



FLEMING
PENICILLIUM
OTATUM

INNOVATOR

YEAR 4

Year 4 Innovators

Autumn Term: Elizabeth I

"We know what we are, but not what we may be."

William Shakespeare

Elizabeth I is one of our greatest monarchs – perhaps the greatest. Her forces defeated the Spanish Armada, she forged an England that was a strong, independent island nation and oversaw an era of unprecedented change. And she was a woman. Pupils are introduced to Gloriana, Good Queen Bess, and her Elizabethan era as a 'Golden Age' and begin the year by uncovering the discovery of 'The New World'. Pupils debate the map-writing travels and 'achievements' of Sir Francis Drake and Sir Walter Raleigh and how their journeys mapped the way for trade and migration across the Atlantic Ocean. Then, pupils investigate the life and work of wordsmith William Shakespeare – the greatest linguistic innovator of all time, and the legacy he left on the English language.

Spring Term: The Amazon

"Change is coming, whether you like it or not."

Greta Thunberg

The Amazon rainforest is the world's largest tropical rainforest and is recognised as a repository for the world's eco systems. Pupils follow the water cycle through the Amazon River, the wildlife that populate the Amazon Basin's biome and the threats the Amazon rainforest faces in the modern world. Greta Thunberg's story inspires pupils to advocate for sustainability in their community, further learning about recycling (Favio Chavez), consumption (local farming) and renewable energy (solar and wind). Where are the innovative thinkers and campaigners who are going to save our planet, and how can we make our own contribution?

Summer Term: The Printing Press

"We cannot solve our problems with the same thinking we had when we created them."

Albert Einstein

Words can harm, heal or turn the world upside down. The internet has made it possible to share knowledge faster than ever before but where did it all begin? Was there a time when information couldn't be shared? How did the distribution of knowledge impact on the response to Covid-19 in contrast to the Black Death? Pupils ponder these questions by analysing the invention of the printing press – arguably the most important creation of the last thousand years and continue to map other life changing inventions such as Satellite Navigation, the compass and penicillin. What sets innovators such as Elon Musk, apart from the rest of humanity?



Autumn 1

Autumn 2

English

'We know what we are, but not what we may be.' William Shakespeare

During **Elizabeth 1's** reign a 'brave new world' was discovered with explorers like Raleigh and Drake discovering new lands and new peoples. It was also a time of innovation in the arts and in the theatre and in the second half of the term, pupils will enjoy Shakespeare's 'The Tempest': a tale of storms, shipwrecks, islands, monsters and magical creatures – in short, a wonderful adventure story. So, pupils begin year 4 with adventure stories set around Islands and the sea.

The New World: Our island adventure story.

Following a visit from a local author*, pupils dive into the world of island adventure stories. They create maps, explore character development, setting description and plot twists. Pupils also use more challenging structural features in order to create an exciting and compelling narrative.

Friendship seems to be the key to surviving any sea adventure, whether you are braving the North Atlantic in a rowing boat, a castaway on a Japanese island or on a quest to heal those you love. Here are three adventure stories full of bravery and resilience.

Pupils will:

Read: *To the Edge of the World* by Julia Green / *Kensuke's Kingdom* by Michael Morpurgo/ *Lalani of the Distant Sea* by Erin Entrada Kelly

Write an adventure story developing a more sophisticated narrative structure.

Innovation: share their stories around a campfire – something they have never done before.

'Oh, brave new world, that has such people in it' William Shakespeare

Building on the work of the first half term, pupils explore Elizabethan theatre and in particular the life and work of William Shakespeare – the greatest linguistic innovator of all time. They investigate his legacy on English in terms of vocabulary and idiomatic language. Pupils explore the 'word explosion' that took place during this period and the notion that Shakespeare may have added 1700 words to everyday use.

