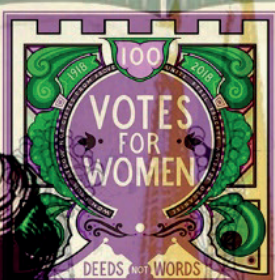


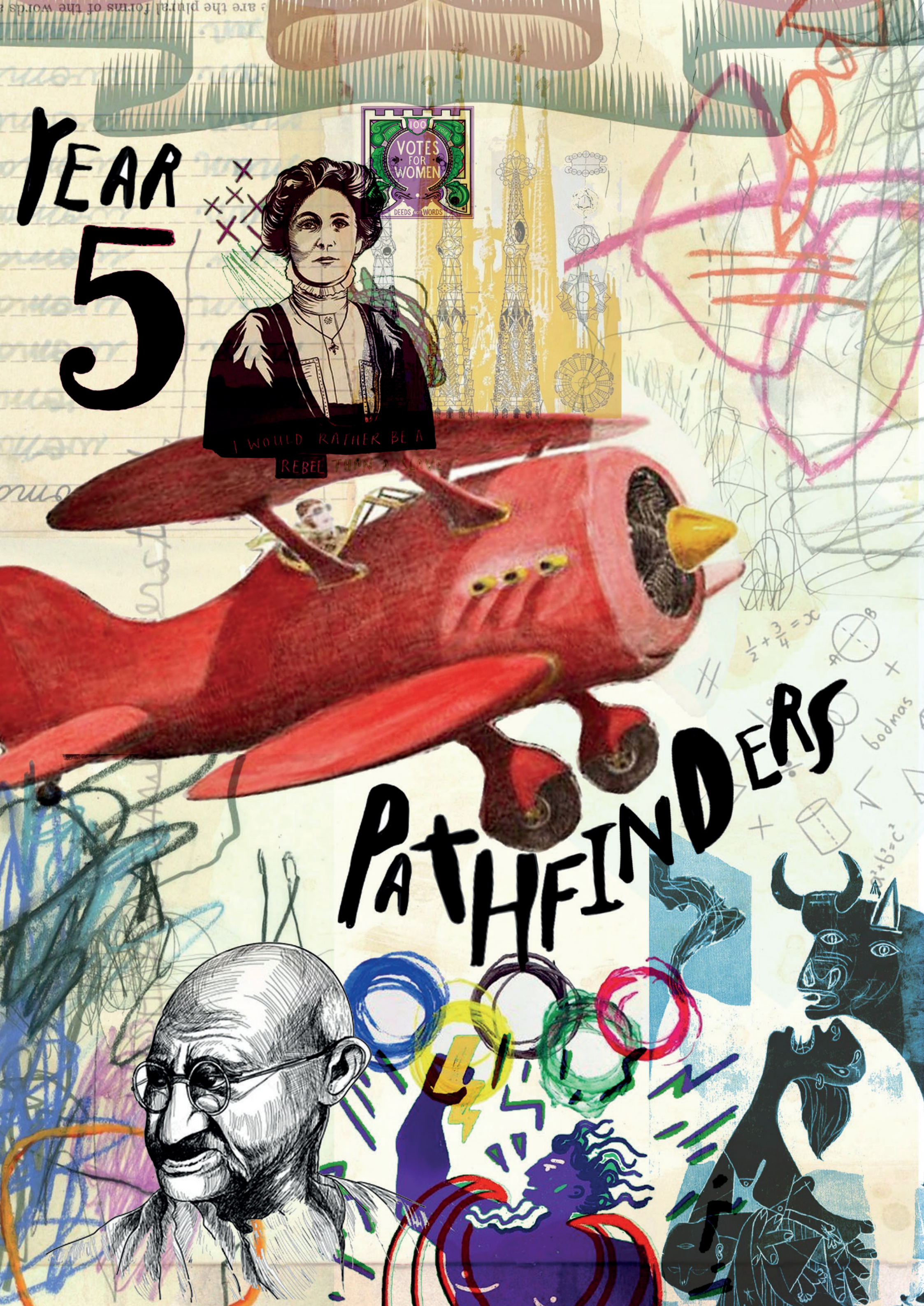
YEAR  
5



I WOULD RATHER BE A  
REBEL THAN A SLAVE



PATHFINDERS





# Year 5 Pathfinders

## Autumn Term: The Enigma Machine

"Sometimes it is the people no one imagines anything of who do the things that no-one can imagine"

**Alan Turing**

Our learning in year 5 revolves around the stories of people who dared to find and fight for new ways of doing things. Pupils in year 5 begin their learning with a close look at path finder, Alan Turing: pioneer of computer science, award winning mathematician and inventor of the Enigma machine. They solve their way through codes, puzzles and problems, exploring the secret world of Bletchley Park, and discovering how Turing saved the lives of 14 million people. Pupils reflect on other pathfinders in the field of maths and science by investigating the lives and work of Ada Lovelace and Katherine Johnson – brilliant women who dared to break boundaries.

