



Year 6 Curriculum Overview

Term 1.1

Teaching Team:

Class Teachers: Miss Fisher, Mr. Barnes and Miss Shakespeare

Teaching Assistant: Miss West

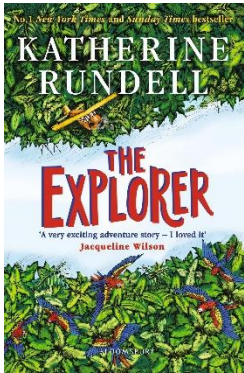
SLT: Mr. Aldred

PE: PE lessons are on **Tuesday**.

On this day, children must be wearing their P.E kits. This includes a white T-shirt, black bottoms and trainers. No jewellery is to be worn on PE days; parents must remove this before bringing their child to school on this day.

Homework: **Friday**.

Please see below an overview of the main themes, knowledge, and skills we will be covering this half term.

Enquiry Question	How do circumstances in Brazil affect humans and the environment?
Significant People	Katherine Rundell
Class Texts	 The Explorer by Katherine Rundell Themes: survival, friendship, courage, discovery. "His skin was almost the same colour as the river; his hair was black, his cheeks hollow. He was lean and fierce, and his eyes shone bright as a cat's." When their plane crashes in the Amazon rainforest, Fred, Con, Lila and Max find themselves stranded, with no adults to help them. As they struggle to survive, they uncover clues that lead them to a hidden city and a mysterious man who lives there. Facing hunger, danger, and the wildness of the jungle, the children must rely on their courage and each other. Can they learn to trust, adapt and discover a way back home—or will the jungle keep its hold on them forever?
Reading	In this unit, pupils will develop their reading fluency and comprehension through a balance of fiction and non-fiction texts, including narrative and information texts. Early lessons focus on word meaning and vocabulary development, beginning with strategies such as reading around the word, word substitution, and exploring root words, prefixes, and suffixes. Pupils will then practise retrieving and recording information, using a range of question types and test techniques, including true or false, matching, find and copy, and multiple choice. These skills will

	support pupils in building accuracy and confidence when tackling both fiction and non-fiction extracts. As the unit progresses, the focus shifts to higher-level skills of inference and prediction. Pupils will make inferences about characters' thoughts and feelings, justifying their ideas with evidence from the text and applying test techniques such as multiple choice and short constructed responses (e.g. "I infer that...because..."). In the final weeks, pupils will use their inference skills to support making predictions, drawing on both stated and implied details. Across the term, pupils will have regular opportunities to apply these strategies to a variety of texts, while also preparing for formal reading assessments by practising a range of SATs-style question formats.
Writing	Over the first four weeks, pupils will focus on descriptive and narrative writing. They will begin by developing setting descriptions, learning how to use noun phrases, expanded noun phrases, and fronted adverbials to add detail and atmosphere. These skills will then be applied to their own imaginative settings before moving on to narrative writing, where pupils will innovate on existing story structures and create their own openings and events. Alongside this, grammar teaching will cover subject and object, different types of clauses, coordinating and subordinating conjunctions, and the use of verbs as openers. Pupils will also practise writing dialogue to build character and advance action. Extended writing opportunities each week will allow

	them to apply these skills creatively and with increasing independence. In the final two weeks, the focus will shift to non-fiction writing in the form of non-chronological reports. Pupils will learn how to structure reports effectively, using additional information to extend paragraphs and applying a range of sentence types, including questions and exclamations, for impact. They will also develop an understanding of formal language to suit the purpose of informing and discussing. The extended writing outcomes will provide opportunities to write reports on factual topics, ensuring pupils can adapt their skills for different purposes and audiences. Weekly spelling sessions will continue throughout, supporting accuracy and consistency in their writing.
Maths	During this half term, the pupils will be focusing on place value and number, with numbers up to 10,000,000 recapping on their knowledge of number from Year 5. They will learn to read, write, order, and compare numbers up to 10,000,000 and determine the value of each digit and solve number and practical problems that involve the above.
Geography	In this unit, pupils will develop their geographical knowledge and understanding of South America, with a focus on Brazil and the Amazon region. They will begin by locating continents, oceans, and the UK before exploring South America in detail, identifying countries, cities, and key physical features such as the Amazon River and Rainforest. Pupils will investigate climate, vegetation, population, and topography, using maps, atlases, digital resources, and

