"We strive to create an environment which promotes a thirst for learning and gives everyone the best chance of success within a caring Christian ethos"					
Our Learning Challenge					What might we learn from great local designers and inventors and create a new product?
Year	**5**	**Term**	Summer	**Our Vision and values**	I will be proud of all that I do and treat others with kindness I will respect and value myself and others no matter what we believe, how we look or where we live will be responsible for the way I behave I will be the best that I can be I will embrace new challenges and learning opportunities I will reflect on my learning and listen to advice from others about how to improve I will have fun, enjoy learning new things at school and have the courage to make mistakes I will think about my own faith and what difference it an make to me and how I live
Purposeful Learning Outcome		View Wallace and Gromit's Cracking Inventions		**British Values**	Democracy: we aim to promote this British value by demonstrating how democracy works by discussion, decision making and voting. For example: • Encouraging children to make decisions together. • Providing opportunities for children to vote between choices of activity. • Providing the opportunity for children to vote for Buddies, School Council, Collective Worship Council and subject leaders Individual liberty: we aim to promote this British value by promoting individual freedoms to choose faiths, beliefs and likes/dislikes. For example: • Providing opportunities for children to share achievements and successes, to promote independence and develop self-esteem. • Encouraging children to develop a positive sense of themselves. • Provide activities for all children to engage in and actively challenge gender specific tasks and activities. Rule of law: we aim to promote this British value by demonstrating a need for rules and laws which help to keep us safe and happy For example: • By working together to create group rules. • By understanding their own and others' behaviour and feelings and the consequence of these. • Encouraging and supporting children to learn how to distinguish right from wrong. Mutual respect and tolerance of different faiths and beliefs: we aim to promote this British value by treating others how we would like to be treated ourselves regardless of their differences • Encouraging children to learn about the world around them – both locally and further afield. • Encouraging children to learn about other faiths, cultures, traditions, families, communities and ways of life

Starting Stimulus	Community Links Visitors and Visits Creative Experiences	SMSC Including PSHE and Safeguarding
Wallace and Gromit letter and video – Cracking Inventions	Design and make a new invention e.g. in a group; present to an wider audience/ upper ks2 **Appear on 'The Apprentice'** **Create your own invention** **Start a business (link to The Apprentice)** **Use a power tool** **Use an electro magnet**	**Relationships** Explain how to stay safe when using technology to communicate with my friends Recognise and resist pressures to use technology in ways that may be risky or cause harm to myself or others Outcome – Internet safety posters **Changing Me** Describe how boys' and girls' bodies change during puberty Express how I feel about the changes that will happen to me during puberty Outcome – Change cards

Steps to Achieving Learning Challenge		
Sub question	**Subject Focus (from mapping)**	**Content / Activities** **CHANGE IF NEEDED BASED ON SKILLS**
What is an innovation and invention? (design and product)	Computing (research) What inventions were the most significant in the 21st century?	Research, explore and analyse what exists currently
What inventions have there been in our past/locally and how have they helped us?	Science - Which materials are suitable for purpose? Why have they been chosen for this invention? History – Who were the famous inventors in our local area? To know the chronology of inventions	Compare that to past – famous innovations/inventions – Birmingham as a locality famous people who have invented e.g. Boulton, Watt – their lives and inspirations Research materials and properties Industrial Birmingham- Social, ethnic, cultural or religious diversity of past society, Describe the characteristic features of the past, including ideas, beliefs, attitudes and experiences of men, women and children.
What gaps are there in the current market for an invention?	Science – Can you test the materials you think are suitable for your product? Design and technology, Computing (stats and data) – How will you collect your data? How can you use your data to design your prototype?	Dragons Den, current trends/issues, surveys, databases, market research. Creating a design/prototype Research materials and properties

What product have we created and how can we market it/pitch it?	Science – Can you explain your choice of material and why they are fit for purpose? Design and technology – Can you make a prototype based on your research? Art and Design – Can you produce sketches for your own design taking inspiration from known artists? Music – How does music persuade people to buy a product? Can you compose your own jingle? (record musical notation)	Creating and focus on DT skills as need Marketing – music - jingle, radio advert, flash mob!
How successful was our product and why? Improvements and future innovations?	English – write reports reviewing products Science – reflect upon the materials and techniques used Design and technology – evaluate product, suggest improvements	Evaluating and reviewing

