Year Six

Programmes of Study

*Created by Inspire Curriculum Working Party,
based on National Curriculum 2014.

Monitoring and Assessment

Coverage

As each skill/objective is taught within a subject unit (key objective), they must be highlighted to show coverage. Different colours will be used to represent each term.

Key:

Autumn	Blue
Spring	Green
Summer	Orange

Assessment

At the end of each unit, teachers must highlight the key objective *(Overall title at the top of the unit, which encompasses all of the skills/objectives covered and is written in bold*), to show the following:

Green – 85% or above have achieved skills/objectives

Orange – 65-84%

Red – below 65%

Teachers must also record the names of children who are working above or below age-related in the left hand box.

Any children that are working above or below, should be taught the appropriate skills/objectives (i.e. teachers must plan from a range of year group programmes of study), and referenced within weekly planning.

Year Six

Subject		Skills and Objectives
Art & Design **Level 4 & 5** **Art is split into different art forms. For each form of Art there are four processes and then the appropriate skills and objectives for the year group. These can be taught at any point in the year, but try not to repeat the art form more than once per year, unless there is clear progression.*		
	Create & Communicate	• To create sketch books to record our observations and use them to review and revisit ideas.
	Using techniques to create effect	Level 4: • To select the most suitable drawing materials for the type of drawing I want to produce. • To use shading to add interesting effects to my drawings, using different grades of pencil. • To explain the ideas behind my images in my art sketchbook. • To use a variety of different shaped lines to indicate movement in my drawings. • To use shading to show shadows Level 5: • To select appropriate drawing materials. • To know when different materials can be combined and use this to good effect. • To am developing my own style of drawing. • To choose appropriate techniques to convey the meaning of my work. • My drawings communicate movement. • My drawings of still life include shadows and reflections. • My work includes historical studies of technical drawings, such as ancient architecture.
	Appreciate artists who inspire and influence us	• About great artists, architects and designers.
	Create & Communicate	• To create sketch books to record our observations and use them to review and revisit ideas.
	Using techniques to create effect	Level 4: • To create colours by mixing to represent images I have observed in the natural and man-made world.

Working below:		• To experiment with different colours to create a mood. • To use colour and shapes in paintings to reflect feelings and moods. Level 5: • My painting techniques are well developed. • To develop a style of your own. • My paintings convey a purpose. • Some of my paintings include texture gained through paint mix or brush technique. • My paintings are based on observations and can convey realism or an impression of what I observe.
	Appreciate artists who inspire and influence us	• About great artists, architects and designers.
	Create & **Communicate**	• To create sketch books to record our observations and use them to review and revisit ideas.
	Using techniques to create effect	Level 4: • To experiment with techniques that use contrasting textures, colours or patterns. (rough/smooth, light/dark, plain/patterned) • To have experimented with ceramic mosaic techniques to produce a piece of art. • My work reflects a purpose, which I write about in my art sketchbook. • My collage is based on observational drawings. • My collage reflects a real purpose and I write about this in my art sketchbook. Level 5: • To choose the most appropriate materials for my collages to fit the purpose. • My collage work has a definite theme that is apparent to any viewer. • To modify and change materials to be used in my collage • My collage has a striking effect because of: its colour choices, [or any of the other possibilities below}: • Pattern, lines, tones, shapes, [or any combination of these]. • To write about the visual and tactile qualities of my work in my sketchbook.
	Appreciate artists who inspire and influence us	• About great artists, architects and designers.