Inspired by **'The Tempest'**, pupils explore the story, language and staging techniques Shakespeare used to create excitement, terror and magic. In particular, pupils focus on: the opening storm and shipwreck scene; the characters of the 'monstrous' Caliban and fairy Ariel; poetry and songs from the play; Prospero's 'Our revels now are ended' speech reflecting Shakespeare's life in the theatre. Pupils debate Prospero's treatment of Caliban and Ariel and assess whether his behaviour is justified.

Pupils enjoy a range of scripts to understand dramatic features and develop their interpretations through drama workshops.

Pupils write and perform their poetry to a school-wide audience to experience life as a performer.

Pupils will:

Read: *The Tempest (Shakespeare retellings)* by Marcia Williams; extracts as highlighted above from the original text.

Write scripts for short plays and act them out.

Maths

"Pure mathematics is, in its way, the poetry of logical ideas." Albert Einstein

Think Big

There is a common misconception that somehow bigger numbers are harder to deal with. This may to an extent be true for mental methods but, in reality, they behave in exactly the same way as smaller ones and we need to remove this barrier for pupils.

Reasoning with large numbers

- 4-digit place value. Read, write, represent, order and compare
- Find 10, 100 or 1000 more or less
- Round numbers to the nearest 10, 100 or 1000

Addition and subtraction

- Select appropriate strategies to add and subtract
- Illustrate and explain appropriate addition and subtraction strategies including column method with regrouping

By the end of the half term pupils should have an appreciation that the principles of maths are simply patterns that apply irrespective of the scale of the number. What holds true for two-digit numbers is just as true for four and five digit ones.

Sign of the Times

Having consolidated addition and subtraction, pupils now deepen their understanding of the properties of multiplication and division to give them quicker strategies. They also develop reasoning skills by beginning to compare data sets in graphical form.

Multiplication & Division

- Distributive property including multiplying three 1-digit numbers.
- Mental multiplication and division strategies using place value and known and derived facts.
- Short multiplication and division.

Discrete and Continuous Data

- Read, interpret and construct pictograms, bar charts and time graphs
- Compare tables, pictograms and bar charts

By the end of the term, pupils have refined the quality of their numeracy skills as well as used them with larger numbers. This sets them up for next half term where they progress to working with parts of a whole, be that with fractions or decimals.



Autumn

'Invention, my dear friends, is 93% perspiration, 6% electricity, 4% evaporation, and 2% butterscotch ripple.'
Willy Wonka 'Charlie and the Chocolate Factory'

Science

Oh dear, what can the matter be?

Pupils start to ask questions ideas they have not contemplated before. We look at the changing states of matter around us and wonder about how 'things' change. Where does the water from my kettle go? Why doesn't frozen cheese stink? Why isn't my favourite playground puddle there for ever? Using inspiration from the Invention Room in 'Charlie and the Chocolate Factory,' pupils think about how science can be used to innovate and create.

Pupils create their own scientific lines of enquiry which question the changing states of solids, liquids, and gasses – applying their knowledge in the school kitchen, finding the melting point of chocolate and other confectionary based enquiries. As developing scientists, pupils learn to alter variables within experiments, use a widening range of equipment for increased accuracy and further build their confidence with scientific vocabulary so that they can 'talk like a scientist.'

Read: <https://www.stem.org.uk/resources/community/collection/357458/charlie-and-chocolate-factory-states-matter>; Charlie and Chocolate Factory, Invention Room extract by Roald Dahl

Use sweet experiments to investigate states of matter.

Write an innovative recipe for a new sweet using elements of different states of matter including scientific vocabulary.



'I know I have the body of a weak and feeble woman, but I have the heart and stomach of a king, and a king of England too.'

