



Science

Animals Including Humans

Tooth Decay Enquiry Part 1



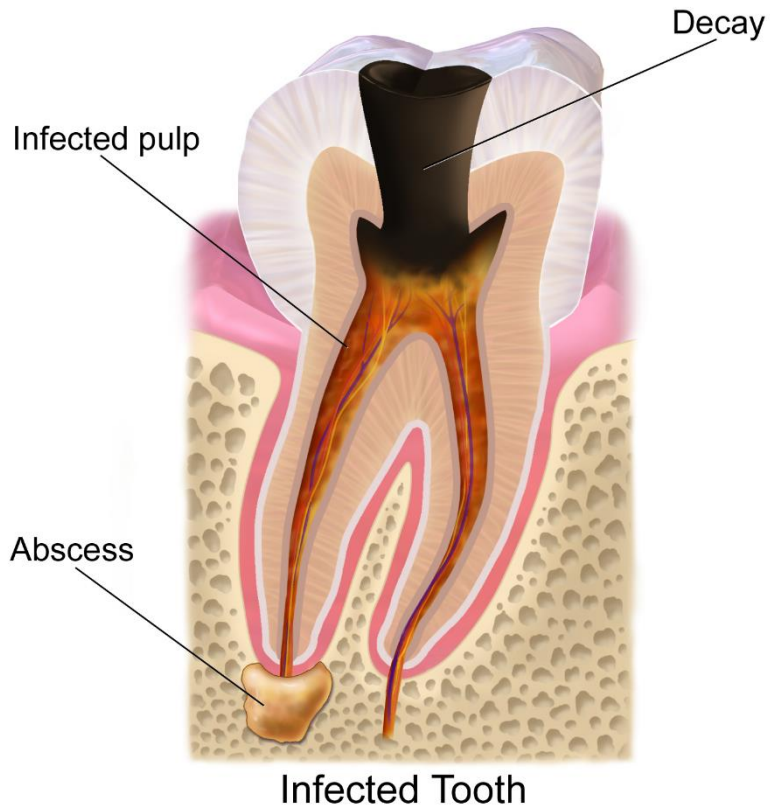
Aim

- I can ask scientific questions and choose a scientific enquiry to answer them.
- I can create an enquiry or test.

Success Criteria

- I can generate questions.
- I can generate relevant scientific questions.
- I can suggest an appropriate type of scientific enquiry to answer my question.
- I can set up a simple enquiry with support.
- I can make predictions and suggest equipment.
- I can give clear instructions to perform a test.

Tooth Decay



Discuss the following questions with your talk partner:

- What is tooth decay?
- What causes tooth decay?
- How do you know?

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Questions!

Scientific Enquiry



Why do scientists
ask questions?

Why do they carry out
enquiries and tests?

Scientific or Not?



Categorise the questions based on whether they are scientific questions that can be tested or whether they are non-scientific questions:

Scientific Questions	Non-Scientific Questions

Does eating fruit keep you healthy?

What time is dinner?

Can you open the lid?

Does sound travel through walls?

How much sleep do rabbits need?

Does water always boil when heated?

When should I do my homework?

Do plants need soil to grow?

Creating Scientific Questions



Now we need to generate some scientific questions about tooth decay.

Remember we need to be able to test them so...

- think about the equipment you would need
- think about how the test would need to be carried out

Our Scientific Questions:



Types of Enquiries



What types of scientific enquiries are there?

Can you give examples of scientific enquiries or tests you have done?

How would you know what type of enquiry to choose?

We are going to look at some examples of questions and the kind of enquiries we could use to answer them.



Practical Enquiries

A simple practical enquiry is when you want to just observe what happens.

So if I want to answer the question:

Question:

What effect does water have on chewing gum?

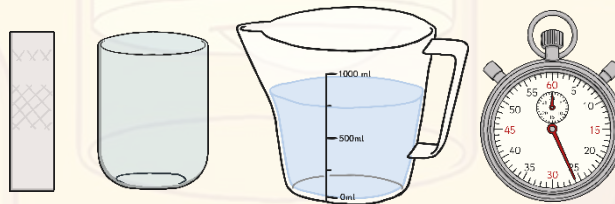
Note: This is a very specific question.

A simple practical enquiry would involve:

- Placing the chewing gum in some form of liquid – for example water.
- Observing what happens to the chewing gum (**does it change colour, grow/shrink, change shape**) either immediately or over time (**what would be sensible time intervals?**).

In this enquiry I would need:

- Chewing gum
- A container
- Water
- A timer/clock (way to measure time)
- A table to record my observations.



Time	Observation

Variables

In the practical enquiry we are interested in the observation and what happens as we are not sure what the results will be.

When we conduct comparative or fair tests we want to test the particular effect of something.

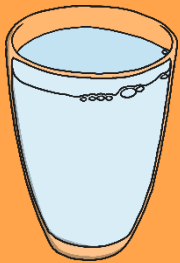
You might ask - Question:
Do different liquids affect the colour of chewing gum?

Variables

The variable you are testing is the thing you **change** every time you carry out the test.

In the comparative and fair tests we will look at this, it will be the liquids.

I want to change the **liquids** to see if different **types of liquids** have a particular effect on the chewing gum.



Variables

When you are carrying out a fair test, you need to change only one thing. All other variables should be kept the same so that they don't affect your results.

In my tests I want to know if liquids change the colour of chewing gum but if I use different containers to put the liquid in or put the containers in different parts of the room then it could be the material of the containers that has the effect or the place in the room, not the liquid. These differences would mean I was testing lots of types of variables when I just want to test one type - liquid.

That's why we have to **keep some things the same** throughout so that we know what is having the effect.

Variables

In my tests I would want the following things to be the same:

Containers

Where I place the containers

The amount of liquid in each container

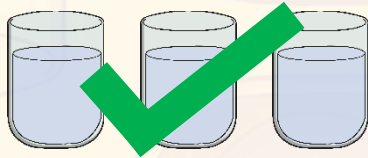
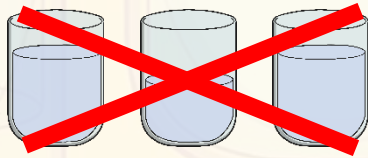
The time between each observation

The type of chewing gum

The amount of chewing gum in each container.

Carrying Out Fair and Comparative Tests

Question: Do different liquids affect the colour of chewing gum?



Liquids (milk, water, orange juice)

Colour

Containers

Where I place the containers

The amount of liquid in each container

The time between each observation

The type of chewing gum

The amount of chewing gum in each container.

- 1) Record observations at regular intervals of time.
- 2) Compare the results from different liquids.
- 3) Spot patterns.

Liquid	Observation after 1 day.	Observation after 2 days.

Testing Tooth Decay Feedback



Swap your **Tooth Decay Scientific Enquiry Activity Sheets** with another group.

Read through the sheets carefully as a group.

On post-its write two positives and one next step.

Remember the next step has to be about the enquiry/test not about spelling or handwriting!

Suitable next step: You should include the size of the egg as something that you keep the same.

Unsuitable next step: Spell the word decay properly.

When you get your sheets and feedback – meet your next step by making a change to your enquiry/test.

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