	data to create fact files and build contextual knowledge. They will then compare human and physical geography between Brazil and the United Kingdom, analysing similarities and differences in features such as population, environment, and settlements.
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	The unit will then focus on physical geography, beginning with the processes of river erosion and the features of rivers, applying this knowledge to the Amazon River. Pupils will go on to study rainforest biomes, understanding their location, climate, layers, and biodiversity. They will consolidate their learning through group research and presentations, developing both subject knowledge and oracy. In the final lessons, pupils will investigate the impact of deforestation, considering its effects on rivers, ecosystems, climate change, and human populations. They will also discuss sustainability and conservation, linking to contemporary environmental issues. By the end of the unit, pupils will be able to locate and describe South America's physical and human geography, explain key geographical processes, and evaluate the environmental challenges facing the Amazon today.
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Science	This half term, the children will begin their science learning with the unit 'Evolution and Inheritance.' This project teaches children how living things on Earth have changed over time and how fossils provide evidence for this. They will also learn how characteristics are passed from parents to their offspring and how variation in offspring can affect their survival with changes possibly leading to the evolution of a species. Moving into the second half of the half term, the children shall start the unit 'Circulatory System.' This project teaches the children about the transport role of the human circulatory system, its main parts, and primary functions. They will learn about healthy lifestyles choices and the effects of harmful substances on the body.
Mandarin	Children will be learning about these topics, this half term: • Countries • Places • Feelings
Art	In art, the children will complete the unit 'Trailblazers, Barrier Breakers.' This project teaches the children about significant black
	artists and their work and provides them with opportunities to analyse and create artwork inspired by them.

Music	The children will be taught by an outside agency 'Create Music' who will be delivering ukulele lessons. The children will learn parts of the ukulele and will be able to play the ukulele and sing at the same time.
Computing	This term, the children shall complete the unit 'Communication and Collaboration.' In this unit learners explore how data is transferred over the internet. Learners initially focus on addressing, before they move on to the makeup and structure of data packets. Learners then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet.
PSHE	Pupils will be exploring how we can keep healthy as we grow. Pupils will consider what mental health is, how to express feelings, how they can be managed in changing, challenging and difficult times.

RE	Year 6 pupils will be exploring the disposition of living by rules, what it means and why it may be important. They will consider the rules of some religions – Islam, Christianity and Judaism and think about the aims of them as well as comparing them to rules within society.
PE	Pupils will be taught the skills required for basketball and OAA. They will incorporate and develop their social and emotional skills through working as a team.

Knowledge organisers: Reading



THE EXPLORER



Context – *The Explorer* was written by Katherine Rundell and was published in 2017.

Katherine Rundell – Katherine Rundell is a contemporary British author known for her captivating children's literature. Born in 1967 in Kent, England, Rundell developed a deep passion for storytelling from a young age. She followed her academic interests at Oxford University, where she studied English Literature and later completed a Ph.D. in Renaissance Literature. Rundell's literary career began with her debut novel, *'The Girl Savage'*, in 2011. However, it was her second novel, *'Roottappers'*, published in 2013, that received widespread attention and made her a well-known voice in children's literature. The book won several prestigious awards, including the Blue Peter Book Award and the Waterstones Children's Book Prize. Some of Rundell's other notable works include *The Wolf Wilder*, *The Explorer*, and *The Good Thieves*. *The Explorer* won the 2017 Costa Book Award Children's Book category.

Amazon Exploration – The story is set in the Amazon rainforest in South America. There is a historical tradition of Amazon exploration, dating back to colonial expeditions in the 1500s, when European explorers ventured into South America seeking resources and knowledge but often caused harm to Indigenous populations. Rundell's story plays on this adventurous spirit, however she does note at the end of the text that the Amazon 'urgently needs protecting'.

Explorers – Although the story is fictional, Rundell explains in 'A Note on Explorers' (at the end of the novel) that both the city and explorer in the text have 'roots in real life'. She gives a brief biography of Percy Fawcett (pictured) who went missing when exploring the Amazon rainforest. Dozens of explorers subsequently went looking for him, much like the fictional explorer in the story. She explains that some of them didn't return.