## Spring Term: Emmeline Pankhurst

"There's no such thing as a vote that doesn't matter. It all matters."

**Barack Obama**

Suffragette Emmeline Pankhurst was a female trailblazer who campaigned for voting rights; her story makes us think whether it is ever acceptable to use violence to make a point? Pupils explore other pioneers of the social rights movement including Mahatma Gandhi, Martin Luther King and Stacey Abrams. Pupils reflect on why using your vote is so important and learn more about how our parliament works. We then look closely at the developing paths of men, women and families during the first half of the twentieth century and how war acted as a catalyst for change. We study the experience of soldiers fighting in the trenches during WW1, how women kept the country moving during WW2 and how children were sent away to live in different parts of the world as evacuees. We explore the Dig for Victory campaign and our own eating habits, including growing our own produce.

## Summer Term: Europe – the Acropolis, Blue Lagoon, Alhambra

"Europe only succeeds if we work together."

**Angela Merkel**

This term sees the pupils finding their own path around Europe, beginning in Spain with Picasso's famous picture 'Guernica' - a look back to the war theme of the Spring term. Our journey starts at the wonderful Alhambra – the breath-taking meeting place of Islam and Christianity. We spend a bit of time exploring Spanish cities and culture, stopping in Barcelona and learning about Gaudi's Park Guell and La Sagrada Familia. Our expedition then wends its way to Iceland and lava in a cold climate, stopping off at the Blue Lagoon and taking in the Northern Lights along the way. We warm up with a bit of sun – landing in Greece, the Acropolis, birthplace of democracy, the Olympics and home to the Gods.





## Autumn 1

## Autumn 2

# English

“Those who can imagine anything can create the impossible.”  
Alan Turing

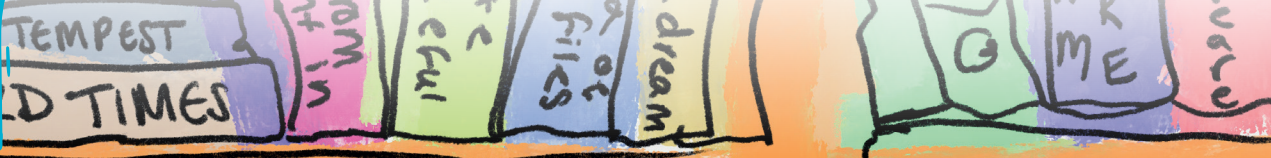
### The Enigma Machine

Pupils in year 5 begin their learning with a close look at pathfinder Alan Turing, pioneer of computers, genius mathematician and inventor of **the Enigma machine**. Pupils solve their way through codes, puzzles and problems, exploring the secret world of Bletchley Park, and discovering how Turing and other scientists potentially saved the lives of 14 million people.

As puzzles are being solved and new inventions created, we remember the soldiers who fought battles and gave their lives for others. We follow Private Fazal Khan who served with the Royal Indian Army Service Corps onto the beaches at Dunkirk and we hope against all hope as RAF pilot Mohinder Singh works with the French resistance to overcome the enemy. These real life stories help pupils to find their own places in history.

**Read:** *Now or Never / Mohinder's War* by Bali Rai

**Write:** a newspaper report which unveils the secret of The Enigma Machine to the public. Autobiographical accounts through letters and diary entries.



“Feet, what do I need you for when I have wings to fly?”  
Frida Kahlo

### Great Minds

This half term is all about **imagination**. We read extracts of the diaries of inspirational minds: Leonardo di Vinci, Frida Kahlo, Anne Frank, Marie Curie and Charles Darwin. Through their reading, pupils collect ideas and inspiration for their own journal articles and have the opportunity to find their own writer's voice and style.

Inspired by our class novel, *The Invention of Hugo Cabret*, we let our imaginations run wild and create our own inventions from smart phone projectors and fruit batteries to tablet speakers and musical instruments.

**Read:** *The invention of Hugo Cabret* by Brian Selznick.

**Write:** journal articles which document the life and work of great minds of the past.



# Maths

One essential object is to choose that arrangement which shall tend to reduce to a minimum the time necessary for completing the calculation.”  
Ada Lovelace.

In term one of year 5, pupils investigate different strategies for undertaking calculations, with an emphasis on selecting the most efficient. They continue the year 4 theme of increasing the size of number worked with.

### Reasoning with large whole integers

- Read, write, order, compare and round numbers up to one million
- Read Roman numerals up to M

### Integer addition and subtraction

- Use rounding to estimate
- Use and explain a range of mental and formal written strategies to add and subtract integers
- Select efficient calculation strategies

### Line graphs and timetables

- Complete, read and interpret data presented in line graphs
- Read and interpret timetables including calculating intervals

By the end of the half term pupils should feel confident in efficiently tackling addition and subtraction problems as well as reading and interpreting data in different forms.



