



Science for Kids Guided Lesson Plan



Subject: Basics of Oral Hygiene
Level: Senior Kindergarten

An oral health education plan to address the prevalence of the development of oral complications during childhood.

This lesson should serve as the first foundation block in establishing proper oral hygiene habits in students.

Introduction and Lesson Significance

LEARNING CONCEPTS

1. Understand how dental cavities are formed, treated, and can be prevented.
2. Master basic oral hygiene practices through concrete experiences.
3. Reflect upon and understand the importance of oral hygiene.



Why should this be taught?

Around the globe, tooth decay (the process of cavity formation) is the most common, yet preventable, chronic childhood disease¹. In fact, 57% of 6-11 year olds in Canada have had at least one cavity². Dental cavities in children present a variety of negative short- and long-term effects². The short-term effects include pain, difficulty eating and/or speaking, risk of oral infections, loss of concentration and/or sleep, and more². Since these effects impact a child's ability to eat, learn, and socialize, it can also lead to long-term consequences³. These consequences involve impacts on the child's functional, psychological, and social development¹, as well as an increase in the risk of future decay in adult teeth³. Therefore, the prevention of childhood cavities is necessary to promote good oral health in children; ultimately, this will allow them to thrive in their developmental years, which will follow them into adulthood.

Who is most vulnerable?

As a teacher, it is necessary to recognize the social and cultural factors that render certain groups vulnerable to poor oral health. This is especially relevant for teachers in schools that are located in disadvantaged communities. Children from low-income families, Aboriginal children, children who's families have recently immigrated, and children with special health care needs are more likely to have poor oral health¹. Financial status seems to play a major role in the access to dental care⁴. Statistically, children aged 5 to 19 years old are about twice as likely to develop cavities if they are from a low-income household⁴. Working people with limited income experience the greatest barrier in terms of socioeconomic status; their employment status generally excludes them from publicly funded dental care programs, but their jobs rarely offer dental insurance¹. Hence, they often cannot afford dental visits for their children, making them particularly vulnerable to dental complications¹. Along with financial barriers, Aboriginal children also face geographical and sociocultural obstacles to accessing dental care¹. Canadian immigrant families have difficulty accessing dental care due to financial, language, and cultural barriers¹. Finally, families with children with special healthcare needs often have a hard time finding a properly trained dentist to provide dental care¹. Awareness of such oral health disparities is extremely important when discussing oral health with students; be mindful of any language that could be insensitive to those that may be experiencing one or more of these barriers.

What is my role?

A teacher's main goal should be to promote their student's health and development. If taught effectively, this lesson will serve to improve the practice of proper oral hygiene among children. Consequently, improved oral hygiene among children will prevent the development of childhood cavities, which will improve the overall well-being of the Canadian population in the near and distant future.

Implementation

This lesson plan is divided into 3 sections to ensure that the material is being learned, reinforced, and retained.



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Main Lesson: Short video on cavity formation, treatment, and prevention (for kindergarteners)
<https://web.microsoftstream.com/video/1d351245-83b8-4479-9b4c-bb995e21531a?list=studio>

How are cavities formed?⁵

Cavities are caused by tooth decay. The process begins when sugars and starches from food are not cleaned off of the teeth properly. Bacteria in the mouth begin feeding on the sugars and starches, forming plaque, a clear and sticky film that coats the teeth. Plaque contains acids that begin eating at the tooth, making tiny holes that go deeper and deeper. As the bacteria and acid continue their destruction through the tooth, it causes sensitivity, swelling, and pain.

How are cavities treated?⁶

Even though children eventually lose their primary teeth, it is still necessary to get their cavities treated so that their permanent teeth come in properly. Treatment options depend on the stage of decay, but the most common treatment for children are fillings. This procedure involves removing the decay and then filling the hole with white composite or metal materials. If the decay is more severe, the dentist may choose to put on a crown (a tooth covering that is put on after the decay is removed), perform a root canal (the soft centre of the tooth is replaced by a filling), or extract the tooth.

How can cavities be prevented?^{5,7}

Children can prevent cavities by brushing their teeth with fluoride toothpaste at least twice a day, flossing, drinking tap water, and limiting their consumption of sugar. Limiting sugar intake, brushing and flossing serve to reduce the sugars and starches on the teeth that bacteria feed on to produce plaque. Fluoride in toothpaste or tap water strengthens the teeth, prevents cavities, and can even reverse early stages of tooth decay.



Egg Brushing Experiment⁸

Purpose: By using eggs to represent teeth, this experiment demonstrates how different drink choices affect our teeth and emphasizes the importance of brushing.

Time needed: approx. 30 minutes (+ at least 5 hours to leave the eggs to soak)

Materials (per student):

- 1 cup of brown soda (Coca Cola, root beer, etc.)
- 1 cup of fruit juice (apple juice, orange juice, etc.)
- 1 cup of water
- 3 eggs
- 3 cups
- 3 egg holders
- Toothbrush
- Toothpaste

Instructions:

1. Place 1 egg into each cup
2. Pour each type of liquid into its own cup, over the egg. Encourage the students to predict what is going to happen to each egg.
3. Let the eggs sit in the liquid overnight.
4. The next day, remove each egg and place them in an egg holder.
5. Encourage the students to discuss what each liquid did to the egg, and estimate why.
6. Have the students scrub each egg with the toothbrush, adding toothpaste if needed.

Expected results:

The egg that was soaked in soda should be the darkest, and this residue should be the most difficult to remove. Its high sugar content, acidity, and dark colouring is very damaging to the egg/our teeth. The egg soaked in fruit juice should have a light residue that is easier to remove (lower sugar content, less acidic, and lighter colouring than soda). The egg soaked in water should not be affected. Water has no sugar, acidity, or dyes, and is safe for the egg/our teeth.



Lego Flossing Experiment⁹

Purpose: By using Lego blocks to represent our teeth and Play-Doh to represent food, this experiment practices proper flossing technique.

Time needed: approx. 30 minutes

Materials (per student):

- 1 large Lego/Duplo block
- Play-Doh
- String

Instructions:

1. Put the Play-Doh in the grooves of the Lego block.
 2. Demonstrate proper flossing technique with the block while emphasizing its importance
 3. Allow the students to practice themselves.
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Plaque Experiment¹⁰

Purpose: By using yeast to represent plaque, this experiment demonstrates the effect of sugar in plaque formation

Time needed: approx. 30 minutes

Materials (per group of students):

- 4 tsp. of yeast
- 2 cups of warm water
- 2 cups
- 1 tbsp. of sugar

Instructions:

1. Place 2 tsp. of yeast in each cup.
2. Add 1 cup of water to each cup.
3. Add 1 tbsp. of sugar to one cup.
4. Stir both cups with separate spoons.
5. Observe the growth in both cups and encourage the students to discuss the difference when in the presence or absence of sugar.

Expected results:

The difference in yeast growth between the cups in the presence and absence of sugar demonstrates how sugar feeds plaque production. When we eat sugar and don't brush it off of our teeth, the bacteria in our mouths use this sugar to produce plaque. The cup that has the added sugar should overflow in yeast production, which represents plaque formation when there is an excess of sugar in our mouths.

3

Guided discussion to ensure the students have retained the lesson's learning concepts

References

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4. [https://www.cdc.gov/oralhealth/basics/childrens-oral-health/index.html#:~:text=Cavities%20\(also%20known%20as%20caries,speaking%2C%20playing%2C%20and%20learning.](https://www.cdc.gov/oralhealth/basics/childrens-oral-health/index.html#:~:text=Cavities%20(also%20known%20as%20caries,speaking%2C%20playing%2C%20and%20learning.)
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