

> Lesson 4

Challenge Brief

The Toothpaste Challenge

Dear Research and Development Team,
Congratulations on your new roles
developing a new toothpaste for healthy teeth.
We are delighted to have you on board.

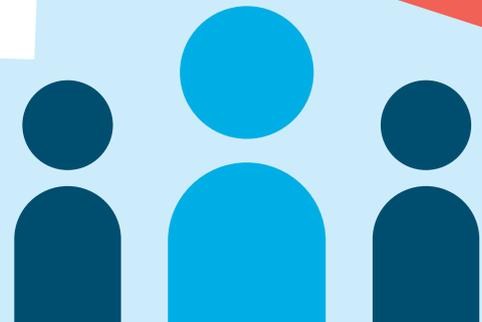
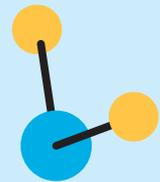
We would like you and your team to start work
immediately on researching, developing and
marketing a new toothpaste to improve tooth
health for teenagers.

You must work as a team to manage,
research, design and market the toothpaste
in order to successfully sell this new and
exciting product to the teenage market!

Good luck!

Yours sincerely,

Smiley Teeth Ltd



> Lesson 4

Student Worksheet

Read the brief from Smiley Teeth Ltd.

Toothpaste is a necessity for healthy teeth for everyone. You have been hired to design a new toothpaste specifically targeted to teenagers.

From some consumer research, the following comments were made:

'As a teenager I want toothpaste that lets me eat and drink the foods I like without it impacting my oral health.'



Step 1

In your group divide yourselves into the following roles:



Research & Development Project Manager (PM):

Overall decision maker on the project when decisions need to be made which impact the product design. For example if choices need to be made on ingredients and there is no consensus, the Project Manager has the overall say. The PM is in charge of the finances and the retail price of product. The PM considers the cost of ingredients added to product.



Research & Development Market Researcher:

Conducts market research to find out what products are already on the market, consider who will buy the product and who it is aimed at. Then feedback the information the information to the scientists and team.



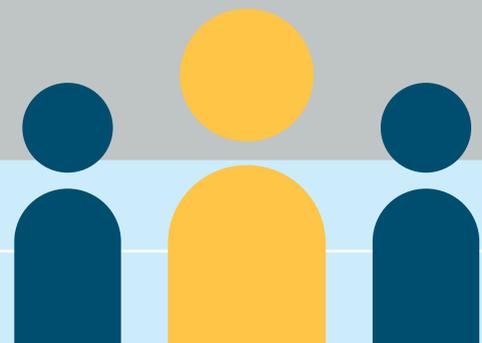
Research & Development Scientist:

Investigates what ingredients are used in toothpaste and any new ingredients which could be used. What ingredients could be used to provide a benefit for the target consumer?



Commercial Marketing Manager:

Decides how to market the new product. What is the name? Do you need slogans? How will you get customers to buy your product?



Step 2

Use the resource card provided and the following weblinks provided to research toothpaste products on the market.

www.sensodyne.co.uk

www.colgate.co.uk

www.oralb.co.uk/en-gb/oral-b-institute

www.bda.org

www.bdasmile.org

Consider the following questions:

- **What 'actives' are required for healthy teeth and good gum health?**
- **How can you make your product unique? Different ingredients?**
- **Why is your product good? How will it protect teeth and gums?**
- **How will you sell it? Why would a shop want to sell it on their shelves? Why would teenagers buy it?**

Step 3

Following your research, discuss your ideas with the rest of the group and pull together the information you need for your presentation. Draw and label your product and ensure your presentation includes the following information and the team is ready to talk about it:



What the product is / its name?



Price



The ingredients in your product, if time is short you can talk about the important ingredients. What are their functions in the product?



Packaging - what will it be made from?



Who is the consumer (who will buy it)?



How will it be advertised?



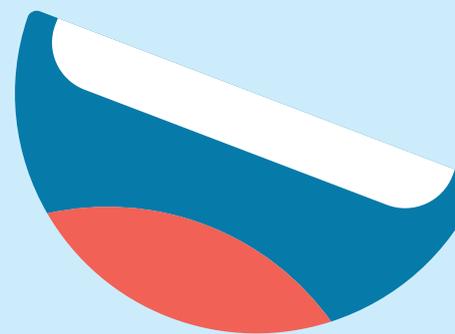
Is there any information for Health Care professionals which may endorse product?



