



e-Bug

# Mouth

# Bugs



**A complete guide to running  
the Mouth Bugs session**

## Introduction

This session covers how to prevent tooth decay by demonstrating the importance of limiting sugar intake and brushing teeth twice a day. Participants will look at the sugar in foods and drinks and carry out an activity to identify the amount of sugar contained in different soft drinks. If a participant consents, a plaque disclosing tablet can be used to show plaque on teeth.

## Learning outcomes

Aim to understand:

- What dental plaque is and how it forms
- Which foods and drinks cause tooth decay
- The consequences of tooth decay
- How to brush teeth effectively
- That limiting sugary foods and drinks can reduce tooth decay

### Key words

Bacteria  
Plaque  
Tooth Decay  
Sugar  
Acid  
Fluoride toothpaste  
Tooth brushing

### Available web resources

“How to keep your teeth happy and healthy” PowerPoint  
Diet Diary  
Video on tooth brushing  
‘Mouth Bugs’ poster

### Materials required

Activity 2: Empty drinks bottles, teaspoons, sugar, clear plastic sandwich bags

Activity 3: Plaque disclosing tablets, tooth brush, toothpaste

## Background information

Normally our first teeth come through (erupt) around 6 months until we have a full set of 20 baby (primary) teeth by the time we are 2 years old. These primary teeth begin to get wobbly and fall out (exfoliate) usually when we reach 6 years old, and are replaced by the permanent (adult) teeth. By 12 years old we have 28 adult teeth which if we look after, can last for the rest of our lives.

Some people will have 4 extra teeth at the back of their mouth called wisdom teeth. These come through our gums when we are about 18-20 years old, so some people can have 32 adult teeth in total.

Bacteria will develop on all our teeth, clumping together to form a sticky substance called dental plaque. You will see this in your own mouth as a creamy line around your teeth or sometimes feel it as a furry layer with your tongue. Given the right environment, these bacteria can cause tooth decay (caries).

When we consume sugary foods and drinks which contain free sugars, this is classified as a **sugar attack** to our teeth. Free sugars are those added by the cook, consumer or manufacturer including those sugars naturally present in honey, syrups and fruit juices, but excludes whole fruits and unrefined carbohydrates such as brown rice and whole wheat pasta. Sugar attacks should be kept to a minimum and limited to mealtimes to reduce the risk of tooth decay.

The bacteria in the plaque use the sugars and make acid as a by-product. Over time the acid begins to dissolve the mineral from the outer surface of our teeth (the enamel). As more enamel is dissolved by the acid, a hole (cavity) appears which can spread into the second layer of tooth (the dentine). As the decay process continues, the cavity continues to grow and can irritate the nerve inside the tooth causing pain.

If no dental treatment is given, the tooth decay (caries) can spread and the bacteria infect the nerve, which can lead to an abscess (lump on the gum) that is filled with pus. This can make you very poorly and the tooth will usually need to be removed (extracted).

Tooth decay can be prevented by limiting the number of times we eat foods and drinks with added sugar and tooth brushing twice a day with fluoride toothpaste.

Fluoride in toothpaste can help strengthen our teeth and slow down caries. For best effect, teeth need to be brushed twice a day. The most important time to brush teeth with fluoride toothpaste is before going to bed at night. To make it easy to remember it is best to add tooth brushing to a twice daily hygiene routine morning and night, and keep your toothbrush and paste in sight.

## Introduction (15 mins)

Begin the session by asking the participants when they last went to the dentist. Do all participants have a regular dentist? Ask what they understand by the term tooth decay. By using the background information section and the **'Mouth Bugs'** poster, introduce to the participants that tooth decay is a preventable disease. Explain that they will learn what causes tooth decay and simple steps they can take to prevent it.

Show the 'How to keep your teeth happy and healthy' PowerPoint presentation (available at [www.e-Bug.eu/beat-the-bugs](http://www.e-Bug.eu/beat-the-bugs)). Use the questions within the presentation to promote discussion and gather what knowledge the group already has.

## Recommended Activities:

The following two activities are recommended.

## Activity 1 – Healthy Diet (10-15 mins)

In this activity, participants will look at their own diet diaries and identify sugar attacks. Participants will learn which foods and drinks cause tooth decay and understand the benefits of limiting sugary foods and drinks.

Participants should have completed their **diet diaries** in advance of the session. If participants do not have completed diet diaries, ask what they had to eat the previous night and that morning. Alternatively, you could use the sample diet diaries provided (**PH1**) that are suitable for discussion purposes. Please note the sample diet diaries do not represent healthy or unhealthy diets.

