3. When a tooth surface is slightly damaged by acid, a cavity can be reversed if the enamel is repaired by fluoride. Fluoride enhances the remineralization process which binds minerals, such as calcium, back into the tooth structure, preventing cavities.

Fluoride works on the inside of the teeth – systemically – when teeth are forming and growing under the gum. It also works from the outside of the teeth – topically – after the teeth have erupted into the mouth. The systemic sources of fluoride include water (natural or added through water fluoridation), fluoride supplements, and some foods and drinks. Topical fluoride is found in most toothpastes, some mouthwashes and is also applied by a dental health professional in a school or office setting.

Calcium

Teeth are composed of many minerals, one of which is calcium. Calcium helps build strong bones and teeth. It is initially incorporated into teeth as they grow and develop. But after teeth have formed, calcium is still important as it can restore tooth minerals that are lost due to acid attacks.

Oral Health Background Information

Sealants can help protect teeth from cavities for many years.

The mouth is the most frequently injured area of the body among children and young adults when playing sports.

Calcium is found in milk products, some fruits and vegetables, and some legumes and nuts. Cheese is an excellent source. It not only provides calcium, but cheese also increases the secretion and alters the composition of saliva, neutralizing both plaque and acids and increasing the clearance of food from the mouth. Therefore eating a piece of cheese with a meal, dessert, or snack, is recommended to help prevent cavities.

Sealants

Dental sealants are thin protective plastic coatings applied to the chewing surfaces of the molars by dental health professionals. They act as a physical barrier, filling the pits and grooves where food and bacteria can stick and cause cavities. Although they help protect the chewing surfaces, it is still important to brush these areas thoroughly. Sealants do not protect areas in between the teeth, therefore it is important to floss these surfaces.

Permanent molars can be sealed as soon as they erupt – between the ages of five and seven (Grades K to 2) for the first molars and ages eleven and fourteen (Grades 6 to 9) for the second molars. Sealants can help protect teeth from cavities for many years. However, they can wear down over time and should be checked during regular dental visits.

Smile Protectors

The mouth is the most frequently injured area of the body among children and young adults when playing sports. Mouthguards work like shock absorbers for the mouth. They provide a cushion to redistribute the force from impacts that could break or loosen teeth, dislocate the jaw or cause a concussion. They also protect the lips, cheeks, and tongue, so they are not accidentally bitten.

Mouthguards are available commercially from sports stores and custom-made by dental offices. Commercial mouthguards are pre-formed for a person to fit at home. Mouthguards from a dental office give the best protection and comfort, as they are specifically designed for each individual. Children need to replace their mouthguards regularly because as their mouths grow, teeth are lost and new teeth erupt.

Anyone active in sports should wear a mouthguard to help prevent painful and costly mouth injuries.

Mouth injuries can also happen in instances other than when playing sports. It is important to keep teeth safe, to prevent them from getting hurt or broken. If teeth are not protected they may chip, break or be knocked out. This may cause mouths to be hurt and damaged teeth can make chewing, speaking, and smiling more difficult.

Oral Health Background Information

Mouthguards from a dental office give the best protection and comfort, as they are specifically designed for each individual.

Ways to Keep Teeth Safe

- Wear safety gear for playing sports and practices – like mouthguards, helmets, and face shields.
- Be aware of others around you – don't swing bats or kick balls when others are unaware or within reach.
- Always wear your seatbelt.
- Don't use your teeth as tools – teeth are not meant for opening bags or holding things such as pencils, eyeglasses, etc.
- Don't push others at the water fountain or on playground equipment.

A Knocked-Out Tooth!

If a permanent tooth (not a primary tooth) is knocked out, it is possible for that tooth to be put back in its place and to heal so that the tooth can be saved. It is important to act quickly when a permanent tooth is knocked out, in order to have better success in saving the tooth. The actions to be taken are described as follows:

If it is a primary tooth:

- Leave it out
- Instruct child to inform their parent, who should discuss with dentist at next dental appointment

If it is a permanent tooth:

- Find the tooth
- Handle by the crown only, not the root portion
- Choose one of the following, depending on whether it is possible to reinsert the tooth:
 1. Reinsert Tooth
 - Gently rinse off tooth, if necessary, without over handling
 - Try to reinsert into tooth socket
 - Have child bite on clean piece of cloth or gauze, to hold tooth in place
 - Have child see a dentist as soon as possible
 - OR
 2. Unable to Reinsert Tooth
 - Keep tooth moist in cool milk or water
 - Have child take the tooth and see a dentist as soon as possible

Oral Health Background Information

Dental checkups and cleanings should be scheduled regularly – at least once a year, or as often as the dentist recommends.

A Visit to the Dental Office

By the time children are in school, they should have had a few visits to a dental office. Dental checkups and cleanings should be scheduled regularly – at least once a year, or as often as the dentist recommends. Regular dental checkups help to find tooth and gum problems early, making them easier to fix. A dental visit also provides services, such as fluorides and sealants, to help prevent cavities. As well, these appointments are opportunities to learn how to take care of the teeth and gums, and for parents and children to ask questions.

Some children may be worried about having a dental appointment. Explanations about the dental office and equipment and the roles and responsibilities of dental health professionals will help children understand what to expect when visiting the dentist and dental hygienist.

There are a variety of dental health professionals who work as a team to promote life-long dental health habits and positive attitudes to help you keep your teeth for a lifetime!

Web Site References

See these web sites for more information.

If more information is desired about any of the topics in the Background Information, these web sites are good references:

www.ada.org

A site full of information, as well as animations, about different oral health topics.

- Developed by the American Dental Association

www.adha.org

Clicking on *Patient Education* brings up a variety of dental topics about which this site offers information.

- Developed by the American Dental Hygienists' Association

www.askadentalhygienist.com

Under the *Oral Health* section, many current dental topics are explained and discussed.

- Developed by the Alberta Dental Hygienists' Association

www.cda-adc.ca

The *Your Oral Health* section has information about various dental topics. One topic includes *Information for Parents and Teachers*.

- Developed by the Canadian Dental Association

www.cdha.ca

The *Oral Care Centre* section contains facts and tips, and information about frequently asked questions.

- Developed by the Canadian Dental Hygienists' Association

www.parentsplace.com

Click on *Dentist*, under *ask the expert*, and information about many different dental topics can be accessed.

- Developed by iVillage

www.umanitoba.ca/outreach/wisdomtooth

This site contains information about a variety of dental topics.

- Developed by the University of Manitoba, School of Dental Hygiene

<http://yourhealth.calgaryhealthregion.ca>

Under the *Health Topics* section, click on *Dental Health Mouth and Teeth*. This will provide access to information about various dental topics.

- Developed by the Calgary Health Region

Web Site References

For more lesson plans and activities, try these web sites.

Have your students check out these interactive web sites for fun ways to learn about oral health.

Many web sites also contain great ideas for classroom lesson activities and computer games for students to play, which focus on dental health education. Some of these web sites have been listed under Optional Activities in the lessons for this manual, when the web site activities reinforce the lessons taught. Here are some web sites to try:

www.abcteach.com/directory/theme_units/science/teeth

This site contains print-off sheets for puzzles, songs, and tooth-shaped storybooks.

- Developed by teachers

www.ada.org

Under the *Animations & Games* section, many different computer games can be accessed for students of various ages.

- Developed by the American Dental Association

www.adha.org/kidstuff/index.html

Here you can locate commonly asked questions, access games for students to play or locate other neat links.

- Developed by the American Dental Hygienists' Association

www.atozteacherstuff.com/lessonplans

This site has a variety of lesson plans, when the word "Dental" is typed in as the search word. The lesson plans are labeled for the grade(s) they are most appropriate for.

- Developed by a teacher, for teachers

www.bmcc.org/Headstart/Dental

This site contains several lesson plans, which address a variety of different dental topics.

- Developed by the Head Start Bureau of the U.S. Department of Health and Human Services

www.colgate.com

The Colgate Company has developed a site where a variety of different activities can be accessed by clicking on *Kids World*. Options include: Brushing charts, artwork, colouring pages, Toothman and Tell the Tooth games, fun facts, and other kids links. Have a look and enjoy the variety of this site!

- Developed by the Colgate-Palmolive company

www.colgatebsbf.com

This is another site from Colgate. It features games, activities, and facts for kids in Kindergarten to Grade 3. Along with oral health information the activities incorporate skills of art, social studies, cultural awareness, etc.

- Developed by the Colgate-Palmolive company

Web Site References

Some of these web sites are listed under Optional Activities, specific for each lesson.

www.crestkids.com

This site has a variety of interactive computer games that teach and reinforce dental health concepts.

- Developed by Proctor and Gamble

www.dupagehealth.org/health_ed/dental_month.html

A web site with a variety of activities organized into different dental topics.

- Developed by the DuPage County Health Department

www.educate.org.uk/teacher_zone

Typing in the word "dental" in the *Search* section, will provide access to some science lesson plans which focus on dental health. There are also some worksheets that can be printed.

- Developed by Schoolsnet

www.healthyteeth.org

This oral health education site provides information about a variety of topics. Topics include: teeth and gums, prevention, cavities, braces, experiments and activities, tobacco, and a visit to the dentist.

- Developed by the Nova Scotia Dental Association

www.jbutler.com

Click on the *United States* version and then on the *Kids Stuff* section and it will bring you into a site where there is information, games and printable activities.

- Developed by Sunstar Butler

www.kinderhive.net/teeth.html

A site filled with activities, books, videos, and songs that can be used to teach a dental health lesson.

- Developed by a teacher

www.liberty.k12.ga.us/techconnect/dental.htm

An excellent summary of many great web sites that can be accessed for: information, activities, lesson plans, and resources.

- Developed by Liberty County Technology Office

www.mndental.org

A web site with classroom activities for preschool to grade 12, as well as games and colouring sheets. The section titled *Sip All Day Get Decay* has excellent information and interactive activities which show how soda pop can affect teeth.

- Developed by the Minnesota Dental Association

Web Site References

www.sdcoe.k12.ca.us/smiles/activities.html

This site contains dental storybooks, puppets and songbooks to make.

- Developed by the San Diego County, Office of Education

www.sportsdentistry.com

This site is helpful to access more information or pictures about mouthguards and what to do if a tooth is knocked out.

- Developed by Sports Dentistry Online

www.teachingheart.net/teeth.html

This web site has instructions for several activities, as well as songs and poems and books to read, that can reinforce dental concepts.

- Developed by a teacher

www.thesmilestones.com

A site with interactive computer games, short stories to read, and songs.

- Developed by John Poulter

www.themeday.com/toothday_theme_home.htm

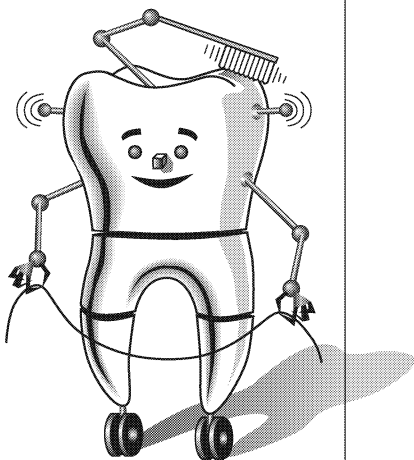
This site contains dental health lesson plans that are integrated into other subjects, links to other web sites, and lists of storybooks that have dental themes.

- Developed by a teacher

www.wku.edu/~melanie.franks/unit.html




This web site contains several lesson plans for dental health lessons.

- Developed by a teacher



Health and Life Skills Curriculum Chart

This chart shows which oral health lessons for Grade Three are designed to meet the general and specific outcomes in the Health and Life Skills curriculum. Numbers (e.g. W-3.2) are listed which correspond to the specific outcomes as outlined in the curriculum.

General Outcomes	Specific Outcomes	Lessons
 Wellness Choices		
W-3.2	Improve and practice positive health habits	1, 3, 4, 5, 6, 7, 8
W-3.3	Examine that individuals grow through similar stages of development at different rates and at different times	2
W-3.4	Recognize factors that influence unique body characteristics	3, 4, 5, 6, 7
W-3.5	Apply guidelines from <i>Canada's Food Guide to Healthy Eating</i> to individual nutritional circumstances	4, 5
W-3.8	Employ practices that provide safety for self and others	1, 6
 Relationship Choices		
R-3.5	Develop strategies to build and enhance friendships	3
R-3.6	Demonstrate inclusive behaviours regardless of individual differences or circumstances	7, 9
R-3.8	Develop skills to work cooperatively in a group	1, 2, 6, 7, 9
 Life Learning Choices		
L-3.2	Identify ways individuals learn in various environments	3, 9
L-3.3	Generate alternative solutions to a problem, and predict consequences of solutions	3, 4, 5, 6, 7, 8
L-3.4	Identify the steps of the goal-setting process, and apply these components to short-term personal goals	1, 3, 4, 5, 6, 7, 9
L-3.5	Examine personal skills and assets	3
L-3.6	Examine the responsibilities associated with a variety of age-appropriate roles	1, 3, 7
L-3.7	Assess how individual contributions can have a positive influence upon the family, school and community	3

Integration of Curricula Chart

Each oral health lesson for the Grade Three level addresses more than one general health outcome and is integrated with other curricula. This chart identifies all of the general outcomes for Health and Life Skills, Science, and Language Arts, which are covered in each oral health lesson. Under the general outcomes for Health and Life Skills, numbers are listed (e.g. W-3.2) which refer to the specific health outcomes each lesson addresses, as outlined in Alberta Learning's Program of Studies in Health and Life Skills.

Oral Health Lessons	Health and Life Skills			Science	Other Curricula
	Wellness	Relationship	Life Learning		
1	W-3.2 W-3.8	R-3.8	L-3.4 L-3.6		Exploring Thoughts & Experiences Managing Information Artistry & Clarity
2	W-3.3	R-3.8		Inquiry	Comprehension Managing Information Respect, Support & Collaborate
3	W-3.2 W-3.4	R-3.5	L-3.2 L-3.3 L-3.4 L-3.5 L-3.6 L-3.7	Inquiry	Exploring Thoughts & Experiences Comprehension Artistry & Clarity
4	W-3.2 W-3.4 W-3.5		L-3.3 L-3.4	Inquiry	Exploring Thoughts & Experiences Managing Information Artistry & Clarity
5	W-3.2 W-3.4 W-3.5		L-3.3 L-3.4	Inquiry Problem Solving	Exploring Thoughts & Experiences Managing Information
6	W-3.2 W-3.4 W-3.8	R-3.8	L-3.3 L-3.4	Inquiry Problem Solving	Exploring Thoughts & Experiences Managing Information Respect, Support & Collaborate
7	W-3.2 W-3.4	R-3.6 R-3.8	L-3.3 L-3.4 L-3.6	Inquiry Problem Solving	Exploring Thoughts & Experiences Managing Information Respect, Support & Collaborate
8	W-3.2		L-3.3		Exploring Thoughts & Experiences Comprehension Artistry & Clarity
9		R-3.6 R-3.8	L-3.2 L-3.4		Comprehension Managing Information Artistry & Clarity

Healthy Mouths are Happy Mouths

General Outcome Wellness Choices

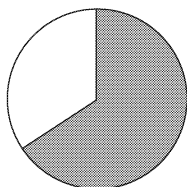
Specific Outcome

**Students
will improve
and practice
positive
health habits.**

Dental Outcome

**Students
will practice
brushing and
flossing.**

Time: 40 minutes



Materials

- Chalkboard and chalk or chart paper and marker
- Large lettered title "Healthy Mouths" (made ahead by teacher)
- Designated "Dental Health Centre" area in the classroom (can be chosen during class time; optional to maintain throughout the school year)
- Photocopy of **I am Robo-Tooth** enlarged for "Dental Health Centre"
- Photocopy of **Mouth Model** – make 1 copy for brushing demonstration; teacher should cut out, and glue or tape together, ahead of class time (may take 5-10 minutes)
- Option – teacher to bring 1 toothbrush, for use on paper mouth model
- Option – borrow plastic mouth model and toothbrush from local health centre (to be used instead of paper mouth model for brushing demonstration)
- Option – ask each student to bring a clean new toothbrush in its package to class
- Photocopies – 1 copy for each student of handouts (can be printed back-to-back):
 - **How Does Robo-Tooth Brush?**
 - **Flossing with Robo-Tooth**
- Pieces of yarn approximately 30 - 45 cm long (12 - 18 inches) – 1 piece for every 2 students
- Copy of **My Dental Health Calendar** – photocopied onto an overhead transparency
- Photocopies of **I Remember My Teeth** – 1 copy for each student
- Pencils

Activity

- Explain to students that you want to review with them what they already know about taking care of their teeth and gums.
 - Allow a couple of minutes for students to list as many dental health words as they can.
 - Write words on the board or a piece of chart paper, as they are listed.
 - Keep this list available throughout the lesson so other dental words can be added.
- Have students choose a special area of the classroom for the "Dental Health Centre."
 - Bring out the title "Healthy Mouths" and hang in this designated area. Explain to students that this is what they are going to be learning about.
 - Advise students that there will be on-going projects that will support the "Dental Health Centre."
- Hold up enlarged picture of **I am Robo-Tooth**.
 - Hang picture in the "Dental Health Centre" area.
 - Ask students if they recall seeing Robo-Tooth before.

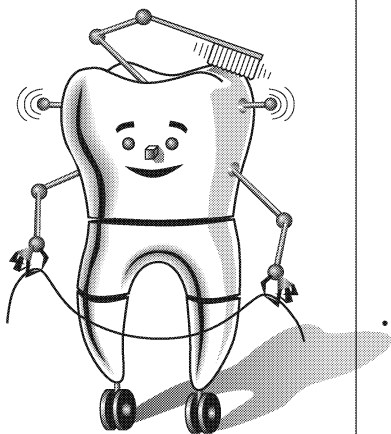
HEALTH

LANGUAGE ARTS



Healthy Mouths are Happy Mouths

Brush and floss thoroughly every day to remove plaque from the teeth and gums.



- Explain to students that Robo-Tooth is a very smart robot who knows a lot about teeth. Robo-Tooth has come to visit the class to help the students learn more about keeping their teeth and gums healthy.
- Explain to students that if they met Robo-Tooth during previous grades, Robo-Tooth would have already taught them a lot about having a healthy mouth. Review with students the things that Robo-Tooth has already taught about how to have a healthy mouth:
 - Brush at least twice a day.
 - Floss once a day.
 - Eat healthy foods.
 - Use fluoride toothpaste to keep teeth strong.
 - Visit the dental office at least once a year.
 - Have sealants put on the grooves of your teeth.
 - Protect teeth by playing safe and wearing a mouthguard during sports.
 - Permanent teeth should last a lifetime.
- Explain to students that you want to review with them the brushing method that Robo-Tooth has taught them. Ask students the following:
 - What are the germs called that we brush away from our teeth and gums?
(Plaque)
 - Is it better to brush in gentle circles or to scrub back and forth?
(Little circles – circles gently clean plaque away from our gums and teeth.)
 - How many circles should we make with our toothbrush in each area we are brushing?
(10 circles)
 - Do we need to brush our gums?
(We should gently brush beside our gums.)
 - Should we clean our tongue?
(Yes, we should gently clean our tongue.)
 - How many minutes should it take to brush all areas?
(At least 2 minutes.)
- Discuss with students that they need to brush all of their teeth, both top and bottom teeth. All areas need to be brushed, including:
 - Outside surfaces – have students use their tongue to feel the lip-side / cheek-side surfaces of their teeth.
 - Inside surfaces – have students use their tongues to feel the tongue-side / palate-side surfaces of their teeth.
 - Bumpy, chewing surfaces – have students use their tongues to feel the bumpy top surfaces of their back teeth.
- Bring out paper mouth model that was made ahead of time, or use plastic mouth model and brush that were borrowed. Explain to students that you are going to use this mouth model to show them how Robo-Tooth brushes.

Healthy Mouths are Happy Mouths

Don't rush the brush!

Take at least 2 minutes to brush plaque from the outside, inside and chewing surfaces of the teeth.

- Explain to students that they will be following along with you as you demonstrate on the mouth model.
 - If students have brought toothbrushes to class, ask them to get their toothbrushes and explain that they will be brushing along with you. Note: if students are brushing in class, they will occasionally have to swallow their saliva. As toothpaste is not being used, explain to students that they can swallow as needed.
 - If students did not bring toothbrushes, have them count along with you. Option – count in other languages, if appropriate.

- Explain to students that now they are ready to brush.
 - Using a toothbrush or your pointer finger, demonstrate on the mouth model, brushing the outside surfaces of the top teeth first. Start at the last back tooth on the right side and brush your way along the surfaces until you reach the last back tooth on the left side. Follow the pattern of back, corner, front, corner, back – count to 10 in each area, making very small circles with the brush angled (45-degrees) toward the gums.
 - Open the mouth model and brush the inside surfaces of the top teeth. Again, start on one side and brush until you reach the last back tooth on the other side. Continue to follow the pattern – back, corner, front, corner, back – counting to 10, making small circles, and angling the brush.
 - Open the mouth model and brush the chewing surfaces of the top back teeth. Count to 10 on both the right and left sides.
 - Repeat the above instructions for the bottom teeth – outside, inside, and chewing surfaces.
 - Remind students that at home they should clean their tongue using a gentle sweeping motion.
 - Have students carefully place their brushes back into the packages, for returning home.

- Explain to students that they may use toothpaste when they brush at home. Fluoride in toothpaste makes teeth stronger and helps prevent cavities. Toothpaste does not clean the teeth – brushing cleans the teeth.
 - Write “fluoride” on the list of dental words that was started at the beginning of the lesson, if students did not already list this word.
 - Discuss that they should use only a small amount of toothpaste, i.e. the size of a small green pea, or the size of the fingernail on their smallest finger.
 - Discuss that toothpaste should be spit out and not swallowed.

- Remind students that they should take at least two minutes to brush their teeth so the plaque is cleaned away from all places where germs can hide.

Healthy Mouths are Happy Mouths

Floss cleans plaque from in between the teeth where the toothbrush cannot reach.

Floss once a day and brush every morning and night.

- Ask students to think of ways they could time the two-minute brushing. *(Use egg timer; set stove or microwave timer; ask parent to watch clock; brush while listening to one of their favourite songs – most songs are at least two minutes long.)*
- Ask students how often they need to brush their teeth in one day. *(At least twice a day – every morning and night; ideally after every meal.)*
- Emphasize that brushing at night before bed is very important. Why do the students think this is important? *(It is important to have clean mouths when we sleep – even when we sleep, the plaque germs can harm our teeth if we have not brushed the germs away.)*
- Explain to students that thorough brushing will clean plaque away from three sides of their teeth – the outsides, insides, and chewing surfaces.
- Explain to students that teeth each have two more sides that need to be cleaned – the two in-between sides.
 - Ask students what they should use to clean these two sides. *(Floss)*
 - Explain to students that floss cleans plaque and food away from places their toothbrushes cannot clean.
 - Ask students how often they need to floss in one day. *(Once a day)*
- Explain to students that Robo-Tooth has left some instructions about brushing and flossing.
 - Give each student a copy of the double-sided handout **How Does Robo-Tooth Brush?** and **Flossing with Robo-Tooth.**
 - Explain that the **How Does Robo-Tooth Brush?** side contains instructions for brushing at home.
 - Have students turn to the **Flossing with Robo-Tooth** side.
 - Have students look at the three diagrams on the lower half of the page.
 - Discuss with students that it is important to gently slide the floss between their teeth, and to curve the floss around the sides of each tooth.
- Explain to students that they are going to practice flossing.
 - Ask students to team up into partners and to bring their **Flossing with Robo-Tooth** sheet when they join their partner.
 - Give each pair a piece of yarn.
 - Have one student from each pair volunteer to be the “teeth.” This student should hold his / her hand up in front of his / her partner, with fingers lightly closed together. Explain to students that this represents their teeth which are side by side in their mouths.

Healthy Mouths are Happy Mouths

Flossing takes practice so students need a parent's help to floss.

- Explain that the other student from each pair will be the “flosser.” Have these students:
 - Take the piece of yarn and wrap each end gently around their middle fingers (as shown in the first diagram on the **Flossing with Robo-Tooth** sheet).
 - Pinch the yarn with their thumbs and forefingers (as shown in the second diagram on the **Flossing with Robo-Tooth** sheet) and slide it gently between two of their partner’s fingers.
 - Gently curve the yarn around each of their partner’s fingers and move the “floss” up and down the sides of each finger (similar to the three diagrams on the lower half of the **Flossing with Robo-Tooth** sheet).
- After a few minutes of practicing have students switch roles with their partner.
- Explain to students that flossing their teeth may seem hard to do at this age, but it gets easier with practice and it is a good idea for them to get their parents to help.
- Explain to students that even though they can get help from their parents, they should be responsible for remembering that their teeth must be brushed and flossed every day.
- Tell students that one way they can remember to brush and floss every day and to do the other things that keep their mouths healthy, is to use a “Dental Health Calendar.”
 - Show the **My Dental Health Calendar** overhead.
 - Explain to students that using such a calendar can help remind them what they need to do to have a healthy mouth because the calendar includes:
 - A method to record their daily brushing and flossing for at least a month. They will colour a picture for each day that they brush and floss.
 - Tips to remind them about other things they should do to have healthy mouths (e.g. Cheese is good for my teeth!).
- Explain to students that they are going to individually design their own “Dental Health Calendar.”
 - Distribute a copy of **I Remember My Teeth** to each student.
 - Have students draw one picture, of something that relates to dental health, in each of the squares. Pictures should be drawn in pencil in outline form so that they can be coloured at home.
 - Have students complete the three sentences on their calendars, about things they can do to have healthy mouths.

