



National Biofilms  
Innovation Centre

# Why should I brush my teeth?

## Activity type

Drop-in stall, typically

## Aims

Introduce biofilms in the context of teeth hygiene. Works well for attracting people at a stall, as very noticeable setup and intriguing

## Times

Approximately 3-4 minutes

## Suitability

Age 5+, 2-4 people

## Resources

1 facilitator, each set of materials

# Materials checklist

For one set of material, for 2 to 3 people actively involved at the same time:

- 1 big plastic box (storage box, etc.)
- 1 giant mouth model
- Soft shower body puff
- Kebab sticks + tape, or KNEX
- 1 oven grill
- 1 hair gel or thick shower gel
- Lots and lots of small picture beads (no bigger than 0.5 cm)
- Water pistols or water sprays
- Absorbing cloths
- Kitchen towels
- 4 Rigid plastic sheets or plasticised cardboard
- Water bottles
- Laminated pictures

Materials may look like:



# Set-up



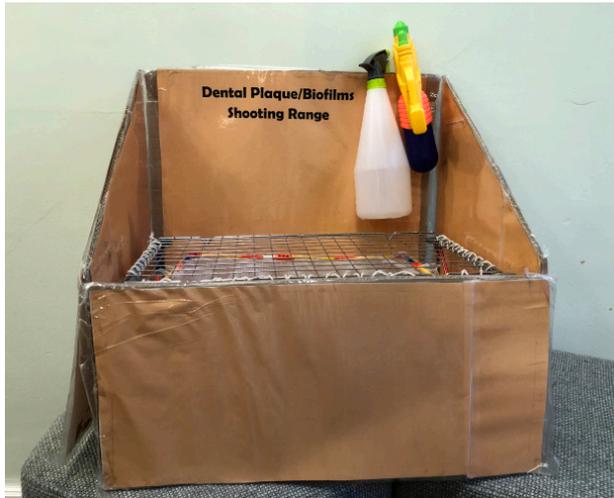
Build a table-like structure (rectangle over 4 legs) using the kebab sticks and tape (or KNEX) high enough to go over the plastic



Build a rectangle and use plastic material from the shower body puff to create a sleeve like tray.

This rectangle will go directly over the top of the plastic box, while the oven grill will be on top of the table like structure, and

To prevent people squirting water in the space, use the plastic sheets to enclose the structure you just built, with one side having the height of the structure and the other one being much higher.



This structure is what you will display at the table. The picture beads and the gel should be in small plastic containers, with a spoon, around the structure.

The water pistols should hang from the highest part of the structure at the back. This will enable you to control the activity and make it clear when the activity has started and has finished, by giving or taking back the water guns where appropriate.

We recommend that you put everything else behind it, and in particular the cloths (to clean any spillages). Also, print out the pictures (see attachment) of biofilm under microscope and laminate them.

## Step by step

- 1 Prepare the set-up structure that is mentioned above.

**"Imagine these are your teeth"**

- 2 Place a number of small picture beads on top of the teeth.

**"During a normal day, bacteria will attach to your teeth."**

**Normally, this isn't a problem as you remove them a couple of times per day by brushing your teeth or maybe using a mouthwash"**





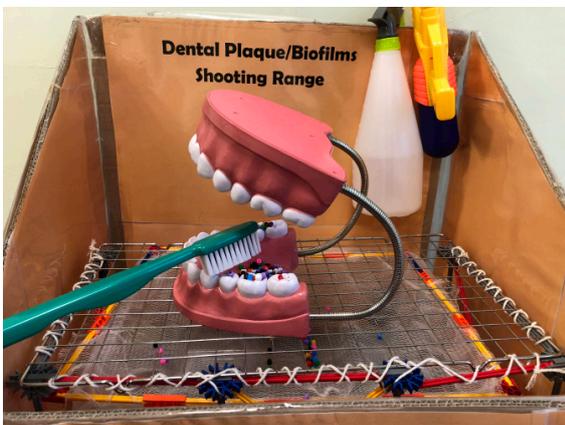
**"However, if you didn't do this, the bacteria would not only multiply but also start to build a fortified, walled city."**

**They start to produce a slimy material which makes it much easier for them to stick to the surface of the teeth and it also protects them against harmful substances (like the mouthwash)"**



3 Put a generous amount of hair gel on and around the plastics on one of the small boxes.

**"The gel is like the slimy material that protects the bacteria from toothbrushing"**



4 Ask people to try and remove the bacteria from both teeth with the water pistols. They should note that it is much easier with the non-gelled ones.

5 At this point, it is good to talk a bit about biofilms in general e.g. explain that, much like in a human city, biofilms often consist of multiple different types of bacteria and they can have very different roles. Ask if they can think of any other examples of biofilms (e.g. the pink slime in the bathroom if you don't stay on top of cleaning).

Using the laminated pictures, talk a little bit about maybe less obvious, but very important examples.

# Risk assesment

Hazard(s)	Present Risk Evaluation L/M/H	Control Measures (i.e. alternative work methods/ mechanical aids /engineering controls, etc.)	Risk Evaluation after control L/M/H
Picture beads: choking hazard	M	No children under 3 should be near the activity. This will be monitored by the demonstrators.	L
Picture beads: falling hazard	M	Clear instructions from demonstrators, and enclosed activity. Beads are very unlikely to fall outside of the activity then, but if they do, demonstrators will pick them up as soon as possible.	L



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This content has been developed by Dr Marieke Schor, Dr Jean-Christophe Denis and Haiyi Mai for the [University of Edinburgh](#) and the [National Biofilms Innovation Centre \(NBIC\)](#), following inspiration from the “[Blast a Biofilm](#)” activity developed by Prof. Nicola Stanley-Wall and her group, at the University of Dundee/NBIC. This work is the intellectual property of the University of Edinburgh and the National Biofilms Innovation Centre (NBIC). It can be used freely for educational purposes but use for commercial purposes is forbidden