Section-by-Section Summary

Chapters 1-2	A plane carrying Fred, Con, Lila and Max crashes, after the pilot appears to die. This leaves the children stranded in the rainforest with no adults or guidance. They are uninjured but scared and bewildered. As they take in their surroundings, Fred, who has always dreamed of adventure, finds himself in the reality of survival, while the others are shaken and uncertain about how they'll survive.
Chapters 3-4	As they begin to process the crash, the group decides to focus on finding food, water, and shelter. Fred takes the lead, using his fascination with exploration to guide them. Con remains skeptical, whilst Lila and Max struggle to cope with their situation. They find a den (and evidence that someone has been before them) and a stream, which provides some reassurance, and work together to gather resources.
Chapters 5-7	The children face immediate survival challenges as they struggle to start a fire, make basic tools, and protect themselves from insects and animals. Fred remembers bits and pieces of survival tips he's read in books, and his resourcefulness begins to shine. The group grows hungry, and tensions rise, especially with Con's pessimistic outlook clashing with Fred's optimism. Fred decides to build a raft.
Chapters 8-10	The children take the raft out for its maiden voyage and see a number of creatures, including wild bears. Fred jumps in the river and retrieves a sardine tin, but escapes quickly from an electric eel. The children also find pineapples, which satisfy their thirst and hunger. Later, the children decide to find Max gone – he has been sharing food with a baby sloth. Vultures are preparing to attack it, so the children rescue it. Lila names it 'Abacax' (pineapple in Portuguese) or 'Boca' for short.
Chapters 11-13	The children copy monkeys, who they see adopting clever tactics to get honey from beehives. Up in the trees, they find a leather pouch, which contains a tobacco tin, penknife and a map. The children decide to use the raft to travel to a spot marked 'X' on the map. As they leave, they narrowly avoid a fire of their own making, which engulfs a number of trees and destroys their old camp.
Chapters 14-16	The children's long journey downstream is described. Fred enjoys an incredible experience swimming with pink river dolphins, and the children eat figs fresh from a fig tree. They eventually come to a large cliff, which Fred has to carry Max up. When reaching the top, the ground gives way under Con and the others follow her down a slope. At the bottom, they find the ruined city and the explorer.
Chapters 17-19	The explorer is initially harsh to the children but allows them to stay for a short time. He gives them food and shelter, and agrees to help them stay as long as they keep him and the place secret. Fred refuses, which makes the explorer angry. The children also go near an area he tells them to stay away from, which angers him further. Later, the explorer shows Fred how to set traps and shows the group how to catch tarantulas. He begins to warm to them and act as a mentor.
Chapters 20-22	The children cool for the explorer. He is thankful for the gesture, but does not like the food! He takes them spear fishing at night-time. They initially enjoy success, but then need to leave when the explorer notes there are caiman around. The children borrow ribs from the explorer and tattoo themselves with an 'X', as a part of a vow to tell no-one of the place. Even Max endures the pain to make the pledge.
Chapters 23-26	The children enjoy a final few days of preparation, before they know they must make their long trip. They play 'stick in the mud' together in the rain. Their happiness is short-lived, however, as they awake the next morning to find Max writing in agony. The explorer tells them that they must get to hospital within a week. The only way to do so quick enough is to fly. As the explorer's legs do not work well enough, he will need to teach one of the children to fly the plane. Fred volunteers for the role.
Chapters 27-31	The explorer has enough fuel to give Fred one flying lesson. It goes well, but he finds landing difficult. The explorer reveals how close he has grown to the children. The next morning, the children leave the jungle. Lila tries to give Boca to the explorer, but he tells her to keep him. Fred lands the plane in a cattle field, people rush to help, and Max is rescued in hospital. The children are reunited with their parents' guardians. Twelve years later, they meet in the Ritz. They have all kept their secret.

Main Characters – Consider what Rundell intended through her characterisation of each of the below...