In the second half term, pupils continue to explore calculation strategies, this time using multiplication and division.

### Multiplication and division

- Identify multiples and factors
- Investigate prime numbers
- Multiply and divide by 10, 100 and 1000 (integers)
- Derived facts
- Illustrate and explain formal multiplication and division strategies such as

### short and long

- Use a range of mental calculation strategies

### Perimeter and area

- Investigate area and perimeter of rectilinear shapes
- Estimate area of nonrectilinear shapes

By the end of the term, pupils will be fully fluent in using all four operations in a range of context with any positive whole number, starting to rival the analytical engines proposed by Babbage & Lovelace. They have had the opportunity to apply these skills in context by working with area and perimeter, as well as timetables.





## Autumn

**“No matter what you look at, if you look at it closely enough, you are involved in the entire universe.”**  
Michael Faraday

# Science

### Light the way

We look at electrical circuits all around us and question how they work. What makes a bulb light up? How does my alarm make a sound? We consider how the use of electricity has developed over time and the pathfinders who have helped to light the way.

Pupils create their own scientific lines of enquiry – how to increase the brightness of a bulb and the loudness of a buzzer, for example. In readiness to become Secondary scientists, pupils learn to create scientific diagrams which use recognised symbols and increase their confidence with scientific vocabulary so that they can ‘talk like a scientist.’

**Read:** Charging About: The Story of Electricity by Jacqui Bailey.

**Create:** a light-up greetings card.

**Write:** a scientific report which details the findings of their enquiry into the conductivity of different materials.



**“Everything was so new – the whole idea of going into space was new and daring. There were no textbooks, so we had to write them.”**  
Katherine Johnson

# Humanities

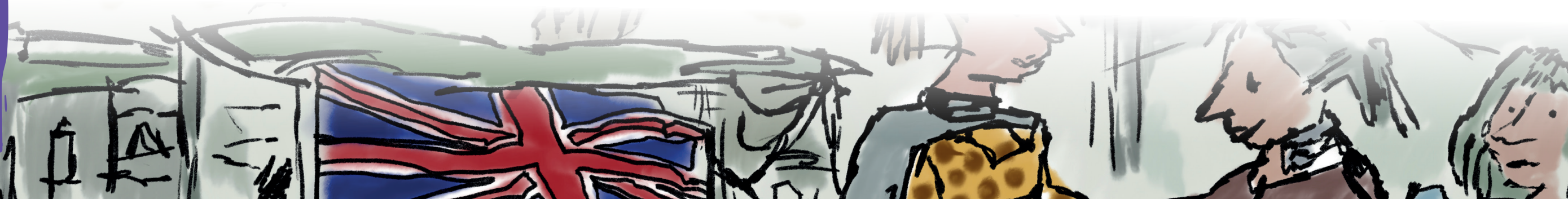
### Go your own way

Pupils build on their knowledge from the Autumn Term and consider how the life of pathfinder Alan Turing has been perceived over time. Through studying his life, and the lives of other influential figures who are captured in statues and on banknotes, we begin an important conversation about how society evolves, perceptions change and how we can use our voice to change the world.

We reflect on other pathfinders in the field of maths and science by investigating the work of Ada Lovelace (mathematician and visionary computer scientist in the 19th Century) and Katherine Johnson (mathematician and space scientist at Nasa during the moon landings) – both brilliant women who dared to break boundaries.

**Read:** The extraordinary Life of Alan Turing by Michael Lee Richardson.

Through a spoken presentation, argue for a significant figure to be recognised in a statue or a banknote.







# Art & Design

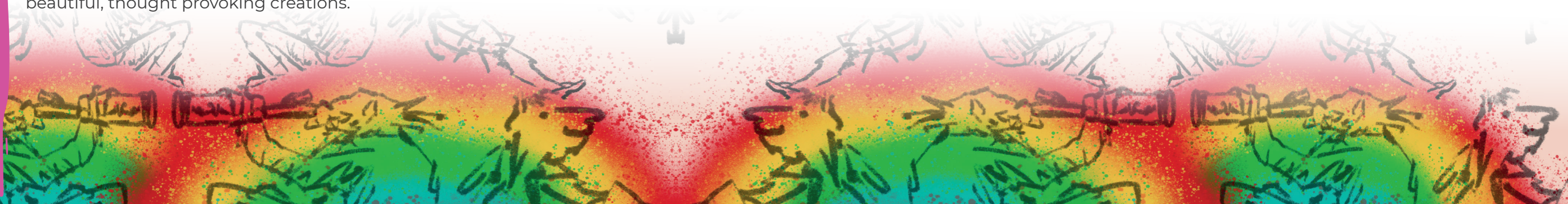
## Autumn

“Creativity is mistakes.”  
Grayson Perry

The **great mind** of César Manrique inspires us to imagine and create our own mobiles in half term one. We experiment with colour, shape and form, finding our own path in the world of 3D design. We are then stirred by the work of **Hassan Hajjaj** as pupils spend time considering their own identity; expressing their artistic voice and cultural identity through the use of photographs, pattern and collage.

