

# 1. Dental curriculum<sup>1</sup>

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<sup>1</sup> From Kenya smiles Oral health

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### ***Needs assessment – not for curriculum***

- How do people around here (especially students) clean their teeth
  - Are there twigs around here people use to clean their teeth?
  - Toothbrushes?
  - Toothpaste?
  - Nothing
  - Are there informal pastes (ash, brick, etc.)?
    - (If so, discourage as it can abrade the teeth.)
- How often do people brush teeth?
  - Does everyone in a family have their own toothbrush?
  - Do they use toothpaste?
  - How often does toothpaste have fluoride?
    - Q: Should we teach the importance of fluoride toothpaste?
- How often do parents give babies and toddlers bottles with soda or other sweet drinks?
- What is the recommended pace of preventive dental visits? What is a realistic recommendation?
- Is it realistic to recommend flossing?

## Preface for teachers

Oral health is an important part of overall health.

- Children in Tamil Nadu increasingly are eating sweet foods and drinking sugary sodas and other drinks.
- Only a small share of students brush their teeth twice a day with a toothpaste that has fluoride. Almost not students see a dentist to clean their teeth.
- The result is an epidemic of tooth decay. The typical child has multiple cavities.
- These cavities are costly for families, cause school absences, lead students to lose teeth. Some students are in pain when in school – which makes it harder for them to learn.
- By teaching about how to keep teeth healthy and by instilling lifelong habits such as brushing teeth, you can xx.

## ***Objectives***

Students will

- learn that sugary foods and drinks cause cavities and bad breath by encouraging bacteria to grow and poop out acid;
- learn that brushing teeth and a diet with vegetables prevents cavities;
- Perhaps: learn to make a toothbrush from a twig;
- feel that it is important to brush teeth twice a day;
- increase tooth brushing.

## ***Why to brush teeth***

### ***Experiment & Demonstration: Eggs soaked in Coke, part 1***

A week earlier: In front of the students, pour Coke into a glass and water into a second glass. Put an egg in each glass.

## ***Dental discussion***

**Objective: To identify the importance and practice of good dental hygiene**

**What you need: Optional: Pictures of people with dental problems: gum disease, missing teeth, etc.**

### **Activity**

Now we are going to discuss dental care, another important aspect of good overall health. Dental problems, such as cavities and tooth decay, can be prevented, just like accidents.

Have a discussion with the students around teeth and dental care. Tell them to pay attention because you are going to play a game after the discussion that requires them to remember what they learned. (15 minutes)

#### **A. What are teeth for?**

- Biting and chewing our food – teeth allow us to chew foods that keep us healthy
- Speech and pronunciation
- Smiling and feeling confident

Optional: Show pictures of people without all their teeth, with poor teeth, with gum disease.

#### **What are ways that let in invaders (Germs that cause bad breath and tooth decay)?**

Germs love *sugar*! They eat the sugar and poop out *acid*!

- Soda to babies in bottles is their *perfect* home!
- Snacking frequently, especially with sugary foods and sodas, increases the number of acid attacks on your teeth each day.
- So to make bacteria happy, eat lots of sweets!
  - Especially if not eating other foods so saliva washes sugars away

#### **What happens if we don't take care of our teeth & bacteria invade?**

- Bad breath
- Stains
- Plaque made up of invading bacteria
  - Plaque is a sticky, clear film that forms on your teeth constantly.
- Cavities
  - The germs in plaque and sugars in food mix together to make acid.
    - [OR: The bacteria that live in plaques eat sugar and poop out *acid*. ]
  - The acid [that is, bacteria poop] in your mouth attacks your teeth.
  - Eventually the acid [bacteria poop] can burn a hole in your teeth.
  - That hole is called a *cavity*.
  - Repeated attacks cause the cavities to grow bigger,

- which can lead to terrible pain and loss of teeth.
- If we brush our teeth we get rid of
  - the bacteria
  - the sugar they love to eat and
  - the acid [they poop out]

### Experiment & Demonstration: Eggs soaked in Coke, part 2

Remove the egg from the Coke and from the water. The Coke egg should be very soft. The acid in the soda has softened the eggshell, just as acid from germs soften your teeth.

### ***Brushing Experiment***<sup>2</sup>



This activity, which emphasizes the importance of good brushing habits, is a great way to begin a unit on oral health.