Healthy Mouths are Happy Mouths

A Dental Health Calendar can help students remember to brush and floss every day.

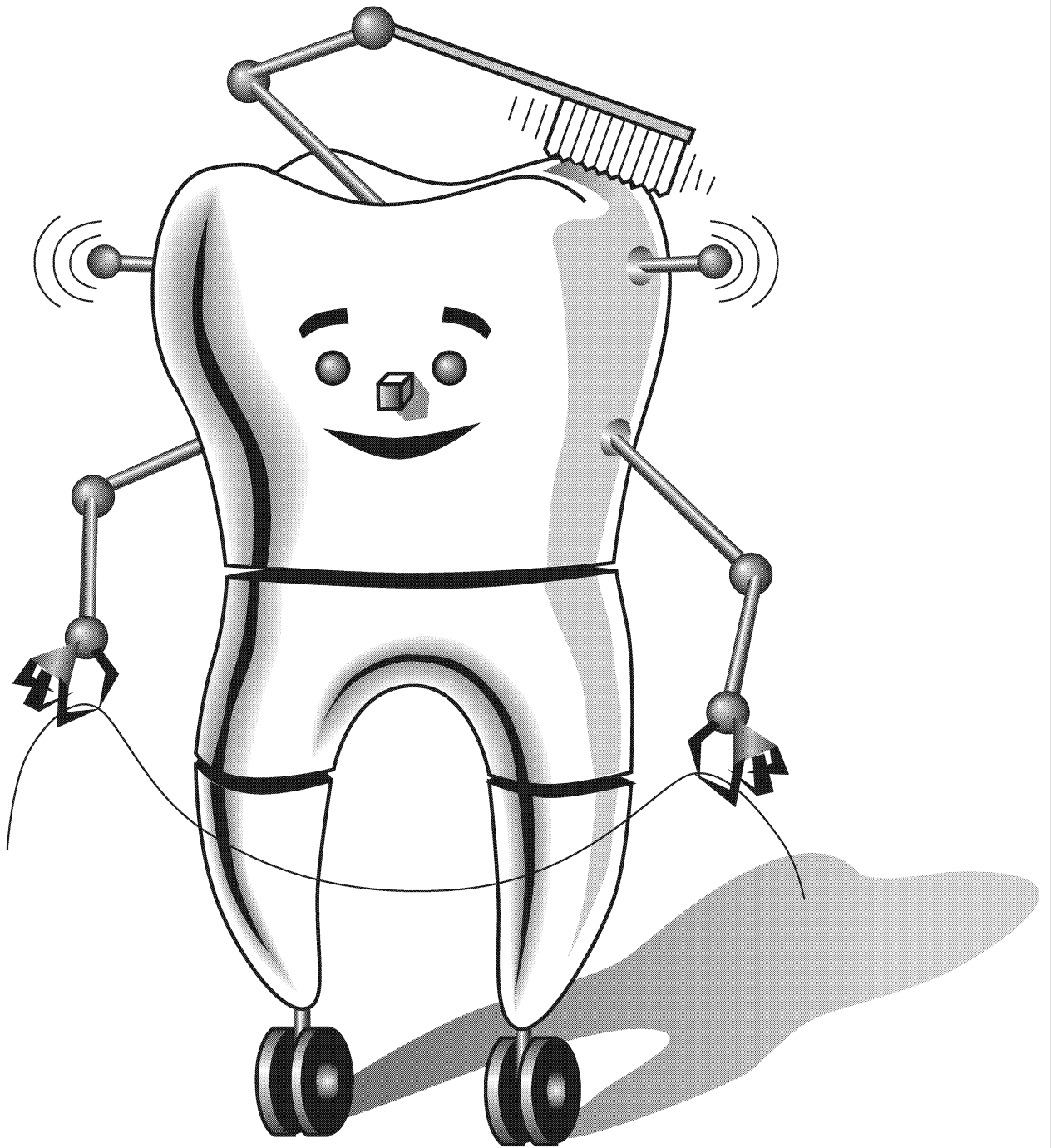
- Have students take their calendars home, show them to their parents, and use the calendar for the month. Students should colour in the picture on each day that they both brush and floss their teeth.
- Tell students that they are going to use some dental words for their spelling list that week.
 - Refer back to the list of dental health words, that was made on the board or chart paper.
 - As a class, select five of the words to be used for the spelling list.
 - Have students copy down the chosen words into their spelling books.

Optional Activities

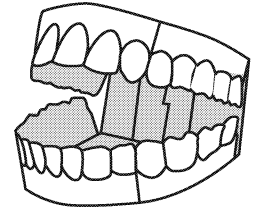
- Instead of having students draw pictures for their calendars during class time, have them take the blank **I Remember My Teeth** sheet home. Each day when they brush and floss their teeth, they can draw in and colour a picture.
- Have students bring their completed calendars back to class at the end of the month. Each student could show the class their calendar and talk about one of the pictures they drew on their calendar and one of the reminder tips they wrote on it.
- Instead of having students make their own calendars, make photocopies of the **My Dental Health Calendar** sheet and distribute a copy to each student. Students can take these sheets home and colour in a picture for each day they brush and floss.
- Have students write sentences using the list of dental health words that was formulated.
- Access some extra activities about plaque by visiting www.dupagehealth.org/health_ed/plaque.html, and clicking on *What is Plaque?*
- Make one copy for each student of the **Mouth Model** to colour, cut out and glue.

(Enlarge for hanging in "Dental Health Centre.")

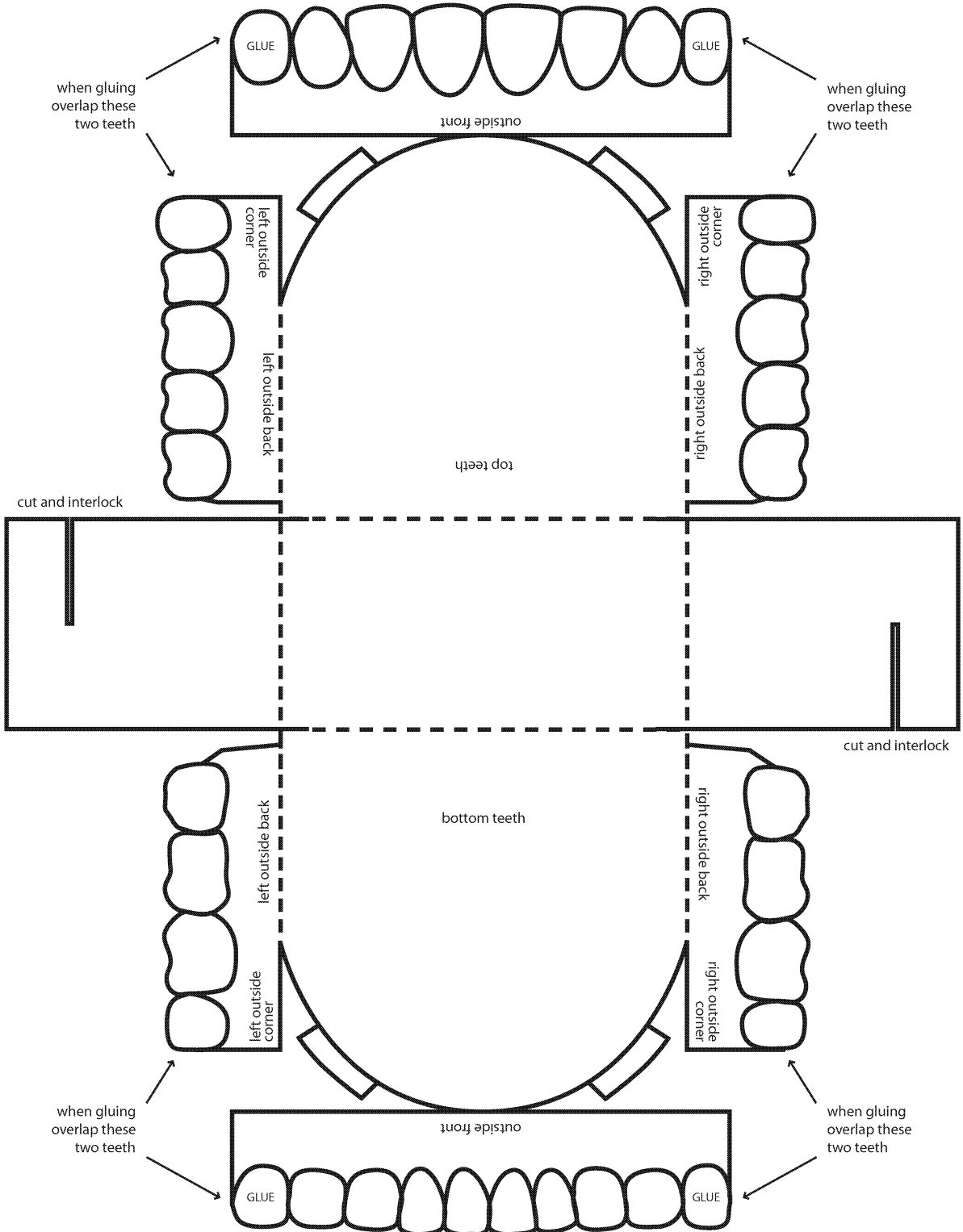
I am Robo-Tooth

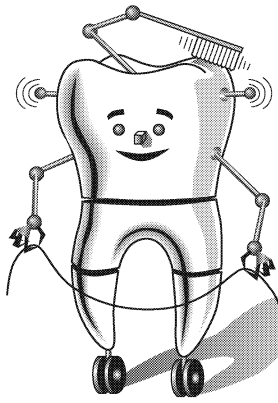


For teacher's use only – to be used for toothbrushing demonstration



Mouth Model

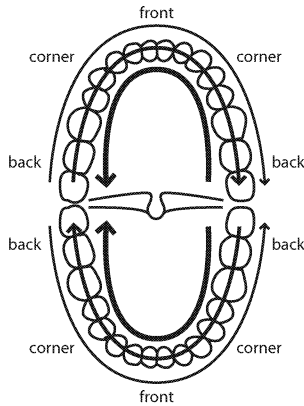




How Does Robo-Tooth Brush?

PARENTS:

Until children are at least 8 years old, parents should brush their children's teeth and gums at bedtime. When helping your child brush, please follow these simple instructions.

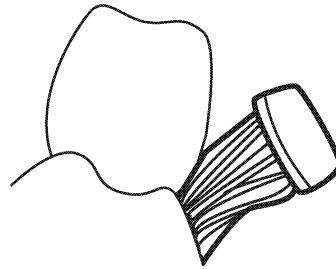


Brush outside, inside, and chewing surfaces of the teeth.

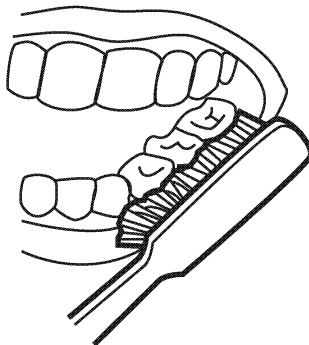
Follow a pattern on the top and bottom.

Brush both teeth and gums.

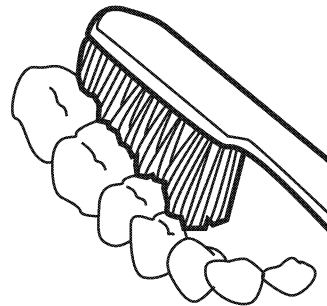
Hold the toothbrush bristles at an angle (45°) against the gums.



Move the toothbrush in small circular motions, counting to 10 for every two teeth.

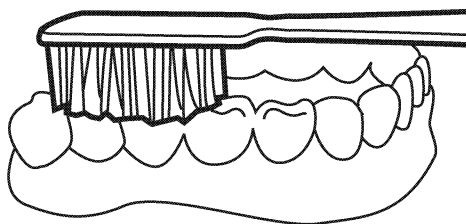


Brush the outsides of the teeth along the gums, following the order of back → corner → front → corner → back.

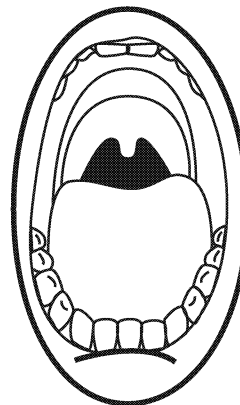


Brush the insides of the teeth along the gums, following the order of back → corner → front → corner → back.

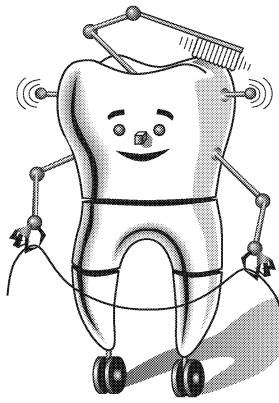
Brush the chewing surfaces of the teeth.



Remember to gently brush the tongue.



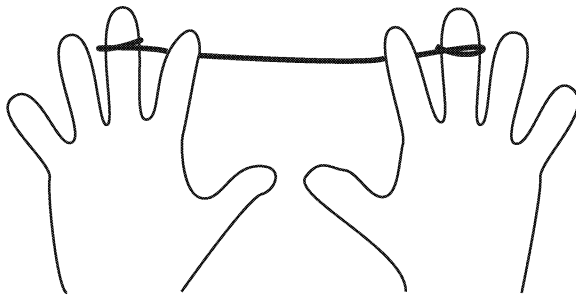
- Use no more than a pea-sized amount of fluoride toothpaste.
- Parents should dispense the toothpaste. Keep out of reach of small children.
- Toothpaste should be spit out and not swallowed.



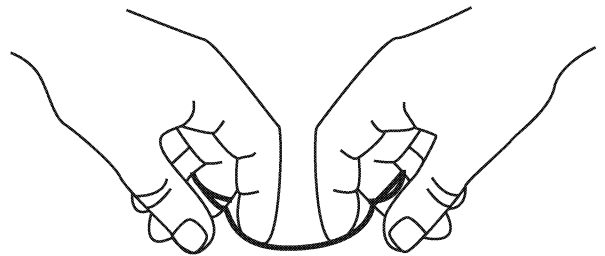
Flossing with Robo-Tooth

Flossing removes harmful dental plaque from between your teeth and under your gums, where the toothbrush does not clean. Floss once a day to keep your teeth and gums healthy.

Holding Floss

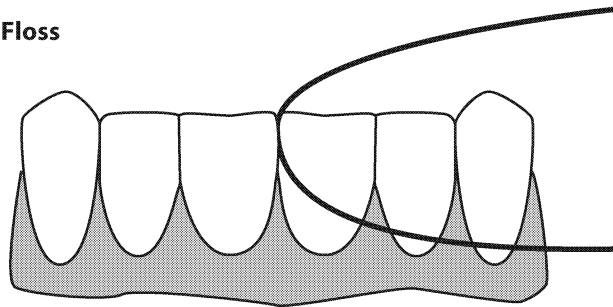


Wrap 30 – 45 cm (12 – 18 inches) of floss around the middle fingers of your hands, until there is about 8 cm (a few inches) of floss between them.

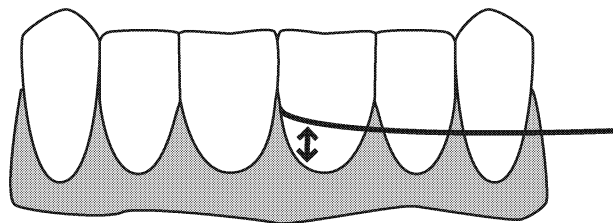


Hold the floss between your thumbs and index fingers. The fingertips should be about 1 cm (1/2 inch) apart.

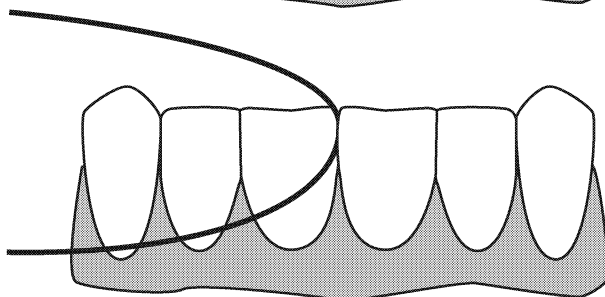
How to Floss



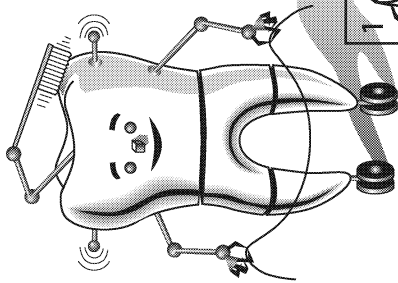
Gently guide the floss between your teeth, using a short back and forth motion. Never snap the floss into the gum. Bend the floss around the tooth in a “C” shape.



Gently move the floss up and down on the side of the tooth and slightly under the gum.



Bend the floss the other way onto the next tooth, and move the floss up and down. Floss both sides of each tooth, moving to a clean area of floss before guiding the floss in between the next teeth.



My Dental Health Calendar

Colour the item in the square for each day that you brush and floss.

1		2		3		4		5		6		7	
---	--	---	--	---	--	---	--	---	--	---	--	---	--

I should floss once a day!

I need to protect my teeth!

8		9		10		11		12		13		14		15	
---	--	---	--	----	--	----	--	----	--	----	--	----	--	----	--

Cheese is good for my teeth!

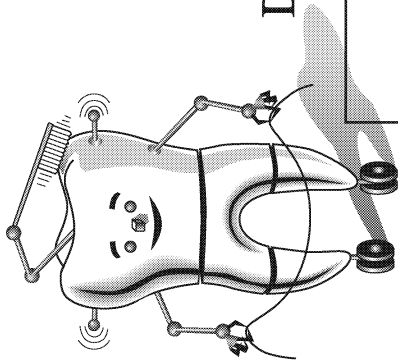
Only use a pea-size amount of toothpaste!

16		17		18		19		20		21		22		23	
----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--

I need to brush at least twice a day!

I wonder when my next dental appointment is!

24		25		26		27		28		29		30		31	
----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--



I Remember My Teeth

Draw a picture in each square for every day that you brush and floss.

--	--	--	--	--	--	--	--

I keep my teeth healthy by _____

--	--	--	--	--	--	--	--

I should remember to _____

--	--	--	--	--	--	--	--

_____ is good for my teeth.

--	--	--	--	--	--	--	--

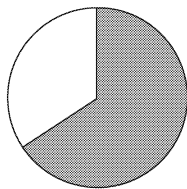
Teeth Grow and Change

General Outcome Wellness Choices

Specific Outcome
Students will examine that individuals grow through similar stages of development at different rates and at different times.

Dental Outcome
Students will recognize that they will have two sets of teeth and that each person grows at different rates.

Time: 40 minutes



Materials

- Overhead projector
- Copy of **Permanent Teeth** – photocopied onto an overhead transparency
- Photocopy of **I am Robo-Tooth** enlarged (found in Lesson 1)
- Copy of **Primary and Permanent Teeth** – photocopied onto an overhead transparency
- Copy of **Parts of the Tooth** – photocopied onto an overhead transparency
- Copy of **Parts of the Tooth – Reference Sheet** – for teacher’s reference only
- Transparency pen
- Copy of **Permanent Teeth – Reference Sheet** – for teacher’s reference only
- Chalkboard and chalk / whiteboard and marker
- Photocopies of the following picture sheets:
 - **Incisor** – 4 copies
 - **Cuspid** – 2 copies
 - **Bicuspid** – 4 copies
 - **Molar** – 6 copies
- Photocopies – 1 copy for each student of handouts (can be printed back-to-back):
 - **Parts of the Tooth Activity Sheet**
 - **Types of Teeth and Their Jobs**
- Copy of **Types of Teeth and Their Jobs – Answer Key** – for teacher’s reference only

Activity

- Show the **Permanent Teeth** overhead.
 - Ask students what they see in the picture.
(Mouth, teeth)
 - Explain to students that this is a set of adult or permanent teeth. Ask students what the word “permanent” means.
(Something that lasts forever)
 - Explain to students that the permanent set of teeth is the second set, or adult teeth, and they are meant to last for a lifetime.
- Introduce students to Robo-Tooth as described in Lesson 1, if students are not familiar with Robo-Tooth.
 - Use enlarged picture of **I am Robo-Tooth** for this introduction.
 - Explain to students that Robo-Tooth knows a lot about teeth and has come to visit the class to help the students learn about their two sets of teeth.
- Show the top half of the **Primary and Permanent Teeth** overhead.
 - Explain to students that this is looking at a person from the side, so only half of the primary and permanent teeth are seen here.
 - Point out the “Primary Teeth” and explain that these are the first set of teeth that grew in when they were younger. Some of their 20 primary teeth may have fallen out and this set will continue to fall out until they are about 12 years old.

HEALTH

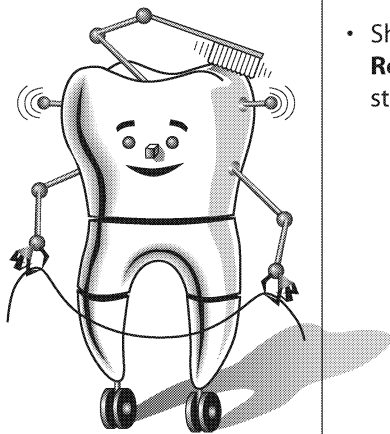
SCIENCE

LANGUAGE ARTS



Teeth Grow and Change

Grade Three students have both primary and permanent teeth in their mouths, called a mixed dentition.



- Point out the “Permanent Teeth” and explain that this second set of teeth started growing into their mouths when they were about 6 years old. Discuss that most of these teeth grow from underneath the primary teeth, but some of the back teeth grow in behind the primary teeth.
- Show the lower half of the **Primary and Permanent Teeth** overhead.
 - Point to the lower diagram of the “Primary Teeth.” Explain to students that this is looking at a mouth from the front, when it is open wide showing all of the primary teeth. Count the 20 primary teeth – 10 on the top and 10 on the bottom.
 - Point to the lower diagram of the “Permanent Teeth.” Explain to students that this is a mouth showing all of the permanent teeth. Count the 32 permanent teeth – 16 on the top and 16 on the bottom.
 - Explain to students that at their age they may not have the same number of teeth that is shown in the diagrams. They will likely have a mixture of both primary and permanent teeth in their mouths because they may have lost some primary teeth and may have grown some new permanent teeth. They may have a different number of teeth from one another. Everyone is unique and grows at different rates and loses teeth at different times.
- Explain to students that each tooth, whether it is primary or permanent, is made of the same basic structure.
- Show the **Parts of the Tooth** overhead and have the **Parts of the Tooth – Reference Sheet** available for easy reference. Discuss the following with students:
 - Point to the top section of the tooth and ask students if they know what this part is called. (Note: you may need to give students a hint by saying that it has the same name as the item that kings and queens may wear on their heads.)
(Crown)
 - Write “Crown” on the appropriate line of the transparency, indicating that this is the name of the top section of the tooth.
 - Explain to students that the crown of a tooth is the part of the tooth that they can see when someone smiles at them or when they look in their own mouth.
 - Point to the bottom section of the tooth and ask students if they know what this part is called. (Note: you may need to give students a hint by saying that it has the same name as the part of a tree that grows under the ground.)
(Root)
 - Write “Root” on the appropriate line of the transparency, indicating that this is the name of the lower section of the tooth.
 - Ask students what other things have roots.
(Trees, plants, hair)

Teeth Grow and Change

Each tooth has the same basic structure.

Enamel, the outside covering of the crown, is the hardest substance in our bodies.

The pulp is the living part of the tooth. It contains nerves and blood vessels.

- Explain to students that the roots of a tree help to hold the tree firmly in the ground. Ask the students what they think the root of a tooth does. *(It holds the tooth firmly in our mouths.)*
- Explain to students that they do not see the roots of their teeth because the roots are covered by a special skin in their mouths. Ask students if they know what that skin is called. *(Gums)*
- Write "Gums" on the appropriate area of the transparency.
- Emphasize to students that the crown of a tooth is above the gums and the root is below the gums.
- Explain to students that the crowns of their teeth are covered with the hardest substance in their bodies. Do they know what that substance is called? *(Enamel)*
- Write "Enamel" on the appropriate area of the transparency.
- Explain to students that the enamel is hard and helps to protect the inside of the tooth, the living part of the tooth.
- Point to the inside part of the tooth and ask students if they know what this part is called. *(Pulp)*
- Write "Pulp" on the appropriate line of the transparency, indicating that this is the name of the inside section of the tooth.
- Explain to students that the pulp is the living part of the tooth because it contains nerves and blood vessels.
- Explain to students that the layer between the pulp and the enamel is called dentin.
- Write "Dentin" on the appropriate line of the transparency.
- Explain to students that the dentin is not as hard as the enamel. If acid makes a hole in the enamel, and the cavity is not fixed, the acid eats through to the dentin. Once the acid is in the dentin, the decay spreads more rapidly and may cause a toothache. If the decay spreads far enough, it gets to the inside of the tooth and irritates the pulp. If the cavity goes into the pulp, the living parts become infected.
- Explain to students that while every tooth has the same parts, different teeth in their mouths have differently shaped crowns. Do they know why this is? *(Because teeth have different jobs and need to be different shapes to do their jobs.)*
- Explain to students that they are now going to learn the shapes, names, locations and jobs of the four types of permanent teeth.
 - Put up the **Permanent Teeth** overhead again and have the **Permanent Teeth – Reference Sheet** available for easy reference.
 - Discuss with students that teeth at the front of the mouth look different than the back ones. Teeth have different shapes which match their jobs.

Teeth Grow and Change

Teeth have different shapes to match their functions.