Elizabeth 1

Humanities

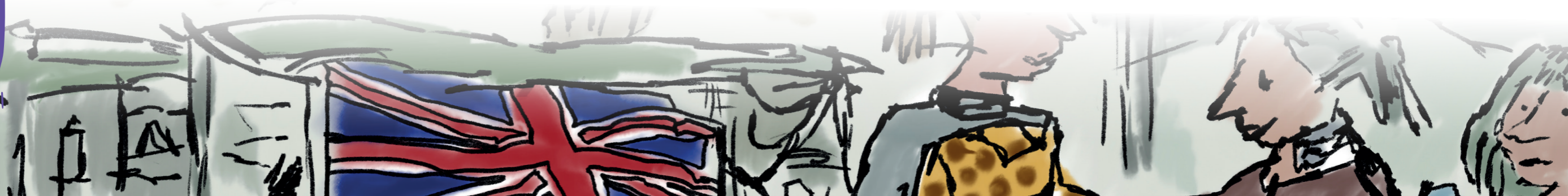
Elizabethan Era: The incredible adventures of Sir Francis Drake and Sir Walter Raleigh.

Pupils are introduced to the Elizabethan era as a 'Golden Age of history' and begin the year by exploring the discovery of 'The New World'. They contemplate the power of Elizabeth 1 and the challenges presented because of her gender. Pupils map the lives and adventures of Sir Francis Drake and Sir Walter Raleigh through different sources, making links with the modern relationships between the UK and the world's trade and tourism. Pupils securely place this period within wider history thus understanding why it is judged to be 'A Golden Age' for England. Pupils discuss whether 'Sea Dogs' Raleigh and Drake were little more than pirates and looters and would be judged differently by modern standards. Was their treatment of peoples and lands around the world justified? Can it ever be right to take other people's lands and possessions? This allows pupils to make links to their study of the Tempest and inform their view of Prospero and Caliban's relationship.

Pupils will:

Read:

Interpret history from both sides of Sir Francis Drake's & Sir Walter Raleigh's adventures by debating the morality of taking someone else's land. This idea is informed by their study of the Tempest: is Prospero right to treat Caliban as he does? Pupils consider what impact seizing land has on events in today's world and in the past.





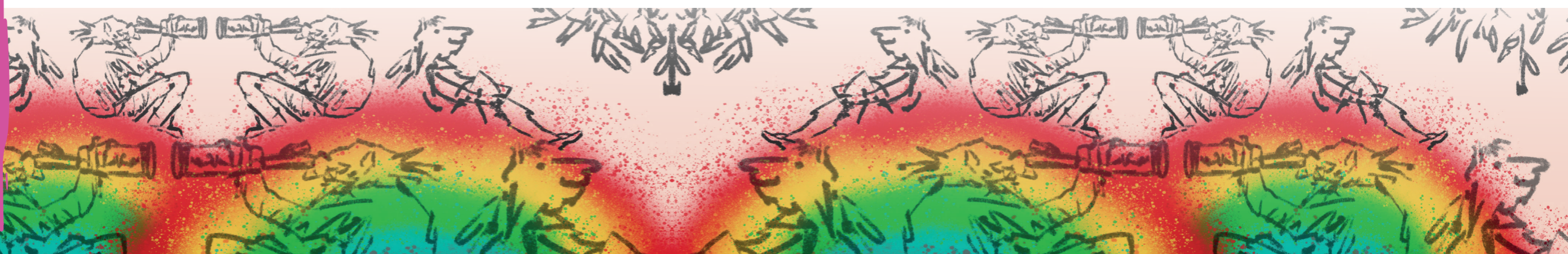
Autumn

'Creativity is Mistakes'

Grayson Perry

Our voyage of artistic discovery continues with the creation of a magical telescope, **Olafur Eliasson**. Let's look through it and see the world differently. It helps us on our journey into a fantasy landscape leading to a kaleidoscope of patterns, colour and shapes. Then there is a sea-change into 'something rich and strange.' Linking to our work on the Tempest, we go back to the sea for inspiration with **Chagall's** Mermaids and a world under the water. Making art from rubbish, like Fabio Chavez, sets us on a path to recycle, reuse, melt and mould things around us into wonderful works of art. The artist **Phlegm** gives us an industrial and Sheffield-inspired look into a land of giants, and we create our own underground black and white crypt. Before we finish off with a wacky-race in our very own year 4 Soapbox derby.

