Science

Elements Curriculum – SEE, DO, GET Model

SEE (Intent)

Through a broad, balanced, ambitious, curriculum we aim to give all the children of Elements Primary School the knowledge, skills, resilience, and ambition to become confident world changers at a local, national and global level.

The 'Elements' of Elements *'Our Values'*		
Community & Family	**Positivity & Happiness**	**Creativity & Innovation**
• Inclusion • Positive self identity • Sense of belonging • Tolerance, Respect and Peace • Citizenship • Sense of Contribution • Roles & Responsibility • Synergy (Habit 6) • Seek First to understand then to be understood (Habit 5) • Diversity • Democracy	• Think Win-Win (Habit 4) • Mutual Respect • 'Can Do' Attitude • Good Mental Health • Sharpen the Saw (Habit 7) • Relationships • Carrying your own weather • Celebration and praise	• Invention • Self Expression • Design • Research & Development • Inspiration • Meeting a need • Embrace the Arts • Metacognition • Technology Enhanced Learning • "Thinking outside the box" • Rule breaking
Aspiration & Pride	**Personal Leadership & Resilience**	**We are creating...**
• Dreaming Big • Aiming High • Self Belief • Self Confidence • Giving credit where it is due • Congratulate and uplift others • Begin with the end in mind (Habit 2) • Leaving a legacy 'Painting a masterpiece'	• The 7 Habits of Highly Effective People • Evaluative Practice • Problem Solving • Interdependence • 'Have a go' attitude • Collaboration • Change management • Personal reflection • Emotional Bank Account • Seeking and meeting challenge	A Culture World Changers History Makers

Questions in Science

Global Influences
'Our Global Responsibilities'

Citizenship

What is testing? What do we mean by 'fair test'?
Why do we test things?
How have scientists helped the whole world?
How have scientific discoveries affected the economy?

Environment

How do we ensure the survival of endangered species?
What has science taught us about the environment?
Why is the environment changing over history?
What causes seasons to change?
What are the differences between the 6 biomes?
How are habitats identified differently?

Health

Why is hygiene necessary?
What do we mean by 'good nutrition'?
What factors affect our mental health?
Why do plants promote good health?
How do plants promote good health?

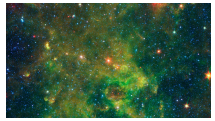
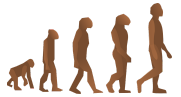
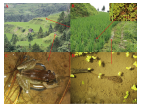
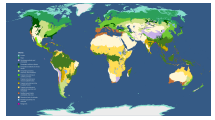
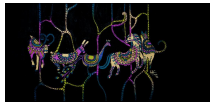
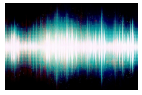
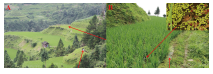
Sustainability

What materials are the most sustainable?
How can we test if climate change is really happening?
Do food chains have an impact on food production?
How can we ensure our oceans remain healthy?

Creativity

How do we ensure that tests are made fairly?
What patterns can we see in the scientific concept?
How is scientific discovery best communicated to others?
What has been invented that has hugely benefited mankind?

Science Vehicle Overview

Block	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
The Famous Five	Living things  The world			Light and Shadow  Light	Thomas Edison  Electricity	Astronomers  Earth and Space	Charles Darwin  Evolution and inheritance
Designed and Built	Seasons  Understanding the World: the world	Materials to Build  Everyday Materials	Using materials  Manipulation of everyday Materials	Testing Magnets  Forces and Magnets	Habitats  Living Things and their Habitats	Mother Nature  Living things and their habitats	Electricity  Electric circuits, comparing electronically controlled products)
Lost in a Book	Growing  The world	The changing world  Seasonal Changes	Natural Medicine  Plants	The Pebble in My Pocket  Rocks	Food Chains  Animals	Forces  Forces	Travelling Light  Light
Listen	Healthy Me  : Health and Self-Care	Animals  Animals	Sea Creatures  Animals	Gardening  Plants	Listen...  Sound	Life cycles  Animals (including humans)	The Human Phenomena  Animals (Including Humans)
Change the World	The Environment  The World	Deforestation  Plants	Different homes  Living things/ Habitats	Human Phenomena  Animals	Solids, Liquids, Gases  States of Matter	Materials  Changes of materials	World Habitats  Living things/ Habitats

Scientific Enquiry Questions

Reception

Block	Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Famous Five (Living things)				How can I organise the different objects?			What makes the objects different?	How do I show what I know?
Designed and Built (Seasons)	How have the trees at school changed?	What happens to our flowers in the winter?	How are the seasons different?			Is there a link between heat and weather?	Which season is best to plant things?	How do I show what I know?
Lost in a Book (Growing)	What happens to the plant over time?	What makes things grow?						How do I show what I know?
Listen (Healthy me)			What foods are healthy and unhealthy?	What do I need to be healthy?		Is my sense of smell better when I can't see?		How do I show what I know?
Change the World (The environment)		Does it float or sink?	Is it natural or man-made?	How have humans changed this?				How do I show what I know?