There are 4 types of permanent teeth.

The job of incisors is to cut food.

- Explain to students that the front teeth are called the incisors.
 - Write "Incisor" on the board and have students repeat the word.
 - Point to the four upper and lower incisors on the transparency.
 - Explain to students that when they grow all of their permanent incisors, they will have 8 in total – 4 on the top and 4 on the bottom.
 - Ask students to use their tongues to feel the shape of their front teeth, or incisors.
 - Explain to students that these teeth should feel flat on the front and have a straight edge.
 - Explain that this shape helps the incisors do their job. Incisors have a job similar to scissors; incisors cut food.
 - Explain to students that they can remember the name of the incisors and their job if they think of scissors. Their names sound similar and they have the same job of cutting.

- Explain to students that the corner teeth are called the cuspids.
 - Write "Cuspid" on the board and have students repeat the word.
 - Point to the corner teeth, the cuspids, on the overhead.
 - Explain to students that when they have all of their permanent cuspids, they will have 4 in total – 2 on the top and 2 on the bottom; 1 in each corner.
 - Ask students to use their tongues to feel the pointy shape of their corner teeth, or cuspids.
 - Explain to students that these teeth are called cuspids, because "cusp" means point or peak. These teeth are also known as canines or eye teeth.
 - Explain that this shape helps the cuspids do their job. What cuspids do to food is similar to what a nail might do to a piece of cloth that gets caught on the nail. What would the nail do to the cloth?
(Rip it, tear it / hold and grasp)
 - Explain that cuspids hold onto the food, like a fork holds onto food, so the incisors can cut the food. The cuspids also tear the food when the incisors cannot cut it.
 - Explain to students that they can remember the cuspids if they think of the letter "c." The three words cuspid, canine, corner, all start with the letter "c."

- Explain to students that the teeth behind the cuspids are called the bicuspid.
 - Write "Bicuspid" on the board and have students repeat the word.
 - Point to the bicuspid on the overhead.
 - Discuss with students that when they have all of their bicuspid, they will have 8 in total – 4 on the top and 4 on the bottom. There are no bicuspid in the primary set of teeth, and students will likely not have any bicuspid at this time. These teeth start to grow in at about age 11 or 12 in the place of the primary molars.

Teeth Grow and Change

Cuspids are sharp and tear the food.

Bicuspids have two cusps and two jobs – they tear and crush.

Molars are used for grinding and crushing.

- Explain to students that a bicuspid is similar to the cuspids, but it is larger and has two peaks or “cusps.”
- Explain to students that besides having two cusps, these teeth also have two jobs. Bicuspids are sharp enough to tear food and big enough to crush and grind food.
- Explain to students that they can remember the information about the bicuspids if they think about the prefix “bi-”. This prefix means two and the bicuspid has 2 cusps and 2 jobs.

- Explain to students that the large teeth at the back of the mouth are the molars.
 - Write “Molar” on the board and have students repeat the word.
 - Point to the back teeth, the molars, on the overhead. Explain to students that this fourth type of tooth is the largest.
 - Explain to students that when they have all of their permanent molars, they will have 12 in total – 6 on the top and 6 on the bottom.
 - Explain to students that there are 3 different kinds of molars:
 - The first molars or six-year molars – these teeth grew into their mouths when they were about 6 years old.
 - The second molars or twelve-year molars – these teeth will grow into their mouths when they are about 12 years old.
 - The third molars or wisdom teeth – these teeth will grow into their mouths when they are about 18-20 years old.
 - Ask students to use their tongues to feel the shape of the last tooth – the six-year molar – in their mouths.
 - Explain to students that these teeth should feel bumpy and rough, with ridges and peaks. The molars are the largest teeth and each one has many peaks or cusps.
 - Explain to students that the shape of the molars helps them do their job. Molars work like a blender because they grind and crush food into small bits so it can be swallowed.

- Explain to students that they are going to do an activity about the locations and jobs of the permanent teeth.
 - Randomly distribute the copies of the **Incisor, Cuspid, Bicuspid,** and **Molar** picture sheets to 16 students and have these students stand up in front of the class.
 - Instruct students to work as a team to organize themselves into the correct order.
 - When the group feels that they are standing in the correct order, ask those students sitting at their desks to be judges. The judges should determine if the group has the teeth in the correct order of: molar – molar – molar – bicuspid – bicuspid – cuspid – incisor – incisor – incisor – incisor – cuspid – bicuspid – bicuspid – molar – molar – molar.
 - When the group is in the correct order, ask one student from each type of tooth to name and describe the job of their tooth.

Teeth Grow and Change

Students in Grade Three have their permanent incisors and six-year molars.

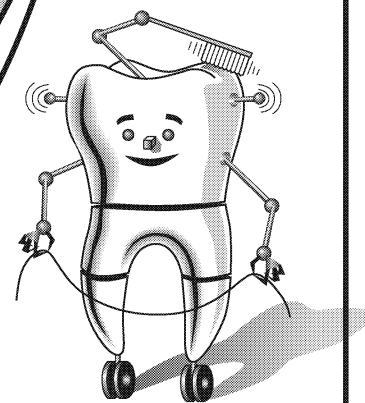
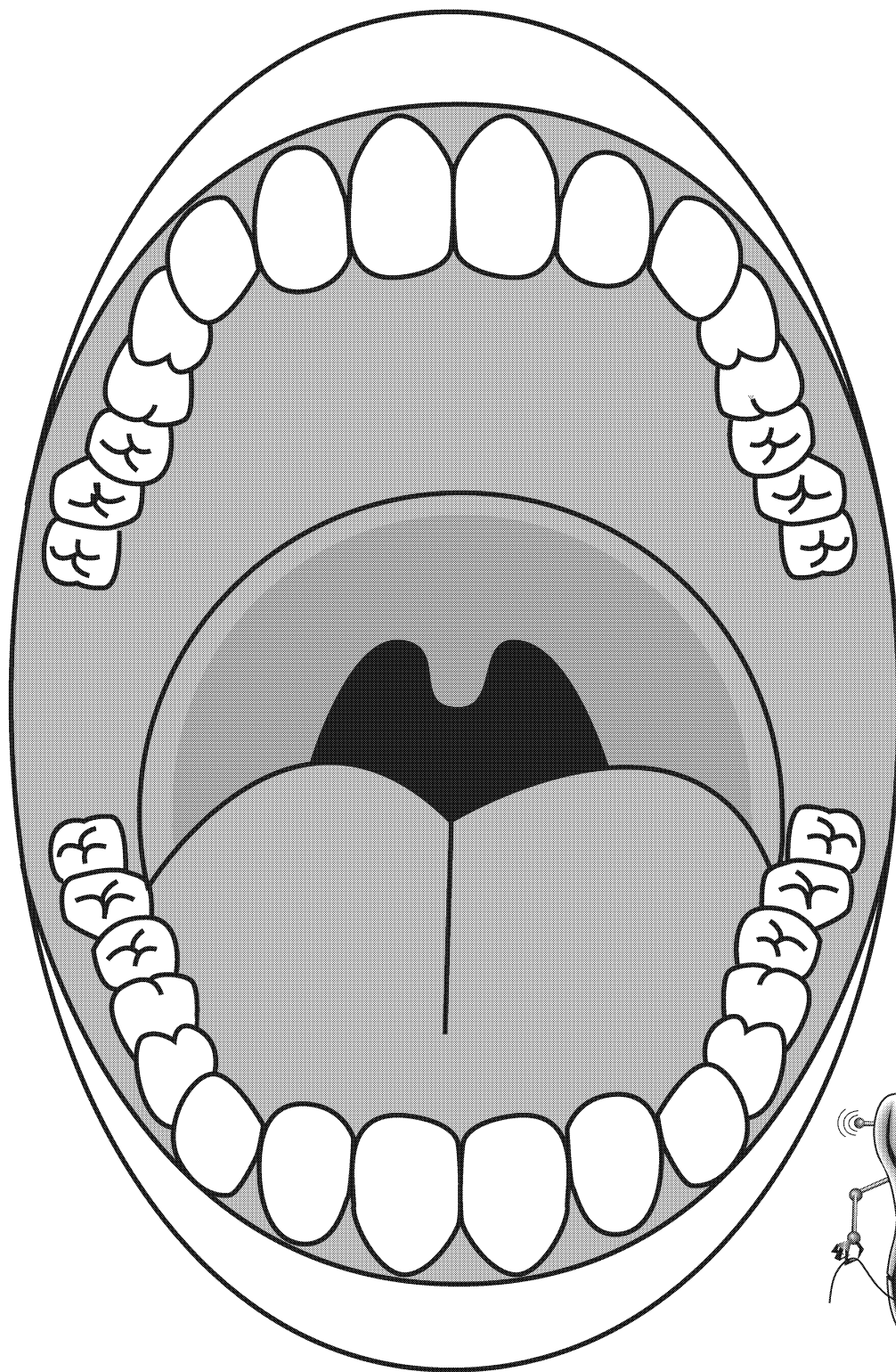
Take care of permanent teeth as they are meant to last a lifetime!

- Give each student a copy of the double-sided **Parts of the Tooth Activity Sheet** and **Types of Teeth and Their Jobs** handout. Have students complete the activity on each side.
 - On the **Parts of the Tooth Activity Sheet** side, have students label the appropriate line for each of the six parts of the tooth.
 - On the **Types of Teeth and Their Jobs** side, have students draw a line between each type of tooth and the job it does.

Optional Activities

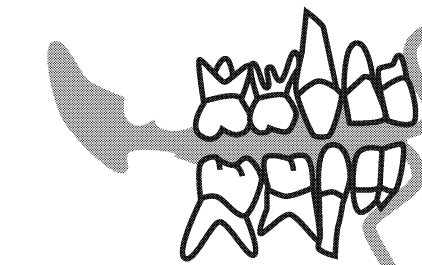
- Once the first group of 16 students has finished lining up the **Incisor**, **Cuspid**, **Bicuspid**, and **Molar** picture sheets in the correct order, collect the sheets and have 16 more students take a turn.
- To make the activity about the locations and jobs of the permanent teeth more like a full mouth, make double the photocopies of the **Incisor**, **Cuspid**, **Bicuspid**, and **Molar** picture sheets so that there are 32 sheets in total. Have all of the students involved in lining up the sheets in the correct order; lining up 16 of the sheets for the top teeth and 16 for the bottom teeth.
- Choose the words for the parts of a tooth or the names for the different types of teeth for the students' spelling list.
- Have students bite into pieces of cheese or apples. Students should note the marks that are left in the food by their different teeth and pay attention to how their different teeth are used when eating these foods.
- Have students look at pictures of animals' teeth and discuss how the shape and function of these teeth are similar to or different from their own.
- Remind students that permanent teeth are meant to last a lifetime. Have students make posters about how to take care of their permanent teeth. They could draw their own pictures or cut and paste pictures from magazines or newspapers. Hang the posters throughout the school.
- For some further activities about the different types of teeth, visit www.atozteacherstuff.com. Enter "dental health" in the *Search* box. Scroll 3/4 of the way down the page and click on *Let's Talk Teeth*.
- If students have access to computers, have them visit www.scholastic.com/magicschoolbus/games/colgate/brushingup.htm. This will bring them to a short movie about how teeth are used in the digestive process.

Permanent Teeth



Primary and Permanent Teeth

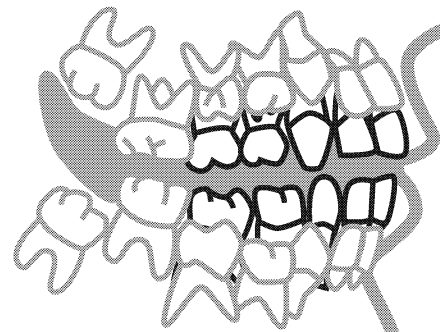
Primary Teeth



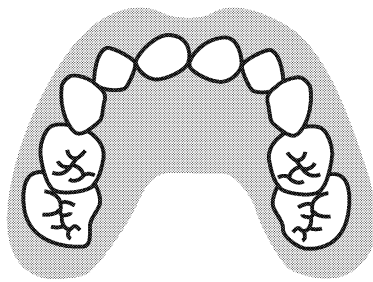
side view

Permanent Teeth

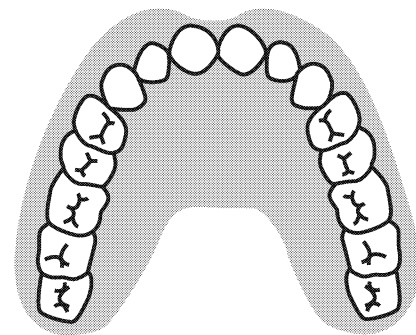
growing under the Primary Teeth



side view

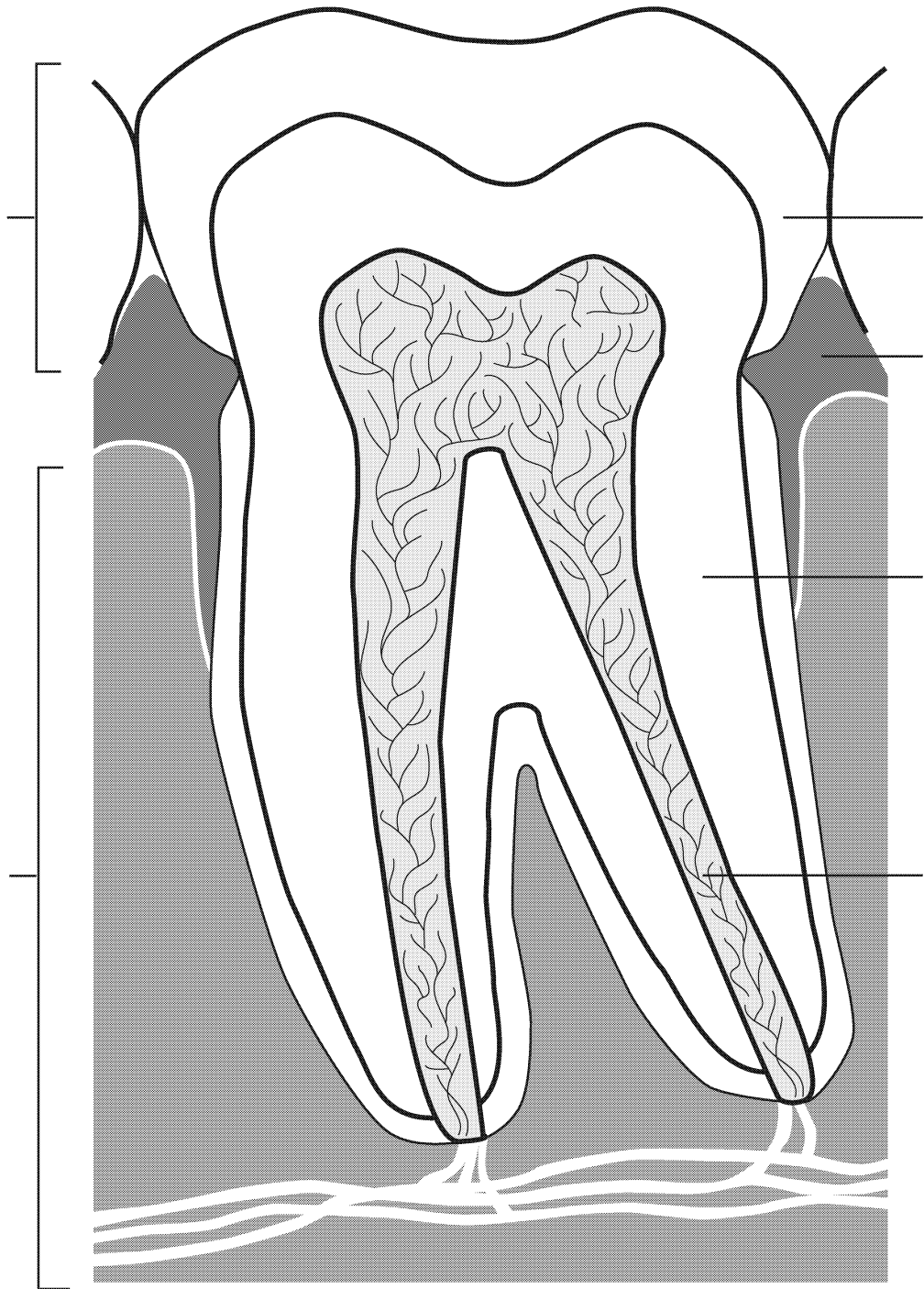


top view

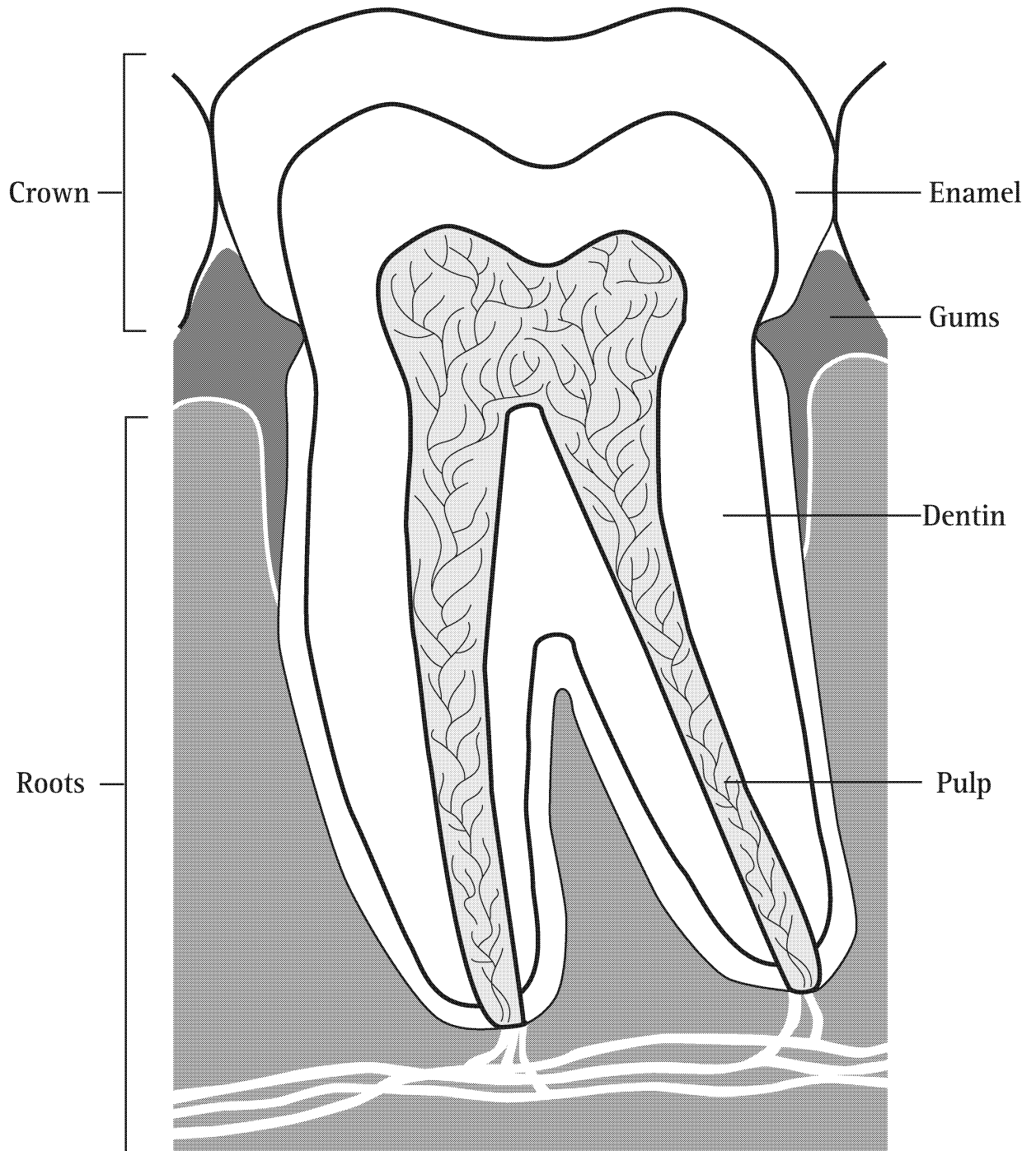


top view

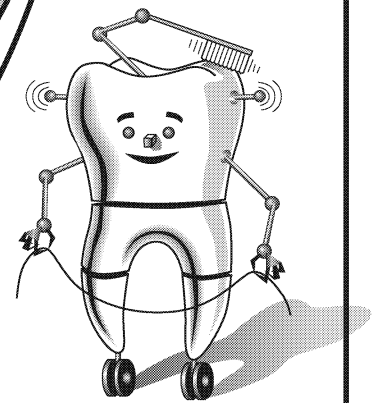
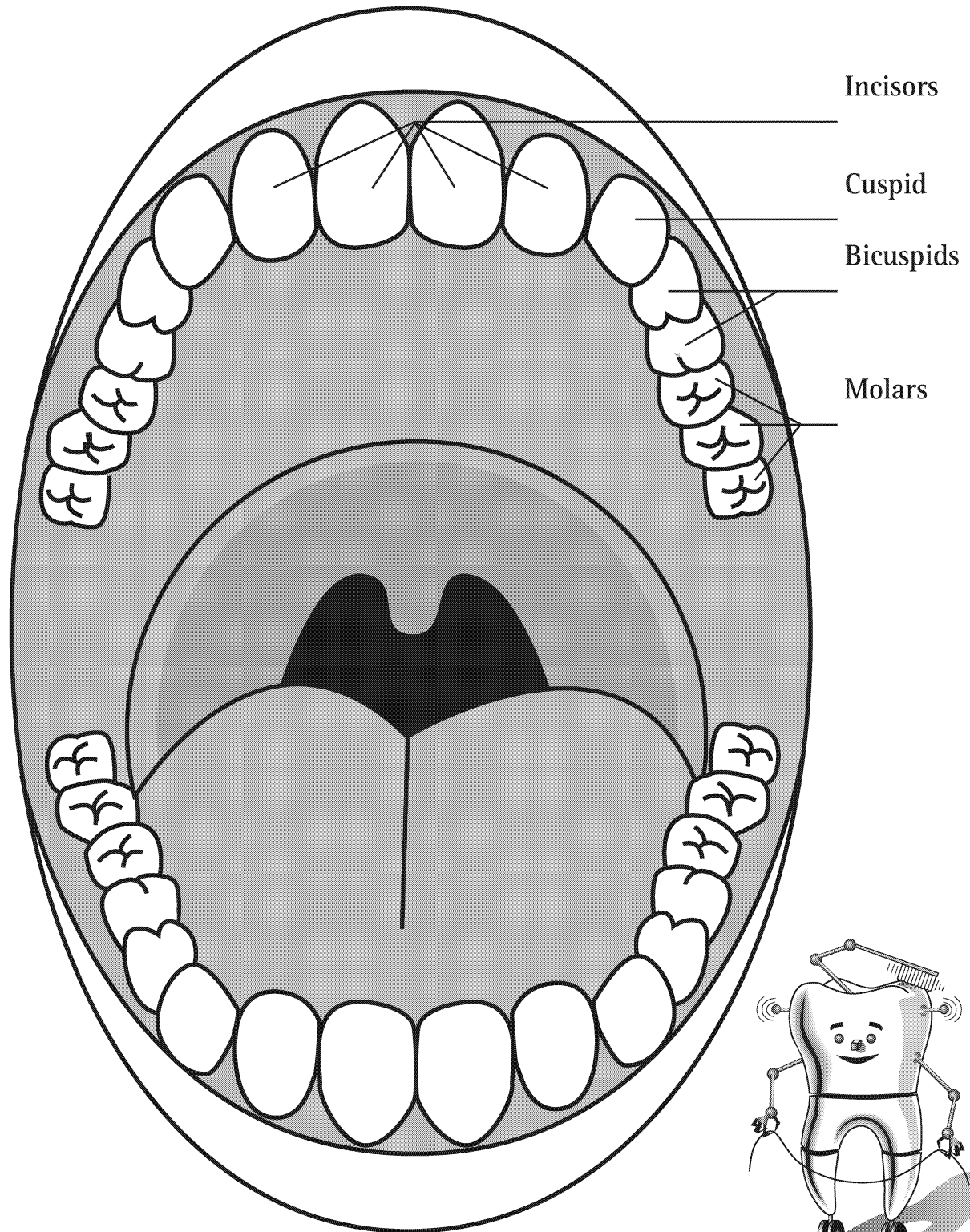
Parts of the Tooth