#### **Materials needed:**

- several hardboiled eggs
- several cans of dark soda
- several cups
- several toothbrushes
- toothpaste

1. Ask students why they think brushing their teeth is important.
2. Explain to students that the hardboiled eggs represent their teeth right now—nice and white. Tell them that the dark soda represents things that are unhealthy for their teeth.
3. Have students work in pairs or small groups. Give each group a small cup of dark soda. Tell them to drop the egg into the cup. Ask them to predict what will happen to the egg if it is left in the cup of soda.
4. The next morning observe what has happened to the eggs. Then give each group of students a toothbrush and ask them to gently brush their egg (tooth). What happens to the egg (tooth) when it is brushed?

<sup>2</sup> South Carolina Healthy Schools, *Oral Health: Supplemental Curriculum Resources Kindergarten*, no date. [https://www.mchoralhealth.org/materials/multiples/SC/SC\\_K.pdf](https://www.mchoralhealth.org/materials/multiples/SC/SC_K.pdf)



## ***What We Know and Would Like to Learn about Teeth<sup>3</sup>***



1. Have students tell you what they already know about their teeth.
2. Ask students what they would now like to learn about their teeth.

Here are some questions for the class to consider:

- What are teeth used for?
  - What are teeth made of?
  - How many teeth do you have?
  - Are all your teeth the same?
  - What are some things you can do to take care of your teeth?
3. List these questions and the answers on chart paper. Post the chart in the classroom and refer to it throughout the unit.



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<sup>3</sup> South Carolina Healthy Schools, *Oral Health: Supplemental Curriculum Resources Kindergarten*, no date.  
[https://www.mchoralhealth.org/materials/multiples/SC/SC\\_K.pdf](https://www.mchoralhealth.org/materials/multiples/SC/SC_K.pdf)



### ***Why brush teeth?***

Show the student the pictures of people's faces. Discuss how each person might be feeling.

Using the magazine pictures, tell students to blacken in some of the people's teeth. Ask them how the people might feel about themselves and how others might feel about them now.

Have students draw faces with different expressions.

### ***What are the best ways to take care of our teeth?***

- Brush your teeth, gums, and tongue twice a day.
  - Best to use your own toothbrush or stick rather than sharing with members of your family.
- Eat a healthy diet!
  - Eat healthy snacks instead of sugary ones.
  - Eat any sugary food with meals so that your saliva can help wash the acid off your teeth or rinse your mouth with water after eating.
- Visit the dentist, especially if you have a cavity.
  - The only way to cure a cavity is by going to the dentist, and it is important to get a cavity fixed before it becomes too painful and affects your ability to eat.

## ***The Proper Way to Brush Teeth***<sup>4</sup>

### **Brushing**

1. Place a pea-sized dab of toothpaste on the toothbrush.
2. Place the brush at the gum line and begin brushing in small, gentle circles.
3. Brush one or two teeth at a time, moving in an established routine (left to right or right to left; top first, then bottom, or vice versa).
4. Brush the outside of all teeth, then the inside.
5. Brush the chewing surfaces last, using a firm back-and-forth motion to remove cavity-causing germs that collect in deep grooves of the tooth's surface.

Dentists recommend changing your toothbrush at least every three to four months or whenever it appears worn. And remember to replace a toothbrush that was used during an illness such as a cold.

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<sup>4</sup> South Carolina Healthy Schools, *Oral Health: Supplemental Curriculum Resources Kindergarten*, no date.  
[https://www.mchoralhealth.org/materials/multiples/SC/SC\\_K.pdf](https://www.mchoralhealth.org/materials/multiples/SC/SC_K.pdf)

## **Picture book or flipchart story**

### **Version 1**

- Germs eat sugar from your food and poop out acid!
- The acid burns tiny holes in the tooth.
  - Demonstration: Put a baby tooth in vinegar and it will turn to powder in 2 weeks.
- When the holes get deep enough, they become a safe home for *more* germs.
- And those germs eat *more* sugar and poop out *more* acid.
- Eventually the acid burns all the way through the tooth to the nerve that lives in the middle. Now you have a *cavity*.
- The nerve starts to tell your brain if it feels something cold.
  - That response to cold is your tooth asking for help from a dentist.
- Then the germs eat deep enough to make a toothache. OUCH!
  - The toothache is a tooth asking for help from a dentist – right now!!

How can you win?

- Take away the germs' food, they starve! Eat less sugary food and soda.
- On those special times you *do* have sweet stuff, eat it with food. Your saliva washes most the sugar away.
- Brush teeth to get rid of the germs.
- If you *do* get a cavity, a dentist can fill it up so germs do not keep making it bigger.

