

WHAT'S THE COST OF A BAR OF CHOCOLATE?

A LEARNING EXPEDITION BY YEAR 3 AND 4 CHILDREN FROM PLOVER SCHOOL IN INTAKE, DONCASTER

FROM BEAN TO BAR

EXPEDITION NARRATIVE

In January 2020, Year 3 and 4 began their Learning Expedition: What's the cost of a bar of chocolate?

GUIDING QUESTION

The Guiding Question was: "What's the cost of a bar of chocolate?" to get children thinking about the process of making chocolate and the impact that has on communities and individuals around the world.

LEARNING TARGETS

Human and Physical Geography

Describe and understand key aspects of human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water.

History: Non-European Study

Study a non-European society that provides contrasts with British history: Mayan civilization c. AD 900

Science: States of Matter

Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)

OUR LEARNING (CASE STUDIES)

We also explored countries and communities around the world that were dependent on Fairtrade, using the internet to research them. We made comparisons between these communities and our own and looked at the physical and human geography differences and similarities between them. Using the internet, videos and books, we explored the life of the Maya people, who brought chocolate to the rest of the world, to gain an understanding of their culture and history. We also explored Mayan art and civilisation. We studied science by investigating changing states of material from solid to liquid to gas. This was explored through chocolate! We experimented by heating chocolate until it melted and recording the temperature. We then explored how the chocolate solidified and recorded the timings of how long this took and what factors affected the chocolate solidifying. We compared this to other materials including water.

HOOKS / LEARNING VISITS / ENVIRONMENTS

The expedition was brought to life at the end of hook week with a trip to the York Chocolate Story, where children took part in a chocolate making workshop and discovered the history of chocolate in a fun and interactive way - with lots of chocolate. Classroom environments were designed around the theme of Charlie and the Chocolate Factory. Children contributed to the environment by making giant sweets, chocolate waterfalls and Charlie's house.

FINAL PRODUCT

We produced 4 large (A1/A0) information boards to be displayed in Sainsbury's and the Frenchgate Centre to highlight the work of the Fairtrade Organisation. One display board was produced by each class to explain the process of making chocolate 'Chocolate - From Bean to Bar' - with facts about Fairtrade on each board. The boards have a QR code to link to the children's work/videos etc.

- 1 The Cacao Tree & Harvest - 3L - Mrs Lewis
- 2 The Drying and Preparation Process - 4G - Mrs Graves
- 3 Chocolate Mixing Process - 3P - Mr Pickering
- 4 Moulding and Packaging Process - 4W - Mr Whitfield

The boards were launched to parents at an end of expedition Fairtrade Fair in School, when the boards were displayed, children's work was on show and the children sold chocolates that they had designed, made and packaged.