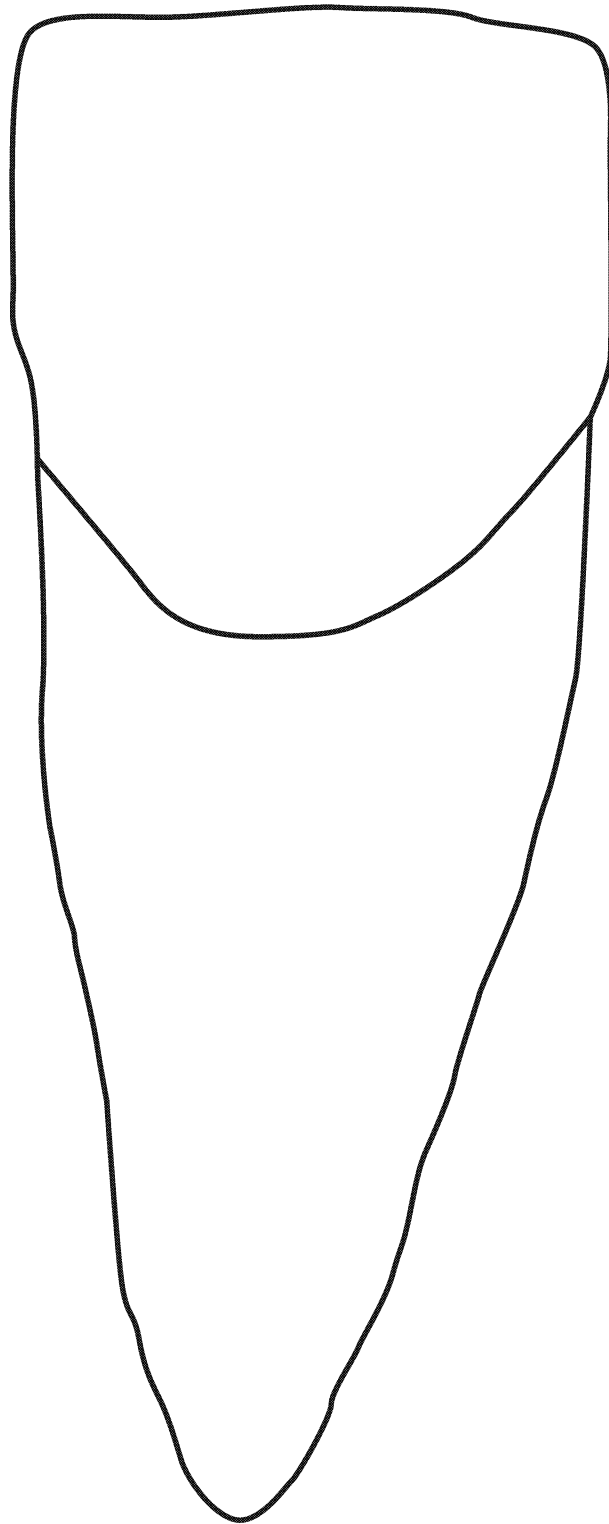
Parts of the Tooth - Reference Sheet



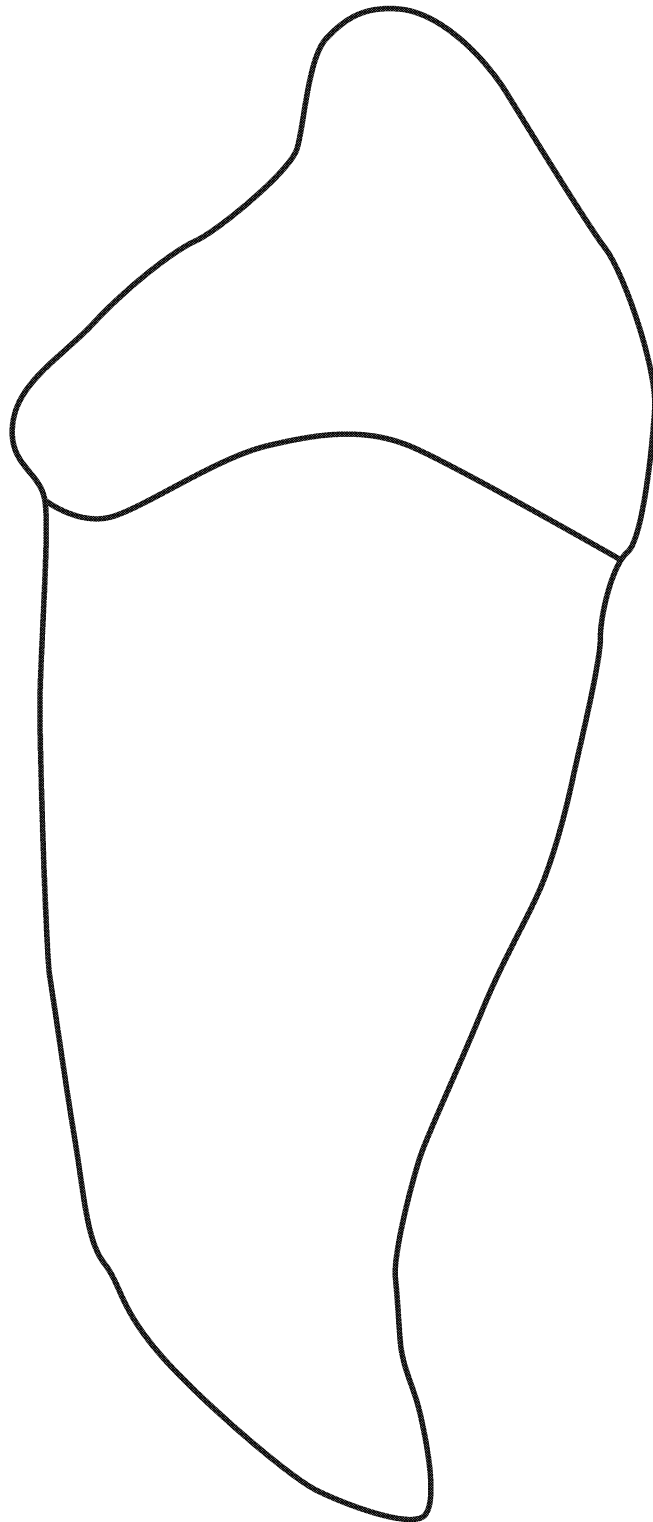
Permanent Teeth-Reference Sheet



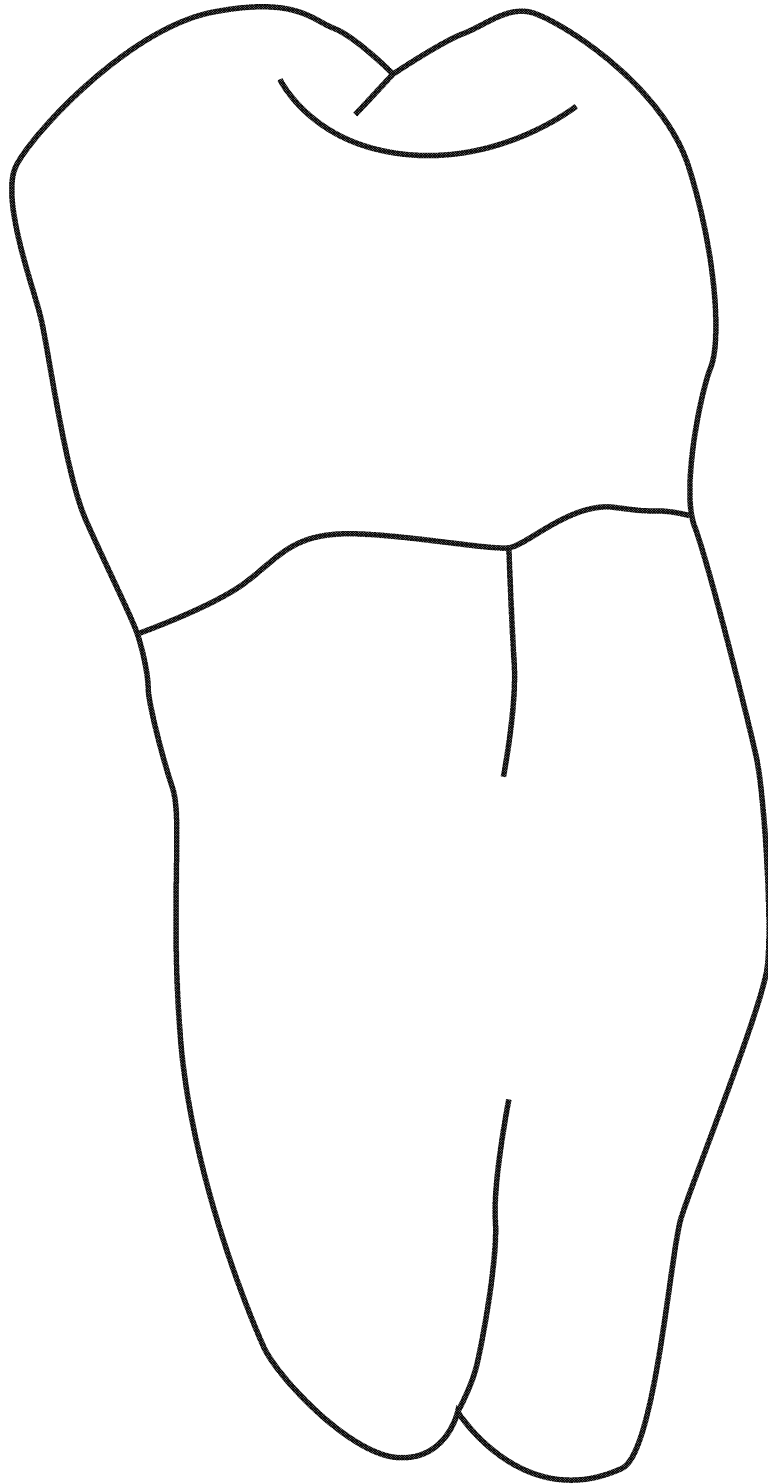
Incisor



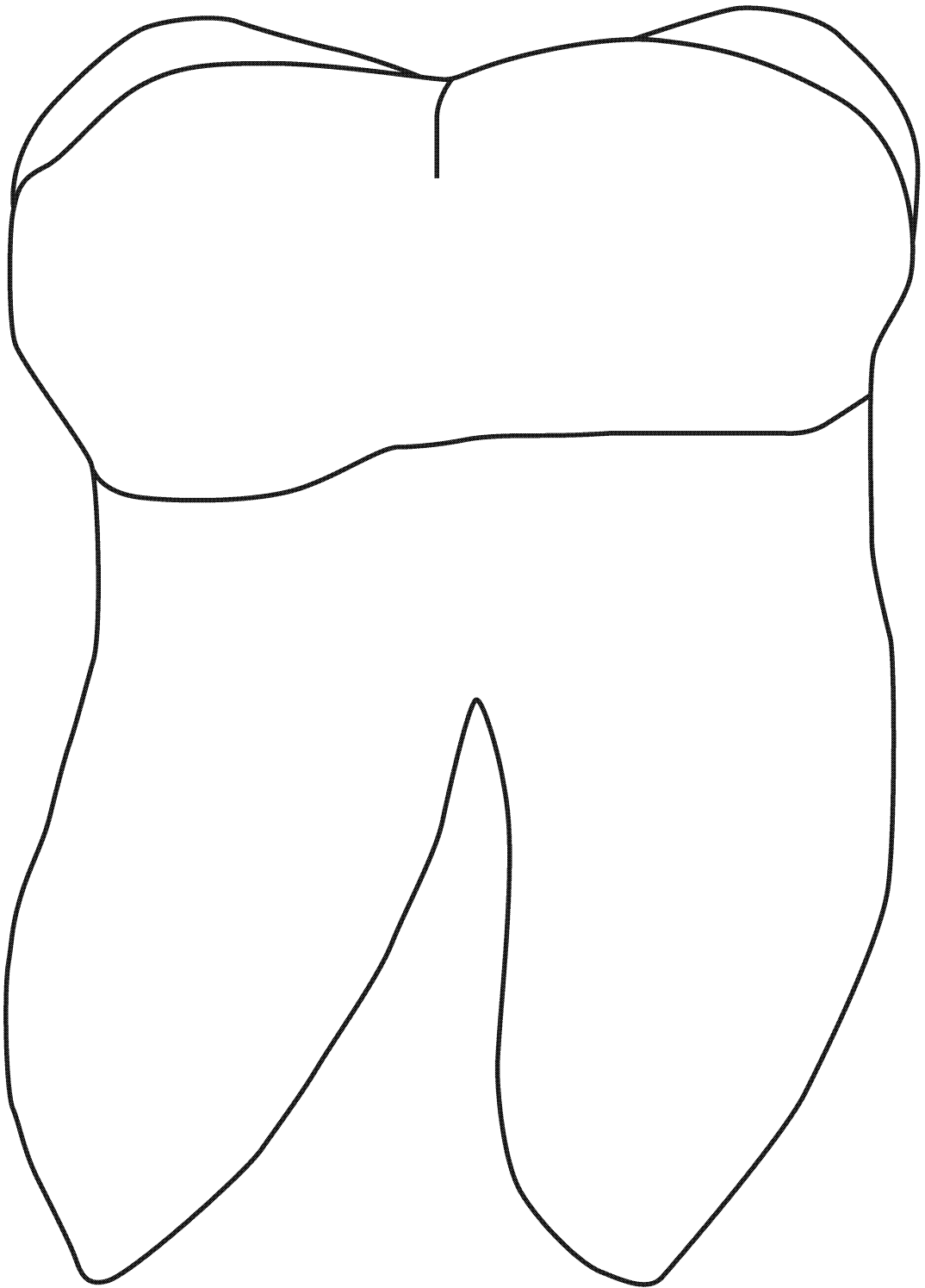
Cuspid



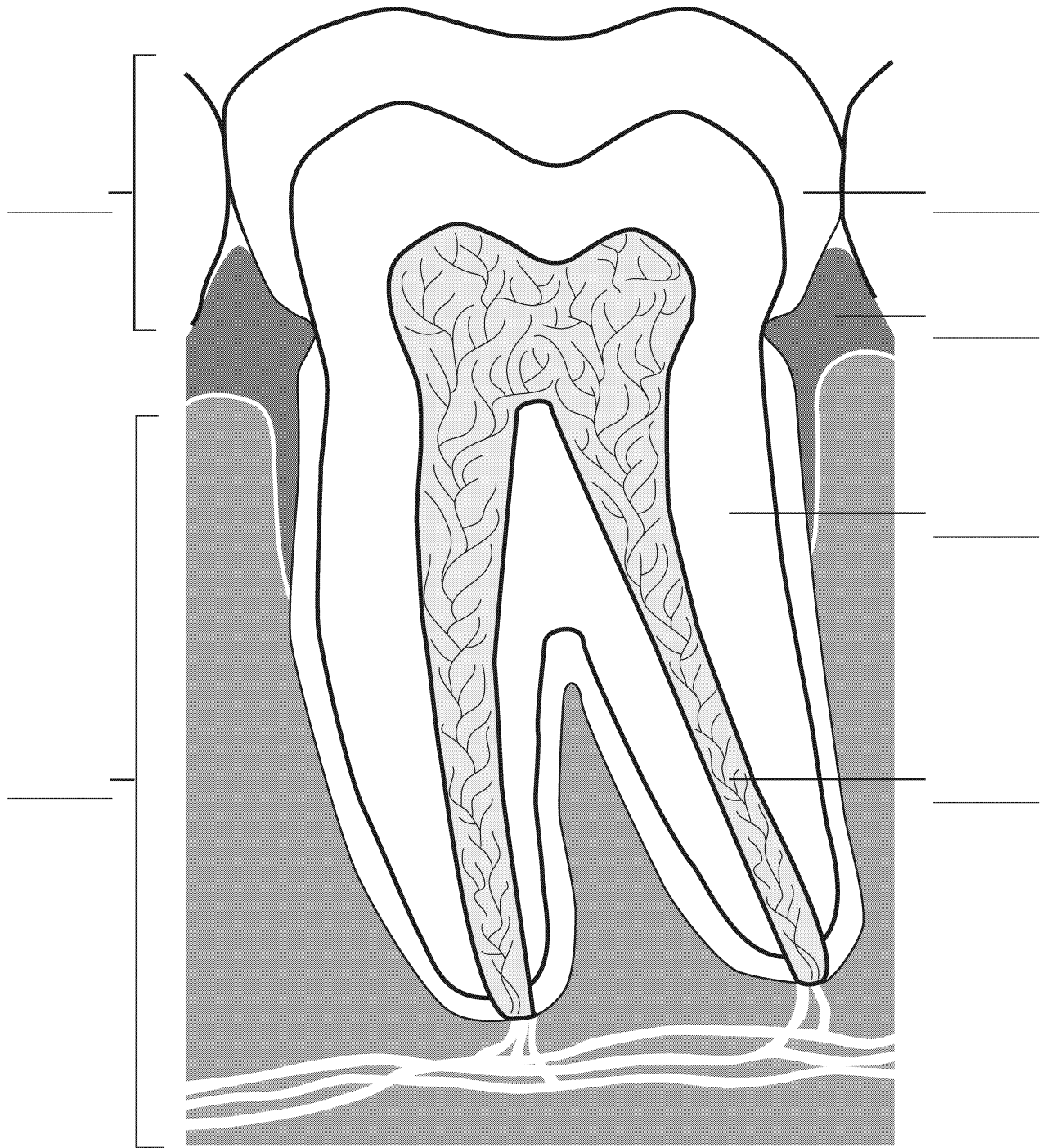
Bicuspid



Molar



Parts of the Tooth Activity Sheet



Please label, on the appropriate line, each of these parts of the tooth:

Enamel

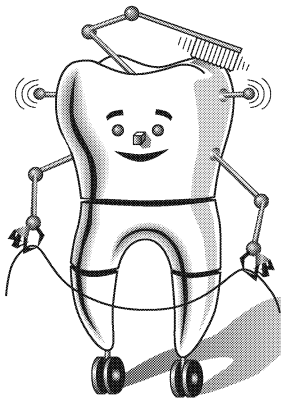
Pulp

Roots

Dentin

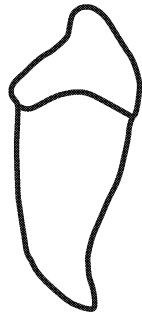
Crown

Gums

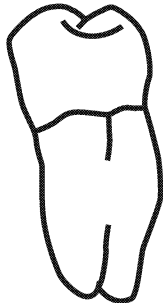


Types of Teeth and Their Jobs

Can you match what each tooth does?
Draw a line between the tooth and the job it does.



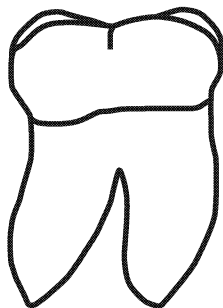
Cuspid



Bicuspid

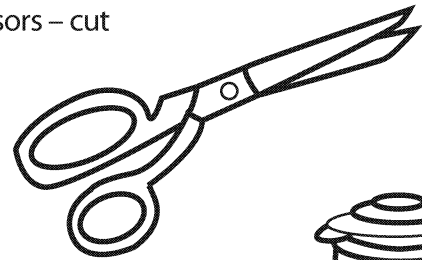


Incisor

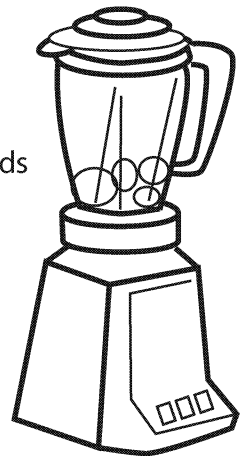


Molar

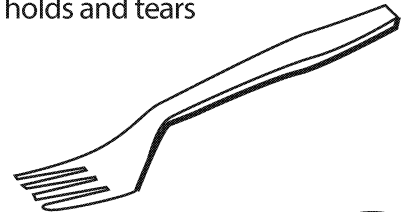
Scissors – cut



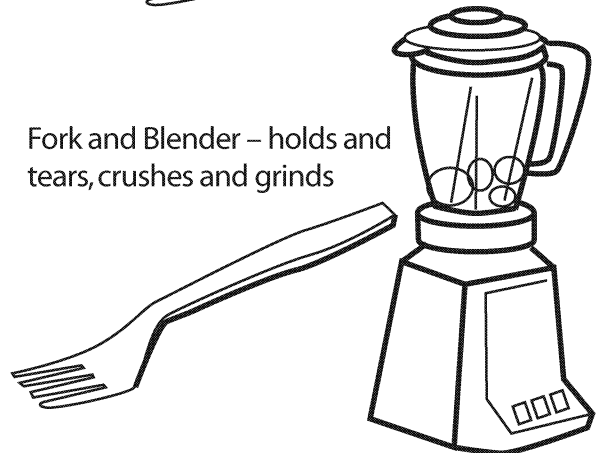
Blender – crushes and grinds

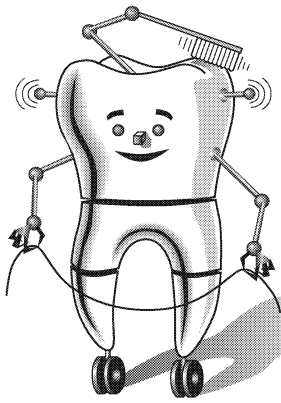


Fork – holds and tears



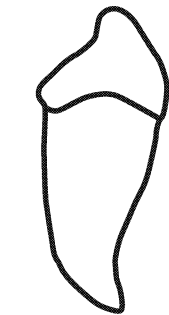
Fork and Blender – holds and tears, crushes and grinds



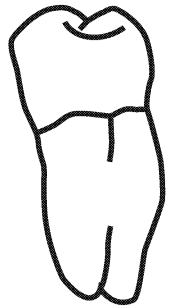


Types of Teeth and Their Jobs

Can you match what each tooth does?
Draw a line between the tooth and the job it does.



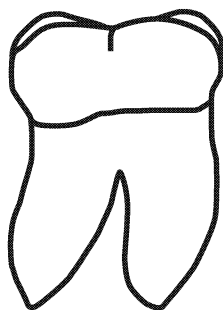
Cuspid



Bicuspid

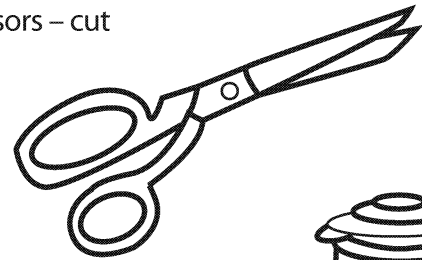


Incisor

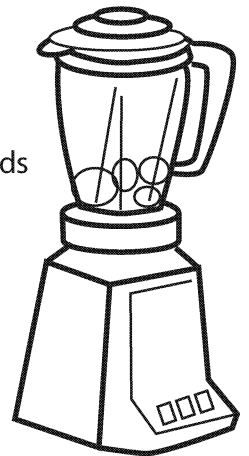


Molar

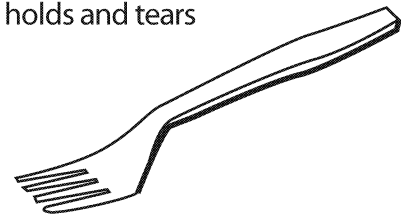
Scissors – cut



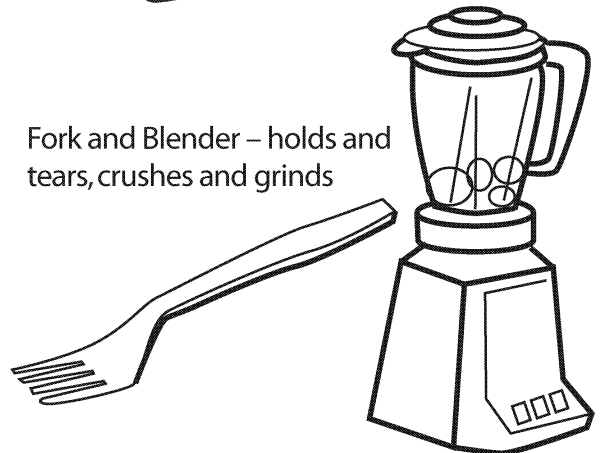
Blender – crushes and grinds



Fork – holds and tears



Fork and Blender – holds and tears, crushes and grinds



Let's Go To The Movies

General Outcome

Life Learning Choices

Specific Outcome

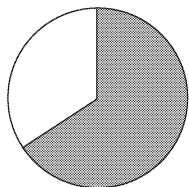
Students will assess how individual contributions can have a positive influence upon the family, school, and community.

Dental Outcome

Students will recognize the signs of gingivitis and the individuals who can help them have healthy teeth and gums.

Time:

40 minutes



Materials

- Chalkboard and chalk / whiteboard and marker
- Photocopy of **I am Robo-Tooth** enlarged (found in Lesson 1)
- Area of classroom designated as "Dental Health Centre" – as set up in Lesson 1
- Photocopies – 1 copy for each student of handouts:
 - **My Movie – Movie Strip**
 - **My Movie – Movie Frame**
- Option – extra copies of **My Movie – Movie Strip**
- Crayons, markers, coloured pencils
- Scissors

Activity

- Ask students if they have ever had a sliver in their finger.
 - Ask students what happens to the skin around the sliver. (*The skin becomes red and puffy.*)
 - Explain to students that the skin can become red and swollen when there is a sliver in it, because the sliver irritates or bothers the skin.
 - Ask students what happens to the skin when the sliver is removed. (*The skin may bleed a bit when the sliver is removed; within a few days the red colour and swelling will go away.*)
 - Explain to students that once the sliver is removed the skin will heal because it is no longer being irritated.
- Explain to students that skin is delicate and can be irritated by many different things.
 - Ask students to list some things that can irritate their skin. (*Mosquito bite, cut, a food or object you are allergic to*)
 - Option: Teacher can demonstrate what irritated skin may look like by scratching the inside of his / her forearm with his / her fingernails. It will take a few moments for this to be noticeable, but soon the area will become light red and may be slightly puffy. Walk around the classroom to show students the irritated skin and have them describe the changes they see. Or, instruct students to do this demonstration on their own arms, emphasizing that they should scratch slowly and with only light pressure.
- Explain to students that they have skin in their mouths that covers the roots of their teeth. Do they remember what this skin is called? (*The gums*)
- Explain to students that the skin in their mouths can react in the same way as the skin on the rest of their bodies. Just like their finger can be irritated by a sliver, their gums can be irritated by the bacteria in their mouths. Do they remember what this bacteria is called? (*Plaque*)

HEALTH

SCIENCE

LANGUAGE ARTS



Let's Go To The Movies

Toxins from plaque can irritate the gums, causing gingivitis.