Remind participants that a sugar attack to our teeth occurs whenever we consume sugary foods or drinks. Ask participants to underline sugar attacks on their diet diaries, and to add up how many attacks there are. To help participants, discuss which foods contain a high amount of sugar.

To prevent tooth decay, sugar attacks should be kept to a minimum and limited to meal times.

*Optional: If you have time during a follow up session, you could repeat this activity to see if the number of sugar attacks has decreased since the session.*

### Learning outcomes achieved:

1. Which foods and drinks cause tooth decay
2. That limiting sugary foods and drinks can reduce tooth decay

## Activity 2 – How much sugar? (15-20 mins)

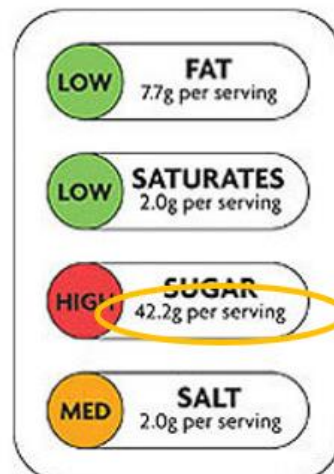
Ask participants first if they add sugar to their hot drinks, and if so how much. Participants should complete this activity in groups of 2-3.

Provide each group with a different empty drink bottle from a popular brand (include flavoured and plain water and a range of soft and fizzy drinks), a teaspoon, a bag of sugar and a clear plastic sandwich bag.

Before they begin, each participant should be asked to look at the nutritional information label and identify how much sugar is contained within each bottle. Help group members to find this information.

<b>Nutrition Facts</b>		
<b>Calories 110</b> (460kJ)		
Orange juice (1 cup/8 oz.) % Daily Value 1		
<b>Total Fat</b>	1g	<b>1%</b>
Sat. Fat	0g	<b>0%</b>
Trans. Fat	0g	
<b>Cholesterol</b>	0mg	<b>0%</b>
<b>Sodium</b>	2mg	<b>0%</b>
<b>Total Carbs.</b>	25g	<b>8%</b>
Dietary Fiber	0g	<b>0%</b>
Sugars	22g	
<b>Protein</b>	2g	
<b>Calcium</b>	24.9mg	
<b>Potassium</b>	473mg	

Nutritional information on a small bottle of orange juice



Example of traffic light food labelling now used for most products.

Participants should be asked to fill each bag with the equivalent amount of sugar contained within each drink (1 teaspoon is approximately 4 grams).

Once the activity is complete, each group can present their findings (drink name, amount of sugar in grams and number of teaspoons of sugar). Discuss the results – which drink contains the most sugar? Which contains the least?

Alternatively participants can use the Change4Life Sugar Smart app to find out how much total sugar is in your everyday food and drink. The sugar smart app is free to download:

At the app store: [www.itunes.apple.com/gb/app/change4life-sugar-swaps/id1015850256?mt=8](http://www.itunes.apple.com/gb/app/change4life-sugar-swaps/id1015850256?mt=8)

At Google play store:

[https://play.google.com/store/apps/details?id=com.PHE.SugarSwaps&hl=en\\_GB](https://play.google.com/store/apps/details?id=com.PHE.SugarSwaps&hl=en_GB)



Remind participants that drinks containing sugar are a sugar attack to our teeth, and this can increase the risk of tooth decay. Drinking only water and plain milk is recommended.

**Learning outcomes achieved:**

1. Which foods and drinks cause tooth decay
2. That limiting sugary foods and drinks can reduce tooth decay
3. Drinking water and plain milk is best

## Optional Activity

### Activity 3 – How to clean your teeth? (10-15 mins)

In this activity you will need one volunteer who consents to using a plaque disclosing tablet. If applicable, please get consent from the appropriate adult/carer. The tablets contain a harmless dye that reacts with the plaque on our teeth, allowing areas with plaque to become visible.

Ask the volunteer to first brush their teeth (provide them with a new toothbrush and toothpaste). Then ask the volunteer to chew a plaque disclosing tablet, following the manufactures guidelines. Remaining plaque on their teeth will become visible. Ask the volunteer to point out which areas still contain plaque.

Show the group one of the videos, which describes how to brush your teeth:

[www.youtube.com/watch?v=Z\\_7bBpplINc](http://www.youtube.com/watch?v=Z_7bBpplINc)

[www.youtube.com/watch?v=Hej8amtKna0](http://www.youtube.com/watch?v=Hej8amtKna0)

As an alternative to the videos you could use a large tooth brushing model and demonstrate how to brush your teeth.