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CLASS
3L

FROM BEAN TO BAR



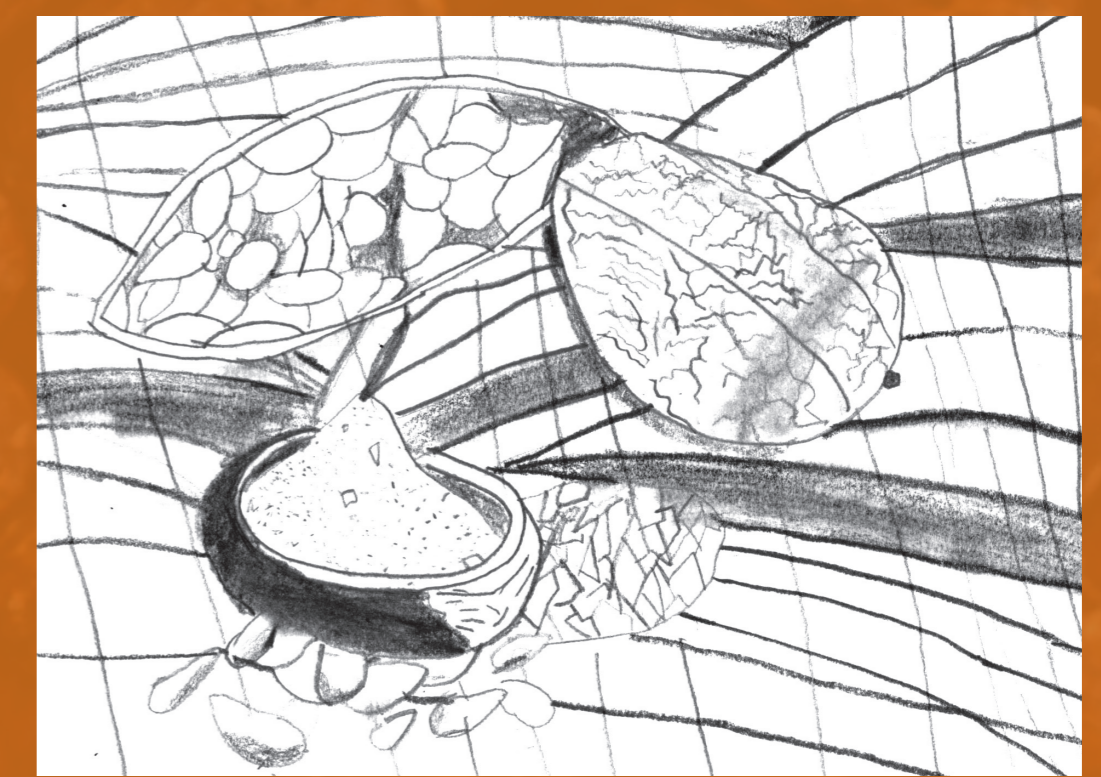
STAGE 1 GROWING AND HARVESTING

The Cacao Tree

Cacao trees enjoy the hot and wet climate of countries like Ghana, Papua New Guinea, Cote d'Ivoire and the rainforests of Central and South America. They take four or five years to grow and they grow between 4 and 8 metres tall, this is actually very small for a tree found in the rainforest. Over 6000 beautiful flowers grow on the cacao tree but only 20 precious cacao pods. The pods take up to a year to grow in the hot climate close to the equator and the farmers must regularly check the trees for ripe pods and signs of disease.

The Cacao Harvest

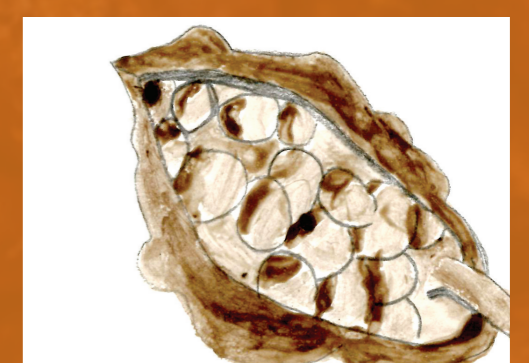
Cacao farmers look out for changes in the pod all year and they usually harvest them twice a year when they have changed colour and when they are the size of a rugby ball. When they are ripe, farmers use hand tools like machetes to carefully cut the pods from the tree. This is hot and tiring work! Once the pods have been gathered, farmers hack them open to extract the beans that are in a sticky, white pulp. However, this must happen within a week or the pods will start to spoil.