Gingivitis is a disease of the gums.

People of any age, even children, can get gingivitis.

- Explain to students that plaque causes cavities by using sugar to produce acid. But plaque can irritate their gums all by itself; it does not need sugar to do this. When they let plaque collect around their gums, it produces toxins or poisons which irritate their gums.
- Explain to students that this irritation is called gingivitis.
 - Write the word "gingivitis" on the board and have students repeat the word.
 - Write the word "gingiva" on the board and have students repeat it.
 - Explain to students that "gingiva" is another name for gums, and it is the first part of the word "gingivitis."
 - Write the suffix "-itis" on the board. Explain to students that when this ending is added to a word it means that a body part is swollen or inflamed. For example, "tendonitis" means that tendons are inflamed. "Tonsillitis" means that tonsils are swollen.
 - Explain to students that the word "gingivitis" means that their gums are inflamed.
- Ask students who they think can get gingivitis.
(*Anyone*)
- Explain to students that anyone who leaves plaque around their gums can get gingivitis. Anyone could be a child or an adult; even elementary school students can get gingivitis.
- Introduce students to Robo-Tooth as described in Lesson 1, if students are not familiar with Robo-Tooth.
 - Use enlarged picture of **I am Robo-Tooth** for this introduction.
 - Hang picture in "Dental Health Centre" area.
 - Explain to students that besides knowing about teeth, Robo-Tooth also knows about having healthy gums. Robo-Tooth has come to visit the class to help the students learn what gingivitis looks like, and how to prevent gingivitis.
- Explain to students that if they have gingivitis they would notice three changes in their gums – changes in the colour of their gums, the shape of their gums, and the amount of bleeding from their gums.
 - Explain that gums with gingivitis will change colour like their skin would change colour if they had a sliver. Ask students what colour their gums would be if they had gingivitis.
(*Red, bright red*)
 - Explain to students that when gums are healthy, they will be light pink or light brown in colour. Explain that because gums are skin and there are different shades of skin colour, there are different colours of gums. Gums are healthy as long as they are not red in colour.

Let's Go To The Movies

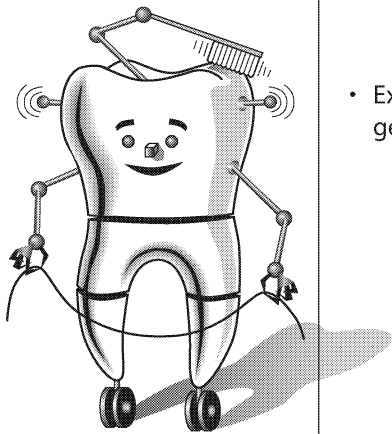
Gums with gingivitis will be red, puffy, and may bleed easily.

Thorough brushing and flossing to remove the plaque will get rid of gingivitis.

- Explain to students that healthy gums are flat and tight around the teeth. Gums with gingivitis have the opposite shape of healthy gums. Ask students what gums with gingivitis would look like. *(Puffy / swollen / inflamed; not flat; not tight around the teeth.)*
- Explain to students that gums with gingivitis have been irritated by plaque just like the skin on their finger can be irritated by a sliver. The skin of their finger gets red and puffy when they have a sliver and their gums become red and puffy when they have plaque collecting along the gums.
- Explain to students that healthy gums will not bleed easily when they brush and floss. Ask students if gums with gingivitis will bleed easily when brushed. *(Yes)*
- Ask students if they should stop brushing or brush more, if they notice that their gums are bleeding when they brush. *(Brush more)*
- Explain to students that if their gums bleed when they brush, it is usually because plaque has been collecting in their mouths and irritating their gums. So they need to brush more, especially along the gums, to clean away the plaque. But they must brush gently and use a soft toothbrush.
- Ask students if they think they can get rid of gingivitis once they have it. *(Yes)*
 - Ask students what they should do to get rid of gingivitis. *(Clean the plaque away by brushing and flossing.)*
 - Explain to students that gingivitis can be reversed by brushing and flossing all the plaque away from teeth and gums every day.
 - Explain that with thorough brushing and flossing their gums will become healthy again. But if after a few weeks the gums still bleed easily with brushing, they should visit a dental health professional to have their gums checked.
- Explain to students that even though they can get rid of gingivitis, the best thing they can do is to prevent themselves from getting gingivitis. Ask students who they think is / should be responsible for keeping their gums healthy. *(We should be responsible for preventing gingivitis; each student should be responsible for themselves.)*
- Remind students that since they are responsible for taking care of their own gums and teeth, they should be able to:
 - Remember to brush and floss every day to prevent gingivitis.
 - Brush thoroughly at least twice a day. (Some students may need a parent's assistance with brushing.)
 - Floss thoroughly at least once a day, with the help of an adult.
 - Ask for help when they need it.

Let's Go To The Movies

Parents and teachers are role models for children's dental health.



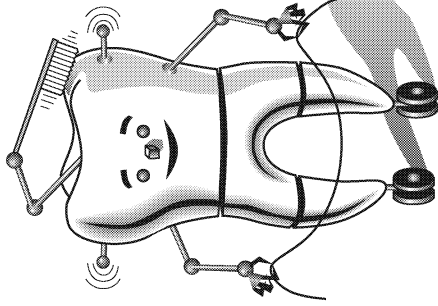
- Explain to students that they should be responsible to look after their own mouths, but it is also okay to ask for some help.
 - Ask students who can help them take care of their teeth. *(A dental worker, a parent, a teacher, an older sibling, etc.)*
 - Ask students how the following people could help them have healthy mouths:
 - A parent – *(A parent can: help them brush and floss; help teach them how to have a healthy mouth; take them to the dental office; buy them healthy food; buy them a mouthguard; be a role model.)*
 - A dental worker – *(A dental worker can: teach them how to have a healthy mouth; help them learn to brush and floss; clean their teeth and gums; fix problems in their mouths; put sealants on their teeth; make a mouthguard for them.)*
 - A teacher – *(A teacher can: teach them how to have a healthy mouth; encourage them to eat healthy snacks and to brush and floss every day; remind them to play safely; be a role model.)*
 - An older sibling – *(An older sibling can: help them brush and teach them how to have a healthy mouth.)*
- Ask students if they could help others have healthy mouths. *(Yes)*
 - Who could they teach / help? *(Parents, siblings, friends, etc.)*
 - How could they help these people? *(Talk to them about ways to keep their mouths healthy.)*
- Explain to students that they are now going to pretend that Robo-Tooth is getting help from someone to learn about gingivitis.
 - Distribute copies of **My Movie – Movie Strip** and **My Movie – Movie Frame** to each student.
 - Explain to students that you want them to create a story about Robo-Tooth learning about gingivitis. Their story should include:
 - Robo-Tooth
 - A person teaching Robo-Tooth about gingivitis. The person can be themselves, another student, a parent, a teacher, a dental worker, etc.
 - Some facts about gingivitis, such as: the three changes that can be seen in the gums, what healthy gums look like, or how to prevent or get rid of gingivitis.
 - Explain to students that once they have thought about the idea for their story, they should draw pictures in the boxes on their **My Movie – Movie Strip** handout to tell the story in the form of a movie strip. Each box represents a different scene in their story. (If their story is longer than three frames, students should use extra copies of the sheet.)
 - Give students some examples of what their movies could be about:
 - Frame #1 – At the dental office, the dental hygienist tells Robo-Tooth that he has gingivitis; Frame #2 – Robo-Tooth is at home and is

Let's Go To The Movies

Students should use a mirror to look at their gums for signs of gingivitis.

brushing his teeth and gums; Frame #3 – Robo-Tooth looks in the mirror and notices his gums are healthy again.

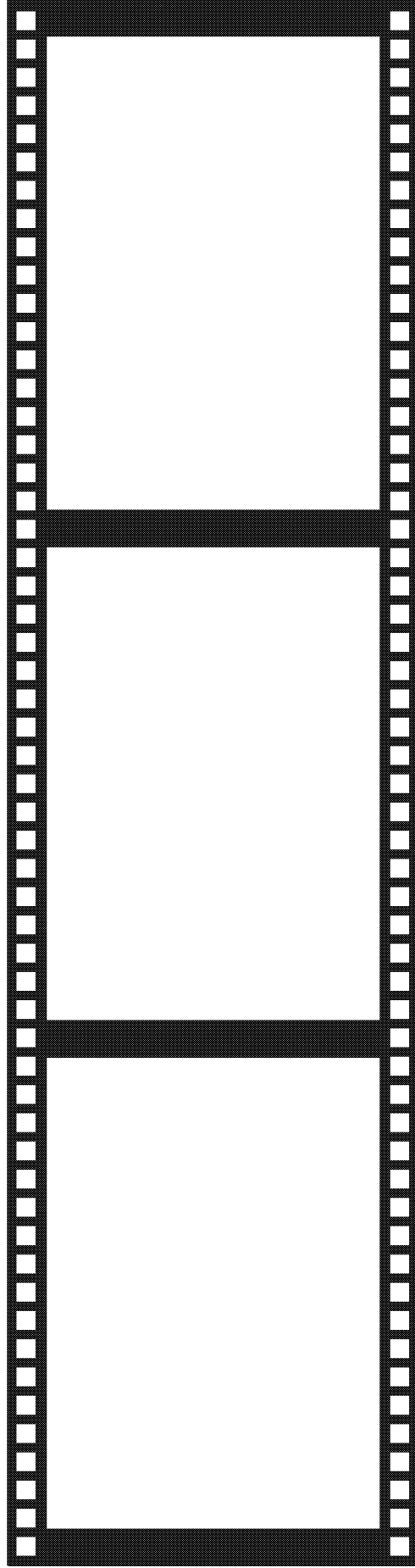
- Frame #1 – Robo-Tooth notices his gums bleeding when he brushes; Frame #2 – Robo-Tooth talks to his mom, who explains that bleeding is a sign of gingivitis; Frame #3 – Robo-Tooth's mom helps him brush his teeth.
 - Have students colour their pictures on the **My Movie – Movie Strip** handout and cut around the outside edge of their film strip. If they have used more than one sheet, they should tape the film strips together.
 - Have students colour the picture frame on their **My Movie – Movie Frame** handout, and cut two slits along the dotted lines on the inside of the frame.
 - Instruct students to slide their movie strip through their frame, pausing at each picture, to view their own movie.
 - Display completed movie strips and frames in the “Dental Health Centre” area.
- Instruct students to look at their gums in the mirror when they are at home tonight.
 - They should look for any areas that:
 - Are red in colour.
 - Are puffy or swollen.
 - Bleed easily when they brush or floss.
 - Emphasize to students that if they notice any of these three signs in their gums, they should brush and floss those areas well, while being gentle.
 - After completed movie strips and frames have been displayed, have students take their movies home to share the stories with their family.
- Optional Activities**
- Have students share their movie with the rest of the class. Students should move their movie strip through their frame one picture at a time, telling their class what each picture is about.
 - To extend the concept of students contributing to or helping someone, have each student pair with a student from another class to show that student their movie and tell them about gingivitis.
 - Invite a dental health professional to visit the classroom. This person could discuss more about: gingivitis, brushing and flossing, and what they do in the dental office.



My Movie

Movie Strip

Draw a picture in each of the large boxes to make your movie. If your movie is longer than 3 boxes, use more movie strips and tape them together. Cut out this movie strip and slide it through your movie frame. Be sure to share your movie with family and friends!

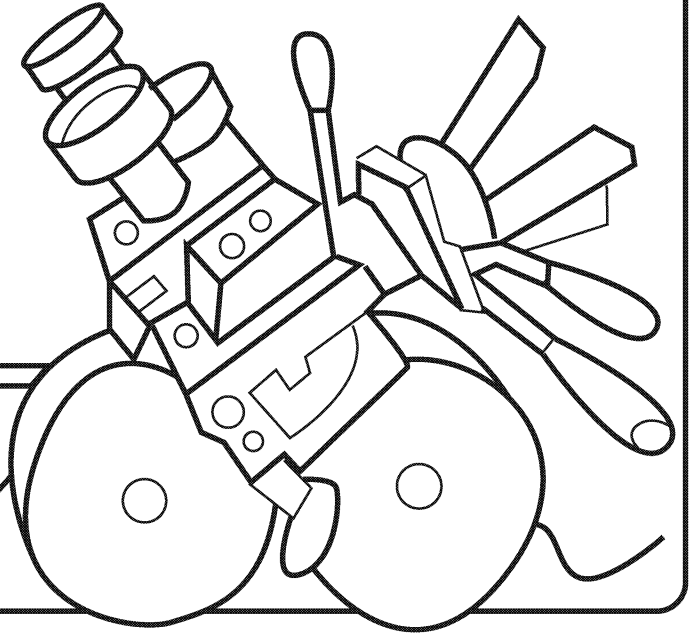
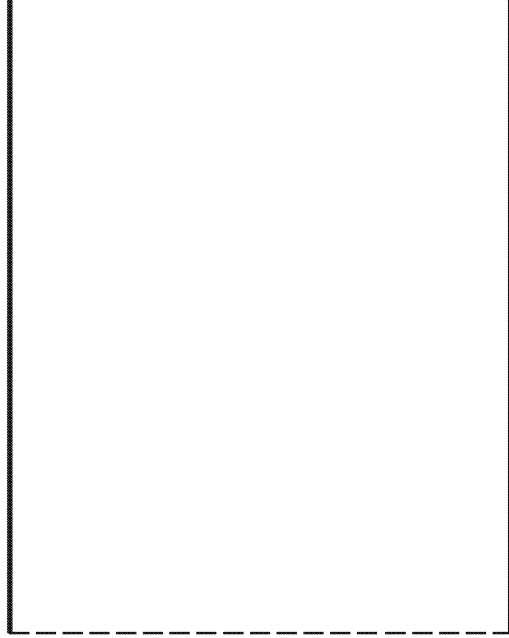
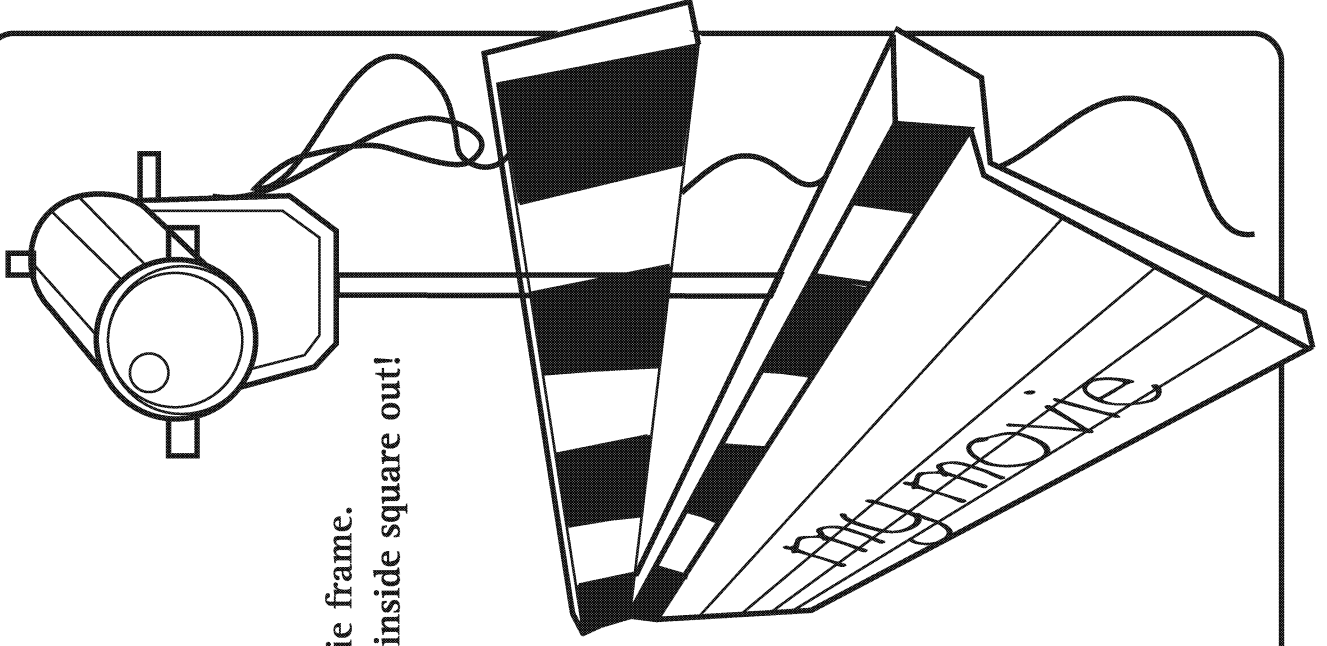
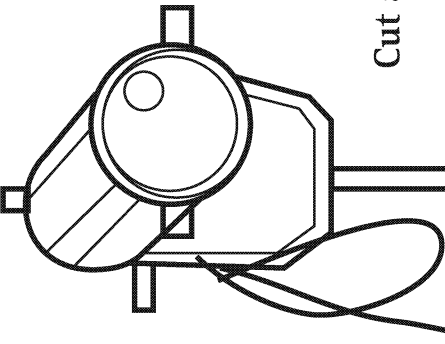


My Movie

Movie Frame

Create your own movie theatre! Colour this movie frame.

Cut a slit along the dotted lines, but do not cut the whole inside square out!



Snacks That Make You Smile

General Outcome Wellness Choices

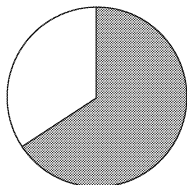
Specific Outcome

Students will apply guidelines from Canada's Food Guide to Healthy Eating to individual nutritional circumstances.

Dental Outcome

Students will examine the role foods play in the tooth decay process.

Time: 40 minutes



Materials

- Chalkboard and chalk / whiteboard and marker
- Overhead projector
- Copy of **Chain of Decay** – photocopied onto an overhead transparency
- Option - clock or timer
- Copy of **Food Groups** – photocopied onto an overhead transparency
- Photocopies of **Vending Machine** handout – 1 copy for each student
- Crayons, markers, coloured pencils
- Area of classroom designated as “Dental Health Centre” – as set up in Lesson 1

Activity

- Have students imagine that they are hungry right now and are wanting a snack.
- Have students list some snacks they like. (Encourage students to share snacks from different cultures.) Write snacks on the board as students list them.
- Ask students if they think that the foods they snack on can affect the health of their teeth.
(*Yes. Some foods are healthy for our teeth and other foods can harm our teeth.*)
- Ask the students if they remember what the film of bacteria that forms in their mouths is called.
(*Plaque*)
- Explain to students that certain foods work with the plaque in their mouths to cause cavities in their teeth.
 - Ask students what types of food work with plaque to cause cavities.
(*Sweet, sugary and sticky foods, candy, etc.*)
 - Ask students to list some foods with sugar.
(*Candy, chocolate, pop, etc.*)
 - Ask students how they can tell if a food has sugar in it.
(*You may taste it or you can see the sugar on the food.*)
 - Explain to students that a good way to tell if a food contains sugar is to read the label on the food. They can have an adult help with reading the label since sugar has many different names.
 - Explain to students that starchy foods, such as potato chips, can also cause cavities even though they do not taste sweet, and may not have sugar listed on their label.
- Use the **Chain of Decay** overhead, with only the top half of the equation showing, to discuss the following with students:
 - Read to students the equation “ $\text{Plaque} + \text{Sugar} = \text{Acid}$.”
 - Explain to students that where it says “Sugar,” this represents both sugary and starchy foods.

HEALTH

SCIENCE

LANGUAGE ARTS



Snacks That Make You Smile

Each time a sugary food is eaten, acid is formed.

Each “acid attack” weakens tooth enamel, which can lead to cavities.

- Explain to students that when sugar is added to plaque in their mouths, a chemical is made which can cause cavities in their teeth. Do they know what the chemical solution is?
(Acid)
- Ask students what acid does to things that it touches.
(It burns or eats a hole in things.)
- Explain to students that the acid that is made when sugar is added to plaque lasts in their mouths for a certain number of minutes, if they do not clean their mouths right away. Do they know how many minutes the “acid attack” lasts?
(20 minutes)
- Relate this 20 minutes to something that students are familiar with. For example, a 20-minute “acid attack” is longer than their recess break. Option – use a clock or timer to demonstrate a 20-minute time period.
- Explain to students that this acid in their mouths can make holes in their teeth, called cavities.
- Ask students if they think this means that they get a cavity every time they eat a food that has sugar in it.
(No, you don't get a cavity right away but the acid starts to weaken the tooth enamel.)
- Uncover the lower half of the **Chain of Decay** overhead.
 - Read to students the equation “Acid + Time = Cavity.”
 - Review with students that every time plaque and sugar combine in their mouths, acid is made.
 - Explain to students that it takes several “acid attacks,” over a period of time, before they get a cavity. Each time they eat a food with sugar, acid is formed which weakens the enamel. When the acid weakens their teeth too much they get cavities.
- Explain to students that if they do not want to get cavities, the best thing they can do is break a link in this “chain of decay.” To do this, they need to get rid of plaque or sugar, limit the length of time or number of times an “acid attack” occurs in their mouths, or make their teeth more resistant to an acid attack. Refer to the **Chain of Decay** overhead while discussing the following with students:
 - They can break the plaque part of the “chain of decay” by cleaning plaque away from their mouths at least twice a day. How would they clean the plaque away?
(Brush and floss thoroughly.)
 - They can break the sugar part of the “chain of decay” by not eating foods with sugar. What could they eat instead of eating foods with sugar?
(Healthy foods from the 4 main food groups instead of sugary ones.)
 - They can break the acid part of the “chain of decay” by limiting the length of time and number of times they get an “acid attack.”

Snacks That Make You Smile

Break a link in the “chain of decay” to prevent cavities.

Help build strong bones and teeth with foods from the “Milk Products” group.

- If they eat a food with sugar in it, acid will be made. But if they get rid of this sugar and acid quickly, they can limit the length of time the acid stays on their teeth so it does not stay on their teeth long enough to weaken the enamel. To get rid of the sugar and acid, they need to clean their mouths right after they have eaten. What is the best way for them to clean their mouths after eating?

(Brush thoroughly)

- Explain to students that brushing their teeth after eating these foods is the best way to limit the length of time of the “acid attack.” So if they are going to eat a food with sugar, it is best to eat it at home when they can brush their teeth immediately afterward. But sometimes they are not at home and cannot brush their teeth right away. What do they think they should do then to prevent cavities?

(They can have a drink of water, eat a piece of cheese, or chew sugarless gum after eating the food.)

- Explain to students that each time they eat a sugary food they get an “acid attack.” They can limit the number of times there is an “acid attack” on their teeth by reducing the number of times in a day that they eat a sugary food, eating healthy foods instead of sugary foods, and by eating the sugary foods with a meal and brushing after the meal.

- They can break the “chain of decay” by making their teeth more resistant to an “acid attack.” Both fluoride and sealants can make teeth more resistant to an “acid attack” by protecting the enamel from the acid.

- Explain to students that they are now going to spend some time talking more about the sugar part of the “chain of decay” and how that link can be broken by eating healthy foods.
- Explain to students that one way to choose healthy meals and snacks is to follow *Canada’s Food Guide to Healthy Eating*.
 - Show the **Food Groups** overhead.
 - Review with students each of the 4 main food groups by discussing: the name of each group, the number of daily servings needed, and examples of foods in each group, including foods from diverse cultures.
 - Review with students the “Other Foods” category by explaining that these foods do not fit into the 4 main food groups. These foods can provide taste and enjoyment but may not be very nutritious, so they should eat these foods only sometimes and in small amounts. The exception to this is water, which students should drink often throughout each day.
 - Point out to students that foods in the “Milk Products” category are especially good for teeth because they contain calcium, which helps build strong bones and teeth.

Snacks That Make You Smile

Eating foods from the 4 main food groups can help break the “chain of decay.”

Choose healthy snacks from vending machines.

- Explain to students that eating foods from the 4 main food groups can help to break the “chain of decay” because it limits sugar.
- Explain that whenever they eat they need to think of the “chain of decay,” especially at snack time when they are not able to brush or clean their mouths afterward.
- Explain to students that there are many places where they can buy snack foods, and one of these places is a vending machine.
 - Ask students to raise their hands if they know what a vending machine is.
 - Explain that a vending machine is a large container that holds different drinks and foods for people to purchase as snacks. These machines can be found in many places such as schools, arenas, hospitals, hotels, etc.
 - Ask students to list some foods that they have seen in a vending machine.
 - Explain to students that vending machines often carry sugary foods from the “Other Foods” category such as pop, chocolate bars, and chips. Ask students if they think it is okay to eat these foods even though these foods can cause cavities in their teeth.
(Yes, it is okay to eat these foods.)
 - Explain to students that it is still okay to eat these foods once in awhile but not every day. They should eat these foods only “sometimes” and eat healthier foods “most of the time.”
 - Ask students to list some examples of healthy snack foods that could be put in a vending machine.
(Apples, mini carrots, cheese, popcorn, nuts, bottled water, etc.)
- Explain to students that they are now going to design their own vending machine.
 - Distribute a copy of the **Vending Machine** handout to each student.
 - Instruct students to draw and colour pictures of foods and drinks inside their vending machine. They should choose 9 different foods and drinks from the 4 food groups and not the “Other Foods” category (unless it is water).
 - Encourage students to think of a creative name for their machine and to write the name on the line in the bottom section of the machine.
 - Display completed pictures in the “Dental Health Centre” area of the classroom.
- Encourage students to choose a healthy snack when they make their next purchase from a vending machine.

Snacks That Make You Smile

Students can request healthy foods for their vending machines at school.