- Ask how their tooth brushing differs from that in the video. What changes can they make to improve their tooth brushing?

Do not rinse your mouth with water after brushing your teeth, just spit; this leaves a layer of protective fluoride on the teeth.

- Ask how long we should brush our teeth for?

The ideal time is 2 minutes, however time is less important than quality of brushing- you should brush all of the surfaces of the teeth and gum line, remembering the back teeth as well.



- Define what dental plaque is and how it can be removed.

Dental plaque is the slimy stuff on your teeth and is formed by clumps of bacteria. Bacteria multiply more when there is sugar on our teeth and form acid which can make holes in our teeth (tooth decay). Brushing our teeth well removes the bacteria and dental plaque and helps prevent tooth decay. Tooth decay can lead to holes in our teeth which may grow and become very painful, you may lose the tooth or teeth affected.

**Learning outcomes achieved:**

1. How to brush teeth effectively
2. What dental plaque is and how it forms
3. The consequences of tooth decay

## Discussion

Ask participants what they have learnt during today's session, and refer to the **'Mouth Bugs'** poster during the discussion. Ask what they will do differently now at home?

Recap the key messages:

- How do we get dental decay?

Bacteria in our mouths breakdown sugars we eat and use them to produce substances including acid and plaque. The plaque helps the bacteria clump together and stick to the teeth. If this is not brushed away regularly, the acid dissolves our teeth causing cavities (holes).

- Which foods should we limit, and only have occasionally?

Foods and drinks containing sugar should be limited and only had occasionally. Snacking during the day and at bedtime on sugary foods and drinks (especially fizzy drinks!) should be avoided to prevent dental decay.

- How often should we brush our teeth, and how?

It is essential to brush our teeth twice daily, at night and in the morning, using a pea-size amount of toothpaste containing fluoride. After brushing it is important to spit but not rinse (to leave a protective layer of fluoride on the surface of our teeth).

If any participants do not have a regular dentist, show them where to find the information they need. Participants can locate their nearest dentist, by following the link: [www.nhs.uk/Service-Search/Dentist/LocationSearch/3](http://www.nhs.uk/Service-Search/Dentist/LocationSearch/3)

This website gives information on the closest dentist surgery, how to get in touch and how highly each surgery is rated.

## Action Plan

Ask participants to complete an action plan for this session (found at the back of this session booklet).

Ask participants to either choose one of the action plans from below or to make up their own if they are confident enough.

1. Reduce chance of dental decay by:

- a. Choose a song to make sure you brush your teeth for 2 minutes
- b. Set a reminder twice a day to remind you to clean your teeth
- c. Clean every part of the mouth, including gums and back teeth equally
- d. To spit but not rinse after brushing so that there is a protective layer of fluoride on the surface of the teeth
- e. Cutting down on sugary foods and drinks e.g. swapping chocolate bar for a bunch of grapes.
- f. Use the sugar swap app to tell them how much sugar is in the things they are eating

### Acknowledgements

This session plan was written by the e-Bug team and assisted by the Kingfisher Treasure Seekers Community Group and Barts and the London School of Medicine and Dentistry.

# Mouth Bugs

**BEAT THE  
BUGS**

## How can we keep our mouth healthy?



- ✓ Brush your teeth twice a day with fluoride toothpaste.
- ✓ Eat less sugary foods and drinks.



## What is dental plaque?

- Dental plaque is the sticky yellow/white slime on teeth.
- Dental plaque contains bacteria which build up if we do not brush our teeth.
- Bacteria use the sugar in our food and drink and make acid which damages our teeth and causes tooth decay.
- Tooth brushing helps remove the plaque and bacteria from our teeth.

## Which food and drinks cause tooth decay?

- Food and drinks that are high in sugar cause tooth decay.
- Having less sugary foods and drinks can reduce tooth decay.
- Use the Change4Life Sugar Smart app to find out how much sugar is in your everyday food and drink.



The plastic bags show the number of grams of sugar in the different bottles of drink.

## How should you clean your teeth?

- ✓ Brush your teeth twice a day, at night and in the morning.
- ✓ Brush your teeth for 2 minutes.
- ✓ Use a pea sized amount of fluoride toothpaste.
- ✓ Spit out toothpaste, do not rinse.
- ✓ Spitting, not rinsing, leaves some tooth paste on the surface of our teeth.