### **Version 2: Gerry the Germ makes Cavities!**

I am Gerry the Germ. I love to eat sugar and poop out acid! That acid burns holes in teeth. And those holes are where I live! It is great to be a germ!

I want to get one family, with 3 boys and a little girl. They are the last kids no germ has ever gotten. The parents remind them to eat healthy foods. And then make sure they brush teeth carefully. But the parents are leaving on a trip, so this is my chance to *get* them. I will be the most famous germ in the world!

Anand is oldest. He often forgets to brush teeth. I live on his teeth and make holes in his teeth.

- When the holes get deep enough, they become a safe home for *more* germs.
- And me and my friends eat *more* sugar and poop out *more* acid.
- Eventually the acid burns all the way through the tooth to the nerve that lives in the middle. Now Anand has a *cavity*.
- He is in so much pain! It is great to be a germ!

Bharat almost always remembers to brush his teeth. But he brushes in a hurry. I live on the inside parts of his teeth, and he always forgets to brush there. Soon he is with his brothers – holes in his teeth, and spending lots of time with the dentist. His mother does *not* look happy at how much she pays. And he looks even sadder, with all the pain I cause!

Chandra brushes much more carefully than Bharat. But I am not worried. Chandra drinks soda all day. With all that sugar, I get to live on his teeth and poop out *lots* of acid. More cavities! Yay for me!

Just Avantika, the little girl, is left. Once I get her, I will be the most famous germ in the world!

But all Avantika she eats lots of fresh fruits and vegetables. Those are not fun for me. But I still am not worried – her big brothers are not good at brushing.

Then she brushes teeth, every night. And also every morning. What sort of child remembers *each* time?

Even worse, Avantika brushes carefully. Front and back of *each* tooth – and the top as well. There is no place for a germ like me to live!

This is the saddest story *ever*.

## ***How foods affect your teeth?***

Make real food available for students to examine. Explain to students that certain foods are better for our bodies and teeth than others.

Have students cut out pictures of different foods from magazines. Then have the class classify the foods according to whether or not they are healthy for the teeth and the body.

Using a knife, cut an apple in half and then cut a marshmallow in half. Have students examine the knife after each cutting and note the difference in the way it looks. Extend by having students consider the fact that marshmallows stick to our teeth the same way they stick to the knife.

Ask students to list other sticky foods.

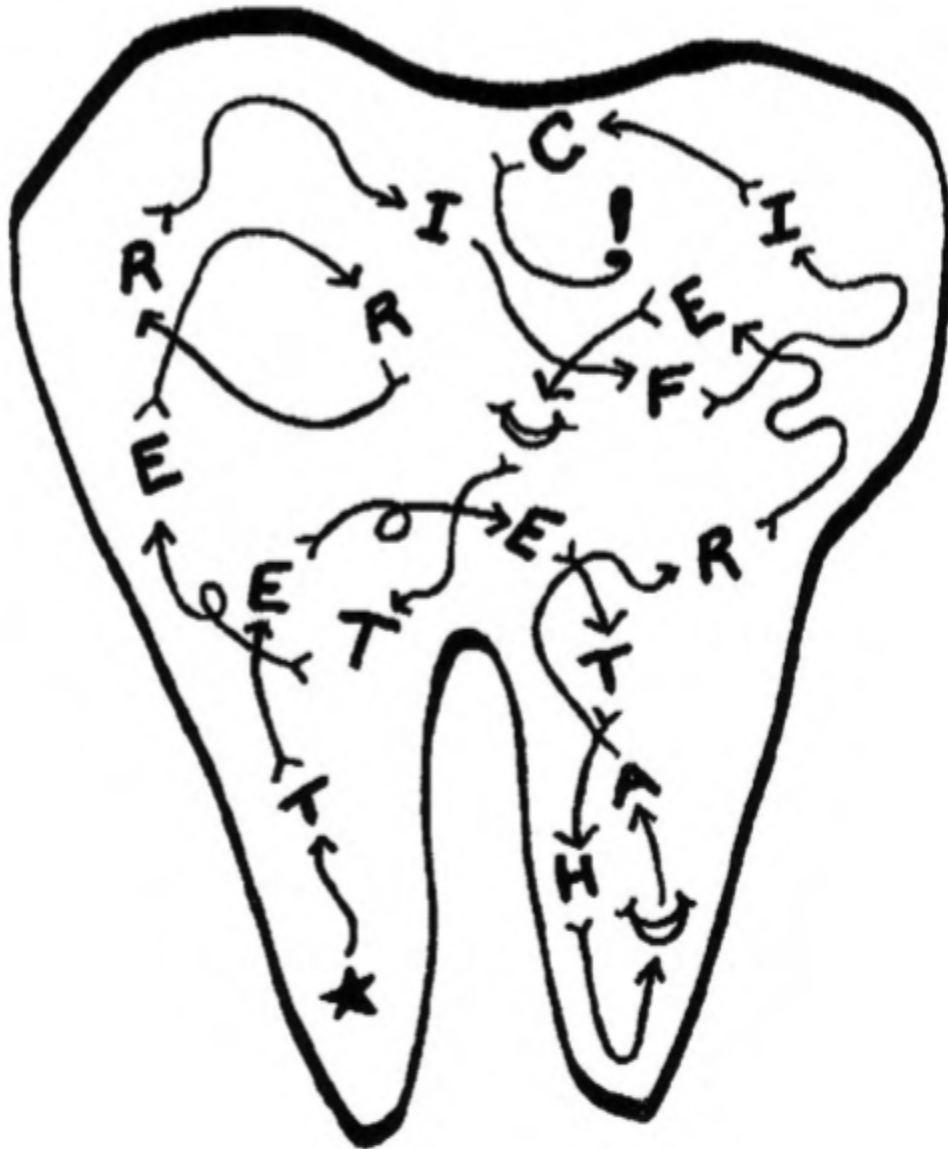
## ***Tooth decoding game***<sup>5</sup>