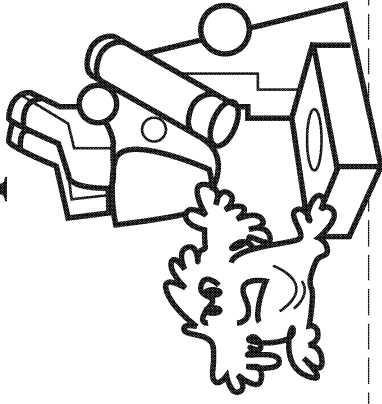
School policies and practices should be consistent with dental messages.

Optional Activities

- During the discussion about what vending machines are, walk the students around the school to look at the different foods offered in the school's vending machine(s).
- As a class, the students could compile a list of healthy foods that they would like to see in their school's vending machine. The class could submit these ideas to the principal or school council.
- When copying the **Vending Machine** handout, the **Food Groups** sheet can be photocopied onto the back.
- To expand on the concept of the "chain of decay" and how foods affect this chain, visit www.dupagehealth.org/health_ed/dental_month.html and click on *Healthy Snacks*.
- To access copies of *Canada's Food Guide to Healthy Eating*, visit www.hc-sc.gc.ca/hpfb-dgpsa/onpp-bpnn/food_guide_rainbow_e.html. Scroll down the page to find colour or black and white versions for printing. Or click on *Order Publications* under *Quick Links* to receive copies in the mail.
- To find some information about culturally diverse foods, access *Cultural Adaptations of Canada's Food Guide to Healthy Eating* by visiting www.nutritionrc.ca/guide.html. This site contains food guides which are written in 9 different languages and feature culturally specific foods.
- Establish a healthy snack program where the students are encouraged to bring only healthy snacks to school. This may be implemented by sending a letter home to parents notifying them of this new program / project. Childhood is an excellent time to implement good eating habits with the students, which may set a lifelong pattern of good nutritional choices.

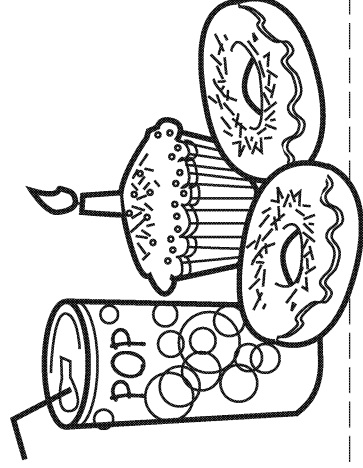
Chain of Decay

Plaque



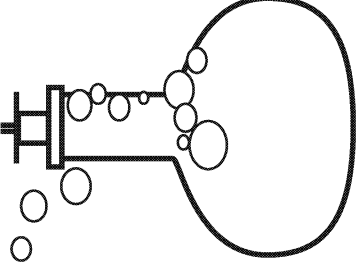
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Sugar

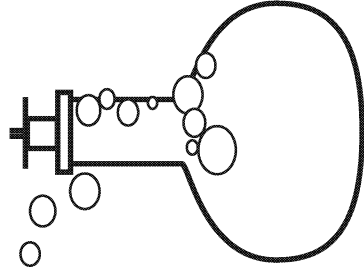


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Acid

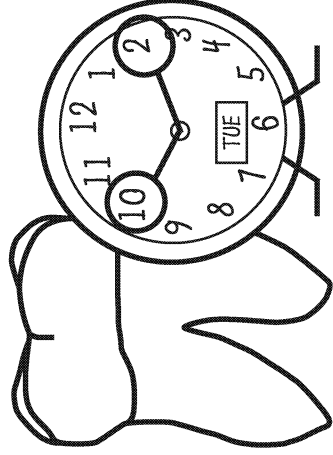


Acid



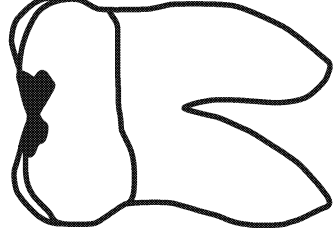
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Time



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Cavity



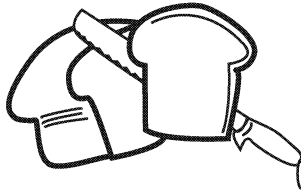
Food Groups

Adapted from *Canada's Food Guide to Healthy Eating*

Grain Products

5–12 servings per day

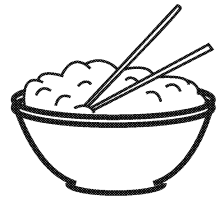
Examples of 1 Serving



1 slice of bread



30g cold cereal



1/2 cup rice

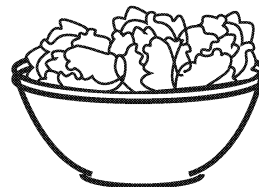
Vegetables and Fruit

5–10 servings per day

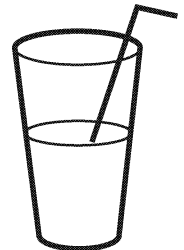
Examples of 1 Serving



1 medium size vegetable or fruit



1 cup salad



1/2 cup juice

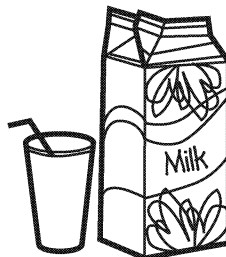
Milk Products

Children 4–9 years: 2–3

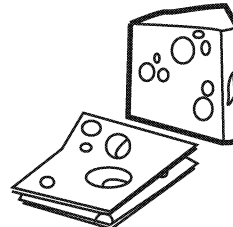
Youth 10–16: 3–4

Adults: 2–4

Examples of 1 Serving



1 cup of milk



2 slices of cheese

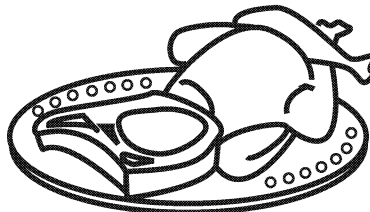


3/4 cup of yogurt

Meat and Alternatives

2–3 servings per day

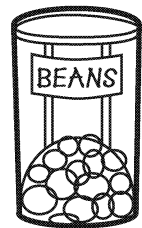
Examples of 1 Serving



50–100g of meat, poultry or fish



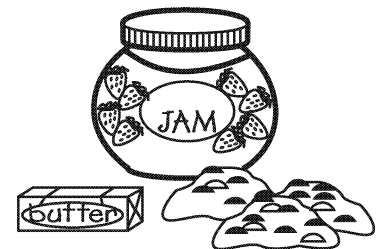
2 tbsp peanut butter



1/2–1 cup beans

Other Foods

Other foods and beverages that are not part of the 4 food groups can be enjoyable. Some of these foods are higher in fat or Calories and may not provide many nutrients. If you choose to eat these foods, eat them only sometimes and in small quantities.



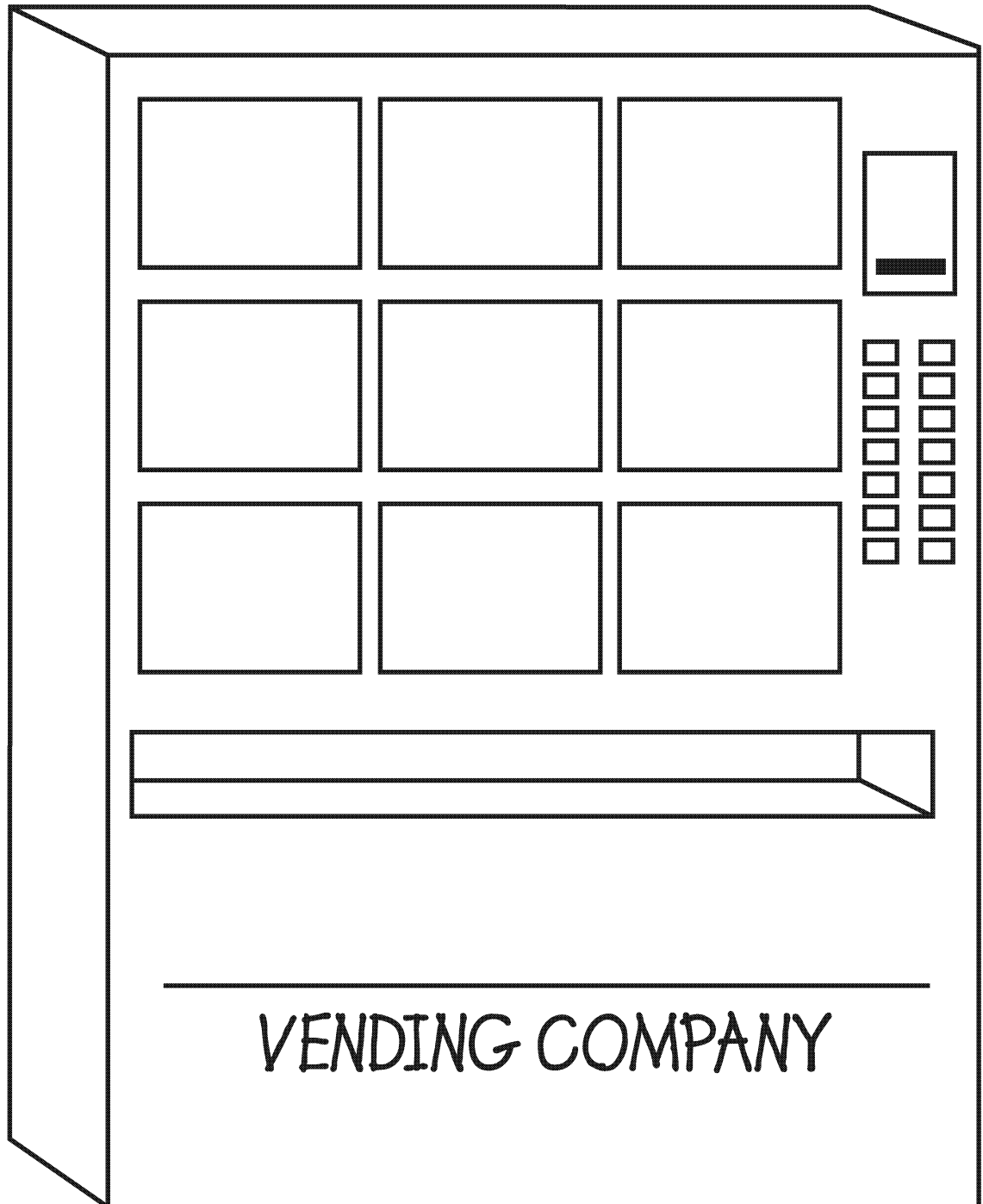
butter

jam

cookies

Vending Machine

Stock up your vending machine with healthy snacks by drawing and colouring pictures of your favourite healthy snacks.



Sugars Cause Tooth Decay

General Outcome

Life Learning Choices

Specific Outcome

Students will generate alternative solutions to a problem, and predict consequences of solutions.

Dental Outcome

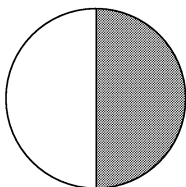
Students will be aware of how much sugar they are eating and will propose some alternate foods they could choose to help limit the sugar.

Time:

Day 1 - 30 minutes

Day 2 - 30 minutes

(five to seven days later)



Materials

- One unbruised apple
- Stick or pen for putting hole in apple
- One brown paper lunch bag
- Option – **I am Robo-Tooth** picture enlarged (found in Lesson 1)
- Photocopies – 1 copy for each student of handouts (can be printed back-to-back):
 - **My Food Record**
 - **Sugar Causes Tooth Decay**
- Photocopies – 1 copy for each student of handouts (can be printed back-to-back):
 - **My Food Record Totals**
 - **Foods That Make Me Smile**

Activity

Day One

- Hold up an apple and explain to students that the apple is going to be used as a model of a tooth, because it has some similarities to a tooth.
 - Explain that an apple has an outer skin that protects the inside. The crown on a tooth also has a covering on the outside. Ask the students if they remember what this covering or outer layer is called? (*Enamel*)
 - Explain that the enamel on a tooth protects the inside of the tooth just like the skin of the apple protects the inside of the apple.
 - Ask students what they think would happen to the inside of the apple if it had a hole in its skin. (*It would turn brown and rot or decay.*)
 - Explain to students that they are going to be able to see the decay process happen in this apple.
 - Use a stick or pen to poke a hole, about 1 inch in depth, into the apple.
 - Place the apple into a paper bag, close the bag and set it aside for about 5 to 7 days.
 - Tell students that they will observe the apple in about 5 to 7 days. At that time they will see what happens to the inside of the apple and compare it to what can happen to our teeth when acid starts to make a hole in our enamel.
- Explain to students that acid is made in their mouths through the “chain of decay” equation. (This should be a review of Lesson 4. However, if Lesson 4 was not taught, then use sections of it to discuss the “chain of decay.”) Review the “chain of decay” by asking students the following:
 - What is the film of bacteria that forms in our mouths called? (*Plaque*)
 - What types of foods are most used by the plaque in the “chain of decay”? (*Sweet, sugary and sticky foods, candy, etc.*)

HEALTH

SCIENCE

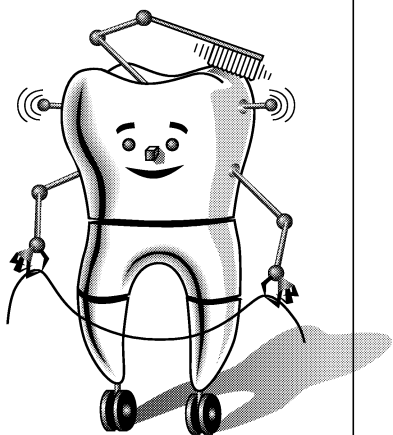
LANGUAGE ARTS



Sugars Cause Tooth Decay

Each time a sugary food is eaten, there is an “acid attack” which lasts for at least 20 minutes.

Sugary foods that stick to the teeth can make an “acid attack” last longer.



- What chemical solution is made when plaque and sugar combine?
(Acid; Plaque + Sugar = Acid)
 - How long does an “acid attack” last?
(20 minutes)
 - Do we get a cavity every time we eat something sugary?
(No, it takes time to get a cavity.)
- Explain to students that it takes several “acid attacks,” over a period of time, before they get a cavity. Each time they eat a food with sugar, acid is formed which weakens their enamel. When the acid weakens their teeth too much they get cavities.
 - Introduce students to Robo-Tooth as described in Lesson 1, if students are not familiar with Robo-Tooth.
 - Option – use enlarged picture of **I am Robo-Tooth** for this introduction.
 - Explain to students that Robo-Tooth knows about how foods affect teeth. Robo-tooth has come to visit the class to help the students learn more about choosing healthy foods for their teeth.
 - Explain to students that when choosing foods to eat they need to think about whether the food has sugar as well as whether the food will stick to their teeth.
 - Explain to students that when a sugary food sticks to their teeth, it will make acid in their mouth for longer than 20 minutes!
 - Ask students if they think it is okay to eat sugary, sticky foods.
(Yes, it is okay to eat these foods but only sometimes and it is best to eat them with a meal and not as a snack. Healthy foods, from the 4 food groups, should be what we eat most of the time, especially for snacks.)
 - Explain to students that foods from the 4 food groups are very healthy for their bodies even though some may have sugar in them. However, this sugar is naturally in these foods and is not added. Some examples of these foods are milk and fruit.
 - Explain to students that it is important for them to eat these foods because they help to keep their bodies healthy.
 - Explain to students that foods from the “Other Foods” category are often not as nutritional as those in the 4 food groups. The “Other Foods” usually contain more sugar, which does not occur naturally but is added. One exception in the “Other Foods” category is water which contains no sugar.
 - Ask students what they should do to prevent cavities after they eat a sugary, sticky food.
(Brush their teeth.)
 - Explain to students that brushing after eating these foods is the best thing they can do for their teeth. Sometimes they are not at home and cannot brush their teeth right away. What do they think they should do then?
(They can have a drink of water, eat a piece of cheese, or chew sugarless gum after eating the food.)

Sugars Cause Tooth Decay

Eating sugar more often leads to more “acid attacks.”

To help limit the number of “acid attacks,” it is best to eat sugary foods only sometimes, with a meal and not as a snack.

- Explain to students that besides thinking about whether a food has sugar in it or is sticky, it is also important to think about how much sugar is in a particular food.
 - Ask students if they think the amount of sugar in a food has an effect on the “chain of decay.”
(No)
 - Explain to students that the amount of sugar in a food does not affect the “chain of decay.” If they eat any amount of sugar, the “chain of decay” will happen in their mouths regardless of whether they ate a little sugar or a lot of sugar. Their teeth, however, are more affected by how often they eat sugar and the length of time the sugar is in their mouths. But for their whole body, it is important to know how much sugar is in a food. They can keep their bodies healthier by limiting the sugar they eat.
- Explain to students that they are now going to spend some time looking at how much sugar and how many “acid attacks” they have in one day.
- Distribute a copy of the double-sided **My Food Record** and **Sugar Causes Tooth Decay** sheet to each student. Instruct students to look at the **My Food Record** side and explain each column to the students.
 - Instruct students to list, in column A, the foods they ate this morning for breakfast. If students have already eaten a snack or had their lunch, these foods should also be listed. Students should list each food on a separate line in column A. Remind students to list all foods eaten. For example, if they ate toast for breakfast, they should list the toast on one line plus what they had on the toast (i.e. butter, jam, peanut butter), each on a separate line.
 - For each food that students list in column A, have them decide whether the food is in the 4 main food groups or is in the “Other ^{side} Foods” category. Students should place a check mark in the appropriate section of column B to show this.
 - Have students turn the sheet to the **Sugar Causes Tooth Decay**. Explain that they will use this list to help determine if the foods they have listed contain sugar and how much sugar.
 - For each food that was listed in column A, students should check the **Sugar Causes Tooth Decay** list to see if the food contains sugar. If the food is not on the list, then have students make their best guess. (Note: Students may need assistance with this. Most meats and vegetables have no sugar unless they have added sauces, etc. Most foods from the bread, milk and fruit categories have some sugar.) If they decide that the food contains sugar, they should place a check mark on the line in column C.
 - For each food that has a check mark in column C, students should:
 - Write the amount of sugar the food contains in column D. They can use the **Sugar Causes Tooth Decay** list to determine the amount

Sugars Cause Tooth Decay

Eating more than one sugary food during a meal or snack causes only one “acid attack.”

Snacking on sugary foods throughout the day causes many “acid attacks.”

of sugar in each food they ate. For foods that are not on the list, students can estimate the amount of sugar by comparing that food to a similar food which is on the list.

- Determine whether that food is sticky, and if it is, students should place a check mark in column E.
- For each meal or snack that includes a sugary food (i.e. column C has at least one check mark), students should place a check mark in column F to show that the food(s) eaten may have caused an “acid attack.” (Note: There can be a maximum of one check mark in column F for each meal or snack. Eating more than one sugary food in one sitting, still only causes one “acid attack.”)
- Have students place a check mark in column G if they brushed their teeth, within 10 minutes, after eating each meal or snack.
- Instruct students to take their **My Food Record** home and list all of the foods they eat that day. They should complete all columns and bring the sheet back to school.

Day Two (five to seven days later)

- Bring out the apple that was started on Day One.
 - Remind students that the apple is being used as a model of a tooth.
 - Have students observe the outside of the apple and make comments about what they see.
(The area around the hole has shriveled; the edges of the hole have turned brown.)
- Cut the apple in half, through the place where the hole was made.
- Have students observe the inside of the apple and ask them to describe what has happened to the area where the hole was made.
(The hole has turned brown and this brown colour has spread to the surrounding area.)
 - Explain to students that in the area of the hole, the apple has started to decay or rot.
 - Ask students why the hole caused the inside of the apple to decay.
(The hole caused trauma to the apple and broke the skin which allowed air inside the apple, causing the apple to start to decay.)
 - Remind students that the skin on an apple protects the inside of the apple like the enamel on a tooth protects the inside of a tooth. They should protect their enamel, so they will not get holes / cavities in their teeth.
 - Explain to students that if they had protected the apple from the pen / pencil, the apple would not have developed a hole in it. They can protect their teeth from developing holes, by protecting their teeth from the acid that is made by plaque and sugar in the “chain of decay.”

Sugars Cause Tooth Decay

In a healthy diet, the number of foods eaten from the 4 food groups should be higher than the number eaten from the “Other Foods” category.

- Ask students what happens to the inside of the tooth, if acid starts to make a hole in their enamel.
(The inside of the tooth starts to decay much like what happened to the inside of the apple.)
- Explain to students that if they see a small spot or hole in one of their teeth, they should have it checked by a dentist. The dentist may discover that it is a small hole on the outside or that the hole has decayed deeper into the tooth where they cannot see it, just like in the apple experiment. The dentist may take x-rays to see the inside part of the tooth.
- Explain to students that to protect their enamel, they should be aware of how many “acid attacks” they have in a day.
- Have students bring out their **My Food Record** sheets.
 - Have students add up the amounts of sugar in column D, and enter this total in the last row at the bottom of the page.
 - Have students count the number of check marks in each of the remaining columns (B, C, E, F, and G) and enter these totals in the last row at the bottom of the page.
- Explain to students that they are going to use the information on their **My Food Record** sheets to determine how much sugar and how many “acid attacks” they had that day.
- Distribute a copy of the double-sided **My Food Record Totals** and **Foods That Make Me Smile** sheet to each student. Instruct students to look at the **My Food Record Totals** side.
 - Refer students to section 1 “Food Group Totals”:
 - Have students enter their totals for the number of foods they ate from the 4 food groups and the number from the “Other Foods” from column B of **My Food Record**.
 - Have students look at their totals. Discuss with them that in a healthy diet the number of foods eaten from the 4 food groups should be higher than the number of foods eaten from the “Other Foods” category.
 - Instruct students to choose one “Other Food” that is listed on their food record and to think of a food from the 4 food groups that they could have eaten instead of that “Other Food.” Students should record both of these foods on their **My Food Record Totals** sheet. For example, if they had a can of pop, they could choose milk instead.
 - Refer students to section 2 “Sugar Totals”:
 - Have students enter their totals for the number of foods they ate that contained sugar (total from column C) and the total amount of sugar they ate (total from column D).
 - Instruct students to look at their totals, and think about ways that they could lower the amount of sugar they ate.

Sugars Cause Tooth Decay

Break two links in the “chain of decay”: eat less sugar and brush after eating.

When you cannot brush after eating, drink water, eat a piece of cheese, or chew sugarless gum.

- Instruct students to choose one food on their food record that was high in sugar and think of a food that would be lower in sugar, which they could have eaten instead. Students should record both of these foods on their **My Food Record Totals** sheet. For example, if they ate a chocolate bar for a recess snack they could have eaten an apple instead.
- Refer students to section 3 “Acid Attack Totals.” Have students:
 - Write their total for the number of “acid attacks” they had on that day (total from column F).
 - Show the amount of time their teeth were exposed to acid in total, by colouring in a 20-minute section on the clocks for each acid attack that they had on that day.
 - Calculate the number of minutes that their teeth may have been exposed to acid by writing the total for the number of “acid attacks” they had (total from column F) and multiplying it by 20.
 - Write their total for the number of sticky foods they ate (total from column E).
 - Write their total for the number of times they brushed immediately after eating their meal or snack (total from column G).
- Refer students to section 4 “Breaking the ‘Chain of Decay.’”
 - Have students complete the sentences by filling in the blanks. The completed sentences should read:
 - Eat less sugar.
 - Eat a piece of cheese.
 - Rinse with water.
 - Chew sugarless gum.
 - Brush my teeth immediately after eating a sugary food.
 - Review with students that each of these will help to break the “chain of decay” because they either reduce or remove the sugar, or they reduce or remove the acid.
- Have students turn their sheets over to the **Foods That Make Me Smile** side. Explain to students that this is information for their parents.
- Remind students that breaking the “chain of decay” by eating less sugar or removing the acid, and eating sugar less frequently, will help to prevent cavities. Encourage students to choose healthy foods for meals and snacks.

Optional Activities

- Create a visual about the amount of sugar that students ate by having sugar, teaspoons and clear plastic cups available. Have students measure out the number of teaspoons of sugar that they ate in the one day, from column D of **My Food Record**, and place that sugar in their cup. The sugar from each student could be combined into a glass jar(s) to show the total amount of sugar eaten by the class.

Sugars Cause Tooth Decay

Read a food label to see if the food contains sugar.

Some common sugars are: sucrose, dextrose, maltose, lactose, glucose, fructose, corn syrup and honey.

- Plan a “sugar free day.” Tell students to pretend to be allergic to added sugar for that day. Students will have to read the labels of everything they eat, getting help with this as needed. They will have to decline all foods with added sugar. They can eat foods with natural sugar such as white or soy milk and fruits. Remind students the day before the “sugar free day” so students can plan a breakfast, recess snack and lunch without added sugar. Also remind them before they go home to continue the “sugar free day” until they go to bed. The next day, discuss their thoughts and feelings about the “sugar free day.”
- Talk to students about the many different names for sugar. Explain that when reading a food label, an ingredient that ends in -ose is a form of sugar. Some common sugars are sucrose, dextrose, maltose, lactose, glucose and fructose. Also corn syrup and honey are forms of sugar.
- Have each student bring an empty food package which includes an ingredient label to school. Each student should look at the ingredients on their food package to determine if the food contains sugar. Explain to students that the ingredients are listed in order of highest quantity to lowest. Once they have looked at their package, they should exchange packages with another student until they have read at least 10 packages. As a class discuss the students' findings. Which foods had sugar as the first ingredient? Have some students share a food in which they were surprised to find sugar on the label.
- For more information or activities about the amount of sugar in different beverages, visit www.calgaryhealthregion.ca/rethinkyourdrink/.
- To expand on the concept of sugars in drinks, have students visit www.mndental.org if they have access to a computer. Students should click on *Sip All Day Get Decay*, and then on the *Big Cup* icon, which will bring them to the *What's In Your Pop?* activity that will show them the amount of sugar or acid in different canned drinks. Also, students can click on the open mouth or the girl icon to bring them to activities that will describe how pop attacks teeth and how to save their teeth. Note: students may need some help with these activities since some of the reading involves a higher level of vocabulary.
- To find the sugar content of foods that are not on the list, visit www.nutritiondata.com.