3D Working above: Working below:	**Create &** **Communicate**	• To create sketch books to record our observations and use them to review and revisit ideas.
	Using techniques to create effect	Level 4: • To use a variety of tools and techniques for sculpting in clay, papier-mache and other mouldable materials. • To use carvings to a surface to create shapes, texture and pattern. • To explore paper techniques such as pop- -up books and origami • To add paper curlings or other objects to a surface to embellish. Level 5: • My portraiture work has a life like quality gained by choosing and applying the most appropriate techniques. • My models on a range of scales communicate my observations from the real or natural world. • My 3D work reflects an intention that is sometimes obvious, but at other times is open to interpretation of the viewer. • My 3D work contains both visual and tactile qualities.
	Appreciate artists who inspire and influence us	• About great artists, architects and designers.
	Create & **Communicate**	• To create sketch books to record our observations and use them to review and revisit ideas.
	Using techniques to create effect	Level 4: • My printing uses a number of colours built up in a sequence. • To make precise repeating patterns by creating accurate printing blocks. • My printing replicates patterns I have observed in either the natural or man-made world and are based on my observational drawings. Level 5: • My print work includes printing onto fabrics, papers and other materials. • To use drawings and designs to bring fine detail into my work. • To build up colours in my prints. • My prints combine a range of visual elements to reflect a purpose. • My prints are based on a theme from other cultures. • My prints have a starting point from a designer in history.
	Appreciate artists who inspire and influence us	• About great artists, architects and designers.

Textiles Working above: Working below:	**Create &** **Communicate**	• To create sketch books to record our observations and use them to review and revisit ideas.
	Using techniques to create effect	Level 4: • To have a sound understanding of how to use the techniques of sewing (cross stitch & backstitch) appliqué, embroidery, plaiting, finger knitting. • I combine some of the techniques I know to create hangings. Level 5: • My textile techniques are precise and help me to convey the purpose of my work. • To have developed a preference for the type of textile work I prefer and am developing a range of pieces in a particular style, for a range of purposes. • My textile work sometimes combines visual and tactile elements, fit for purpose. • My textile work is sometimes based on historical or cultural observations.
	Appreciate artists who inspire and influence us	• About great artists, architects and designers.

Music		*Music runs throughout the year. It is up to the teacher to plan out how this is to be taught progressively throughout each year group.*
Working above: Working below:	**Controlling sounds through singing and playing** **(Performing)**	• Sing songs in tune • Breathe well and pronounce words, change pitch and show control of singing • Perform songs with an awareness of the meaning of the words • Hold their part in a round • Be able to play and perform in solo and ensemble contexts. • Perform songs in a way that reflects their meaning and the occasion. • I can sustain a drone or melodic ostinato to accompany singing. • I can play an accompaniment on an instrument (e.g. glockenspiel, bass drum or cymbal) • I can improvise within a group. • I sing or play from memory with confidence
Working above:	**Create and develop musical ideas (Composing)**	• Know how to make creative use of the way sounds can be changed, organised and controlled (including ICT) • Create own songs • Create rhythmic patterns with an awareness of timbre and duration. • Create music which reflects given intensions and uses notations as a support for performance.

Working below:		• Identify where to place emphasis and accents in a song to create effects.
Working above: Working below:	**Respond and reviewing (Appraising)**	• Use a range of words to describe music (e.g. pitch, duration, dynamics, tempo, timbre, texture and silence) • Describe own music using musical words and use this to identify strengths and weaknesses in own music.
Working above: Working below:	**Listen, understand and appreciate a range of music.** **Apply knowledge and understanding.**	• Combine sounds expressively • Create songs with an understanding of the relationship between lyrics and melody. • Know and use the standard notation of crotchet, minim and semibreve and indicate how many beats to play. • Read the musical stave and work out the notes EGBDF and FACE. • Be able to draw a treble clef at the correct position on the stave. • Use the venue and sense of occasion to create performances that are well appreciated by the audience. • Appreciate and understand a wide range of high-quality live and recorded music drawn from different traditions and from great composers and musicians. • Develop and understand the history of music.