Relationship to Core Subjects		
English Skills		**Maths Skills**	**Science Skills**

English Skills		Maths Skills	Science Skills
To read words accurately · Apply knowledge of root words, prefixes and suffixes. · Read age-appropriate books with confidence and fluency (including whole novels). (Note: this should be through normal reading rather than direct teaching.) To understand texts · Recommend books to peers, giving reasons for choices. · Identify and discuss themes and conventions in and across a wide range of writing. · Make comparisons within and across books.	**To write with purpose** · Identify the audience for writing. · Choose the appropriate form of writing using the main features identified in reading. · Note, develop and research ideas. · Plan, draft, write, edit and improve. **To use imaginative description** · Use the techniques that authors use to create characters, settings and plots. · Create vivid images by using alliteration, similes, metaphors and personification. · Interweave descriptions of characters, settings and	Geometry- Angles Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Draw given angles, and measure them in degrees (o) Identify: angles at a point and one whole turn (total 360o), angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180o) other multiples of 90o Geometry- Shapes Identify 3D shapes, including cubes and other cuboids, from 2D representations. Use the properties of rectangles to deduce related facts and find missing lengths and angles. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Geometry- position and direction Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. Measurement- converting units	Properties and changes of materials i. Compare and group together everyday materials, including their hardness, transparency, and conductivity (electrical and thermal) iv. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Properties and changes of materials ii. Compare and group together everyday materials on the basis of their properties, including their solubility and response to magnets ii. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution iii. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating v. Demonstrate that dissolving, mixing and changes of state are reversible changes vi. Explain that some changes result in the

• Learn a wide range of poetry by heart.

• Prepare poems and plays to read aloud and to perform, showing understanding through intonation, tone and volume so that the meaning is clear to an audience.

• Check that the book makes sense, discussing understanding and exploring the meaning of words in context.

• Ask questions to improve understanding.

• Draw inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence.

• Predict what might happen from details stated and implied.

• Summarise the main ideas drawn from more than one paragraph, identifying key details that support the main ideas.

• Identify how language, structure and presentation contribute to meaning.

• Discuss and evaluate how authors use language, including figurative language, considering the impact on the reader.

• Retrieve and record information from non-fiction.

• Participate in discussion about books, taking turns

atmosphere with dialogue.

To organise writing appropriately

• Guide the reader by using a range of organisational devices, including a range of connectives.

• Choose effective grammar and punctuation.

• Ensure correct use of tenses throughout a piece of writing.

To use paragraphs

• Write paragraphs that give the reader a sense of clarity.

• Write paragraphs that make sense if read alone.

• Write cohesively at length.

To use sentences appropriately

• Write sentences that include:

  • relative clauses

  • modal verbs

Convert between different units of metric measure (for example, km and m; cm and m; cm and mm; g and kg; l and ml)
Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.
Solve problems involving converting between units of time.

Number- Prime Numbers

Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
Establish whether a number up to 100 is prime and recall prime numbers up to 19

Perimeter and Area

Measure and calculate the perimeter of composite rectilinear shapes in cm and m.
Calculate and compare the area of rectangles (including squares), and including using standard units, cm2,m2 estimate the area of irregular shapes.

Measures Volume

Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]
Use all four operations to solve problems involving measure

Time at the beginning or end of the term for consolidation, gap filling, seasonal activities, assessments, etc.

formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda

Working Scientifically (UKS2)
i.   Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
iii. Recording results using scientific diagrams and labels
iv. Using test results to make predictions to set up further comparative and fair tests
v.   Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
  • Identifying scientific evidence that has been used to support or refute ideas or arguments

and listening and responding to what others say.	• relative pronouns		
• Distinguish between statements of fact and opinion.	• brackets		
• Provide reasoned justifications for views.	• parenthesis		
	• a mixture of active and passive voice		
	• a clear subject and object		
	• hyphens, colons and semi colons		
	• bullet points.		
	To present neatly • Write fluently and legibly with a personal style.		
	To spell correctly		
	• Use prefixes appropriately.		
	• Spell some words with silent letters (knight, psalm and solemn).		
	• Distinguish between homophones and other words that are often confused.		
	• Use knowledge of morphology and etymology in spelling and understand that some words need to be learned specifically.		
	• Use dictionaries to check spelling and meaning of words.		