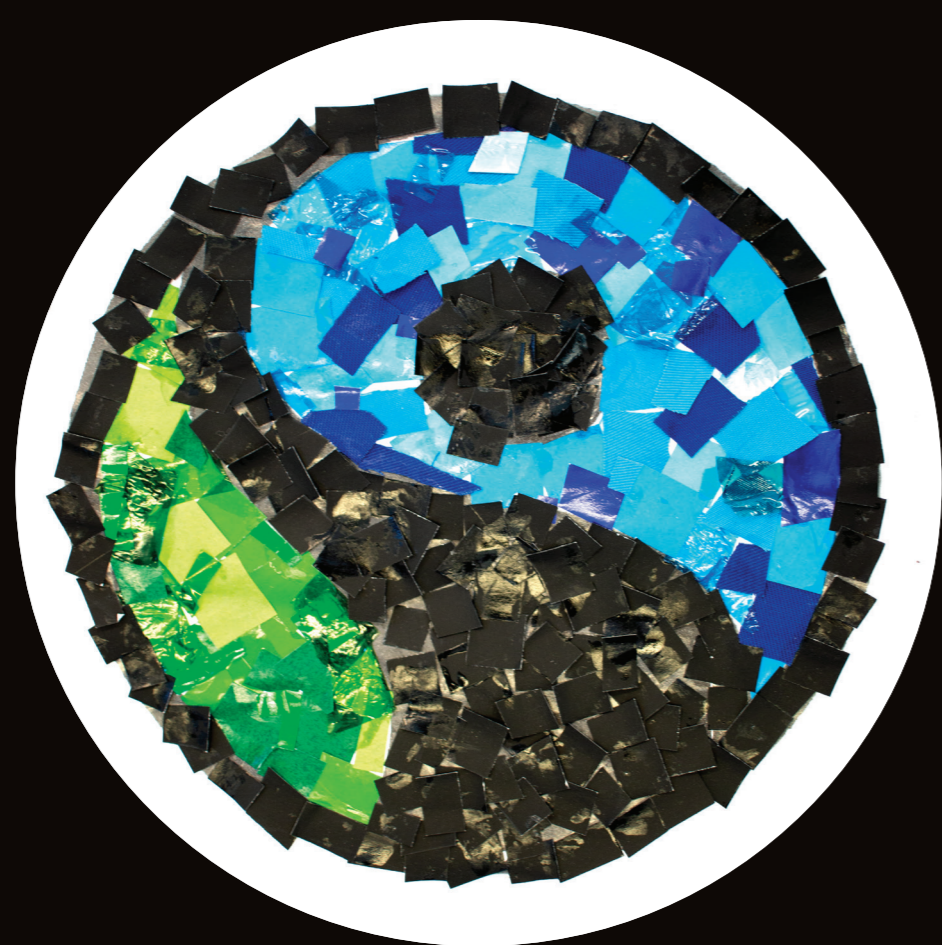
Cacao Pod (graphite sketch)



Cacao Tree (water colour)



Cacao Pod (cocoa paint)



What is Fairtrade?

Fairtrade is a charity that began in 1992 and it operates in 74 countries on 4 continents. The charity works with farmers and workers to make sure they get a fair price for their crops. These crops include chocolate, bananas, coffee, tea, flowers, gold, cotton and oranges. Fairtrade means that farmers can earn more money to help support their families and they might even get an extra amount of money called a Fairtrade Premium. They can spend this on food, clothes, housing, medicines and new farming equipment.

Did you know?

Fairtrade works with over 1.65million farmers and workers worldwide.

A Cacao farmer only gets paid 80p a day!

23% of Fairtrade farmers and workers are women.

The first Fairtrade product was a Green and Black's chocolate bar.

The new Fairtrade logo was launched in 2002.

CLASS 3L

Anez | Ashton | Leah-Marie | Phoebe | Lauma | Chloe | Shyaw | Alfie | Riley | Amelia | Rhys | Dillan | Floyd | Liam
Kian | Bri-Leigh | Blake | Layla | James | Kole | Nikita | Shena | Junior | Arwa | Regan | Kenzie | Lyncon

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CLASS
4G

FROM BEAN TO BAR



STAGE 2 DRYING AND PREPARATION

After the cocoa pods have been harvested from the cacao tree, they are broken open by the cocoa farmers with sharp machete. They remove the white, sticky pulp and place it into large, wooden containers covered with large banana leaves. This process is called fermenting and it takes between 5-7 days. Following the fermentation, the wet beans, which are now dark brown, are laid out by the hard-working farmers in a thin layer under the hot sun to dry. Turning the cocoa beans regularly is very important, because if they don't the beans will stick together and this would be a major problem, because they would not dry evenly. The fresh cocoa beans can take between 5 and 12 days to dry. After the beans have finished drying, the farmers carefully pack them into large sacks to be delivered around the world. Once the cocoa beans arrive at the factories, the chocolate workers sort, clean and then roast them. No two chocolate factories roast the cocoa beans in the same way because they all have their own secret recipe.