In term 2, our study of Spanish and art collide as we create beautiful work to be posted to Spain. The project is about sharing our thoughts and creativity with the world in the form of mail. We then join up our thinking with science – exploring materials in all their glory! We are inspired by **Rachel Burke's** garish juxtaposition of materials and use resin, jewels and glitter to create our own sparkling, experimental pieces.

Term 3 sees pupils make their own **Johanna Goodman** inspired skittle women. Here we consider Henry Moore's work on strong, female form and link this to our understanding of the Women's Land Army and the vital role women played in the World Wars. We experiment with fabric and adopt our own 'make, do and mend' approach to make beautiful, thought provoking creations.



“If you talk to a man in a language he understands, that goes to his head. If you talk to him in his language, that goes to his heart.”

Nelson Mandela

# MFL

¡Bienvenidos! Willkommen! In the UK, it is often overlooked that over half of the world's population is bilingual. We want to challenge this, ensuring that all of our pupils become confident communicators with a love of languages. Pupils study both Spanish and German throughout their time at Primary school, starting with weekly, specialist MFL lessons from Year 3. Our vision is clear - we want our pupils to take delight in being able to communicate in different languages and be knowledgeable about the world, its people and cultures.

So, how do we teach?

### Pupils:

- develop excellent phonics knowledge through repetition, rhyme, tongue-twisters and songs
- understand and apply vocabulary from a range of word classes through language games and authentic materials (e.g. songs, stories and media)
- enjoy the culture of Spanish and German speaking countries through food tasting, cooking, festivals, music and sport
- communicate in a variety of ways: poems, songs, puppet shows, role-plays and age-related writing

### At Phase 3

- manipulate language, completing tasks of increasing complexity in terms of grammatical structures
- use grammatical terms to talk about their learning so as to support their wider understanding of how languages work, including English







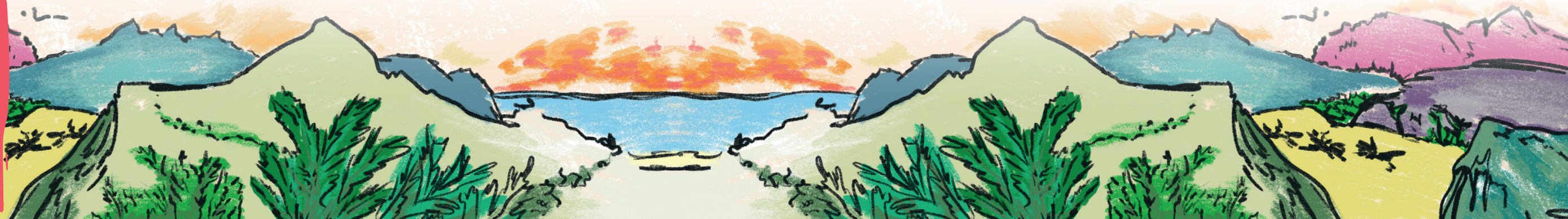
## Autumn

**'If you light a lamp for someone else, it will also brighten your own path'**

**Siddhartha Gustama**

This term, pupils focus on Buddhism and think about the eight-step path to enlightenment. They investigate Siddhartha Gustama and the influence of his life and thinking. Pupils watch or read the Buddhist story of Siddhartha and the Swan and The Monkey King. We then look more closely at the four noble truths of Buddhism and find out about the different festivals celebrated by Buddhists. Taking into account all our learning and experience, pupils think about other Dharmic and Abrahamic religions they have already studied and make comparisons.

RE



**'When you lose, you get up, you make it better, you try again'**

**Serena Williams**

In year 5 PE, we begin with invasion games honing key skills – such as dribbling, passing, shooting – in a range of sports, Tag Rugby, Handball and Football. Pupils learn to regulate themselves through refereeing and playing round robin tournaments and develop some simple tactical awareness of attacking and defending. We then hop off to gymnastics and develop our ability on a range of different apparatus, creating floorwork routines and sequences, balancing and traveling in pairs. We even create moves which may begin (or end) with pikes, straddles or tucks! Our dance work builds on these skills as we explore more complex ways of moving our bodies to different genres of music, learn how to tell stories or include props and begin to memorise routines.