Art & Design



'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

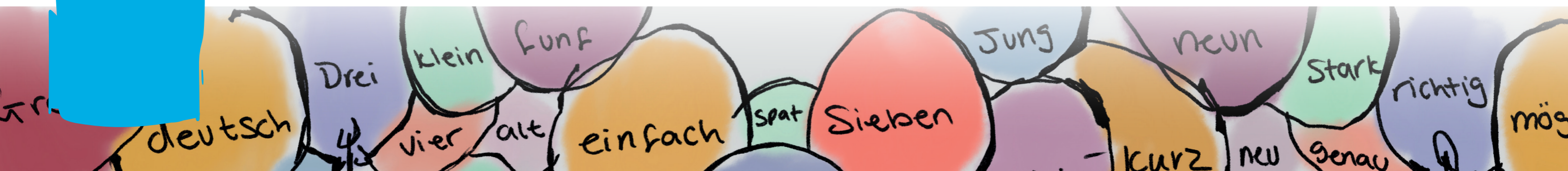
¡Bienvenidos! Willkommen! In the UK, it is often overlooked that over half of the world's population is bilingual. We want to challenge this, ensuring that all of our pupils become confident communicators with a love of languages. Pupils study both Spanish and German throughout their time at Primary 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
- manipulate language, completing tasks of increasing complexity in terms of grammatical structures

MFL





Autumn

“Small stars still light up big skies.”

Matshona Dhlwayo

The focus this term is on Judaism and the stories of the Jewish faith. Pupils begin by looking at Judaism and the building of the temple, focusing on the era of Samuel, Saul and David. Key stories include David and Goliath, Solomon and the building of the Temple in Jerusalem, Daniel and King Nebuchadnezzar, Babylonian captivity, the destruction of the Temple and the return to the Promised Land. We also look at Jewish festivals such as Hanukkah, the religious book the Torah and find out how Jews express their faith in Britain today and how they remember the Kings and Prophets in worship and in life.

RE



‘Obstacles don’t have to stop you. If you run into a wall, don’t turn around and give up.

Figure out how to climb it, go around it or work through it.’

Michael Jordan

Invasion games kick off the year with small-sided games in tag rugby, basketball and hockey – again developing those key skills of dribbling, passing and shooting whilst also becoming more aware of how to score and defend. Pupils in year 5 definitely innovate in PE by trying a range of new inclusive sports such as new age curling, boccia and goalball. They discover skills and learn the rules and how to score.

PE





Spring 1

English

'The world sends us garbage. We send back music!' Favio Chavez

Much of the Spring Term is spent in South America and pupils begin their journey by reading a range of articles and stories about the inspiring story of innovative musician Favio Chavez. He acted on his vision to end illiteracy, poverty and pollution for the children of Cateura, Paraguay. Using waste from their own homes and with the input from Scrap Shed*, pupils design, create and play a wide variety of instruments to create our very own orchestra.

We read poetry by Dom Conlon who illustrates the fragility of our eco systems through the Wild Wanderers series. We leap through woodland with a hare, swim through the oceans with a shark and chase the wind as it travels around the globe breathing life into the world.

Poetry also leads us to the story of a young boy desperate to save the ocean which surrounds his home, which is teeming with life and in serious danger from the thoughtless actions of the community.

Pupils will:

Read: The Explorer by Katherine Rundell / Song of the Dolphin Boy by Elizabeth Laird / The Tree of Hope by Kekashan Basu / Poetry by Dom Conlon

Write to inform using different mediums including **instructions, posters and infographics.**

Maths

"3 out of 2 people have trouble with fractions." Unattributed.

You complete me

No maths topic inspires quite as much terror in people as fractions. This half term is dedicated to ensuring that our pupils do not develop that fear. We explore different ways of representing fractions as well understanding that in reality, they merely follow the same laws as any other number.