D&T Levels 4 & 5	*D&T is taught once per term. It is up to the teacher to take these objectives/skills below and plan out what will be designed and made, in accordance with your topics, following the process below each time. Remember to ensure teaching of, application of and consolidation of skills, as well as progression from unit to unit. (Remember some more able chn will progress to the level 2 skills, which can be obtained from the Year 2 PoS.)*		
Assessment / Evaluation	**(ARE: Level 4 - Autumn)** **Unit 1:**……. Working above: Working below:	**(ARE: Level 4 - Spring)** **Unit 1:**……. Working above: Working below:	**(ARE: Level 5 - Summer)** **Unit 1:**……. Working above: Working below:
Level 4	**To know, understand and use the skills needed to design and make in a range of relevant contexts including; leisure, culture, enterprise, industry and the wider environment.**		
	<u>Design:</u> • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams.		
	<u>Make:</u> • Use a wider range of tools and equipment to perform practical tasks for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, **according to their functional properties.**		
	<u>Evaluate:</u> • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • **Understand how key events and individuals in design and technology have helped**		

	shape the world.
	Technical knowledge: • **Apply** their understanding of how to strengthen, stiffen and reinforce more complex structures. • **Understand and use electrical systems in their products [for example series circuits incorporating switches, bulbs, buzzers and motors].**
Level 5	**To know, understand and use the skills needed to design and make in a range of relevant contexts including; leisure, culture, enterprise, industry and the wider environment.**
	Design: • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
	Make: • Select from and use a wider range of tools and equipment to perform practical tasks for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.
	Evaluate: • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • Understand how key events and individuals in design and technology have helped shape the world.

	Technical knowledge: • Understand and use electrical systems in their products [for example series circuits incorporating switches, bulbs, buzzers and motors]. • Apply their understanding of computing to program, monitor and control their products.
Geography	*Geography must be taught in order, i.e. a first, then b…, etc.
Year 6, a	**Name and locate the key topographical features including, coast, features of erosion, hills, mountains and rivers. Understand how these features have changed over time.**
Working above: Working below:	• On a world map locate the main countries in Africa, Asia and Australasia/Oceania. Identify their main environmental regions, key physical and human characteristics, and major cities. • Children to be able to identify main capital cities/oceans etc. • Understand the significance of Latitude and longitude • Use 6 figure grid references to identify countries and cities in the world, the main mountain ranges and the longest rivers. • Understand how these features may have changed over time. • Select the most appropriate map for different purposes e.g atlas to find a country, Google Earth to find a village. • Explain the climates of given countries in the world and relate this to knowledge of the hemispheres, the Equator and the Tropics. • Locate the major cities of the world and draw conclusions as to their similarities and differences. • Use maps to identify longitude and latitude.
Year 6, b	**Study of North America** **-Environmental regions, key physical and human characteristics. Major cities, mountain ranges, rivers, lakes, landmarks.**
Working above:	• Use maps to identify longitude and latitude. • Study maps of the USA to identify environmental regions. Compare and contrast these regions. • Locate the key physical and human characteristics. Relate these features to the

Working below:	locality e.g. population sizes near tourist landmarks/rivers, transport links to mountains. • Locate all the man made features in the USA e.g. Statue of Liberty, Golden Gate Bridge, Grand Canyon, Yosemite National Park, The White House etc. and relate to UK landmarks. Reflect on the importance and value of the tourism industry in these areas
History	*History must be taught in order, i.e. a first, then b… (this is to allow for progression in levels of skills. As you can see, it begins with level 2 and progresses to level 3 skills).
Year 6	**A study of a theme in British History**
Working above: Working below:	**Level 4** • Know the dates of any significant periods in History (from this country or others) and use the correct terminology (eg, BC/AD, social religious, political, technological and cultural) when placing them on a timeline. • With guidance, choose reliable sources of evidence to describe lives in the past. Including homes, leisure activities, lifestyles, buildings, religion and beliefs, important people, differences between rich/poor lifestyles • Describe how events and developments in the past have affected life today. • When describing an event in the past, use a range of sources. Eg. Internet, databases, pictures, photographs, music, artefacts, historic buildings, visits to museums, galleries and sites. And use this information to demonstrate an understanding that there can be different versions of an event, and give clear reasons why.
Year 6, b	**Early Civilisations achievements and an in depth study of one of the following; Ancient Sumer; The Indus Valley; Ancient Egypt; The Shang Dynasty of Ancient China**
Working above:	**Level 4** • Know the dates of any significant periods in History (from this country or others) and use the correct terminology (eg, BC/AD, social religious, political, technological and cultural) when placing them on a timeline. • With guidance, choose reliable sources of evidence to describe lives in the past. Including homes, leisure activities, lifestyles, buildings, religion and beliefs, important people, differences between rich/poor lifestyles • Describe how events and developments in the past have affected life today. • When describing an event in the past, use a range of sources. Eg. Internet, databases, pictures, photographs, music, artefacts, historic buildings, visits to museums, galleries and sites. Use this information to demonstrate an understanding that there can be