PE







## Spring 1

**"I would rather be a rebel than a slave."**  
Emmeline Pankhurst

### Emmeline Pankhurst

In the spring term, we study the life of suffragette Emmeline Pankhurst - a female trailblazer who campaigned for women's rights in the early 20th Century. Pankhurst was not afraid to break the law to achieve her aims; this makes us wonder whether it is ever acceptable to use violence to make a point. Pupils explore other pioneers of the social rights movement including Mahatma Gandhi, Martin Luther King and Stacey Abrams. Pupils reflect on why using your vote is so important and learn more about how our parliament works.

We hope to inspire our pupils to become the next generation of politicians or community activities who are keen to make their world a better place and our class readers, immerse pupils in the democratic process as they follow Effie (campaigning to become School Council President because she believes all school spaces should be inclusive). Or Joe (whose grumpy outburst goes viral and takes him to the highest office in the land where he endeavours to make the country happier). Pupils can go back in time and meet Opal whose fortunes are reversed and is forced to fight for equality and security before WWI changes the world for everybody.

**Read:** Opal Plumstead by Jaqueline Wilson; The Accidental Prime Minister by Tom Mc Cloughlin; Vote for Effie by Laura Wood and Mirelle Ortega;

**Resist:** 40 profiles of ordinary people who rose up against Tyranny and Injustice by Veronica Chambers; A is for Activist by Innosanto Nagara; We are the change: words of inspiration by civil rights leaders by Harry Bellafonte.

**Write:** biographies on key figures of civil rights movements, recounting their story and impact.

**"If you attack the problem right, you'll get the answer."** Katherine Johnson

After spending the first term working on integers, pupils move onto working with parts of whole numbers, starting with fractions and decimals, before leading into percentages. Other branches of maths continue to provide opportunity to work in context, in this case angles.

### Fractions and decimals

- Read, write, order and compare decimals
- Round decimals to the nearest whole number
- Represent, identify, name, write, order and compare fractions (including improper and mixed numbers)
- Calculate fractions of amounts

### Angles

- Classify, compare and order angles
- Measure and draw angles with a protractor
- Understand and use angle facts to calculate missing angles

By the end of the half term, pupils will be confident in the basics of decimals and fractions, by understanding their relative sizes and how to order them.

# English

# Maths

## Spring 2

**"If there's one thing I've learned in life, it's the power of using your voice."**  
Michelle Obama

### A vote to change the world

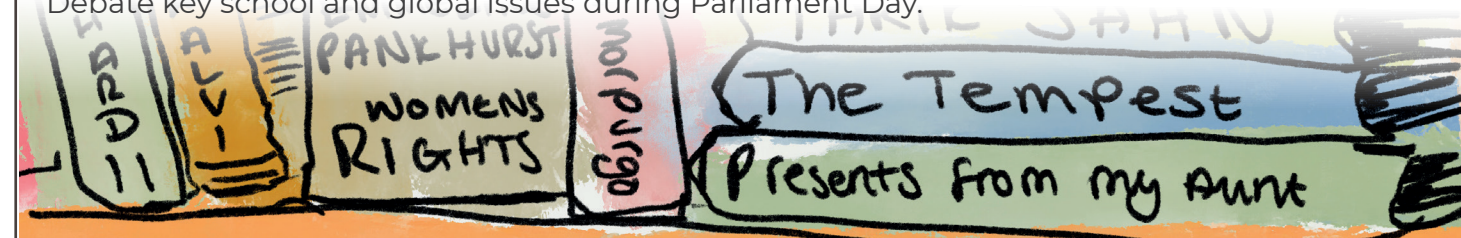
This half term, pupils learn about what it means to live in a democracy: from holding class votes to whole-school polls that seek meaningful change. Pupils build upon their knowledge of Emmeline Pankhurst and learn about how Parliament works in today's society through an interview with a local MP.

We discuss propaganda through the World Wars and listen to more recent political speeches so as to understand the art of persuasive speaking. We hold our own 'Parliament Day' to voice school-wide and global issues, practising supporting, challenging and building on others' ideas.

**Read:** Opal Plumstead by Jaqueline Wilson; The Accidental Prime Minister by Tom Mc Cloughlin; Vote for Effie by Laura Wood and Mirelle Ortega;

**Write:** formal letters to their local MP.

Debate key school and global issues during Parliament Day.



Having deepened their understanding of the basics of fractions, pupils are then shown how to further calculate with them, building on their work from year 4. They then explore the connections with percentages, before undertaking some work on the coordinate grid, providing additional opportunity for work with negatives.