Year 1

Block	Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Designed and Built (Materials)		Which materials are the most absorbent?	Do we use it to build or not?	Which materials are the strongest?	Which materials can be recycled?			How do I show what I know?
Lost in a Book (Seasonal Changes)	How have the trees at school changed?	In which season does it rain the most?	Which season is this most likely found in?			Do trees with bigger leaves lose their leaves first in autumn?	In which season does it rain the most?	How do I show what I know?
Listen (Animals)		Is our sense of smell better when I can't see?	How can we organise all of the animals?				Is our sense of smell better when I can't see?	How do I show what I know?
Change the World (Plants)	How does my plant change each week?	Which type of soil grows the healthiest plant?	How can we sort the leaves collected on the walk?	Is it an evergreen?		Is there a pattern in where we find weeds growing in the school grounds?		How do I show what I know?

Year 2

Block	Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Designed and Built (Materials)	Would a paper boat float forever?	How does fire spread so quickly?	Which materials are the strongest/ easily manipulated?	Which materials are usually used for building houses?	Where do different materials come from?		Do fires spread as quickly between houses as they did?	How do I show what I know?
Lost in a Book (Plants)	What happens to my bean after I've planted it?	What happens to my bean after I stop adding water?				Do bigger seeds grow into bigger plants?	Does the bean grow quicker inside or outside?	How do I show what I know?
Listen (Animals)	How does a tadpole change over time?		Which offspring belongs to which animal?		How are humans similar to animals?	Which age group wash their hands the most in a day?	Do bananas make us run faster?	How do I show what I know?
Change the World (Habitats)	What conditions do woodlice prefer to live in?	What would happen if I put a worm in a different habitat?			What is a micro-habitat?	What are the similarities between various habitats?		How do I show what I know?

Year 3

Block	Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Famous Five (Light)	When is the classroom the darkest?	What makes the size of the shadow change?			How does the sun make light?	What makes the size of the shadow change?		How do I show what I know?
Designed and Built (Forces and Magnets)		How does the surface affect how the object moves?	Which materials are magnetic?	Does it attract or repel?		Does the size/shape of the magnet affect its strength?	Which magnet is the strongest?	How do I show what I know?
Lost in a Book (Rocks)				Which rock comes from which soil?	How are fossils formed?		In what ways do the rocks look different?	How do I show what I know?
Listen (Plants)	What happens to celery in coloured water?	Which conditions help seeds germinate faster?		What are the functions of roots, stems etc.?	What are the different ways seeds disperse?			How do I show what I know?
Change the World (Animals)			How can we group these animals based on skeletons?	Why do these animals need skeletons?		What do all animals need to survive?	How do skeletons of different animals compare?	How do I show what I know?

Year 4

Block	Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Famous Five (Electricity)	How long does a battery light a torch for?		Does it conduct or insulate?	How do we know if it will light or not?	Who was Thomas Edison?		Which material is the best conductor for electricity?	How do I show what I know?
Designed and Built (Habitats)			Can we use the classification keys to identify all the animals that we caught pond dipping?		What animals would add complexity to our classification key?	Where in our school is the most polluted?	Is this environment dangerous for living things?	How do I show what I know?
Lost in a Book (Animals)			How can we group our teeth?	What are the names for all the organs in the digestive system?	How do dentists fix broken teeth?			How do I show what I know?
Listen (Sound)		What happens to the sound with different distances?		How are sounds made?		What is the link between the volume and the vibrations?		How do I show what I know?
Change the World (States of Matter)	What happens to the glass of water when left on the windowsill?	Is there a pattern in how long it takes different sized ice lollies to melt?					Do all liquids freeze at the same temperature?	How do I show what I know?