	• Use the first three or four letters of a word to look up the meaning or spelling of words in a dictionary.
	
	• Use a thesaurus.
	
	• Spell the vast majority of words correctly.
	
	To punctuate accurately
	
	• Develop understanding of writing concepts by:
	
	  • Recognising vocabulary and structures that are appropriate for formal speech and writing, including subjunctive forms.
	
	  • Using passive verbs to affect the presentation of information in a sentence.
	
	  • Using the perfect form of verbs to mark relationships of time and cause.
	
	  • Using expanded noun phrases to convey complicated information concisely.
	
	  • Using modal verbs or adverbs to indicate degrees of possibility.
	
	  • Using relative clauses beginning with who, which, where, when, whose, that or with an implied (i.e. omitted) relative pronoun.
	
	• Indicate grammatical and other features by:		

	• Using commas to clarify meaning or avoid ambiguity in writing. • Using hyphens to avoid ambiguity. • Using brackets, dashes or commas to indicate parenthesis. • Using semi-colons, colons or dashes to mark boundaries between independent clauses. • Using a colon to introduce a list. • Punctuating bullet points consistently. **To understand writing** • Use and understand grammatical terminology when discussing writing and reading: **Year 5** • relative clause, modal verb, relative pronoun, parenthesis, bracket, dash, determiner, cohesion, ambiguity. **Year 6** • active and passive voice, subject and object, hyphen, synonym, colon, semi-colon, bullet points.		

To present writing

• Perform compositions, using appropriate intonation and volume.

Key Texts

Fiction	Non-fiction	Poetry
T Hughes - The Iron Man (plus visual/dvd)	Wallace and Gromit's inventions	Classic poetry
T Hughes – The Iron Woman	D Macaulay -The Ways Things Work	A Noyes - HighwaymanW
B Sekzbuck – The Invention of Hugo Cabret	Deadly Bugs (and other Horrible Science)	Scott – Lochinvar
		The Sound Collector

English Real and Purposeful Outcomes	Maths Outcomes	Science Outcomes
Write stories, letters and fictional biographies inspired from reading widely across the curriculum Include science fiction and/ or fantasy elements, e.g. in new inventions for space travel Write using formal voice, e.g. charity letters Write biographies, e.g. Rudyard Kipling, Ted Hughes, Ardmaan creators Write instructions which then extend to explanations to act as a guide for making/ using….e.g. The shirt machine (Literacy Shed) Read and explore narrative poetry; write versions of the narrative in different forms, e.g. summaries, X no. of words Write poems which convey an image, using figurative language such as simile/ metaphor, repetition, word play Learn a verse of a significant poem by heart, e.g. The Highwayman – perform the whole poem as a group	Devise a questionnaire/survey about everyday problems to be solved and display using statistical methods Make packaging for products that have been invented and figure out surface area and costings New product to be made – costings and profit forecast using percentages Drawing scale pictures of the new products Significant inventions on a time line eg TV, phone, internet etc	Choosing a range of materials to design their own inventions.

Art and Design Skills	Design and Technology Skills	Computing
To develop ideas	**To design, make, evaluate and improv**	**To connect**

To develop ideas
• Develop and imaginatively extend ideas from starting points throughout the curriculum.
• Collect information, sketches and resources and present ideas imaginatively in a sketch book.
• Use the qualities of materials to enhance ideas.
• Spot the potential in unexpected results as work progresses.
• Comment on artworks with a fluent grasp of visual language.

To take inspiration from the greats (classic and modern)
• Give details (including own sketches) about the style of some notable artists, artisans and designers.
• Show how the work of those studied was influential in both society and to other artists.
• Create original pieces that show a range of influences and styles.

Drawing

• Use different hardnesses of pencils to show line, tone and texture.

• Annotate sketches to explain and elaborate ideas.

To design, make, evaluate and improv
• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).
• Make products through stages of prototypes, making continual refinements.