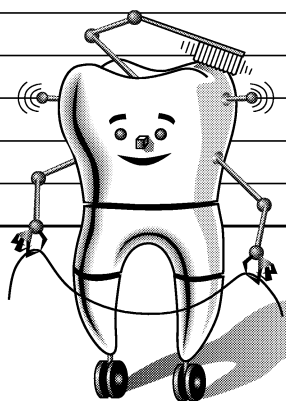
My Food Record

Name: _____

A. What I ate:	B. Food Guide		C. This food contains sugar (check mark)	D. This food contains ___ tsp sugar	E. This food is sugary and sticky (check mark)	F. This meal caused an acid attack (check mark)	G. I brushed after eating (check mark)
	4 Food Groups	Other Foods					
Breakfast							
Snack							
Lunch							
Snack							
Dinner							
Snack							
Totals							

Sugar Causes Tooth Decay

Food	Amount Eaten	Sugar (Teaspoons)	Food	Amount Eaten	Sugar (Teaspoons)
Grain Products			Milk Products		
Plain cereal	1 cup	0.5	Milk * [∞]	1 cup	3
Sugar coated or frosted cereal	1 cup	3.5	Flavoured milk	1 cup	7
Bread	1 slice	1	Chocolate bar milkshake	1 cup	10
Bagel	1 medium	1	Yogourt (flavoured)	1 cup	12
Pita	1	0	Ice cream	1	8
Waffle	1	0.5	Cheese * [∞]	1 slice	0
Pancake	1 small	1	Cream cheese	2 tbsp	0.5
Pop tarts	1 pastry	4.5	Pudding	1 snack size	5.5
Noodles	1 cup	0	Meat and Alternatives		
Rice	1 cup	0	Meat dish	1 cup	0
Cake	1 piece	4.5	Beans (baked)	1 cup	5
Cookie	1	2	Peanut butter	2 tbsp	1
Doughnut	1 medium	3	Nuts	1/2 cup	0
Popcorn (plain)	1 cup	0	Egg	1	0
Granola bar	1	11	Other Foods		
			Jam	2 tbsp	5
			Honey	2 tbsp	8.5
			Syrup	2 tbsp	7
Vegetables and Fruit			Cheez Whiz	2 tbsp	1
Fresh fruit *	1	3	Water	1 cup	0
Canned fruit	1 cup	6	Pop	1 can	10
Dried fruit	1 cup	12	Slush drink	1 cup	8
Fresh vegetables	1 cup	0	Fruit drink	1 cup	7.5
Canned vegetables	1 cup	2	Kool-aid	1 cup	7
Cooked vegetables	1 cup	0	Iced tea	1 cup	6
100% fruit juice *	1 cup	7.5	Sports drink	1 cup	5
Salad	1 cup	0	Ketchup	2 tbsp	1.5
			Spaghetti sauce	1/2 cup	3
			Chocolate bar	1	5.5
			Hard candy	1	1
			Gelatin dessert	1 cup	9.5
			Fruit rolls	1	10



* These foods contain only natural sugars, and can be high in nutrients.

[∞] The natural sugars in these plain milk products are less likely to cause cavities.

In milk products that have added sugar, the added sugar can promote cavities.

Note: The amount of sugar listed for each of these foods is based on an average of the amount of sugar in common brands for that food category.

My Food Record Totals

Name: _____

1. Food Group Totals

I ate _____ foods from the 4 food groups. I ate _____ foods from the "Other Foods" category.

To choose a healthier food, I could eat _____ from the 4 food groups instead of eating _____ from the "Other Foods."

2. Sugar Totals

I ate _____ foods that contain sugar. I ate _____ teaspoons of sugar in total.

To decrease the amount of sugar, I could eat _____ instead of eating _____.

3. Acid Attack Totals

I had _____ acid attacks in total for the day.

These clocks show the total time that acid attacked my teeth in one day:



Each acid attack lasts about 20 minutes. I had _____ acid attacks x 20 = _____ minutes in total that acid may have been attacking my teeth.

I ate _____ sticky foods, which may have made my acid attacks last longer.

I brushed _____ times immediately after eating today, which may have reduced the length of my acid attacks.

4. Breaking the "Chain of Decay"

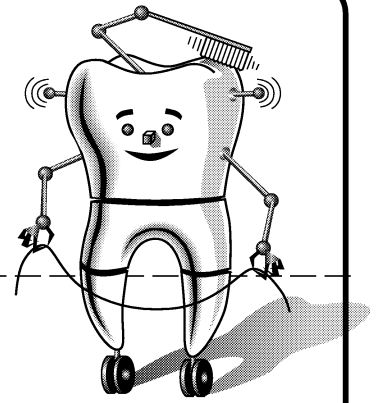
If I want to break the acid part of the "chain of decay," I can:

Eat less _____. Eat a piece of _____.

Rinse with _____. Chew sugarless _____.

_____ my teeth immediately after eating a sugary food.

Foods That Make Me Smile



Dear Parents,

At school, your child is learning about how sugar can affect their teeth. Limiting added sugar in their diet can help to keep them healthy.

We have discussed the “chain of decay” - the process in which sugar can cause cavities in our teeth. The chain of decay has two parts:

Plaque + Sugar = Acid

Acid + Time = Cavity

When we eat sugar, the plaque germs in our mouths make an acid. This acid stays in our mouths for about 20 minutes, if we do not clean our mouths after eating. If the food is sugary and sticky, the acid can stay in our mouths for even longer! During this time, the acid attacks the teeth and starts to break down the tooth surface. After several “acid attacks” the tooth surface can be broken down so much that there is a hole, or cavity, in the tooth.

As a class, we have discussed that the best way to prevent cavities is to break a link in this “chain of decay.” To help your child have healthy teeth, dental health professionals recommend the following:

1. When choosing foods for your child, select foods from the 4 food groups most of the time. For snacks, encourage raw vegetables, cheese, popcorn, nuts, and fruits. Cheese is a highly recommended snack that helps prevent cavities. It is not realistic to give up eating every food which contains sugar. In fact some of these foods – such as milk and fruits which have natural sugars – are nutritious choices and are needed as part of a healthy, balanced diet.
2. Have your child save sweets for special occasions; do not include as part of regular daily meals and snacks. It is best to eat the sugary foods from the “Other Foods” category only sometimes. It is recommended that added sugar be used sparingly in the diet. To meet these guidelines a child of age 9 should eat less than 10 teaspoons of added sugar each day.
3. Avoid nibbling on sugary foods or sipping on sugary drinks for prolonged periods of time. Snacking on these foods throughout the day causes many “acid attacks.”
4. When your child does eat sugary foods, it is best to save them and eat them with meals and brush afterwards.
5. If brushing immediately after eating is not possible, then encourage your child to do one of the following:
 - Rinse with water.
 - Eat a piece of cheese.
 - Chew sugar-free gum, especially gum with Xylitol.

Thank you. If you have any questions, please contact me.

Sincerely,

Teacher

Date

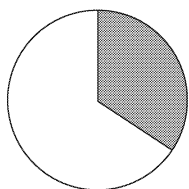
To Brush or Not To Brush

General Outcome
Relationship Choices

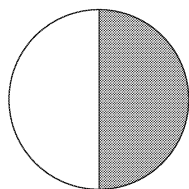
Specific Outcome
Students will develop skills to work cooperatively in a group.

Dental Outcome
Students will understand how plaque can grow and accumulate.

Time:
 Day 1 - 20 minutes



Day 2 - 30 minutes
 (about one week later)



Materials

- Items for “garbage gardens” – required for each group of 4 students:
 - 1 clear plastic cup
 - Potting soil
 - Small bits of food (can be collected during class time or teacher can bring in food; if collecting during class time, either collect the food before lunch or have students save small bits of their lunch)
 - Clear plastic wrap (a piece large enough to cover the top of the plastic cup)
 - Tape

Activity

Day One

- Ask students to explain why they need to brush and floss their teeth. *(To clean our mouths; to remove food and germs / bacteria; to prevent cavities and gingivitis; to prevent bad breath.)*
- Review with students that there are bacteria that grow in their mouths and make a layer on their teeth and around their gums. Do they remember what this film of bacteria is called? *(Plaque)*
- Explain to students that to clean plaque away from all the places it can hide, they need to both brush and floss.
 - Ask students how many times in one day they should brush their teeth. *(At least two times in one day.)*
 - Explain to students that floss cleans the plaque from between their teeth, where the toothbrush cannot clean. Do they know how often they need to floss in one day? *(Once a day.)*
- Explain to students that plaque lives and grows in their mouths all the time. When they brush thoroughly every day, they will have just a small amount of plaque in their mouths, which can be seen only by using a microscope.
- Explain to students that when they do not brush thoroughly every day, they will have more plaque on their teeth and they may be able to see it by looking in the mirror. How would they describe what they would see? *(A yellowish coating on their teeth.)*
- Explain to students that they are going to show how plaque can grow and accumulate in their mouths by making a “garbage garden.”
 - Divide class into small groups of approximately four students.
 - Have students bring their lunch bags when they join their groups.
 - Give each group a clear plastic cup, approximately half filled with soil.

HEALTH

SCIENCE

LANGUAGE ARTS



To Brush or Not To Brush

Plaque lives and grows in the mouth all the time. If plaque is not thoroughly cleaned away every day, it will accumulate.

- Have each student in the group take a small bit of food, about the size of their thumbnail, from their lunch and gently place it on top of the soil in their cup. Encourage students to use fresh foods such as bread, fruits, cheese, etc.
 - Distribute a piece of plastic wrap and pieces of tape to each group.
 - Have the students cover the cup tightly with plastic wrap and tape the edges of the wrap to the cup.
 - Have one student from each group place their group's cup in a warm spot in the classroom.
- Explain to students that they are going to observe what happens to their “garbage garden” after it sits for several days.
 - Ask students what they think might happen to the food in their garden.
(It will go bad / spoil / rot; it might start to smell.)
 - Explain to students that they will be monitoring what happens in their “garbage garden” by observing it closely today to see what it looks like at the start, and then checking on it every day to see if any changes are noticeable.
 - Have students, in their groups, observe their “garbage garden” and talk about what they observe.
 - Explain to students that as they observe their “garbage garden,” you want them to pretend that the pieces of food represent teeth and that the soil represents the environment of the mouth.
 - Have students check on the “garbage garden” daily to see if they notice any changes.
- Day Two** (about one week later)
- Explain to students that today is the day for the final check of their “garbage garden.”
 - Have students gather into their groups.
 - Have one student from each group retrieve their “garbage garden” and bring it back to their group.
 - Have the students observe their group's “garbage garden” and discuss the changes with their group.
 - Explain to students that there should be noticeable changes to the food in their “garbage gardens.”
 - Ask a few students to describe to the class what their group observed in their garden.
(The food has mould growing on it; the food is breaking down / rotting / decaying.)
 - Review with students that in this experiment, the pieces of food represent teeth and that the soil represents the environment of the mouth.

To Brush or Not To Brush

If plaque is not cleaned away, it can cause cavities, gingivitis, and bad breath.

- Explain to students that because the food was not taken care of, mould grew and accumulated. How would they normally take care of this food?
(Keep it in the appropriate environment; refrigerate it; keep it in an airtight container or bag; use it in a specified amount of time.)
- Explain to students that mould does not grow in their mouths, but bacteria called plaque grows. The mould in this experiment represents how the plaque can grow and accumulate if they do not take care of their mouths. What should they do to take care of their mouths?
(Brush thoroughly at least two times a day; floss once a day.)
- Ask students what they think might happen to the mould if the “garbage garden” were to sit for more days.
(There would be more mould.)
- Ask students what they think might happen to the plaque in their mouths if they stopped brushing and flossing.
(There would be more and more plaque growing and accumulating.)
- Ask the students to describe what the mould is doing to the food.
(It is breaking it down; making it rot / decay.)
- Ask students what plaque can do to their teeth if they do not clean it off by brushing and flossing, and they eat sugary foods.
(The plaque can rot / decay our teeth which causes a cavity.)
- Ask students what plaque can do to their gums if it stays around their gums because they do not brush and floss thoroughly.
(The plaque irritates / bothers our gums causing gingivitis; it makes the gums unhealthy.)
- Review with students that gums with gingivitis are red, puffy, and bleed easily. (This should be a review of Lesson 3. However, if Lesson 3 was not done then use sections from that lesson to explain the concept of gingivitis.)
- Explain to students that when they first get gingivitis they can easily get rid of it by cleaning the plaque away every day. But if they have gingivitis for a long time, the plaque can “break down” the gums.
- Explain to students that accumulating plaque can cause both cavities and gingivitis.
- Ask students if they think that things that are rotting or breaking down can have a smell to them.
(Yes)
- Instruct one student in each group to remove the plastic wrap from their “garbage garden” and have students, in their groups, observe the odor. Explain that this odor is a result of the food decaying in the “garbage garden.” This can be similar to the bad breath in a person's mouth. What can cause bad breath?
(Food left in the mouth; plaque accumulating; teeth decaying; gums breaking down.)
- Have one student from each group dispose of their “garbage garden.”

To Brush or Not To Brush

A placemat can help students remember to eat healthy foods and brush their teeth after eating.

- Discuss with students that they should now have a better idea of what plaque can do to their mouths. Ask students what they need to do to prevent cavities, gingivitis, and bad breath.

(Thoroughly clean plaque away from our teeth and gums every day by brushing and flossing.)

Optional Activities

- To make the “garbage gardens” an even closer simulation of the environment of a mouth, have each group add a small amount of water (about 1 to 2 tbsp) to moisten the soil in their garden before they cover it with plastic wrap. This moist environment will make the mould grow in larger quantities than in the dry garden.
- The activity of making a “garbage garden” could be completed by the teacher as a demonstration only, with all students observing the one cup. Or, each student could make their own “garbage garden” instead of completing this as a group activity.
- Give each student a piece of blank paper and have them create a placemat that they can use while eating at home. On their placemats they should place pictures and phrases that will help to remind them to take care of their smiles by eating healthy foods and brushing their teeth after they eat.
- Make a copy for each student of the **My Dental Health Calendar** sheet, found in Lesson 1. Students can take these sheets home and colour in a picture on each day that they brush and floss.
- For a poem or more activities about plaque, visit www.dupagehealth.org/health_ed/dental_month.html and click on *What is Plaque?*

Fluoride – An Eggsperiment

General Outcome

Life Learning Choices

Specific Outcome

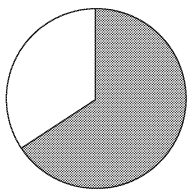
Students will identify the steps of the goal-setting process, and apply these components to short-term personal goals.

Dental Outcome

Students will follow the steps in an experiment to observe the effects of fluoride.

Time:

Day One – 40 minutes



Day Two – 10 minutes
(four days later)

Day Three – 20 minutes

Day Four – 40 minutes

Materials

- Chart paper with title “Jobs for Experiment” written on the top of the paper and these job titles listed below (made ahead by teacher):
 - Lab Technician
 - Researcher
 - Recorder
 - Reporter
 - Sanitation Engineer
- Felt pen
- Clear glue or clear nail polish
- For each group of 5 students:
 - 1 egg (fresh or hard-boiled) with shell intact; teacher to mark an “X” with a felt pen on one end of each egg, and cover the “X” with clear glue or nail polish, ahead of class time
 - 2 clear plastic cups – 1 for Day One and 1 for Day Two
 - 1 teaspoon
 - 2 pieces of clear plastic wrap – 1 piece for Day One and 1 piece for Day Three (pieces should be large enough to cover the top of the plastic cup)
 - 1 tube of toothpaste (75 ml) that contains .243% sodium fluoride (avoid using whitening or tartar-fighting toothpaste for this experiment)
 - Tape or an elastic band
 - Paper towel
 - Photocopy of **Fluoride Eggsperiment** handout
- Vinegar (approximately 1 cup / group)
- Photocopies of **The Chain of Decay** handout – 1 copy for each student
- Scissors
- Glue

Activity

Day One

- Discuss the “chain of decay” by asking students the following (this should be a review of Lesson 4. However, if Lesson 4 was not taught, then use sections of it to discuss the “chain of decay.”):
 - Discuss with students that every time plaque and sugar combine, a chemical is made which can cause cavities in their teeth. Do they remember what the chemical solution is?
(*Acid; Plaque + Sugar = Acid.*)
 - Ask students what acid does to things that it touches.
(*It burns or eats a hole in things.*)
 - Explain to students that if they do not want to get cavities, the best thing they can do is protect their teeth from these “acid attacks.” To do this, they need to break a link in the “chain of decay.” What can they do to break a link?

HEALTH

SCIENCE

LANGUAGE ARTS

Fluoride – An Eggsperiment

Fluoride protects teeth from “acid attacks” by making teeth stronger.

Stronger teeth are more resistant to the acid which causes cavities.

(Brush and floss to clean plaque and food away; limit sugary foods; eat healthy foods; when they cannot brush, they could: have a drink of water, eat a piece of cheese, or chew sugarless gum after eating the food.)

- Explain to students that they can also help protect their teeth from these “acid attacks” with fluoride. Ask students how fluoride protects their teeth from the “acid attacks.”
(Fluoride makes teeth stronger.)
- Explain to students that fluoride is a naturally occurring substance that can make the outside surface – the enamel – of teeth stronger. Stronger teeth are more resistant to the acid which causes cavities.
- Ask students if they know where they can get fluoride.
(Toothpaste, the dental office, some drinking water, some foods and drinks, some mouthwashes.)
- Explain to students that today they will start an experiment that demonstrates how fluoride protects teeth. They will be using eggs and vinegar for the experiment.
 - Explain to students that during the experiment they will pretend the eggs are teeth, because eggshells are similar to teeth and the results with the eggs will be similar to what could happen with teeth. How do they think an eggshell is similar to a tooth?
(They are both hard; they are both white.)
 - Explain that the experiment also uses vinegar, which is an acid similar to the acid in their mouths.
- Tell students that they are going to work in groups for the experiment, and each group will have an egg. They will “treat” half of their egg with fluoride toothpaste and leave half of their egg “untreated.” Then the egg will be soaked in vinegar and they will see what happens to the “treated” and “untreated” halves.
- Discuss with students that in their groups, each group member will have a specific job. Refer to the list of job titles on the board or chart paper and explain what each of these team members will do:
 - Lab Technician – gathers supplies and performs the tasks in the experiment.
 - Researcher – leads the group in discussing what they observe.
 - Recorder – records the group's observations on the worksheet.
 - Reporter – presents the group's observations to the class.
 - Sanitation Engineer – cleans the supplies and the area used in the experiment.
- Divide the class into groups of five. Have every student in each group choose a job. Note: If any group has less than five students, one or more students should take two jobs.

Fluoride – An Eggsperiment

Students should make a hypothesis.

What will happen to the side of the egg that is not treated with fluoride?

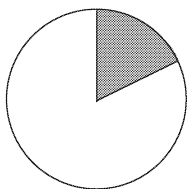
What will happen to the side of the egg that is treated with fluoride?

- Distribute a copy of the **Fluoride Eggsperiment** sheet to the Recorder in each group, and have them write the names of each student who is in the group, on the top lines of the sheet.
- Explain to students that this experiment will be in four separate stages, over about a week. Today they will begin with the first stage. In this stage they will:
 - Place the eggs into the toothpaste.
 - Make a guess, or hypothesis, about what they think will happen to the egg after it soaks in vinegar.
- Instruct the Lab Technicians to pick up the following supplies and bring them back to their group:
 - 1 egg
 - 1 plastic cup
 - 1 teaspoon
 - Piece of plastic wrap
 - Tube of toothpaste
 - Tape or an elastic band
 - Paper towel
- Instruct Lab Technicians to do the following steps:
 - Fill about 2 cm (1”) of the cup with toothpaste (approximately 75 ml).
 - Pat down the toothpaste with a teaspoon to make it level.
 - Place the egg, with the X side up, into the measuring cup so the toothpaste covers half the egg. Make sure the egg does not touch the bottom of the cup.
 - Cover the cup tightly with plastic wrap and secure the wrap with tape or an elastic band. Caution students about not tipping the cup when they are securing the plastic wrap.
- Instruct Researchers to lead their groups in a discussion about what they think will happen to the egg when it is soaked in vinegar.
 - Have groups discuss what they think will happen to the “untreated” side (the X side) of the egg.
 - Have groups discuss what they think will happen to the “treated” side of the egg.
 - Instruct Recorders to write these predictions in the “Day 1” section of the **Fluoride Eggsperiment** worksheet.
 - Remind Reporters that they should understand what their group discusses and records, as they will have to report on this later.
- Instruct Lab Technicians to take their cup with the egg and put it in a specified place in the classroom. Note: These eggs will need to sit in their cups, at room temperature, for at least 4 full days.

Fluoride – An Eggsperiment

Time:

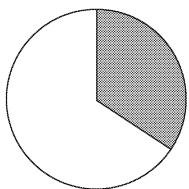
Day Two – 10 minutes



The egg represents a tooth and the vinegar represents acid in the mouth.

Time:

Day Three – 20 minutes



- Instruct Recorders to keep the **Fluoride Eggsperiment** sheet for their group. They will be responsible to bring this sheet to the next stages of the experiment.
- Instruct Sanitation Engineers to wipe off the spoon with the paper towel, return any supplies and clean the group's working area.
- Explain to students that their eggs will need to sit in the toothpaste for at least 4 days. After that time they will start the second stage of the experiment.

Day Two (about four days later)

- Explain to students that today they will take the egg out of the toothpaste and observe it. This is the second stage of the experiment.
- Have students divide into their groups. The Recorders should bring their group's **Fluoride Eggsperiment** worksheet.
- Instruct Lab Technicians to do the following:
 - Obtain their group's cup with the egg.
 - Obtain a teaspoon, paper towel, and a new cup.
 - Carefully remove the egg with the teaspoon and rinse off all of the toothpaste with warm tap water.
 - Place the egg on a clean, dry paper towel and bring it back to their group.
- Have each group observe their egg. Instruct Researchers to lead their groups in discussing their observations of the "untreated" and "treated" sides of the egg.
 - Instruct Recorders to write the group's observations in the "Day 2" section of the **Fluoride Eggsperiment** worksheet.
 - Remind Reporters that they should be familiar with these observations because they will have to report on these at the end of the experiment.

- Instruct Lab Technicians to carefully place the egg inside the new cup, leaving it uncovered, and put the cup in a specified place in the classroom to dry overnight.
- Instruct Sanitation Engineers to wipe off the spoon with a paper towel, throw away the plastic wrap and the cup containing the toothpaste, return any supplies, and clean the group's working area.

Day Three

- Explain to students that today they will place their eggs into vinegar. This is the third stage of the experiment.

Fluoride – An Eggsperiment

What is the vinegar doing to the egg?

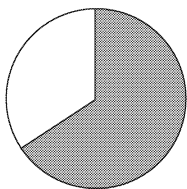
The vinegar is starting an “acid attack” on the “untreated” side of the egg.

- Review with students that in this experiment the egg is representing a tooth and the vinegar is representing the acid their mouths produce when plaque combines with sugar.
- Have students divide into their groups. The Recorders should bring their group's **Fluoride Eggsperiment** worksheet.
- Instruct Lab Technicians to obtain the following:
 - Their group's cup with the egg and bring it back to their group.
 - A piece of plastic wrap.
 - Some tape or an elastic band.
- Rotate through each group and pour enough vinegar into each group's cup, to cover their egg.
- Have each group observe their egg. Instruct Researchers to lead their groups in discussing what happens to the egg.
- Instruct Recorders to write the group's observations in the “Day 3” section of the **Fluoride Eggsperiment** worksheet.
- Have the Reporter from each group tell the class what their group saw and discussed.
- Discuss with the class that they should have noticed bubbles forming around the “untreated” side of their egg. Explain that these bubbles are forming because of what the vinegar is doing to the egg. The vinegar's action on the egg is similar to acid's action on teeth. What is the vinegar doing to the egg?
(The vinegar is attacking the shell, like an “acid attack” on a tooth.)
- Instruct Lab Technicians to cover their cup tightly with the plastic wrap and secure the wrap with tape or an elastic band. They should then place their cup in a specified place in the classroom, being careful not to tip the cup.
- Instruct Sanitation Engineers to return any supplies and to clean their group's working area.
- Explain to students that they will be leaving their eggs in the vinegar for 7 to 13 hours. Note: Since the eggs should not be in the vinegar for more than 13 hours, the time the eggs are in the vinegar can be split over two days. If this is necessary, have each Lab Technician remove their egg from the vinegar at the end of the school day, gently rinse it off and put it in a safe place overnight. The Recorders should write down how many hours the egg was in the vinegar. The next day, have the Lab Technicians place the eggs back in the vinegar, to continue the soaking time.

Fluoride – An Eggsperiment

Time:

Day Four – 40 minutes



The “treated” side of the egg has fluoride which protected it from the acid. So the “treated” side stayed hard.

The “untreated” side of the egg had no protection from the acid. So it has become soft.