Securing multiplication facts

- Identify and explore patterns in multiplication tables including 7 and 9

Fractions

- Explore different interpretations and representations of fractions
- Equivalent fractions
- Represent fractions greater than one as mixed number and improper fractions
- Add and subtract fractions with the same denominator including fractions greater than one

By the end of the half term our pupils should have developed a real fluency with manipulating fractions, which then leads neatly into their natural partners, namely decimals.

Spring 2

'No-one is too small to make a difference.' Greta Thunberg

Another innovator is undoubtedly, Greta Thunberg and pupils explore her efforts to tackle the climate crisis. Pupils find out about the warming of the planet and government action to date. We discuss the Paris Agreement, a pledge by 194 countries around the world to commit to mitigate the rise in CO2 levels. Is this going to be enough? We analyse Greta's speeches, and those of other environmentalists, drawing on their persuasive devices, to write our own speech to be delivered across school. Pupils think about the different innovations that will be required to tackle climate change and what we can do to play our part. Are we too small to make a difference?

Pupils will:

Read: The Explorer by Katherine Rundell / Song of the Dolphin Boy by Elizabeth Laird / The Tree of Hope by Kekashan Basu / Poetry by Dom Conlon

Write persuasive prose which result in the delivery of a speech to an audience and in action being taken.

Write their own pledge for taking action against climate change.

Innovation: pupils pledge and take action to improve the environment for an aspect of home or school.

"The key is not spending time, but investing in it. Stephen R Covey

The work on fractions leads into this half term where "parts of a whole" are key to understanding. Pupils learn to work in a.m. and p.m. time as well as use common fractions of an hour. These ideas of quarters and halves are then converted into decimals in subsequent work.

Time

- Analogue to digital, 12- hour and 24-hour
- Convert between units of time

Decimals

- Decimal equivalents to tenths, quarters and halves
- Compare and order numbers with same number of decimal places
- Multiply and divide by 10 and 100 including decimals

Area & Perimeter

- Perimeter of rectangles and rectilinear shapes
- Area of rectangles and rectilinear shapes
- Investigate area and perimeter

By the end of the half term, pupils will have a firm grasp of working with parts of a whole amount and will have applied this in context such as with time and also by working with areas and perimeters that include decimal and fractional answers.



Spring 1

'No water, no life. No blue, no green.' Dr Sylvia Earle

The Blue Planet

We begin by recapping knowledge of the weather and developing further scientific lines of enquiry: making predictions, observations and recording events such as rainfall, hours of sunshine and temperature.

The class explore different types of bodies of water – labelling key seas, oceans, lakes and rivers across the globe. The focus shifts to learning how water travels with pupils continuing to build their scientific vocabulary, recognising processes like condensation, evaporation and precipitation. Developing their use of scientific graphics and visuals, pupils together create a whole class model of the water cycle.

Pupils will:

Read: The Rhythm of The Rain by Grahame Baker-Smith

Recreate the water cycle using cups, buckets, ping pong balls etc. to display their knowledge.

Spring 2

'The World will not be destroyed by those that do evil, but by those who watch and do nothing.' Albert Einstein

Saving the Oceans

Climate change is having an impact on the Earth and its inhabitants – both human and animal - and pupils start their investigation by observing changes over time (the poles, the Amazon, farming), distinguishing which are caused by humans and which happen naturally. Beginning with Greta Thunberg & Sir David Attenborough, pupils learn about the different campaigns being waged, before focusing on the issue of plastic pollution. Why has plastic become so useful in everyday life? What alternatives must we now consider? What changes can we make that will make a difference?

Throughout this unit, pupils use the hydroponics tower as an ongoing science experiment, to investigate the sustainable growing of food and renewable energy. After discussing the dangers of watching and doing nothing, we decide how we can change our own eating and shopping habits.

Pupils will:

Read: You are Eating Plastic!: An interactive Children's Book about Recycling, Sustainability & The Environment by Maria Simon; The Tree of Hope by Kehkashan Basu.

