Ready to brush and floss your teeth before bed?

Why Dad?

Because your teeth will rot if you don’t.

...But why?

Um... I’m not sure actually.

Shall we ask the dentist when we go tomorrow?

OK!

NEXT DAY

So, why do I have to clean my teeth? It’s such a drag!

Well lots of tiny living things called microbes live on the surface of your teeth. At the end of the day, do your teeth ever feel rough when you run your tongue over them?

Uh... yeah...

That’s the microbes! This roughness starts to build up after you brush your teeth.

... and the millions of microbes, known as bacteria, that call your mouth home.

When you eat, you feed yourself...

I don’t believe you... I would see them!

You would need a microscope to see them they are so small.

I know, let’s do an experiment.

These tablets make the bits you have missed, when you brushed your teeth this morning, turn blue.

Just chew on them.
Can you see the blue bits around the edges of your teeth and close to your gums? That’s plaque!

Plaque is a sticky substance made of bacteria, saliva and food.

What’s plaque?

Let’s have a look at some plaque through a microscope.

In your mouth the bacteria live in communities.

Have a look...

Communities? What do you mean?

The microbes live together...

...they form structures that look like skyscrapers.

Let me draw them for you.

The spaces between the skyscrapers allows the bacteria access to their food.

...Like communities of people the bacteria produce waste. The waste products they produce are acidic and cause your teeth to rot.
Did you know... that as well as causing trouble by rotting our teeth, microbes also help us clean our teeth? Silica, which is a hard substance from algal cells, is used to make toothpaste!
What happens when you don't brush your teeth.

Note: this experiment takes six days.

This experiment demonstrates the effect of acid on tooth enamel. egg shells are like teeth as they are both rich in calcium - this makes egg shells a good substitute for teeth in this experiment. the vinegar is an acid that simulates the effect of acid produced by bacteria.

You will need:

A tube of fluoride toothpaste.
A small pudding bowl.
Fresh egg (without cracks).
Vinegar.
Tablespoon.
Cling film.
Coloured nail varnish.

Method

1. Wash the egg carefully with water and dry with some kitchen roll.
2. Squeeze a tube of toothpaste into the bowl and level to remove any air bubbles.
3. Paint a spot of nail varnish on one side of the egg.
4. After the nail varnish has dried, place the egg into the toothpaste marked side down so the toothpaste covers half the egg. make sure the egg does not touch the bottom of the bowl.
5. Cover the bowl with cling film and leave it in a safe place at room temperature for at least 5 days.
6. After 5 days carefully rinse the toothpaste off the egg with warm water and dry thoroughly with kitchen roll.
7. Place the egg into a clean bowl and cover with vinegar. Rest the spoon on top of the egg to keep it submerged; cover the bowl with cling film. Watch what happens!
8. Leave the egg in the vinegar until the untreated side (the unmarked side) of the egg softens. After 7 hours remove the egg and check if the side not treated with toothpaste has softened by tapping it very lightly with your finger. If soft, go to step 10.
9. If the untreated side is still hard, put the egg back into the vinegar. check the egg every hour until the untreated shell has softened.
10. When the untreated side is soft, remove the egg and gently wash it with warm water. The egg is very fragile now so be careful!

Conclusion

By gently tapping both sides of the egg, you can now see how the acid (vinegar) has made the side of the shell not treated with toothpaste soft and weak, whereas the fluoride in the toothpaste has protected the other side of the shell and kept it hard and strong.

This experiment shows the importance of using fluoride toothpaste when brushing teeth to protect them from plaque acid attack.