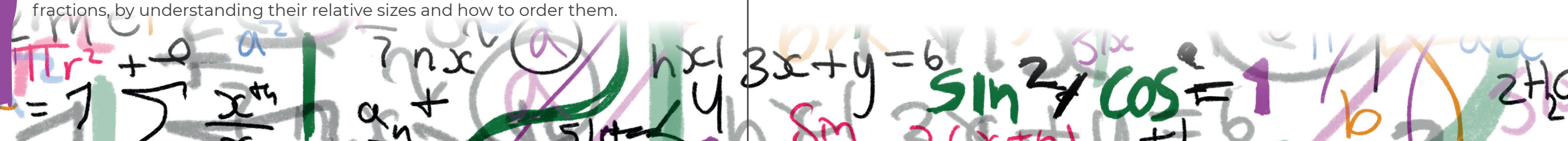
### Fractions and percentages

- Add, subtract fractions with denominators that are multiples of the same number
- Multiply fractions (and mixed numbers) by a whole number
- Explore percentage, decimal, fractions equivalence

### Transformations

- Coordinates in all four quadrants
- Translation and reflection
- Calculate intervals across zero as a context for negative numbers

By the end of the term, pupils will have applied their numerical skills to parts of whole amounts, represented by fractions, decimals and percentages. Calculation continues to underpin the work they have done by working in context with angles but also beginning to work with negative numbers on the coordinate grid.







## Spring

**“Keep asking why. Don’t settle for what you already know. Never stop believing in the power of your ideas, your imagination, your hard work to change the world.”**  
**Barack Obama**

# Science

Why is an umbrella made of nylon and not wool? Could you ride a skateboard made of glass? This term in science we explore materials and their properties. Pupils predict and then investigate whether materials are electrical conductors, strong thermal conductors or magnetic. We investigate the elasticity of materials and discover what is meant by solubility through our own laboratory tests.

Linking to our learning on Katherine Johnson and her ground-breaking work at NASA, we look at materials which were designed for space exploration and have ended up as household products: memory foam, home insulation, foil blankets, scratch resistant spectacle lenses, WD-40, infrared thermometers, camera phones and even Nike Air trainers!



# Humanities

**“It is not enough to win a war; it is more important to organise the peace.”**  
**Aristotle**

### World War I

In our humanities lessons this term, we explore the changing paths of men, women and families during the first half of the twentieth century.

We begin with a study of WWI, learning about the experience of the five million British soldiers who spent time in the trenches on the Western Front. Pupils hear monologues about The Christmas Truce and wonder how it must have felt to resume fighting after the ceasefire of December 1914.

We focus too on the lives of those on the Home Front, away from the battlefields, but living in fear of attack from the air and sea. We learn how women kept the country moving through their newly acquired roles in offices, factories and farms and about the formation of the Women’s Land Army in 1917.

**Read:** WWI Poetry & Letters.

**Write:** letters from the Front Line.

**“...these women...had one thing in common: they did not think of themselves as heroes. They followed their consciences, saw something that needed to be done, and they did it.”**

**Kathryn J. Atwood in ‘Women Heroes of World War II’**

### World War II

In the latter part of the term, our focus shifts to World War Two. We learn about the reinstated Women’s Land Army and the Dig For Victory Campaign and are inspired to grow our own produce. We also consider the evacuation of cities at the start of the war – the biggest and most concentrated mass movement of people in Britain’s history.

We walk to Hanson Lane, the site of a bombing in November 1940. We visit the memorial garden and investigate the story of the lone bomb attack and its impact on the community. We study photographs of the time and consider how families had to find new paths as a result of separation, rationing and re-assigned roles.

**Read:** Good Night Mr. Tom by Michelle Magorian.

**Write:** poetry to remember the victims of the bomb which dropped on Hanson Lane in WWII.







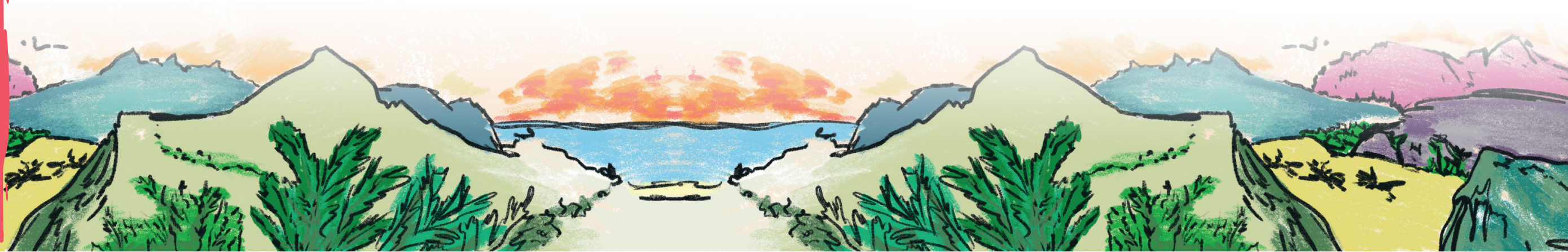
## Spring

**'If you light a lamp for someone else, it will also brighten your own path'**

**Siddhartha Gustama**

This term, pupils continue to focus on Buddhism and think more deeply about the eight-step path to enlightenment. They investigate why Buddhists meditate and what life is like inside a Buddhist monastery. We then look more closely at the Dalai Lama and the role takes within the religion. Taking into account all our learning and experience, pupils think about other Dharmic and Abrahamic religions they have already studied and make comparisons.