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# A-MAZE-ing Message

There is a message hidden in the tooth. Start at the star and follow the arrows. Write down the letters on the spaces below as you come to them. A smile means the end of a word. The next letter starts a new word.



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## ***Outdoor game: Tooth Tag***<sup>6</sup>

**Objective:** Students learn to brush *between* teeth.

**Time:** 10-15 minutes

**Ages:** 5-9 years

**What you need:** Room to run around

### **Activity**

Divide into groups of about 5-8 players.

Each group has one Toothbrush, two Germs and the rest are Teeth. Teeth form a line, holding hands.

Germs get a head start and try to run around the Teeth in their group and avoid the Toothbrush. Germs are allowed to duck between Teeth, but the Toothbrush is not.

If the game ends pretty quickly or after a short while, call everyone together. Ask the Toothbrush if it was a disadvantage to have to run around the teeth.

Now change the rules and tell the Toothbrush they can also duck between Teeth.

Option: Pick a slightly slower player as Toothbrush.

If the game ends pretty quickly or after a short while, call everyone together. Ask the Toothbrush if it was easier when they could duck between teeth. Remind students that it is important to brush between teeth! Germs can hid there – they have chase them out.

Rotate so there is a new Toothbrush and Germs. Play a few rounds.

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<sup>6</sup> Adapted from “Germs and the toothbrush,” Art Kamiya, *Elementary Teacher’s Handbook of Indoor and Outdoor Games*. Parker Publishing, West Nyack NY, 1985, p. 59.

## ***Make: Make your own toothbrush***

**Objective: students chew on a twig to make a free toothbrush**

**Preparation: Have each student bring a twig to class**

### **Activity<sup>7</sup>**

- Cut a green twig about as wide and as long as a pencil.
- Pound the end of the twig with a clean, smooth rock. Wash the twig.
- Then chew this end for a minute to moisten and soften the bristles
- Brush away!
  - You can bend the end of the twig at a 90 degree angle to get the backs of your teeth as well.

Keep the twig moist

Change the twig each two weeks

Store away from the handwashing station, so it does not get contaminated.

### **Discussion**

- Who in their family needs a toothbrush?
- Can students teach everyone to make their own? Or can students help family members make their own brush?
- How will we remember to make a new brush each couple of weeks.

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<sup>7</sup> Directions from <http://deltadentalazblog.com/before-the-modern-toothbrush/>

## ***Making: Make your own toothpaste<sup>8</sup>***

**Objective: Invite the children to play "scientist" and mix chemicals to make toothpaste.**

### **What you need:**

- 4 parts baking soda
- 1 parts salt
- 1 part flavoring (vanilla, almond or peppermint extract)
- Toothbrush
- Air-tight container

Note: One "part" might be 10 ml, so this recipe is 40 ml baking soda, 10 ml of salt and 10 ml of flavoring. Or just make one "part" a spoonful, so the recipe is 4 spoons of baking soda, 1 of salt and one of flavoring.