Record and write up their findings and conclusion of their study of the Hydroponics tower.

Science

We must protect the forests for our children, grandchildren and children yet to be born. We must protect the forest for those who can't speak for themselves such as the birds, animals, fish and trees.' Qwatsinas, Nuxalk Nation.

The Amazon Basin: the lungs of the Earth

As environmental scientists, pupils explore the resource-rich Amazon Basin. Using both traditional and digital maps, pupils learn about the Amazon Basin's key features and the impact of human activity, in the form of trade (timber, sugar, coffee) and land-use (live-stock, soybean), on the natural resources, climate zones, biomes, vegetation belts and communities of the region. Pupils visit a local supermarket to make connections with products that have arrived from South America and consider the economical and environmental cost. We continue the important conversation about what we can do differently at home and at school.

Pupils will:

Read: The Amazon Basin (expedition diaries) by Simon Chapman.

Pupils use ICT to generate data and maps which highlight the decline in natural resources over the past 50 – 100 years. They make predictions for the next 100 years, advocating for change and **present this to an audience.**

Humanities





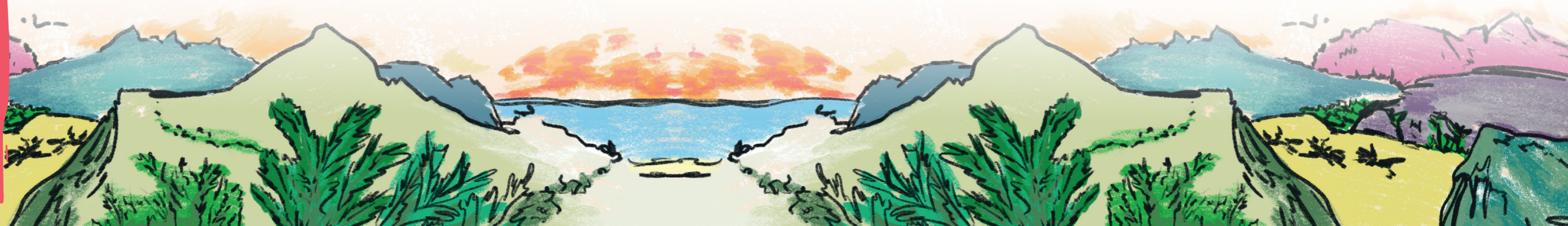
Spring

'Tell me the stories of Jesus I love to hear..'

Children's Songbook

This term pupils immerse themselves in stories from the Bible and think about why they are so important for Christians. These include Old Testament stories such as the life of Jesus and its meaning for Christians; Jesus in the Temple - Jesus is baptised and tempted; the disciples and the Sermon on the Mount; the miracles and parables of Jesus. As well as New Testament stories such as: Jesus rides into Jerusalem (Palm Sunday); Last Supper (Maundy Thursday); crucifixion & idea of sacrifice (Good Friday); resurrection (Easter Sunday). We link back to the Exodus and the sacrifice of the Paschal Lamb but point out the distinctions between Jewish and Christian interpretations.

RE



'Nothing compares to the simple pleasure of riding a bike'

JFK

Pupils continue with dance by exploring more complex ways of moving their body to music, telling stories, using props and memorising routines. Outdoor Adventure is also an innovation this term with treasure hunts against the clock for orienteering. Pupils begin to navigate simple maps and grid references and run for longer periods of time – whatever the weather! Using the cycle track is also a priority with balance, speed and corner taking key skills to practise.

PE





Summer 1

Summer 2

English

'Do you think I'm wasting my time on a lot of silly inventions?'
Caratacus Potts 'Chitty, Chitty, Bang, Bang'

This term begins with a trip to the National Media Museum to discover first-hand the development of innovations such as the camera, the computer and the world wide web. Pupils celebrate the success of modern technology in particular Tim Berners-Lee's invention of the internet. Is it a source for good or evil in the world? Pupils elaborate on its wider benefits but debate if the instant sharing of information is always a good thing, exploring the specific example of Covid 19. How should we question what we read and see? Why is it important to understand sources of information?