Fred	The Explorer
Fred – Fred is an English boy with a fascination for explorers and adventure. He is imaginative and curious, fueled by his love for stories of daring expeditions. Fred becomes a natural leader for the group, initially driven by his desire to return home, but later by his growing respect for the Amazon and its mysteries. His sense of identity, particularly how others perceive him, (notably his father) is a recurring theme through the novel.	The Explorer – The mysterious explorer is a reclusive, knowledgeable man who lives alone in the Amazon after a life of adventure and personal loss. He is wise, experienced, but also gruff and secretive. While he initially resists helping the children, he gradually warms to them. The Explorer becomes a mentor figure, guiding the children in survival and subtly teaching them about the beauty and respect owed to the Amazon.
Quote: 'It was Fred's idea to build a raft. I've read a lot of books about it, he said.'	Quote: 'It transpires that the heart has its own petrol station, its own coal, its own soap. It will renew, so use it hugely.'
Lila and Max – Lila and Max are Brazilian siblings. Lila is a similar age to Fred and Con (around age 12) whereas Max is only 5. Lila is a gentle and compassionate girl who carries a deep love for animals and nature. This is particularly seen when she rescues the baby sloth ('Boca') and looks after it with care. Max is the youngest and most vulnerable member of the group. Rundell describes him as a 'cataclysm'.	Con – Con, short for Constantia, is a British girl with a tough exterior. She initially seems prickly and aloof, largely because of her difficult past and feelings of abandonment. Con provides a realistic, sometimes pessimistic view that balances Fred's optimism. Her cautious nature is crucial for the group's survival, and her tough approach often pushes others to stay focused. She learns to open up and to trust her companions.
Quote: 'He won't run! Lila bent over her brother. And I can't carry him!'	Quote: 'I'm Con,' she said. 'It's short for Constantia, but if you call me that I'll kill you.'

Themes – A theme is an idea or message that runs throughout a text.

Survival and Self-Reliance – Survival is at the heart of the story as the young protagonists must learn to rely on their instincts and each other to navigate the challenges of the Amazon rainforest. This theme showcases the resilience of children and their ability to adapt, innovate, and overcome adversity in the face of unknown dangers. At first, the children are desperate to survive and make their way home. As they become more adept at surviving, they feel an affinity with the jungle (and some wish to stay!)

Respect for the Environment/Conservation – The Amazon rainforest is depicted as both a wondrous and dangerous environment, highlighting the importance of respecting nature and understanding its power. Rundell's descriptions emphasise the ecosystem's beauty and fragility, fostering an appreciation for conservation and environmental responsibility, especially in such a precious and endangered part of the world. The explorer warns of the dangers of human infringement.

Writing

Spellings...I need to know some of these:			
accommodate	correspond	hindrance	recognise
accompany	criticise	individual	recommend
according	curiosity	interfere	relevant
achieve	definite	interrupt	restaurant
aggressive	desperate	language	rhyme
amateur	determined	leisure	rhythm
ancient	develop	lightning	sacrifice
apparent	dictionary	marvellous	secretary
appreciate	embarrass	mischievous	shoulder
attached	environment	muscle	sincere
available	equip(-ped)	necessary	sincerely
average	equipment	neighbour	soldier
awkward	especially	nuisance	stomach
bargain	exaggerate	occupy	sufficient
bruise	excellent	occur	suggest
category	existence	opportunity	symbol
committee	explanation	parliament	system
communicate	familiar	physical	temperature
community	foreign	prejudice	thorough
competition	forty	privilege	twelfth
conscience	frequently	profession	variety
conscious	government	programme	vegetable
controversy	guarantee	pronunciation	vehicle
convenience	harass	queue	yacht

Punctuation Reminders:	
A	Capital letters for sentences, initials and proper nouns.
.	Full stops
!	Exclamation marks for exclamations or surprise.
?	Question marks
'	Apostrophes for possession and missing letters.
,	Commas in lists, and to mark parenthesis, fronted adverbials and clauses.
...	Ellipsis to show a long pause for tension.
“ ”	Inverted commas for speech (Don't forget the commas too!).
-	Hyphen to connect words together.
-	Dashes to show longer pauses or parenthesis.
()	Brackets for parenthesis.

Splendid Subordination!		
Use these conjunctions in varied places in your multi-clause sentences:		
if	because	as
before	after	until
unless	since	when
Can you use a subordinate clause in different places in your sentences?		

Writing Mat Working towards Year 6

Active and Passive

Use active and passive sentences appropriately:

Active: In front of millions of screaming fans, the star striker missed a vital penalty.

Passive: In front of millions of screaming fans, a vital penalty was missed by the star striker.

Use a mixture of simple, compound and multi-clause sentences.

Use a thesaurus to up-level your vocabulary choices.

It's All Relative!

Use a relative pronoun to add a relative clause.

who, which, where, when, whose, that

The Queen, who has reigned for 60 years, has four children.

go is

The stench was so putrid that it made her eyes water.

They had ventured deep into the forest where they began to feel uneasy.

Important Links!