### **Directions:**

Mix the ingredients together. Be sure to cover the container with a tight-fitting lid after each use.

During this activity talk with students about what we do to care for our teeth, like:

- Brushing in the morning and before bedtime
- Using our own toothbrush
- Flossing to get out the bits of food and to keep our gums healthy
- Brushing or rinsing after eating sweet and sticky foods.

Children may pay more attention to brushing because they made their own toothpaste.

## ***Visiting the Dentist***

Talk about your own positive experiences with dentists to let students know you think of medical people as kind and caring. Tell students what to expect on a visit to the dentist so your child can get ready for those experiences and be better able to cope.

Explain what dentists do and why they are useful.

Tell a story or act out a mini-drama.

- Kid is afraid of the dentist, but it works out well.
  - Lots of these stories exist in the US. Probably already in India
  - Reading "The Crocodile and the Dentist" aloud, so we can dub
    - <https://www.youtube.com/watch?v=fVtH4Aa8Dzs>

What happens at the dentist stories:

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<sup>8</sup> Adapated from PBS Parents "Homemade Toothpaste," [http://www.pbs.org/parents/rogers/theme/1626\\_t\\_act.html](http://www.pbs.org/parents/rogers/theme/1626_t_act.html), last accessed June 10, 2014.

BUT: No fluoride!

- <http://www.thecenterforpediatricdentistry.com/intranet/ss/socialstory.pdf>
- <http://www.yakimachildreenvillage.org/pdf/social-story.pdf>
- <http://www.educationandbehavior.com/social-story-going-to-the-dentist/>

Older grades:

## ***Engaging family***

Activity:

- Ask your parents for several raw vegetables.
- What vegetable crunches the loudest?

## ***Letters home***

Week 1: My child brushes teeth before school and before bedtime each day so he or she does not get cavities that are expensive, painful, and can cause loss of teeth.

Star chart to bring home and fill out with parents.

- Sesame Street has a printable we might adapt & translate.

Week 3: My child has taught a family member it is important to brush teeth in the morning and before bedtime each day so he or she does not get cavities that are expensive, painful, and can cause loss of teeth.

## ***Classroom game: Categorize foods***

**Objective:** Students sort cards to reinforce which foods are good or bad for their teeth.

**What you need:** Cards with sugary and nutritious foods on them

**Time:** 10 minutes

### **Activity**

Please sort these cards into foods that make teeth happy and those that make germs happy

### **Discussion**

How can we increase good nutrition and dental care?

## ***Classroom quiz game: Questions to bite into<sup>9</sup>***

**Objective:** Teams of students answer to reinforce lessons on dental health.

**What you need:**

**Time:** 10 minutes

### **Activity**

Divide the students into three teams. Tell them that you will ask the first team a question. If the team answers correctly, they will get a point. If not, the second team will have a chance to answer and then the third. Once the question is answered correctly, give the next group a new question.

- Q: When is the best time to eat sugary foods?
- A: During meals, because your saliva while drinking and eating a full meal will help wash the acid off of your teeth.
  
- Q: What causes cavities?
- A: Cavities are caused when the germs from plaque eat the sugar in foods and poop out acid. The acid attacks teeth and causes cavities.
  
- Q: How can you reduce the amount of germs and germ poop?

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<sup>9</sup> Quiz game and prep are from Perlman, GCE Curriculum, Oct. 2012. They cite

- American Dental Association. *Module 1: "Be Smart about Your Smile!"* 2005. Available at <http://www.ada.org/3257.aspx>. Accessed July 25, 2012.
- Archer, David and Cottingham, Sarah. Reflect Mother Manual. London: Action Aid; 2010 Pgs 22-28.. Available at [www.reflect-action.org](http://www.reflect-action.org).
- Bailey, D Hawes H, and Bonati G (eds.). Child to Child: A Resource Book. Third Edition. Child to Child Trust: London; 2007. pages 95-99 and 105-109. Available at [www.talcukorg](http://www.talcukorg)

- A: Eat less sugar and brush your teeth.
- Q: Name two important reasons to have good, clean teeth.
- A: (2 of the 4) Biting and chewing, Speaking, Smiling and feeling good.
- Q: Do you need to see the dentist if you have a cavity?
- A: Yes. Cavities cannot be cured on their own and can lead to terrible tooth aches to losing the tooth. You must see a dentist if you have a cavity.
- Q: What is the best way to make sure babies get cavities?
- A: Give them soda in a baby bottle
- Q: Do germs like to eat vegetables or candy bars?
- A: Germs in your mouth love the sugar in candy bars

## ***Tooth decay game***

**Objective:** Students review lessons on dental health

**What you need:** Print out tooth decay game board + die + 3 tokens for each player

**Time:** 15 minutes

**Activity**

**Discussion**



## ***Tooth Detective (mini-dental exams)***

For schools that do not have a dentist visit each year.