The final part of the preparation process before mixing is called 'cracking and winnowing'. Cracking and winnowing is a process where the roasted cocoa beans are cracked open and their thin, papery shells are removed. At this point, the the lighter shells are blown away with fans, leaving behind small pieces of pure cocoa beans, called 'nibs'.



Cacao Pod (graphite sketch)



Cacao Tree (water colour)



Cacao Pod (cocoa paint)



What is Fairtrade?

Fairtrade is an organisation that helps farmers in developing countries around the equator. In poorer countries, farmers work extremely hard to produce their crops in difficult conditions. However, despite their hard work, they aren't even paid enough money to live a decent life. Did you know that nearly half of the world's population earn less than £2 per day? Fairtrade aims to help farmers earn a fair price for their produce.

Fairtrade products

If you see a product with a circular, blue and green Fairtrade logo on it, you should buy it, because part of the money from the sale goes to the business but some of the money also goes to the Fairtrade charity to support farmers in Fairtrade communities. There are many different products that are sold by Fairtrade, such as: bananas, sugar, tea, coffee, honey, chocolate, cotton and even footballs!

The work of the Fairtrade Foundation

The Fairtrade Foundation was set up to upgrade the tools of independent farmers in Fairtrade communities around the world. As well as helping independent farmers, it also supports poor communities by building wells, installing electricity and constructing schools, to allow the children to have good education and a better future.

How can you get involved with Fairtrade?

As well as buying items with the Fairtrade logo, you could raise money to help Fairtrade by selling Fairtrade products at a Fairtrade fair or fundraising in your local school and community.

Did you know?

Chocolate is actually made from a fruit - the cocoa bean.

A Cacao tree will produce two harvests per year of about 50 pods.

In Ghana, cacao trees are grown on small farms mixed in with other rainforest crops such as maize and bananas.

Cacao trees can live up to 200 years, but only produce viable cocoa beans for 25 years.

The latin name for the cocoa tree is Theobroma cacao, which means 'food of the Gods'.

CLASS 4G

Dahin | Bethannie | Kyle | Lexie | Jacob-James | Matias | Corey | Brogan | Lala | Kiera | Mohamad | Gabriella
Noah | Paras | Demi-Lea | Demi-Louise | William | Roman | Sienna | Sophie | Taylor | Nelly

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CLASS
3P

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STAGE 3 MIXING AND REFINING

Mixing

At the factory, the cocoa liquid is mixed with sugar and cocoa butter to make dark chocolate. For milk chocolate, milk powder is added to the mixture and for white chocolate, only the cocoa butter and sugar are added. Some people believe it isn't even chocolate at all. Machines churn the chocolate liquor to mix the ingredients. These are mixed for a few hours and then it becomes a course, brown dough called 'crumb.'

Refining

The thick chocolate 'crumb' now needs to be refined to make it silky smooth. Giant, steel rollers smooth out the gritty mixture between huge cylinders. The heavy rollers break down the tiny pieces of milk, cocoa and sugar so that the chocolate mixture is creamy. The aim is to make the mixture so smooth that no grittiness can be felt on the tongue. This gives a nicer, smoother experience. Yummy!