Link your sentences and paragraphs using adverbials:

Time

Subsequently, Later that day,

Finally,

Place

Deep inside the forest, Below the sea,

Frequency

Occasionally, Often,

Contrast/ Cause

On the other hand, In contrast,

As a result, Consequently,

Manner/ Behaviour

Breathing heavily, Waiting anxiously, Without warning, Suspecting the worst,

Important Links!
Link your sentences and paragraphs using adverbials:

Time
Subsequently, Later that day,
Place
Deep inside the forest, Below the sea,
Frequency
Occasionally, Often,
Contrast/ Cause
On the other hand, In contrast,
As a result, Consequently,
Manner/ Behaviour
Breathing heavily, Waiting anxiously, Without warning,

Creating Cohesion Top Tip: Not only can you use pronouns like he, she, it or they instead of repeating a name or names but how about other names or titles too? Here's some examples: the teacher, she, Mrs Smith, the lovely woman or the lady with the long hair.

Be a Punctuation Professional:

A	Capital letters for sentences, initials and proper nouns.
.	Full stops
!	Exclamation marks for exclamations or surprise.
?	Question marks
'	Apostrophes for possession and missing letters.
,	Commas in lists, and sentences.
...	Ellipsis to show a long pause for tension.
" "	Inverted commas for speech (Don't forget the commas too!).
-	Hyphen to connect words together.
-	Dashes to show longer pauses or parenthesis.
()	Brackets for extra information or asides.
:	Colon to separate clauses.
;	Semi colons to separate clauses.

Writing Mat

Expected Year 6

Perfect Parenthesis!

Use brackets, commas or dashes to punctuate extra information and asides:

The tomb of Tutankhamen (the Ancient Egyptian pharaoh) was discovered by Howard Carter.

The advancing alien, who was speaking a Martian language, looked dangerous.

The daffodils – my favourite sign of spring – swayed gently in the woodland breeze.

Use a thesaurus to look for more ambitious synonyms. Why use 'frightened' when you could use...

startled alarmed apprehensive

Or 'show' a character's feelings:

his breathing quickened her heart raced

sweat trickled gasping for air

Spellings... I need to know all of these:

accommodate	correspond	hindrance	recognise
accompany	criticise	individual	recommend
according	curiosity	interfere	relevant
achieve	definite	interrupt	restaurant
aggressive	desperate	language	rhyme
amateur	determined	leisure	rhythm
ancient	develop	lightning	sacrifice
apparent	dictionary	marvellous	secretary
appreciate	embarrass	mischievous	shoulder
attached	environment	muscle	sincere
available	equip(-ped)	necessary	sincerely
average	equipment	neighbour	soldier
awkward	especially	nuisance	stomach
bargain	exaggerate	occupy	sufficient
bruise	excellent	occur	suggest
category	existence	opportunity	symbol
committee	explanation	parliament	system
communicate	familiar	physical	temperature
community	foreign	prejudice	thorough
competition	forty	privilege	twelfth
conscience	frequently	profession	variety
conscious	government	programme	vegetable
controversy	guarantee	pronunciation	vehicle
convenience	harass	queue	yacht

Active and Passive

Use active and passive sentences appropriately:

Active: In front of millions of screaming fans, the star striker missed a vital penalty.

Passive: In front of millions of screaming fans, a vital penalty was missed by the star striker.

Check for:

- consistent tense and person
- genre features
- subject/verb agreement
- layout devices
- paragraphs with cohesive links

Splendid Subordination!

Use these conjunctions in varied places in your multi-clause sentences:

if because as
before after until
unless since when

Writing Mat

Greater Depth Year 6

Spellings... I need to know all of these:

accommodate	correspond	hindrance	recognise
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controversy	guarantee	pronunciation	vehicle
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Punctuation Reminders:

A . ! ? ' , " " () ... : ; -

Use a full range of punctuation.

Check for:

- consistent tense and person
- subject/verb agreement
- paragraphs with cohesive links
- genre features
- layout devices
- pronouns/ nouns for cohesion

Active and Passive

Use active and passive sentences appropriately:

Active: In front of millions of screaming fans, the star striker missed a vital penalty.

Passive: In front of millions of screaming fans, a vital penalty was missed by the star striker.

Create a Mood!

Where appropriate, in formal writing, use the subjunctive mood:

If I were The Queen, ...

Were there to be a change in my circumstances...

Splendid Subordination!