	different versions of an event, and give clear reasons why.
Working below:	**Level 5** • Use a timeline with the following key periods as reference points for descriptions of the past: Before Christ (Ancient Civilizations such as Ancient Greeks and Egyptians or Maya etc) • Use terminology such as Social, 'religious', 'political', 'technological' and 'cultural', era, period, century, decade, Before Christ, AD, after, before, and during to describe the passing of time. • Choose reliable sources of evidence to describe lives in the past. Including homes, leisure activities, lifestyles, buildings, religion and beliefs, important people, differences between rich/poor lifestyles • Describe how some of the things I have studied from the past affect life today. • Give my own reasons why changes may have occurred, backed up by evidence I have researched, show on a time line, describe similarities and differences between some people, events and objects (artefacts) I have studied, and use this information to make links between some features of past societies (eg religion, houses, society, technology.
Science	**Science topics can be taught in any order.*
Year 6	**Working Scientifically**
Working above:	**In Year 5 and 6** • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal

Working below:	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. Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time. These opportunities for working scientifically should be provided across years 5 and 6 so that the expectations in the programme of study can be met by the end of year 6. Pupils are not expected to cover each aspect for every area of study.
Year 6	**Living things and their habitats**
Working above: Working	• To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • To give reasons for classifying plants and animals based on specific characteristics. Pupils should build on their learning about grouping living things in year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found

below:	invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). They should discuss reasons why living things are placed in one group and not another. Pupils might find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. Pupils might work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.
Year 6	**Animals including humans**
Working above: Working below:	• To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • To describe the ways in which nutrients and water are transported within animals, including humans. Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function. Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. Pupils might work scientifically by: exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.
Year 6	**Evolution and inheritance**
Working above:	• recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Building on what they learned about fossils in the topic on rocks in year 3, pupils should

Working below:	find out more about how living things on earth have changed over time. They should be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles. They should also appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox. Pupils might find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution. Note: At this stage, pupils are not expected to understand how genes and chromosomes work. Pupils might work scientifically by: observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.
Year 6	**Light**
Working above: Working below:	• recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Pupils should build on the work on light in year 3, exploring the way that light behaves, including light sources, reflection and shadows. They should talk about what happens and make predictions. Pupils might work scientifically by: deciding where to place rear-view mirrors on cars;

	designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur).
Year 6	**Electricity**
Working above: Working below:	• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • use recognised symbols when representing a simple circuit in a diagram. Building on their work in year 4, pupils should construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols. Note: Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with electricity. Pupils might work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.

Subject	Skills and Objectives	
Computing		
	Using a computer Working above: Working below:	**To continue to develop typing speed and accuracy to develop competency in typing** **To understand the purpose of and use independently a range of different technology.** **To make choices about when to use technology, which piece(s) of technology to use, which software/tools they are going to use on the technology and be able to explain their choices to others.** • Throughout KS2 children should:- • Continue to become familiar with a range of devices, for example tablets, desktop computers, laptops, microphones, cameras etc and increasingly develop their independence and confidence in using these devices. • Continue to increase their typing speed, and be encouraged to play games at home and school which help with this. • Aim to reach the accepted competency rate for children of 20WPM by the end of Year 4. Be encouraged to increasingly make sensible choices about the technology they use to help them work, and to justify their choices- for example, why they have chosen to use a tablet rather than a laptop, or why they have chosen to use an easi-speak microphone rather than the computer to record sound.
	Using the Internet Working above: Working below:	**To check plausibility of information from a variety of sources on the same topic** **To use a range of sources to check validity and recognise different viewpoints and the impact of incorrect data** **To understand plagiarism and the importance of acknowledging sources** • Understand the dynamics of different search engines and know that there are different search engines which may focus on different media • Modify searches further to find relevant information for a report • Talk about where web content might originate from by looking at web address, author, other linked pages • Talk about validity and plausibility of information by checking other sources • Recognise the impact of using incorrect information in their work • Skim and select information checking for bias and different viewpoints