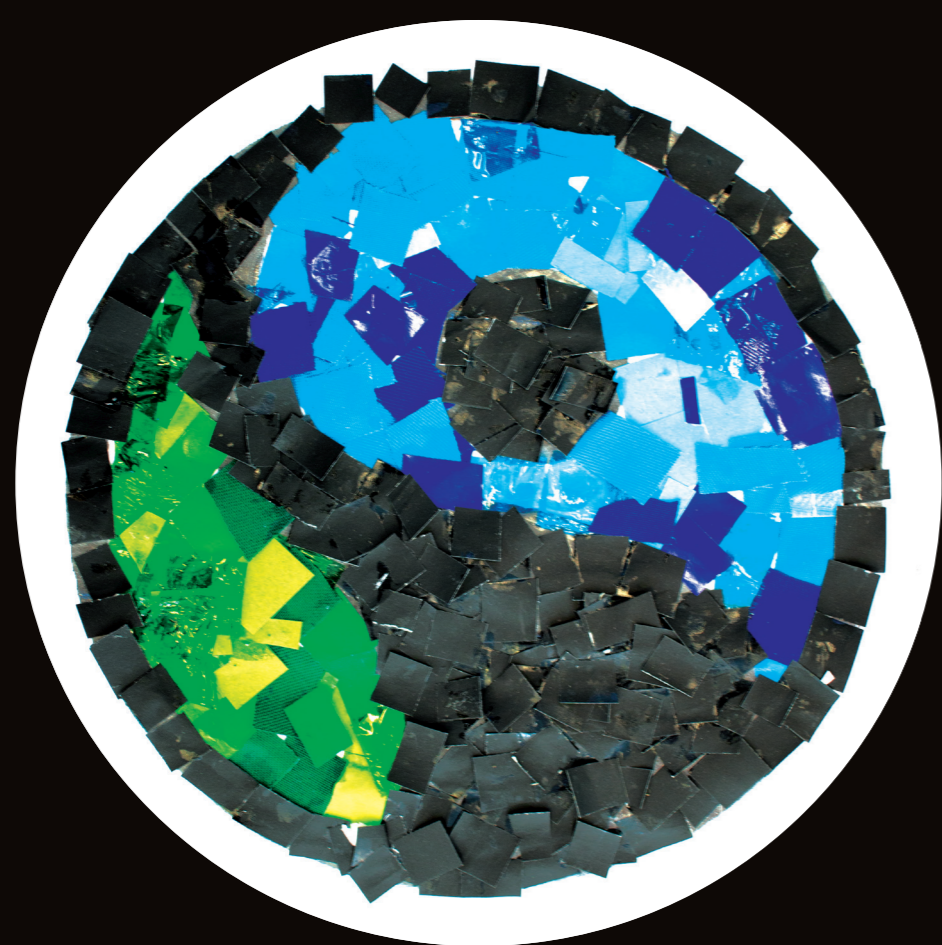
Cacao Pod and Beans (graphite sketch)



Cacao Tree (pencil sketch)



Cacao Pod (cocoa paint)



What is Fairtrade?

Fairtrade is a charity that supports farmers and workers all over the world. Fairtrade is good for farmers because it sets a minimum price that the farmers get for their crops and many farmers depend on Fairtrade to earn enough money to support their families. This guaranteed income allows farmers to buy basic items such as food and clothing. They also use some of the extra money to invest in farming equipment to make their work safer. There are many types of Fairtrade products including chocolate, bananas, coffee and tea.

Did you know?

55% of all chocolate sold in the world is Fairtrade.

64% of all tea grown is Fairtrade.

26% of workers spend their Fairtrade Premium on education.

There are over 1,000 Fairtrade certified companies.

There are even Fairtrade footballs!