Objectives: All students have a mini-dental exam and receive referrals if needed.

A few older students (and a lead teacher) get training in mini-dental exams.

HM

- arranges supplies
- Set up a system of referrals to dentists

A few older students per school:

- Get training (see PowerPoint)
- They pass the assessment for Teeth Detectives

Teachers

- Explain the procedures to students, so they expect to have an older student poke in their mouth.
- Arrange for the Tooth Detectives to visit each classroom.
  - Q: How ensure hygienic procedures?

All students:

- Have a Tooth Detective look in your mouth for signs of problems.
- Tooth Detectives give referrals for dentists, when appropriate.

## ***All-module activities get dental health topics***

### **Skits, Poster, & Song on dental health topics**

**Objective: Reinforce good dental health**

#### **Activity**

Ask students to make a skit, poster and/or song on dental health

**See details of each activity in xx**

### **Existing Health Club gets dental health topics**

Ask students if their new knowledge of dental health topics adds to the list of club projects.

Candidates include:

- Community assessment
  - How many little kids have swollen and red gums?
  - Are babies and toddlers given soda in a bottle to suck on?
  - ...
- Informational campaigns

### **Integrate family with diagnosis & treatment topics**

- Assessment
- Talked to younger siblings
- If they did a poster: discussed with family
- Etc.

## Possible resources



<http://candidcactus.wordpress.com/2010/07/23/the-big-debate-how-long-should-i-brush-my-teeth/>



<http://m.flikie.com/33558707/teeth-brushing-lion.html?skey=teeth>

### ***The Dentist and the Crocodile*<sup>10</sup>**

BY ROALD DAHL

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<sup>10</sup> <https://www.poetryfoundation.org/poems/89695/the-dentist-and-the-crocodile>

The crocodile, with cunning smile, sat in the dentist's chair.  
He said, "Right here and everywhere my teeth require repair."  
The dentist's face was turning white. He quivered, quaked and shook.  
He muttered, "I suppose I'm going to have to take a look."  
"I want you", Crocodile declared, "to do the back ones first.  
The molars at the very back are easily the worst."  
He opened wide his massive jaws. It was a fearsome sight—  
At least three hundred pointed teeth, all sharp and shining white.  
The dentist kept himself well clear. He stood two yards away.  
He chose the longest probe he had to search out the decay.  
"I said to do the *back ones* first!" the Crocodile called out.  
"You're much too far away, dear sir, to see what you're about.  
To do the back ones properly you've got to put your head  
Deep down inside my great big mouth," the grinning Crocky said.  
The poor old dentist wrung his hands and, weeping in despair,  
He cried, "No no! I see them all extremely well from here!"  
Just then, in burst a lady, in her hands a golden chain.  
She cried, "Oh Croc, you naughty boy, you're playing tricks again!"  
"Watch out!" the dentist shrieked and started climbing up the wall.  
"He's after me! He's after you! He's going to eat us all!"  
"Don't be a twit," the lady said, and flashed a gorgeous smile.  
"He's harmless. He's my little pet, my lovely crocodile."

## Resources to look at, perhaps

[http://www.kshealthykids.org/HKS\\_Docs/Standards/Oral\\_Health\\_Curricula\\_and\\_Resources.pdf](http://www.kshealthykids.org/HKS_Docs/Standards/Oral_Health_Curricula_and_Resources.pdf)

[https://www.mchoralhealth.org/materials/multiples/SC/SC\\_K.pdf](https://www.mchoralhealth.org/materials/multiples/SC/SC_K.pdf)

Index of dental games and videos

<http://www.fromthefirsttooth.org/parents-caregivers/fun-tooth-games-kids/>

links to online dental games

- <http://www.lookingfordental.com/games.php>
- <http://www.dentistgames.biz/>

Sesame Street on healthy teeth

- <https://www.sesamestreet.org/toolkits/teeth>
- Good “how to brush teeth” online game: <https://www.sesamestreet.org/games?id=132>
  - Would need a translation, though...
- Perhaps also on an IOS app

<http://www.colgate.com/en/us/kids/kids-corner>

and android app with games <https://play.google.com/store/apps/details?id=air.acolgate>