• Ensure products have a high quality finish, using art skills where appropriate.

• Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.

To take inspiration from design throughout history

• Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.

• Create innovative designs that improve upon existing products.

• Evaluate the design of products so as to suggest improvements to the user experience.

To master practical skills in Mechanics
• Convert rotary motion to linear using cams.
• Use innovative combinations of electronics (or computing) and mechanics in product designs.

To connect
• Collaborate with others online on sites approved and moderated by teachers.
• Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems.

• Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder.

• Understand the effect of online comments and show responsibility and sensitivity when online.

• Understand how simple networks are set up and used.

To communicate

• Choose the most suitable applications and devices for the purposes of communication.

• Use many of the advanced features in order to create high quality, professional or efficient communications.

To collect
• Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner.

• Sketch lightly (no need to use a rubber to correct mistakes). • Use shading to show light and shadow. • Use hatching and cross hatching to show tone and texture.	**Construction** • Choose suitable techniques to construct products or to repair items. • Strengthen materials using suitable techniques.	
Art and Design Outcomes	**Design and Technology Outcomes**	**Computing Outcomes**
Create a gallery of Lowry and Lowry inspired work.	Create a model using cams Create a simple and series circuit Design and make an invention	We are artists To code (design a print / painting / logo) PowerPoint, Slides We are web developers To create (website for their designs) Sites.google.com

Geography Skills	History Skills	Music Skills	P.E Skills
	To investigate and interpret the past • Use sources of evidence to deduce information about the past. • Select suitable sources of evidence, giving reasons for choices.	**To perform** • Sing or play from memory with confidence. • Perform solos or as part of an	**Summer 1 - Striking and fielding (Tennis/cricket – reinforce games)** **Summer 2 - Athletics (link to sports day)** To develop practical skills in order to participate, compete

	• Use sources of information to form testable hypotheses about the past.
	
	• Seek out and analyse a wide range of evidence in order to justify claims about the past.
	
	• Show an awareness of the concept of propaganda and how historians must understand the social context of evidence studied.
	
	• Understand that no single source of evidence gives the full answer to questions about the past.
	
	• Refine lines of enquiry as appropriate.
	
	To build an overview of world history
	
	• Identify continuity and change in the history of the locality of the school.
	
	• Give a broad overview of life in Britain from medieval until the Tudor and Stuarts times.
	
	• Compare some of the times studied with those of the other areas of interest around the world.
	
	• Describe the social, ethnic, cultural or religious diversity of past society.
	
	• Describe the characteristic features of the past, including ideas, beliefs, attitudes and experiences of men, women and children.
	
	To understand chronology
		ensemble.
		
		• Sing or play expressively and in tune.
		
		• Hold a part within a round.
		
		• Sing a harmony part confidently and accurately.
		
		• Sustain a drone or a melodic ostinato to accompany singing.
		
		• Perform with controlled breathing (voice) and skillful playing (instrument).
		
		To describe music
		
		• Choose from a wide range of musical vocabulary to accurately describe and appraise music including:
		
		  • pitch
		
		  • dynamics
		
		  • tempo
		
		  • timbre
			and lead a healthy lifestyle
			• Combine sprinting with low hurdles over 60 metres.
			• Choose the best place for running over a variety of distances.
			• Throw accurately and refine performance by analysing technique and body shape.
			• Show control in take off and landings when jumping.
			• Compete with others and keep track of personal best performances, setting targets for improvement.

	Describe the main changes in a period of history (using terms such as: social, religious, political, technological and cultural).
	
	• Identify periods of rapid change in history and contrast them with times of relatively little change.
	
	• Understand the concepts of continuity and change over time, representing them, along with evidence, on a time line.
	
	• Use dates and terms accurately in describing events.
	
	<u>To communicate historically</u>
	
	• Use appropriate historical vocabulary to communicate, including:
	
	  • dates
	
	  • time period
	
	  • era
	
	  • chronology
	
	  • continuity
	
	  • change
	
	  • century
		• texture
		
		• lyrics and melody
		
		• sense of occasion
		
		• expressive
		
		• solo
		
		• rounds
		
		• harmonies
		
		• accompaniments
		
		• drones
		
		• cyclic patterns
		
		• combination of musical elements
		
		• cultural context.
		