CLASS 3P

Troy | Kian | Esther | Dersim | Asiya | Cole | Alayah | Mathew | Sema | Luiza | Anastasija | Maisie-Ella | Shashank | Harper | Thomas-Lee
James | Abigail | Bradley | Darcy | Lincoln | Jamilia-Lily | Riley | Pranav | Felicity-Rose | Alfie | Zeynep | Brody | Sumika



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CLASS
4W

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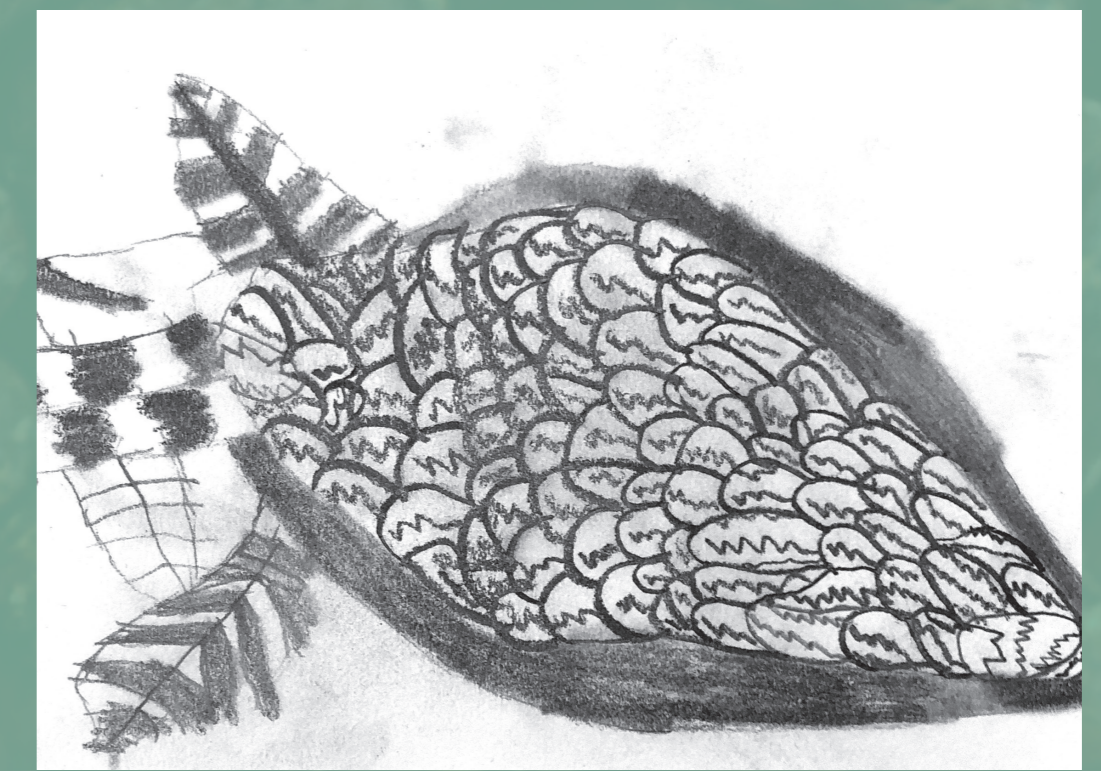
STAGE 4 MOULDING AND PACKAGING

How is the chocolate product made from the chocolate mixture?

Chocolate moulds are special containers that are used to make the shape of the chocolate that we all know and enjoy. In order for the process to be hygienic, the mould is cleaned in preparation for the liquid chocolate to be poured in. After that, the melted chocolate is then poured into the mould. Next, any excess chocolate is then scraped off the mould. Following this, the chocolate is then cooled to allow it to solidify in the mould and take up the familiar shape of the chocolate product we know. Finally, the mould is removed to allow the chocolate produce to be packaged.

How is the chocolate product packaged ready to go to the shops?

Chocolate is wrapped in aluminium foil and coloured paper. Coloured paper makes the final product more attractive and the more attractive the packaging, the more likely people are to buy it. In addition to this, the coloured paper also protects against heat damage and loss of flavour. The reason for using aluminium foil is to protect the freshness and taste. Normally, milk and white chocolate last about ten months. Dark chocolate can last for one to two years.