Year 5

Block	Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Famous Five (Earth and space)	What are the phases in the cycle of the moon?				What unusual objects did Jocelyn Bell Burnell discover?	Does the size of the planet affect its orbit?		How do I show what I know?
Designed and Built (Habitats)	How does a bean change as it germinates?		How can we group these living things based on habitats?		Can you explain the work of David Attenborough?		What are the differences between life-cycles?	How do I show what I know?
Lost in a Book (Forces)		Why do those objects fall quicker?		Which forces are acting on these objects?			Which shape parachute takes the longest to fall?	How do I show what I know?
Listen (Animals)		Who grows the fastest, boys or girls?		How can these food chains be interpreted?	What happens with age to the human body?	Are the oldest children in our school the tallest?		How do I show what I know?
Change the World (Materials)		Can we reverse the state once we've changed it?		How can we best recover a substance from a solution?			Which type of sugar dissolves the fastest?	How do I show what I know?

Year 6

Block	Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Famous Five (Evolution)				How are certain animals adapted to their environments?	What happened when Darwin visited the Galapagos islands?	Is there a pattern between the size/ shape of a bird's beak and the food it will eat?	Compare the skeletons of apes, humans and Neanderthals.	How do I show what I know?
Designed and Built (Electricity)		How does the voltage of the batteries affect the brightness of the lamp?		Which symbols in the diagram represent each element of a circuit?	How has our understanding of electricity changed over time?		Which piece of fruit makes the best battery?	How do I show what I know?
Lost in a Book (Light)	What happens to the brightness in school over the day?	How does the angle of the mirror affect the angle at which the light reflects off the surface?		Which colours of light make white when mixed together?			Which material is the most reflective?	How do I show what I know?
Listen (Animals)	How does my heart rate change over the day?	Can exercising regularly affect your lung capacity?		Which organs make up the circulatory system?			Which type of exercise has the greatest effect on our heart rate?	How do I show what I know?
Change the World (Habitats)			How/ why have these been classified this way?	Can you identify why this animal does/ does not belong in this group?	Which do these uncommon plants/ animals belong to?			How do I show what I know?

Coverage of Scientific Concepts

Year 1							
Designed and Built: Materials to Build *Materials*							
Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Lost in a Book: The Changing World *Seasons and Changes*							
Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Listen: Animals *Animals, Including Humans*							
Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Change the World: Deforestation *Plants*							
Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Year 2

Designed and Built: Using Materials *Materials*							
Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Lost in a Book: Medicine *Plants*							
Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Listen: Sea Creatures *Animals, including humans*							
Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication
Listen: Gardening *Plants*							
Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Year 3

The Famous Five: Light and shadow

Light

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Designed and Built: Testing Magnets

Forces and Magnets

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Lost in a Book: The Pebble in my Pocket

Rocks

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Listen: Gardening

Plants

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Change the World: The Human Phenomena

Animals, including Humans

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Year 4

The Famous Five: Thomas Edison

Electricity

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Designed and Built: Habitats

Living Things and their Habitats

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Lost in a Book: Animals

Animals, including Humans

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Listen: Sound

Sound

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Change the World: Solids, Liquids and Gases

States of Matter

Observing	Testing	Classifying	Identifying	Researching	Pattern seeking	Comparing	Communication

Year 5

The Famous Five: Astronomers

Earth and Space

Observing	Testing	Classifying	Identifying	**Researching**	**Pattern seeking**	Comparing	**Communication**

Designed and Built: Mother Nature

Living things and their Habitats

Observing	Testing	**Classifying**	Identifying	**Researching**	Pattern seeking	**Comparing**	**Communication**

Lost in a Book: Forces

Forces

Observing	**Testing**	Classifying	**Identifying**	Researching	Pattern seeking	**Comparing**	**Communication**

Listen: Life Cycles

Animals (Including Humans)

Observing	**Testing**	Classifying	**Identifying**	**Researching**	**Pattern Seeking**	Comparing	**Communication**

Change the World: Materials

Changes of Materials

Observing	**Testing**	Classifying	**Identifying**	Researching	Pattern Seeking	**Comparing**	**Communication**

Year 6

The Famous Five: Charles Darwin *Evolution and Inheritance*						
Observing	Testing	Classifying	**Identifying**	**Pattern seeking**	**Comparing**	**Communication**
Designed and Built: Electricity *Electricity*						
Observing	**Testing**	Classifying	**Identifying**	**Pattern seeking**	Comparing	Communication
Lost in a Book: Light *Light*						
Observing	**Testing**	Classifying	**Identifying**	Pattern seeking	**Comparing**	**Communication**
Listen: The Human Phenomena *Animals (Including Humans)*						
Observing	**Testing**	Classifying	**Identifying**	Pattern seeking	**Comparing**	**Communication**
Change the World: World Habitats *Living Things and their Habitats*						
Observing	Testing	**Classifying**	**Identifying**	**Researching**	Pattern seeking	**Comparing**