Science, Technology and Art collide in a selection of novels which test our minds to understand time, space and different dimensions. These fantastical inventions can enhance our lives or cause problems where we inevitably face a standoff between nature v technology. Pupils are inspired by these novels to innovate and experiment with technology which can change the world.

Read: Chitty Chitty, Bang Bang Flies Again by Frank Cottrell Boyce /Harley Hitch by Vashti Hardy/ Operation Gadget Man by Malorie Blackman / The Train to Impossible Places by PG Bell / The Infinite Lives of Maisie Day by Christopher Edge / George's Marvellous Medicine by Roald Dahl.

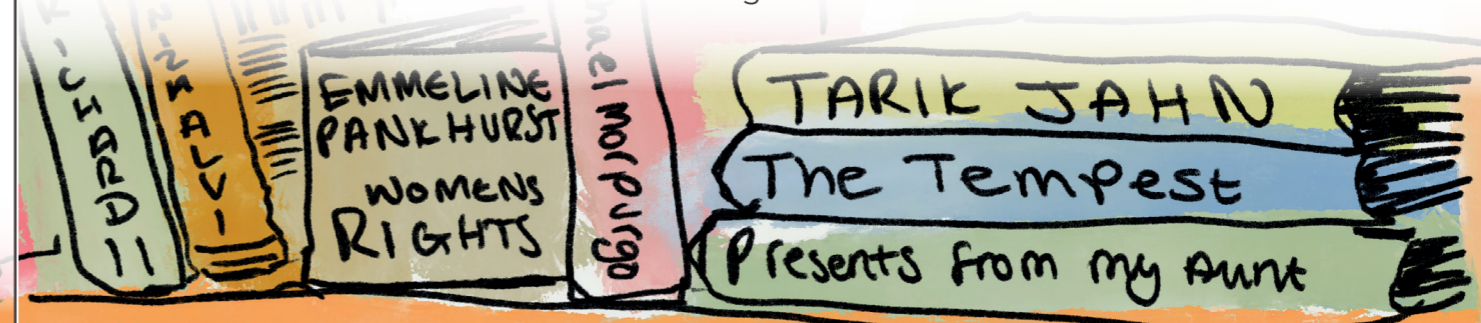
Retell and rewrite fables from a range of cultures which resonate to their own experiences or present an alternative interpretation.

'One sometimes finds what one is not looking for'
Alexander Fleming:

The story of human innovation continues with Alexander Fleming's discovery of penicillin. Pupils learn about the global impact of antibiotics, including how they work and how they changed lives beyond recognition. Pupils create information texts which celebrate this remarkable invention and explain the science behind them. We consider the difficult questions confronting the world: what does the future look like in a world where antibiotics no longer work? What are scientists doing now to encourage further discoveries?

Read: Chitty Chitty, Bang Bang Flies Again by Frank Cottrell Boyce /Harley Hitch by Vashti Hardy/ Operation Gadget Man by Malorie Blackman / The Train to Impossible Places by PG Bell / The Infinite Lives of Maisie Day by Christopher Edge / George's Marvellous Medicine by Roald Dahl.

Write an information text on Alexander Fleming and the success of antibiotics.



Maths

"How much?!"

After two terms based on number work, pupils spend the last term focussing mostly on shapes and measures. The aim is for pupils to understand the different range of units that are used, including money and how to convert between them. They also deepen their understanding of the properties of 2-D shapes.

Solving measures & money problems

- Convert units of measure
- Select appropriate units to measure
- Use strategies to investigate problems: trial and improvement, organising using lists and tables, working systematically

Shape & Symmetry

- Classify, compare and order angles
- Compare and classify 2-D shapes
- Identify lines of symmetry

By the end of the half term pupils should have a strong appreciation of the properties of 2-D shapes. They should for example understand that having 4 right angles and equal sides means we must be dealing with a square.