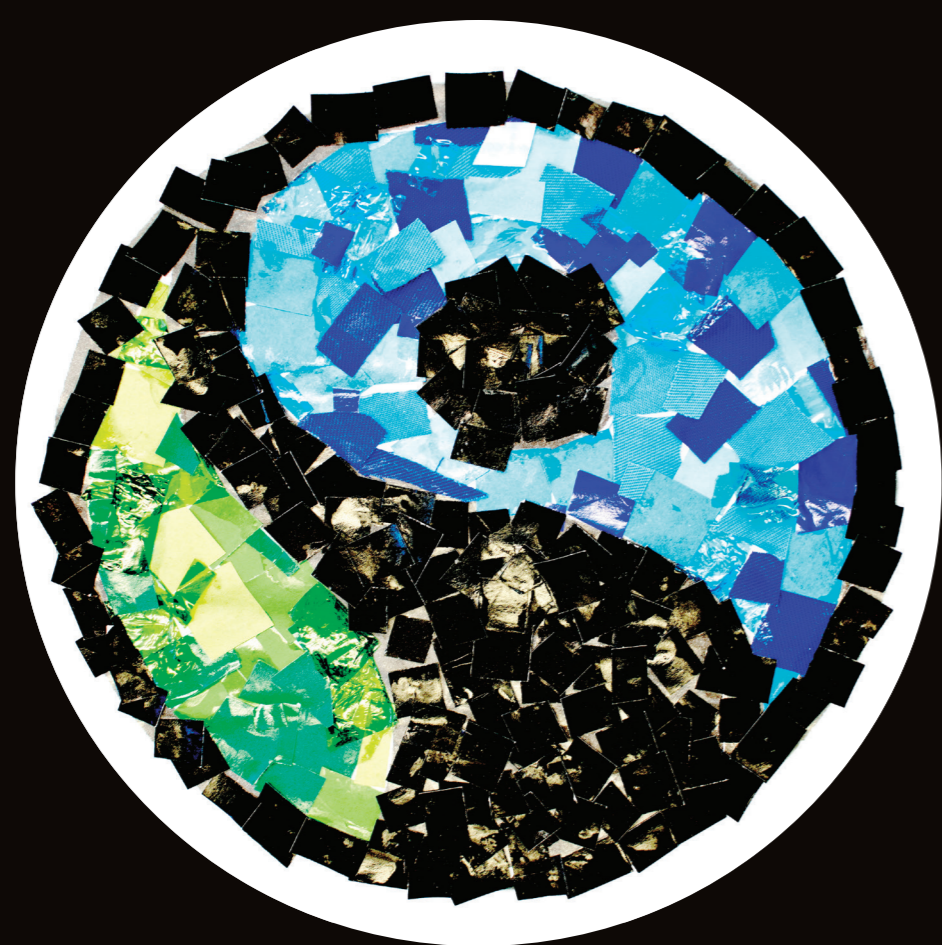


Cacao Pod and Beans (graphite sketch)



Wrappers (water colour)

Cacao Pod (cocoa paint)



What is Fairtrade?

Fairtrade is an organisation that helps farmers to get an equal income. It can help over 100 farmers at any one time, helping farmers that need support the most. It works by giving a better price to farmers and better working conditions (for example, ensuring there are no child workers and workers can work safely), so they get a fair deal when trading.

Fairtrade is a simple way to make a big difference to the lives of people who grow the things we love such as chocolate.

Did you know?

23% of all Fairtrade farmers and workers are women.

The Fairtrade system currently gives work to over 1.65 million farmers and workers.

More than 7 million people in Africa, Asia and Latin America benefit from Fairtrade.

There are 1,411 Fairtrade producing organisations across 73 countries.

According to research by the Fairtrade Foundation, 89% of the UK public trust the Fairtrade mark.

CLASS 4W

Demi-Leigh | Brooke | Syithan | Alesha | Ksawerey | Ella | Kyeran | William | Dalton | Harrison | Ruby | Kuba | John-Henry | Nastazja, Ashton | Nishal | Lucie-Mai | Razvan | Mia | Agrima | Darcie | Lucas | Jasmine