Use these conjunctions in varied places in your multi-clause sentences:

if because as
before after until
unless since when

Use a thesaurus to look for more ambitious synonyms. Why use 'frightened' when you could use...

startled alarmed apprehensive

Or 'show' a character's feelings:

his breathing quickened her heart raced
sweat trickled gasping for air

Perfect Parenthesis!

Use brackets, commas or dashes to punctuate extra information and asides:

The tomb of Tutankhamen (the Ancient Egyptian pharaoh) was discovered by Howard Carter.

The advancing alien, who was speaking a Martian language, looked dangerous.

The daffodils – my favourite sign of spring – swayed gently in the woodland breeze.

Be a Punctuation Professional!

Use semi colons, colons and dashes to mark independent clauses:

It felt like forever- the longest six weeks holiday of all time.

Jack's eyes slowly opened; there was no one to be seen.

They all knew his secret: he was a specialist secret agent.

Important Links!

Link your sentences and paragraphs using adverbials:

Time

Subsequently, Later that day,

Place

Deep inside the forest, Below the sea,

Frequency

Occasionally, Often,

Contrast/ Cause

On the other hand, In contrast,

As a result, Consequently,

Manner/ Behaviour

Breathing heavily, Waiting anxiously, Without warning,

Geography

Geographical Vocabulary	
rainforest	A dense forest, normally found in tropical areas with high rainfall. They generate much of the world's oxygen.
country	A nation with its own government e.g. UK, USA, Germany
continent	The world's main continuous pieces of land - Africa, Asia, Australasia, Europe, North America, South America, Antarctica
equator	Imaginary line through the middle of the Earth that receives the most sunlight.
Tropic of Cancer/Capricorn	Imaginary lines north and south of the equator. Most rainforests can be found between these two lines.
climate	The weather and temperature usually found in an area over a long period of time.
biome	A large region of Earth that has a certain climate and certain types of living things.
temperate	Places where it is neither very hot nor very cold. Usually has warm summers and cool winters.
tropical	Around the middle of the world in the region called the Tropics where it is warm all year.
biodiversity	The wide range of living things on Earth.
ecosystem	A community of plants and animals that rely on each other to survive.
indigenous	A living thing that belongs naturally to an area.
deforestation	The action of clearing a wide area of trees.
human features	Areas of land which are man-made/synthetic. They are there because of human ideas and actions.
physical features	These are the physical characteristics of the land and are there naturally (mountains, rivers etc.)

Key Information about Brazil			
Continent	South America	Capital city	Brasilia
Surrounding waters	Atlantic ocean Amazon river	Main language	Portuguese
Religions followed in Brazil	Christianity, Judaism and Islam.	Population	209.3 million people (2017)
Currency	Brazilian real (BRL)	Other major cities	Sao Paulo, Rio de Janeiro, Porto Alegre, Manaus
		Famous for...	The Amazon jungle, Carnival and 2016 Olympics



Knowledge Organiser

Layers and Features of the Rainforest	
Emergent Layer	Giant trees that enjoy the most sun but high winds and cold.
Canopy	Dense layer of trees overlapping each other. Home to most animals in rainforests.
Understory	Relatively dark, open area below the canopy.
Undergrowth	Also known as the forest floor, mainly consisting of fallen leaves, fruit etc. that decomposes as food for trees.
Flora & Fauna	Flora = plants; Fauna = animals
Camouflage	Blending in to hide in the natural environment.

Causes of Deforestation	
1	To clear space for farming: growing crops (e.g. soya beans & palm oil) and space cattle to generate cheap beef.
2	Chopping down trees for wood.
3	To build roads to mine for metals, gold & diamonds.
4	To dig for oil.
5	To flood areas to make dams & generate electricity.

Impact of Deforestation	
1	An area the size of 20 football pitches is destroyed every 60 seconds.
2	1/3 of the tropical rainforests we had are gone.
3	28,000 species of animals are expected to become extinct in the next 25 years.
4	Local people's homes are destroyed.
5	Levels of carbon dioxide in the air are increasing and oxygen is decreasing.

Science

How does light travel?

Luminous objects are sources of light.

Non-luminous objects do not produce their own light.

When light hits an object it can be **absorbed, reflected, or transmitted**.

If an object is:

transparent – most light is transmitted

translucent – light is scattered

opaque – no light is transmitted so a shadow is produced.

Light can travel through gases, some solids and liquids, and completely empty space (a vacuum).