Position & Direction

- Describe and plot using coordinates
- Describe translations

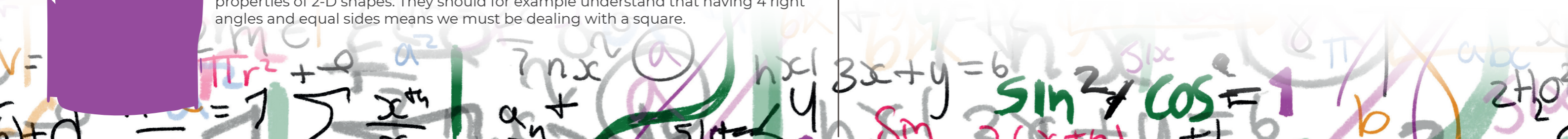
Reasoning with pattern & sequences

- Roman numerals up to 100
- Place value of other number systems
- Number sequences and patterns

3-D Shape

- Use and understand the properties of 3-D shapes
- Identify 3-D shapes from 2-D representations

By the end of the term pupils will have a strong understanding of the properties of 2-D and 3- shapes and how to measure their dimensions. It wraps up a year which has had a strong emphasis on building confidence by extending basic rules up into other areas of mathematics





Summer

'What goes up must go down' Sir Isaac Newton

Forces & Magnets: Repel or Attract

Our work this term revolves around Sir Isaac Newton, his life and works, but most significantly his discovery of gravity and innovative work regarding magnets and forces. We begin this term with an enquiry- 'How do satellites get into space?' Pupils then continue their scientific journey by the practical exploration of forces, experimenting with friction rockets and homemade parachutes. We further develop understanding of scientific variables by evaluating different materials and designs. From here, pupils question the mechanisms of everyday items developing further lines of investigation: how does a wheelbarrow help builders move weight they wouldn't normally be able to? Pupils are attracted to magnetic materials within class and begin to recognise practical uses for them such as: door locks, recycling and compasses. They understand that Earth has a magnetic field and give definition to the terms 'North Pole' & 'South Pole'.

Pupils will:

Read: Forces & Magnets: Let's investigate by Ruth Owen & Victoria Dobney.

Write up reports of their many scientific investigations detailing: hypothesis, equipment used, methodology, results and conclusions.

Science



'I hope we will use the net to cross barriers and connect' Tim Berners-Lee

The Printing Press

We reflect on the power of words. Pupils learn about Tim Berners-Lee, inventor of the internet, and how the web carries information around the globe; live webcams, social media and video calls are examples for the children to experience. By comparing the Black Plague to the Covid-19 pandemic, pupils question whether the instant sharing of information has helped to keep people safe or provided them with inaccurate information. Pupils link the information explosion to that in Renaissance England and the invention of the printing press in 1476. The invention meant that books could be created more readily and information shared to a wider audience – this was both advantageous and frightening. Why?

Pupils will:

Read: Johann Gutenberg and the Printing Press by Kay Olsen

Write a non-chronological report detailing the origins of The Printing Press and its significance in the history of humankind.

Humanities





Summer

**'All around the world
You've gotta spread the word'**

Gallagher

During this term, pupils explore how the Christianity spread around the world, for example in Britain (inc. Wales – chapels and churches), Greek Orthodox Christianity (link with work on Byzantine Empire, Constantinople in history), Christianity in South America. They also look at the innovations that took place in Christianity over time :Henry VIII and the break with Rome; the divide between Protestant and Catholic; Martin Luther and his work to share the Bible in English (link to the innovation of the printing press). Pupils also look at ways of sharing faith between people and communities and the role of religious texts in remembering and recording events.

RE



'Worrying gets you nowhere'

Usain Bolt

Summer terms sees the return of striking and fielding games such as cricket and rounders. We learn the rules, practise the skills and have a go at a game. We also experience and practise different athletic track and field events (ready for sports day) including relays, sprints, long distance, javelin, shot putt and cycle sprint.

PE