RE



**'Find something you love and make it your life'**

**Hannah Cockcoft**

We put a spring in our step with inclusions sports and pupils try their hand at Goalball and Sit Down Volleyball. We also get out on the bikes exploring balance, speed and cornering as we navigate our way around the bike track. Net and Wall games are also key this term when pupils find out about tracking and striking in games such as Table Tennis and Badminton. We learn the rules and how to score before having a round robin tournament.

PE







“Europe only succeeds if we work together.”  
Angela Merkel

# English

## A journey across Europe – the Acropolis, Blue Lagoon, Alhambra

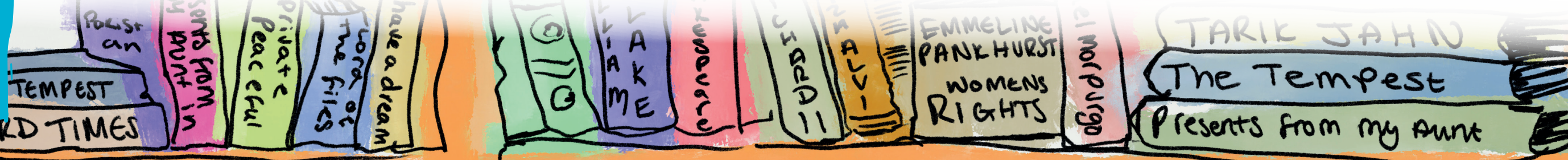
This term sees the pupils finding their own path around Europe, beginning in Spain with Picasso’s famous picture ‘Guernica’ - a look back to the war theme of the Spring term. Their journey starts at the wonderful Alhambra – a breath-taking meeting place of Islamic and Christian belief. Pupils spend time exploring Spanish cities and culture, stopping off in Barcelona and learning about Gaudi’s Park Guell and La Sagrada Familia. Their expedition wends its way to chilly Iceland, pausing at the Blue Lagoon and taking in the Northern Lights along the way. They finally warm up with a bit of sun – landing in Greece for a trip to the Acropolis, birthplace of democracy and Olympia, home of the Olympics.

Pupils continue to engage in activism to improve their environment and are introduced to Hope Jones who fights for cleaner air, vegetarianism and a better environment. This contemporary novel is complimented by a dystopian fiction ‘Where the World Turns Wild’ which follows the misadventures of Juniper Greene and her brother Bear in a world where man and nature are divided and at war with one another. Juniper and Bear are the exception find a path to live alongside nature. In complete contrast Shifa within the novel ‘Where the River Runs Gold’ finds herself pollinating plants and encouraging re-wilding after the devastation of climate change wreaks havoc on society.

**Read:** Where the World Turns Wild by Nicola Penfold / Where the River Runs Gold by Sita Bramachari / Hope Jones Clears the Air by Josh Lacey / Lonely Planet: Around the World in 50 Ways.

**Write:** a tourist guide.

**Create:** a Gaudi inspired mosaic.



“Reserve your right to think, for even to think wrongly is better than not to think at all”  
Hypatia

# Maths

The final term focusses on shapes and how to measure them as well as thinking about some challenging concepts such as negative numbers and the idea of a remainder. It rounds off two terms of quite intense number work.

### Converting units of measure

- Convert between metric units of length, mass and capacity and units of time
- Know and use approximate conversion between imperial and metric

### Calculating with whole numbers and decimals

- Mental strategies to add and subtract involving decimals
- Formal written strategies to add, subtract and multiply involving decimals
- Multiply and divide by 10, 100 and 1000 involving decimals
- Derive multiplication facts involving decimals

By the end of the half term, pupils will have a strong grasp of calculation with decimals and how decimals underpin and shape the metric system..

The second half term brings an additional dimension to the pupils work by considering 3D shapes and the link between them and cub numbers. Pupils then progress to wrestle with some challenging concepts such what is a remainder?

### 2-D & 3-D Shape

- Classify 2-D shapes and reason about regular and irregular polygons
- Properties of diagonals of quadrilaterals
- Classify 3-D shapes
- 2-D representations of 3-D shapes.