		• Describe how lyrics often reflect the cultural context of music and have social meaning.
		
		To transcribe
		• Use the standard musical notation of crotchet, minim and semibreve to

	• decade • legacy. • Use literacy, numeracy and computing skills to a exceptional standard in order to communicate information about the past. • Use original ways to present information and ideas.	indicate how many beats to play. • Read and create notes on the musical stave. • Understand the purpose of the treble and bass clefs and use them in transcribing compositions. • Understand and use the # (sharp) and ♭ (flat) symbols. • Use and understand simple time signatures.	
Geography Outcomes	**History Outcomes**	**Music Outcomes**	**P.E Outcomes**
	Timeline of inventions Overview of how an invention has been adapted and changed.	Create a tropical storm piece.	Sports day Year 6 challenge - cricket match

RE Skills	**Language Skills**
<u>Understand beliefs and teachings</u> • Explain how some teachings and beliefs are shared between religions. • Explain how religious beliefs shape the lives of individuals and communities. <u>To understand practices and lifestyles</u> • Explain the practices and lifestyles involved in belonging to a faith community. • Compare and contrast the lifestyles of different faith groups and give reasons why some within the same faith may adopt different lifestyles. • Show an understanding of the role of a spiritual leader. <u>To understand how beliefs are conveyed</u> • Explain some of the different ways that individuals show their beliefs. <u>To reflect</u> • Recognise and express feelings about their own identities. Relate these to religious beliefs or teachings. • Explain their own ideas about the answers to ultimate questions. <u>To understand values</u> • Explain why different religious communities or individuals may have a different view of what is right and wrong. • Show an awareness of morals and right and wrong beyond rules (i.e. wanting to act in a certain way despite rules).	<u>To read fluently</u> • Read and understand the main points and some of the detail in short written texts. • Use the context of a sentence or a translation dictionary to work out the meaning of unfamiliar words. • Read and understand the main points and opinions in written texts from various contexts, including present, past or future events. • Show confidence in reading aloud, and in using reference materials. <u>To write imaginatively</u> • Write short texts on familiar topics. • Use knowledge of grammar (or pitch in Mandarin) to enhance or change the meaning of phrases. • Use dictionaries or glossaries to check words. • Refer to recent experiences or future plans, as well to everyday activities. • Include imaginative and adventurous word choices. • Convey meaning (although there may be some mistakes, the meaning can

	be understood with little or no difficulty).
• Express their own values and remain respectful of those with different values.	• Use dictionaries or glossaries to check words.
	<u>To speak confidently</u>
	• Understand the main points and opinions in spoken passages.
	• Give a short prepared talk that includes opinions.
	• Take part in conversations to seek and give information.
	• Refer to recent experiences or future plans, everyday activities and interests.
	• Vary language and produce extended responses.
	• Be understood with little or no difficulty.
	<u>To understand the culture of the countries in which the language is spoken</u>
	• Give detailed accounts of the customs, history and culture of the countries and communities where the language is spoken.
	• Describe, with interesting detail, some similarities and differences between countries and communities where the language is spoken and this country.

RE Outcomes	Language Outcomes
Summer	Invention names in Italian
God unit 2b.1 Core learning - Creating an advert for Christian worship, a debate – Humanists vs Religious believers	Wallace and Grommit in Italian
Buddhism -Being Temperate, Exercising Self-Discipline and Cultivating Serene Contentment- How does Buddhism (or other RTs) encourage its members to do better? Reflective artwork follow meditation, a summary of 'The Four Noble Truths'	
Hinduism - Being Accountable and Living with Integrity- What do Hindus (or other RT) teach about living out their beliefs? – A debate of the case of Shambo, reflection – What would you stand up for?	
Gospel unit 2b.5 –Core learning-Summary of what is wrong with the world alongside something Christians can do to follow Jesus, a report summarising how Jesus' teachings and example inspired Christians.	
Islam –Being Thankful - What different ways do believers have of saying thank you?	
Various religions - Being Imaginative and Explorative - How do RT's respond to human creativity in worship? – Summary of how Muslims thank Allah for all that He has given them	