### Contact the e-Bug team

Project Lead: Clodna McNulty  
Project Manager: Vicki Young  
[www.e-Bug.eu/Beat-the-Bugs](http://www.e-Bug.eu/Beat-the-Bugs)

[clodna.mcnulty@phe.gov.uk](mailto:clodna.mcnulty@phe.gov.uk)  
[vicki.young@phe.gov.uk](mailto:vicki.young@phe.gov.uk) 0300 422 5062

Visit [www.e-Bug.eu](http://www.e-Bug.eu) to Beat the Bugs!

# Diet Diary

Name: \_\_\_\_\_

**Day:** \_\_\_\_\_

Time	What did you eat?	What did you drink?

# Diet Diary

## Example 1

<b>Day: Friday</b>		
<b>Time</b>	<b>What did you eat?</b>	<b>What did you drink?</b>
8 am	Cornflakes with milk and sugar	Orange juice Tea with milk and sugar
11am	Chocolate bar	Coffee with milk and sugar
1pm	Cheese sandwich and crisps	Can of coke
3pm	Apple and packet of sweets	Orange squash
6pm	Chicken dinner with potatoes and vegetables Slice of chocolate cake with ice cream	Apple juice Milk

# Diet Diary

## Example 1

<b>Day: Saturday</b>		
<b>Time</b>	<b>What did you eat?</b>	<b>What did you drink?</b>
9 am	Fry up with bacon, eggs, sausage and toast	Orange juice Tea with milk and sugar
11am	Packet of crisps	Fizzy drink
1pm	Baked potato with baked beans and cheese	Can of lemonade
3pm	Chocolate bar	Tea with milk and sugar
6pm	Fish and chips Apple pie and cream	Apple juice
8pm	Biscuits	Tea with milk and sugar

# Diet Diary

## Example: 1

<b>Day: Monday</b>		
<b>Time</b>	<b>What did you eat?</b>	<b>What did you drink?</b>
9 am	Coco pops and milk	Fruit smoothie Tea with milk and sugar
11am	Chocolate bar	Diet coke
1pm	Ham sandwich and crisps	Orange juice Tea with milk and sugar
3pm	Chocolate biscuits	Coffee with milk and sugar
6pm	Pizza and chips Sticky toffee pudding and custard	Glass of Coke
8pm	Chocolate	Milk



# Diet Diary

## Example 2

<b>Day: Friday</b>		
<b>Time</b>	<b>What did you eat?</b>	<b>What did you drink?</b>
8 am	Porridge with banana and blueberries	Tea with milk
11am	Apple	Coffee with milk
12 30 pm	Tuna salad sandwich	Water Tea with milk
3pm	Carrot sticks and dip	Water
6pm	Chicken dinner with potatoes and vegetables Fruit salad with natural yoghurt	Water
8pm	Orange	Milk

# Diet Diary

## Example 2

<b>Day: Saturday</b>		
<b>Time</b>	<b>What did you eat?</b>	<b>What did you drink?</b>
9 am	Scrambled eggs on toast	Tea with milk
11am	Cucumber sticks	Water
1pm	Bowl of soup and bread	Coffee with milk
3pm	Handful of nuts	Water
6pm	Chicken and vegetable stir fry Rice pudding	Water
8pm	Handful of grapes	Tea with milk

# Diet Diary

## Example 2

<b>Day: Monday</b>		
<b>Time</b>	<b>What did you eat?</b>	<b>What did you drink?</b>
9 am	Cornflakes and milk with sliced banana	Tea with milk
11am	Orange	Water
1pm	Ham salad sandwich	Tea with milk
3pm	Handful of blueberries	Coffee with milk
6pm	Salmon and potato salad Strawberries and natural yoghurt	Water
8pm	Sliced mango	Milk

# Action Plans



## Mouth Bugs

My favourite activity was:

\_\_\_\_\_

After this session I will (please circle):

1. Choose a song to clean my teeth
2. Clean my teeth twice a day all over my mouth, including gums
3. To spit but not rinse after brushing
4. Cut down on sugary foods and drinks

Or write your own:

\_\_\_\_\_

# BEAT THE BUGS

The title 'BEAT THE BUGS' is written in large, bold, white letters with a blue outline. Below the letters are stylized green and purple shapes representing bacteria and virus particles.

This pack contains an educational hygiene resource for community groups.

This session can be used independently or as part of a six week course and has information, suggested lesson plans and possible activities for you to use in your community groups to help you inspire and inform individuals.

This project was led in collaboration with the Primary Care Unit, Public Health England, and Kingfisher Treasure Seekers, with assistance from the following bodies: The Barts and the London School of Medicine and Dentistry.