Include any other information you feel is important

Step 4

The team will present your product to the rest of your class and explain why your product should be the next product put into production. As a team, be prepared to answer any questions that your classmates and the teacher may have.



How do we make toothpaste?

How do we make toothpaste?

› Sodium Fluoride

Fluoride is the main 'active ingredient' in toothpaste. When foods or drinks containing sugars enter the mouth, the bacteria within the plaque rapidly convert the sugars into acid. The acid can soften the enamel and cause cavities or holes. Fluoride can help prevent this by strengthening the enamel.

› Abrasives

Common abrasives are silica, calcium carbonate and aluminium oxide. These are the ingredients which remove food debris and stains from the teeth. They scrub the surface of the teeth without scratching or damaging the enamel.

› Humectants

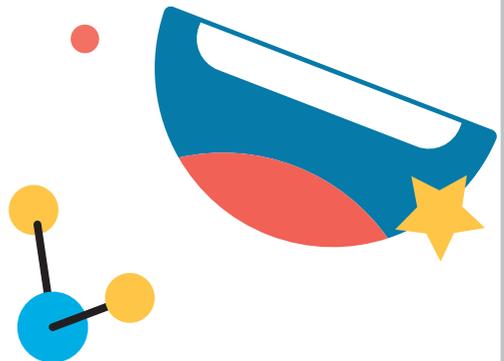
Common humectants include sorbitol and glycerol. Humectants prevent water loss from toothpaste so it does not go hard when the cap is left off the tube. They also trap water in the paste so that when you squeeze the tube, you get a nice smooth paste.

› Flavours

These give the toothpaste a nice taste and can leave your breath and mouth feeling fresh! Natural mint oils can also provide some natural anti-bacterial properties. Flavours also include artificial sweeteners which improve the taste of the paste and mask any other bitter materials in the toothpaste.

› Detergents

These materials provide foaming when you brush. The foam helps move the materials in the paste around the mouth aiding cleaning and delivery of actives such as fluoride. They are also used to disperse natural flavour oils in the water based paste.



> Lesson Plan 4

STEM Challenge!

From Classroom to Career



Duration: 90 – 120 minutes

Aims:

- Give students a taste of what it's like to work in a STEM-related job.
- Develop their employability skills.

Skills:

- Understanding Aims and Objectives
- Planning
- Research Skills
- Organisation / Time Management
- Decision Making
- Problem Solving
- Innovation
- Team Work
- Communication

Resources:

- Lesson Plan
- Challenge Brief
- Pupil Worksheet
- STEM Card
- Laptops or PCs
- Plain Paper

Preparation:

- Download and print Challenge Brief, Student Worksheet and STEM Card



Activity:

1. Put students into groups of 4.

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2. Read out the Challenge Brief and give each team a copy.

3. Give them a few minutes to select team roles from the following:

Research & Development Project Manager (PM):

Overall decision maker on the project when decisions need to be made which impact product design. For example, if choices need to be made on ingredients and there is no consensus, the project manager has the overall say. For this activity, the PM is in charge of finances and the retail price of the product. The PM considers the cost of ingredients added to product.

Research & Development Market Researcher:

Finds out what products are already on the market, considers who will buy the product and who it is aimed at. Feeds the information back to scientists and team.

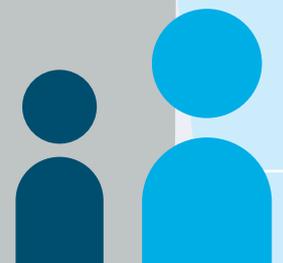
Research & Development Scientist:

Investigates what ingredients are used in toothpaste and any new ingredients which could be used. What ingredients could be used to provide a benefit for the target consumer?

Commercial Marketing Manager:

Decides how to market the new product.

- What is the name?
- Do you need slogans?
- How will you get customers to buy your product?



4. Set the teams a time limit for teams to research and come up with their product.

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5. Ensure they know how long they have to pitch.

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6. Each team will then pitch their idea to the rest of the class.

7. After each pitch ask 1 or 2 questions and provide feedback.



The pitch should include



Labelled drawing of the product



What the product is / its name?



Price



The ingredients in the product, if time is short you can talk about the important ingredients. What are their functions in the product?



Packaging

- How will it be packaged?
- What materials will be used?



Who is the consumer?



How would it be advertised?



Any information for Health Care professionals which may endorse product?



Any other information they feel is important