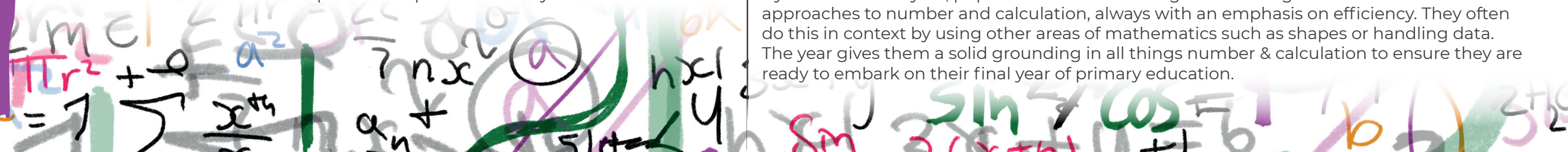
### Volume

- Use cube numbers and notation

### Problem Solving

- Negative numbers and calculating intervals across zero
- Calculating the mean
- Interpret remainders
- Investigate numbers: consecutive, palindromic, multiples

By the end of the year, pupils have been encouraged to investigate and discover different approaches to number and calculation, always with an emphasis on efficiency. They often do this in context by using other areas of mathematics such as shapes or handling data. The year gives them a solid grounding in all things number & calculation to ensure they are ready to embark on their final year of primary education.







## Summer

**“Any sufficiently advanced technology is indistinguishable from magic.”**  
Arthur C. Clarke

### Science

#### Good vibrations

Where better to begin our learning about light and sound than in The National Media Museum’s Wonderlab? Here pupils think like scientists and feed their curiosity as they navigate their way through the mind-bending exhibits. Pupils hear their voices through a 15 metre long tube, make art using light and find their own path through a maze of magical mirrors. Pupils learn that light and sound are the building blocks of the technology and media that surround us every day and will never look at a Playstation in the same way again!

Back in class, we learn about Halifax born Percy Shaw, an inventor who had his eyes on the road ahead. We also build on our learning from Year 4, understanding one of Sir Isaac Newton’s first and most successful experiments which established him as a world leading scientist – his theory on light and colour. Like all great pathfinders, we question the world around us: Why do playground shadows change throughout the day? Why do musical instruments make different sounds?

**Read:** Light & Sound (Science in infographics) by Jon Richards.



### Humanities

**“That the entire world is full of hearts searching for a place to call home. But refugees are different, because they don’t just look for a home. They look for peace too. And because of that, they possess the most special hearts anyone could ever have.”**  
Onjali Q. Raúf, *The Boy at the Back of the Class*

#### Home is where the heart is

The land on which we live shapes us. It affects politics, wars, trade and movement. This term, we consider how the choices of communities and governments can be limited by their location and physical landscape. We also think about how a country’s climate and natural resources can help or hinder its people. We focus particularly on Europe – a continent fortunate with its geography, especially in the west and north where the land is rich and the climate is perfect for farming.

We think about how natural barriers impact on language and culture. We consider why people migrate and explore questions such as ‘what is the difference between a refugee and an economic migrant?’ and ‘how will climate change affect migration?’

**Read:** Prisoners of Geography – Our world explained in 12 simple maps by Grace Easton and Jessica Smith.







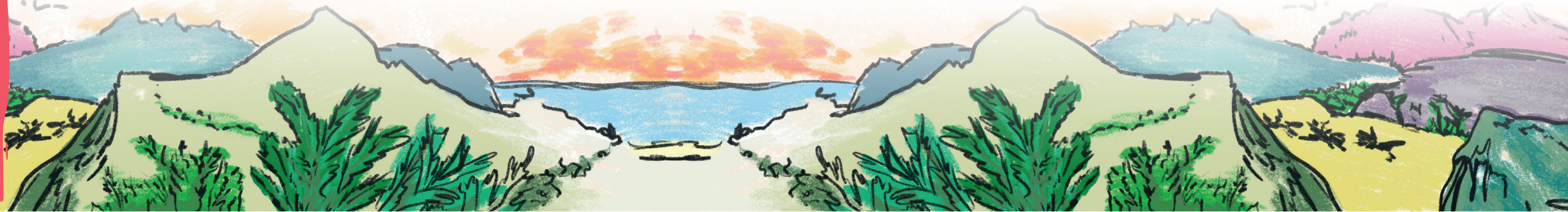
## Summer

**'Everybody has a spirit that can be refined, a body that can be trained in some manner, a suitable path to follow'**

**Morihei Ueshiba**

Sikhs believe they are on a continuous path to spiritual improvement. In year 5 pupils find out about different elements of Sikhism including its origins and beginnings, its guiding tenets including the Gurus and 5Ks. Pupils also explore the holy writings and think about Sikh beliefs about God, beliefs and practices, and how Sikhs worship and express their faith today. We look closely at the story of Milk, and the Jasmine Flower and Duni Chand and the Silver Needle. Taking into account all our learning and experience, pupils think about other Dharmic and Abrahamic religions they have already studied and make comparisons.

RE



**'Keep it simple and just go out and play'**

**Shane Warne**

The summer term sees the return of striking and fielding games with cricket and softball. Skills and tactics are honed before round robin matches and tournaments. Before long, the athletics season kicks in with sprints, long distance events, relays and javelin, shot putt and cycle sprints. Every opportunity is given to year 5 to find their path to being active and healthy adults

PE