The speed of light in a **vacuum** is about 300 000 km/s.

Distances in space are measured in **light-time**. Remember that light-time is a distance (not a measure of time).

A light-minute is the distance light travels in one minute.

A light-year is the distance light travels in one year.

Colours of light

A **prism** refracts different colours of light by different amounts. This disperses light into a continuous **spectrum** of colours.

The **primary colours** of light are **red, green, and blue**.

Secondary colours are produced when any two primary colours are mixed.

Filters subtract colours from white light, so that only one colour of light is transmitted.

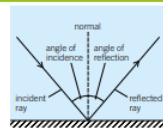
Objects appear to be different colours because they reflect some colours of light and absorb others.

Black objects absorb all colours and white objects reflect all colours.

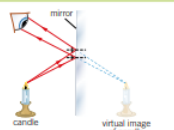


Reflection and refraction of light

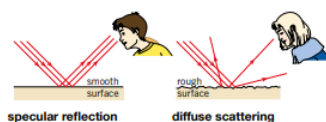
The **law of reflection** states that: The **angle of incidence** is equal to the **angle of reflection**.



Images in mirrors are **virtual** – they look like they are behind the mirror.



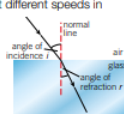
Whether or not you can see a clear reflected image depends on how smooth the surface is:



Refraction is when light changes direction when it travels from one **medium** (material, such as air or water) to another. Refraction happens because light travels at different speeds in different materials.

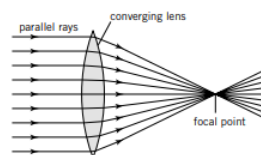
Rays of light will be refracted:

- towards the **normal** if they slow down, such as going from air to glass
- away from the normal if they speed up, such as going from water to air.



Lenses use refraction to spread out or **focus** light.

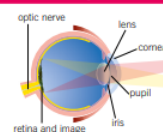
Convex (or **converging**) lenses (like the ones in your eyes) are shaped to focus the light to a point – called the **focal point**.



How do eyes and cameras work?

Light entering your eye is refracted by the **lens**, focusing it on the **retina** and creating an inverted image.

Photoreceptors detect the light hitting your retina and send an electrical impulse to your brain.



Cameras work in the same way as your eye – light passes through an opening and a **real image** is formed on a screen or film.

Digital cameras now have a **charge-coupled device (CCD)** instead of film – when light hits a **pixel** it produces an electrical charge.



Key terms

Make sure you can write definitions for these key terms.

absorb angle of incidence charge-coupled device colour converging convex diffuse scattering filter focal point focus incident ray law of reflection lens
light-time luminous normal opaque photoreceptor pixel primary colour prism real image refraction retina secondary transmit spectrum specular reflection
reflection translucent transmit transparent virtual image

Home Learning

You could visit the International Slavery Museum in Liverpool



Reading:

[Oxford Owl for School and Home](#)

[Reading and comprehension - English - Learning with BBC Bitesize - BBC Bitesize](#)

<https://schoolreadinglist.co.uk/reading-lists-for-ks2-school-pupils/suggested-reading-list-for-year-6-pupils-ks2-age-10-11/>

Writing:

<https://www.bbc.co.uk/bitesize/subjects/zv48q6f/year/zncsscw>

[Spelling and Grammar, English Games for 7-11 Years - Topmarks](#)

Maths:

<https://www.bbc.co.uk/bitesize/subjects/z826n39/year/zncsscw>

Science:

<https://www.bbc.co.uk/bitesize/topics/zvrrd2p/articles/zkq7wnb>

Computing:

[Is my child safe online? Parent's questions answered | Barnardo's \(barnardos.org.uk\)](#)

[Parents and Carers - UK Safer Internet Centre](#)

[Parental Controls & Privacy Settings Guides | Internet Matters](#)

PSHE:

[Talk PANTS & Join Pantosaurus - The Underwear Rule | NSPCC](#)

[How to make an emergency 999 call – West Midlands Ambulance Service University NHS](#)

[Foundation Trust \(wmas.nhs.uk\)](#)

PE:

[Nutrition Based Physical Activity Games - Action for Healthy Kids](#)

[Kids Active Learning & PE at Home – Think Active](#)

Useful Links:

<https://www.theschoolrun.com/homework-help/atlantic-slave-trade>

<https://www.unhcr.org/uk/teaching-about-refugees.html>