Day Four

- Explain to students that today they will observe the final stage of their egg experiment.
- Have students divide into their groups. The Recorder for each group should bring their group’s **Fluoride Eggsperiment** worksheet.
- Instruct Lab Technicians to do the following:
 - Obtain their group’s container with the egg.
 - Obtain a teaspoon and a paper towel.
 - Carefully remove the egg, using the teaspoon, and gently wash it with warm tap water.
 - Place the egg on a paper towel and carefully bring it back to their group.
- Have each group observe their eggs by very lightly touching the “untreated” and “treated” sides with their fingers. Instruct Researchers to lead their groups in discussing what they observe.
- Instruct Recorders to write down the group’s observations on “Day 4” of the **Fluoride Eggsperiment** worksheet.
- Instruct Researchers to lead their group in discussing what effect the fluoride had on the “treated” side of the egg, and what conclusion they can make from this about why fluoride is important for their teeth.
- Instruct Recorders to write down, at the bottom of the **Fluoride Eggsperiment** worksheet, their group’s conclusion about why fluoride is important for their teeth.
- Have the Reporters from each group tell the class what their group’s hypotheses were, their group’s observations on “Day 4” and the conclusion their group made about fluoride.
- Discuss with students that the “treated” side of the egg stayed hard because the fluoride toothpaste made the egg stronger which protected the eggshell from the “acid attack” of the vinegar. The “untreated” side of the egg had no protection and so the acid weakened it or made it soft. In the same way, acid in the mouth can weaken tooth enamel, causing cavities. Fluoride toothpaste can break this “chain of decay” by making the tooth enamel stronger and more resistant to an “acid attack.” In this way, fluoride toothpaste can help prevent cavities.
- Instruct Lab Technicians to dispose of the egg and the cup, wipe off the spoon, and clean their group’s working area.

Fluoride – An Eggsperiment

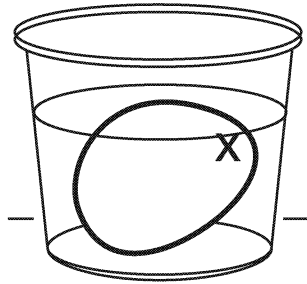
Brushing twice a day with a fluoride toothpaste helps break the “chain of decay” by strengthening tooth enamel.

- Explain to students that although fluoride will help to break the “chain of decay” by making their teeth stronger, they also need to try to break the chain by cleaning the plaque away from their teeth and gums every day and limiting the sugar they eat. This will help them to have healthy mouths.
- Distribute a copy of **The Chain of Decay** worksheet to each student. Instruct students to cut the pictures from the bottom of the page and glue them into the correct box at the top. This will help students remember the story of tooth decay. Option – students can colour the pictures before cutting them out.

Optional Activities

- The egg experiment can be completed by the teacher as a demonstration only, with the students observing and filling out their own copy of the **Fluoride Eggsperiment** worksheet.
- To find more information about fluoride and access further activities, visit www.dupagehealth.org/health_ed/dental_month.html and click on *Fluoride*.
- To expand on the concept of what acid does to an object try the activity at www.dupagehealth.org/health_ed/dental_month.html and click on *The Effect of Acid on Teeth*.

Fluoride Eggsperiment



Day 1

Names of group members

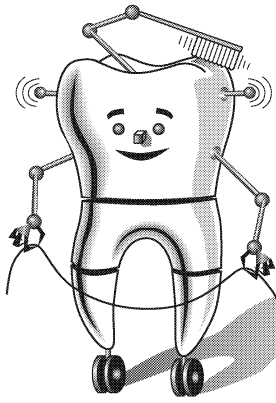
We think the following is going to happen to the "untreated" side of the egg:

We think the following is going to happen to the "treated" side of the egg:

Days 2, 3 and 4 – What we saw:

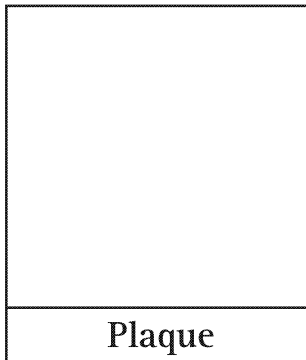
	"Untreated" Side	"Treated" Side
Day 2		
Day 3		
Day 4		

We think fluoride in toothpaste is important because:

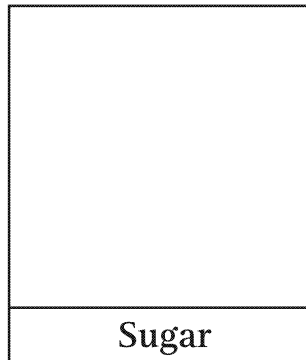


The Chain of Decay

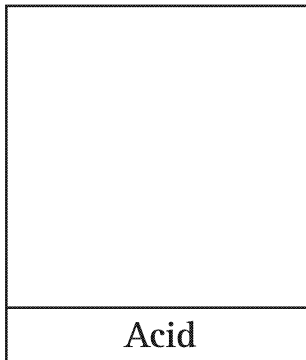
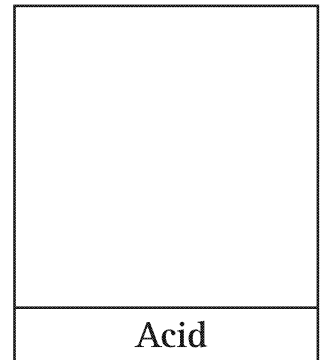
Cut the pictures from the bottom of the sheet and glue them into the correct square, so the pictures tell the story of the "chain of decay."



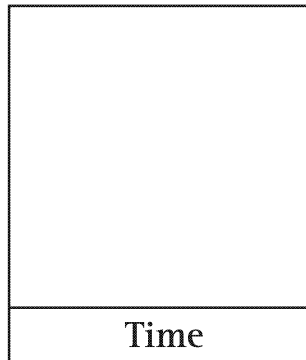
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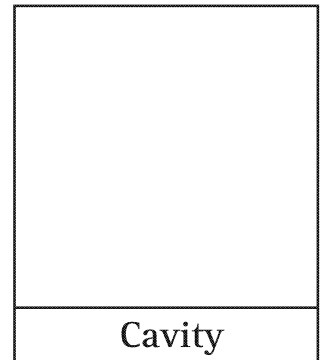
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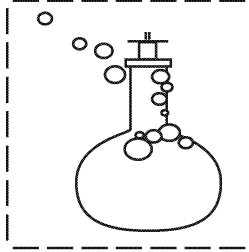
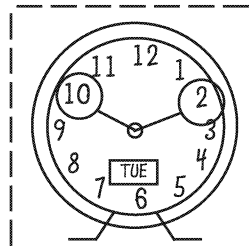
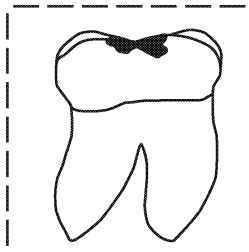
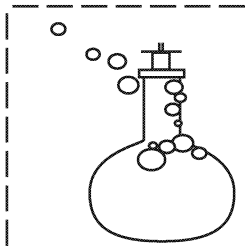
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**Fluoride helps to prevent cavities because it makes my teeth stronger.
Stronger teeth help fight away the acid.**



An Incredible Tooth Story

General Outcome

Life Learning Choices

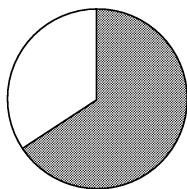
Specific Outcome

Students will generate alternative solutions to a problem, and predict consequences of solutions.

Dental Outcome

Students will demonstrate an understanding of the dental consequences of choices they make.

*Time: 40 minutes
(Extra time may be required for students to complete their stories)*



Materials

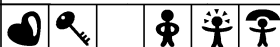
- Photocopy of **I am Robo-Tooth** enlarged (found in Lesson 1)
- Copy of "Robo-Tooth's Exciting Zoo Adventure" – for teacher's use only
- Photocopies of **The Incredible Tooth Story** – 1 copy for each student
- Pencils / pens
- Paper and / or access to a computer (for writing the story)

Activity

- Explain to students that they are going to talk about solutions to problems, and the consequences of the solutions.
 - Ask students to define what "problem" means.
(A question that needs to be answered; a decision that needs to be made)
 - Explain to students that a problem they might face is choosing what drink they would like to purchase from a vending machine.
 - Explain to students that often a problem can have one or more solutions. Ask students to define what "solution" means.
(An answer to their problem or question)
 - Explain to students that in the problem of choosing a drink from the vending machine, the possible solutions might be choosing: a can of pop, a can of iced tea, or a bottle of water.
 - Explain to students that each solution may have consequences. Ask students to define what "consequence" means.
(The result or effect that happens because of the solution or action that is chosen.)
 - Ask students what the consequences might be for their teeth if they chose the can of pop or iced tea from the vending machine.
(These drinks contain sugar so they will cause an "acid attack.")
 - Ask students what the consequences might be for their teeth if they chose the bottle of water from the vending machine.
(It does not contain sugar, so it will not cause an "acid attack"; it can help to rinse food off of our teeth.)
- Hold up enlarged picture of **I am Robo-Tooth**.
 - Introduce students to Robo-Tooth as described in Lesson 1, if students are not familiar with Robo-Tooth.
 - Explain to students that Robo-Tooth has come to visit the class, to help them learn more about problems, solutions and consequences.
 - Hang picture in the "Dental Health Centre" area.
- Read the first three paragraphs of "Robo-Tooth's Exciting Zoo Adventure" to the students.
- Explain to students that in this story Robo-Tooth faces the problem of choosing what to eat for lunch. There are a few solutions that Robo-Tooth could choose.

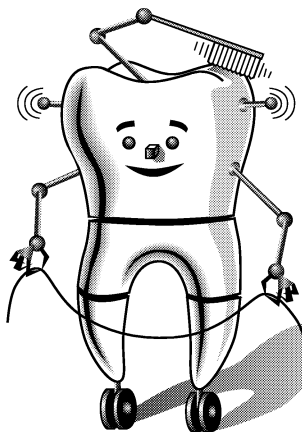
HEALTH

LANGUAGE ARTS



An Incredible Tooth Story

The foods we choose to eat have consequences for our teeth and bodies.



- Read each of the possible solutions in “Robo-Tooth’s Exciting Zoo Adventure” to students and discuss the consequences.

	Robo-Tooth Chose:	Consequences:
Solution # 1	Burrito Milk Water to rinse	– No acid attack – Robo-Tooth felt good and enjoyed the day
Solution # 2	Cotton candy Soda pop	– Robo-Tooth felt a fuzzy coating of plaque – The food caused an acid attack – Robo-Tooth did not feel well and got tired quickly, so they had to leave the zoo early
Solution # 3	Curried chicken with rice Orange juice Cotton candy to eat at home after supper	– No acid attack from the meal – Robo-Tooth felt good and enjoyed the day – Minimal acid attack from the cotton candy, since it was eaten with a meal and Robo-Tooth brushed afterward

- Ask students to talk about other solutions they can think of, and the possible consequences of the solutions.
- Explain to students that Robo-Tooth learned a lot about what consequences there are for his teeth and body when choosing foods for lunch. What will Robo-Tooth eat the next time he is at the zoo?
- Explain to students that they are now going to have an opportunity to write their own incredible tooth stories. Their stories will be about a problem Robo-Tooth faces, a solution for that problem and the possible consequences for his teeth. Have students choose a problem they would like to write about. A problem such as:
 - Robo-Tooth is at a sleep-over at Shiny-Tooth’s house. They are getting ready for bed, and Robo-Tooth discovers that he forgot to bring his toothbrush. What should he do?
 - Robo-Tooth is at the rodeo. He would like to take a turn riding the bull, but he does not have a mouthguard or helmet to wear. What should he do?
 - Robo-Tooth is choosing a snack to eat. He could choose a cookie or an apple. Which should he choose?

An Incredible Tooth Story

Students can write a story to describe a problem Robo-Tooth faces, a solution for that problem, and the possible consequences for his teeth.

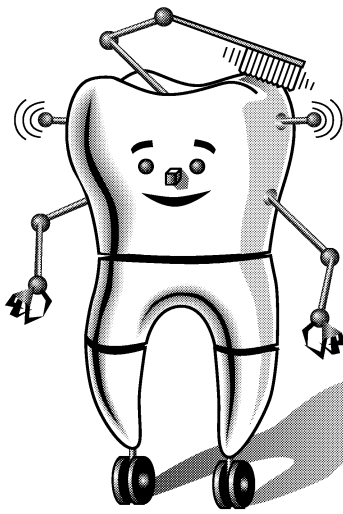
- Distribute a copy of **The Incredible Tooth Story** handout to each student and explain that they will use this handout to plan their stories, before they start writing. Handouts should be completed and turned in with the final story. Have students complete the handout by:
 - Writing a brief summary of what problem their story will feature.
 - Thinking of a solution that Robo-Tooth can use for the problem and writing a brief summary of the solution.
 - Thinking of a possible consequence(s) for this solution and writing a summary of it on the handout.
 - Listing who the characters will be.
 - Choosing a location for their story and writing it on the handout.
 - Thinking of a title for their story and writing it on the handout.
- Explain to students that now they will write their stories.
 - Distribute 1 or 2 pieces of paper to each student.
 - Have students write their stories, incorporating the information that they have written on their **The Incredible Tooth Story** handout.
 - Encourage students to include in their stories things that they have already learned about their teeth and mouths.
 - Students can draw illustrations for their stories, if they wish.
- Once students have completed their stories, explain that they should read their stories and consider the following questions (these questions can be placed on the board for the students to see):
 - Does the title fit my story?
 - Does the beginning of the story make the reader want to continue?
 - Is there a beginning, middle, and end?
 - Does the order of my story make sense?
 - Is the ending interesting?
 - Did I edit my story to check for grammar, punctuation, and spelling errors?
- Display completed stories in the “Dental Health Centre” area of the classroom.

Optional Activities

- Have students share their stories with the rest of the class.
- Have students write their stories about themselves as the main character instead of Robo-Tooth, if not introducing Robo-Tooth to students.
- Have students write their stories on paper in the shape of a tooth. A pattern for the tooth can be found at www.dupagehealth.org/health_ed/dental_month.html. Select *Tooth Project*, and then follow the instructions under *Story*.

Robo-Tooth's Exciting Zoo Adventure

It was a warm, sunny day at the zoo. Robo-Tooth was very happy to be walking around, seeing all the animals. The monkeys were Robo-Tooth's favourites because they were fun to watch. They would swing from tree to tree and then sit and watch the people walking past their cage. The monkeys sometimes even seemed to smile at the people! Robo-Tooth watched the monkeys for a long time. After a while, the zookeeper brought in a big bucket of bananas, and the monkeys danced with excitement. "Oo Oo Oo," they sang. This reminded Robo-Tooth that it had been a while since breakfast. Robo-Tooth said, "Mom, I am getting hungry. Could we eat lunch?" Mama-Tooth said, "Sure, let's go and see what we can find to eat."



With a hop in their step, Robo-Tooth and Mama-Tooth walked to the food centre. Robo-Tooth's eyes grew wide as they saw all of the different foods. There were fresh doughnuts, which smelled delightful to Robo-Tooth. There was some colourful cotton candy, which looked delicious. Robo-Tooth stopped and watched a lady squeeze some fresh juice out of an orange. Wow, what a fresh smell! That same lady also had fresh apples, pineapples and mangoes all ready to be cut into slices. It made Robo-Tooth's mouth water. Next they saw a man wrapping some beans, lettuce and cheese into a soft burrito. It looked very tasty, and seemed like it would be fun to eat. At the next booth, a man was cooking some curried chicken with rice. "Umm," Robo-Tooth said, "that smells so good!" Then Robo-Tooth walked past *The Drink Factory*, which contained all sorts of drinks. It had 23 different kinds of soda pop, milk, juice and water. Robo-Tooth sure was thirsty!

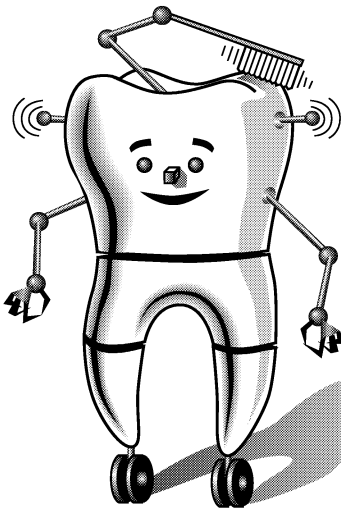
"So what would you like for lunch?" asked Mama-Tooth. "You should take your time in choosing since we do not come and buy lunch here very often." Robo-Tooth now had a decision to make. He thought about all of the choices, realizing that some of the foods were ones that would be very tasty and be good for both his body and teeth. Some of the foods would be very tasty, but would not be as good for his body and teeth. Robo-Tooth thought for a while and then said, "I would like to have..."

Robo-Tooth's Exciting Zoo Adventure

Three possible solutions and consequences:

Solution # 1

"... the burrito with some milk please, Mom. Those both look delicious, and I know they will be good for my body and teeth." So Mama-Tooth bought one burrito and a container of milk. After chewing the first bite Robo-Tooth said, "This is so delicious, I am glad that I chose the burrito. And the milk tastes very good too! Thank you, Mom, for buying these for me." After eating, Robo-Tooth had a drink of water to rinse the food off of his teeth so that his teeth would stay healthy. Then he was ready to walk around the zoo some more. The burrito and milk gave him energy so that he could look at many more animals. Robo-Tooth enjoyed the rest of his day at the zoo.



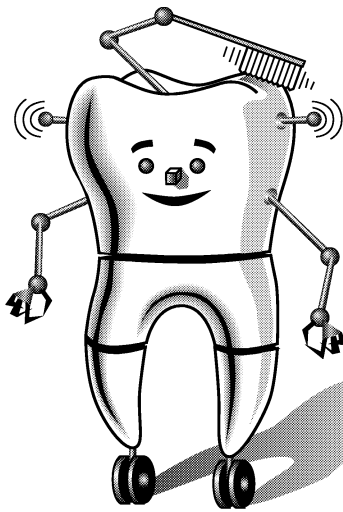
Solution # 2

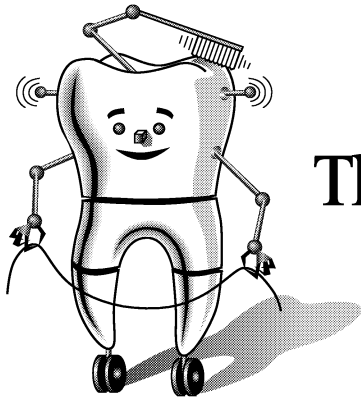
"...the cotton candy and a soda pop please, Mom. Those both look delicious. I know I will like them." So Mama-Tooth bought a bag of bright blue-coloured cotton candy, and a soda pop. Robo-Tooth had a bite of the cotton candy, which stuck to his teeth, and a sip of the pop and said, "I like these but they sure taste sweet." As Robo-Tooth ate more cotton candy and pop, he felt a fuzzy coating on his teeth. Robo-Tooth remembered that sugary foods cause more plaque to grow in our mouths and they fuel the plaque so it can produce acid, which makes cavities in our teeth. Also Robo-Tooth's stomach started feeling a little funny. When he was finished eating, Robo-Tooth did not feel very well and was getting tired. So Robo-Tooth and Mama-Tooth decided they should go home. They left the zoo earlier than they planned, and they missed seeing the lions, tigers and giraffes.

Robo-Tooth's Exciting Zoo Adventure

Solution # 3

"... the curried chicken and rice with some orange juice please Mom. But I also would really like some cotton candy. I know that this is a food that I should eat only sometimes, but I haven't had any sweets like this since Benny Bicuspid's birthday bash last month. Could I also have the cotton candy? I promise that I will save it and eat it when I get home, so I can brush my teeth after I have finished it." Mama-Tooth thought for a while and said, "Let's buy the curried chicken and rice and the orange juice for now. Those are really good choices because they are healthy for your body and teeth. And since you haven't had a sugary food for a while, I think we could buy the cotton candy too. But we will wait and buy that when we are ready to leave the zoo. After we have had dinner tonight at home, if you still have room, you can have the cotton candy as long as you promise to brush your teeth after eating it." "I promise," said Robo-Tooth. So they bought the curried chicken with rice and some orange juice. After chewing the first bite Robo-Tooth said, "This is so delicious, I am glad that I chose the chicken and rice. And the orange juice tastes very good too! Thank you, Mom, for buying these for me." After eating, Robo-Tooth was ready to walk around the zoo some more. The chicken, rice and orange juice gave him energy so that he could look at many more animals. They had a full day at the zoo, and on their way to the car Mama-Tooth bought a bag of cotton candy for Robo-Tooth. They went home and had a delicious dinner, and then Robo-Tooth ate the pink-coloured cotton candy. It was very sweet and sticky, so Robo-Tooth brushed all his teeth after he finished eating the cotton candy to stop the "acid attack."





The Incredible Tooth Story

The problem Robo-Tooth faces in this story is:

The solution Robo-Tooth chooses for the problem:

The consequences of Robo-Tooth's solution:

Characters in the story are:

Location of story:

Title:

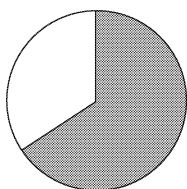
Our Fabulous Smile Projects

General Outcome
Relationship Choices

Specific Outcome
Students will develop skills to work cooperatively in a group.

Dental Outcome
Students will demonstrate an understanding of dental health topics during a group project.

Time: 40 minutes
(Extra time may be required for students to complete their reports)



Materials

- Chart paper and marker
- Area of classroom designated as “Dental Health Centre” – as set up in Lesson 1
- Chalkboard and chalk / whiteboard and marker
- Accessible resources for research; items such as:
 - Books
 - Magazines
 - Library
 - Internet
- Paper
- Computer access or paper and pens / pencils

Activity

- Have students share names of some sports teams, including school, community and professional teams.
- Discuss with students that a good team has certain characteristics. Do the students think that a good team would have:
 - ...team members who work together or team members that do not help each other?
(Work together)
 - ...team members who work towards a common goal, or members who work on their own individual goal or have no goals at all.
(Work toward a common goal)
 - ...team members who know what their specific position is and play that position on the team, or team members who do whatever they want.
(Play their position)
- Explain to students that they will be working in small groups, or teams, to complete a dental health project.
 - Ask students to list some skills they should use when they are working in their small groups. For example:
 - Listen to each other
 - Take turns talking
 - Treat all members as part of the team
 - Divide up the work so everyone contributes
 - Encourage each other
 - Write responses on chart paper and hang in the “Dental Health Centre” area of the classroom.
- Explain to students that for their projects each group will choose a different dental health topic.
 - Ask students to list some possible dental health topics that they could choose for the focus of their project. For example:

HEALTH

LANGUAGE ARTS

Our Fabulous Smile Projects

A good team works together and has a common goal.

The group project can help students learn more about a dental health topic.

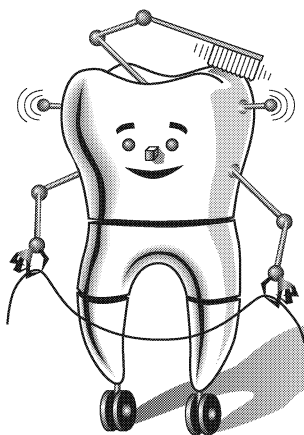
- Becoming a dental health worker
- Dental safety
- Foods that make you smile
- Mammals' teeth
- Dental care
- Write responses on the chalkboard or whiteboard.
- Explain to students that they will need to be researchers to find information about their project's topic.
 - Ask students to list some ways they can research the information for their project. For example, they could use:
 - Books
 - Magazines
 - Library
 - Internet
 - Interviews
 - Videos
 - Write responses on the chalkboard or whiteboard.
 - Discuss each response with regards to its feasibility to be used for this project.
- Divide students into small groups.
 - Ask students to discuss in their groups what topic they would like to research. To have a variety of topics that are researched, each group should choose a different topic.
 - Have each group make a web of what they will want to research about their topic. For example, if their topic is dental care:



- Have students divide the items in their web equally amongst the group members, so that each group member is responsible for a certain area that they will need to research.
- Have students discuss in their groups how they think it would be best to find information about the topic they have chosen. For different items in the web, group members may need to use different sources to find their information.
- Have students use a variety of resources to research their project. Make books and magazines available by either distributing ones that were collected ahead of time and having students share, as necessary, or take students to the library to find their own books. Groups could use the Internet to look up information if access is available to the class. Students may also use any other methods that are feasible.

Our Fabulous Smile Projects

Students can use a variety of resources to research their dental topic.



- Have each student, with guidance, look for information about their web item and share it with their group to see if the group agrees that this information is useful for their project.
- With the information they collect, each student should write 3-5 sentences about their web item.
- Once all the group members have written their sentences, they should bring their sentences together and work as a group to compile them into one report. (Students, with guidance, could be encouraged to use the computer for the writing and development of their project.) Along with compiling the information about each web item, the group should work together to develop and include the following in their group's report:
 - A title
 - An introduction paragraph, describing what the report will be about (the centre item of the web)
 - A conclusion
- Display completed reports in classroom "Dental Health Centre" area, or in the library for all of the staff and students to read.

Optional Activities

- Have each group present their project to the rest of the class. Parents, staff or students from other classes could be invited to be guests during the presentations.
- Students could draw pictures, or create posters, to illustrate the topic they have chosen for their project.
- Instead of having groups write a report about their topic, have them decide what would be the best way to inform others about the topic. For example, some groups may decide that a poster is the best way to communicate their message about dental safety. Another group may decide that writing a poem about toothbrushing is the best way to get their message across. Or, groups may decide to create a video about a visit to the dental office.