

What's in the bar lesson plan

This lesson involves looking at the ingredients of a chocolate bar, and thinking about who gets what from a £1 bar of milk chocolate.

The lesson takes about 1 hour in total.

Before the lesson, ask students to bring in some different bars of chocolate (or chocolate wrappers), or bring some in yourself. You'll need at least one bar/wrapper per pair of students.

If you can, have a mix of chocolate bars: milk chocolate, dark chocolate, white chocolate, high cocoa content dark chocolate.

What you'll need

- Chocolate bars or chocolate wrappers.
- 'What's in the bar' presentation: view on screen.
- 'Breaking up the bar' student handout: print out one per student.
- 'Breaking up the bar' teacher's handout: view on screen.

Starter (5 minutes)

Ask your students what they think is in a bar of chocolate.

Explain that they are going to look at chocolate wrappers to find out what chocolate is made from and who gets the money that they pay for a bar of chocolate.

Main activity (40 minutes)

1) Ingredients of chocolate (25 minutes)

Divide the class into ten groups of three or four students per group.

Distribute the chocolate bars or wrappers. Try and have a mix of different chocolate types – milk, dark, white, high cocoa – in each group.

Ask each group to make a list of ingredients for each type of chocolate bar that they have, starting with the biggest ingredients. Ask them to list the percentage for each ingredient where they can. Give them 15 minutes to do this.

Some useful things to know that might come up during discussion:

- The ingredients list usually lists them from largest to smallest.
- The ingredients list has the percentages for some ingredients, e.g. 'milk solids' and 'cocoa solids'. For these ingredients, regulations specify a minimum quantity that

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manufacturers have to use so that it can be called 'chocolate'.

- The percentage of sugar is not usually listed, but you can work it out from the 'per 100g' nutrition list. Most of this sugar will be added, but in a milk/white chocolate bar a small proportion of it (4g-5g) is milk sugar (lactose).
- There are two ingredients that come from cocoa beans: roughly half of the bean is 'cocoa mass', the brown stuff that gives chocolate its flavour, the other half is 'cocoa butter', the white fat that comes from cocoa beans.
- 'Cocoa solids' refers to everything from the cocoa bean: cocoa mass and cocoa butter.
- White chocolate is made with cocoa butter; there is no cocoa mass in white chocolate.
- Chocolate companies often substitute vegetable fats such as palm oil and shea butter for some of the cocoa butter in the bar to reduce costs. Regulations mean that these vegetable fats can make up no more than 5% of the bar.
- Vanilla is often added to chocolate for flavouring.
- Lecithin is often added in very small quantities to thin the chocolate and make it easier to work with during the manufacturing process.

Next, spend 10 minutes showing the 'What's in the bar' presentation to the whole class.

2) Who gets what? (15 minutes)

Explain that the ingredients in a bar are only one element of its cost. Spend ten minutes brainstorming as a class where else the money goes.

Some pointers to guide the discussion:

- The cocoa beans need to be transported to the factory, and the chocolate bars need to be transported from the factory to the shops.
- Cocoa beans have to be processed and manufactured into chocolate.
- Chocolate bars have to be packaged.
- Chocolate companies have to advertise and sell the bars.
- Chocolate bars have to be sold in shops or supermarkets.
- The government charges tax (value added tax, VAT) on every bar of chocolate.

Now ask students to think about a typical bar of milk chocolate costing £1. How much of that £1 do they think goes to all the different players in the supply chain, including cocoa farmers?

Give each student a copy of the 'Breaking up the bar' student's handout. Give them a few minutes to fill in who they think gets each block of cash from a £1 bar of chocolate.

Display the 'Breaking up the bar' teacher's handout to the class to reveal the true distribution of costs.

Discuss with students whether you they think this is a fair distribution of costs.

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Plenary (10 minutes)

Looking at the 'Breaking up the bar' teacher's handout, ask the class what ideas they have for returning more of the value of a £1 bar of chocolate back to cocoa farmers.

Some useful information to guide the discussion:

Fairtrade is one way farmers can earn more money. Cocoa farmers receive a guaranteed minimum price for their cocoa beans, and an extra Fairtrade premium is paid to the cocoa farmers' cooperative to spend on collective projects.

Farmers could try and be more productive, so they produce more cocoa on the land they have. The Fairtrade premium is often invested in improving productivity, for instance in training farmers in better farming practices, or purchasing farming tools like machetes.

Farmers could grow cocoa organically. Organic production commands a higher price. In the Fairtrade system, there is a guaranteed organic premium added on top of the Fairtrade price.

If companies produce chocolate bars with a higher cocoa content, more value is returned to cocoa farmers.

Cocoa farmers can try and take part in making the chocolate as well as selling the cocoa. That's why the cocoa farmers of Kuapa Kokoo set up the Divine Chocolate company, so that they could capture a share of the chocolate market by owning their own company.

Curriculum links

England	KS2 Mathematics curriculum Year 5 and Year 6 – Number – fractions (including decimals and percentages)	KS3 Mathematics curriculum <ul style="list-style-type: none"> Define percentage as 'number of parts per hundred' Compare two quantities using percentages
	PSHE Education Programme of Study KS1 & 2: what is meant by a healthy lifestyle.	PSHE Education Programme of Study KS3: how to make informed choices about health and wellbeing matters including [...] maintaining a balanced diet.
Northern Ireland	Mathematics and Numeracy: KS2 Understand and use vulgar fractions, decimal fractions and percentages.	Mathematics and Numeracy: KS3 <ul style="list-style-type: none"> Understand how to calculate using money Use fractions and percentages
	Personal Development and Mutual Understanding: KS2. How to sustain their health, growth and well-being.	Personal Development: KS3 Investigate the influences on physical and emotional /mental personal health of [...] diet.
Scotland	Curriculum for Excellence: Numeracy and mathematics, Second Level MNU 2-07a	Curriculum for Excellence: Numeracy and mathematics, Third Level MNU 3-07a

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	Health and Wellbeing Second Level HWB 2-30a	Health and Wellbeing - Third Level HWB 2-30a
Wales	Mathematics Programme of Study KS2 – Using number skills – Fractions, decimals, percentages and ratio.	Mathematics Programme of Study KS3 – Using number skills – Fractions, decimals, percentages and ratio.
	Personal and social education framework KS3 – understand the features and physical and emotional benefits of a healthy lifestyle, e.g. food and fitness.	Personal and social education framework KS3– understand the relationship between diet, exercise, and good health and well-being.