	Communicating and collaborating online Working above: Working below:	**To use appropriate forms of communication to, share information or ideas** **To use collaboration tools to work together to produce a joint piece of work with children both inside St Pius and in other schools.** • Continue to collaborate on a project using a range of web 2.0 tools to support their work- including, but not limited to , goggle documents and sites- both • with children in their class, other classes and children from other schools. • Respond to e-mails sent from outside the St Pius domain using their school e-mail account. (e-sfatey paramount) • Talk about the different forms of electronic communication and web 2.0 tools, discuss appropriateness of using different tools in different • contexts and the advantages and disadvantages.
	Creating and Publishing Working above: Working below:	**To use tools to help them design and create a web based application for smart phones/tablets, giving consideration to the market/audience for their application.** **To create websites for a specific purpose and improve these sites.** **To use technology to help them present their work, showing an increasing degree of skill and using advanced features of software and tools.** **To select tools which they can use to help them achieve a specific aim and justify these choices to others.** **Understand the importance of evaluation and adaptation of individual features to enhance the overall product.** • Continue to create websites based on topics, area of interest or events, increasing the complexity of these sites. • Continue to create presentations which link into a topic, area of interest or event, choosing an appropriate tool or service • Create a web based application for a smart phone or tablet with consideration for the audience- containing information about a topic, trip, the school or to support work in other areas of the curriculum. • Create a non-linear presentation. • Continue to regularly use word processing and desktop publishing to present their work, combing formatted text with other media and making choices about programs and features to use and justifying these choices to others. • Continue to use ICT to create a finished product or set of linked products, developing consistency in style across linked products.
	Digital media Working above:	**To use technology to electronically compose music or sounds including creating melodies and save these as audio files.** **To begin to recognise the different layers of sound in a professional broadcast and use technology to record and**

	Working below:	**manipulate music/sound refining for a given audience or project.** **To use technology to create a stop motion animations and add audio and video effects to these animations.** **To use a computer to add complex effects to photographs and to preform common photograph edits (e.g. red eye removal)** **To compare different image creation and editing tools and select the most appropriate tool to use, justifying their choices.** **To independently take photographs and record video taking into account the audience and/or purpose for the image/video.** • Use a range of devices to create music samples and sequence these. • Independently choose and use an appropriate device to record sounds in order to create a sound file and use software manipulate sounds using computer software – e.g. remove unwanted silences/trimming start and end combine to make a podcast or similar broadcast. • Create stop motion animations and combine with video and audio effects. • Apply more complex effects to photographs using a computer. • Compare and contrast different image creation and editing tools across a range of platforms. • Continue to choose to independently record video for a range of purposes. • Continue to take photographs for a specific reason or project and/or find appropriate images on-line.
	Programming and control Working above: Working below:	**To continue to develop their understanding of how computer and technology works and how computers process instructions and commands, including the use of coding languages.** **To use assisted programming software to create basic software which interacts with external controllers, and elements on screen, creating algorithms and using logic and calculations.** **To use assisted programing software to more complex software which interacts with external controllers, and elements on screen, creating algorithms and using logic and calculations.** **To control an on screen icon using text based programing, including writing complex written algorithms which involve sensors.** **To begin to write simple scripts in an international recognised coding language** • Continue to explore different ways in which computer software can be planned. • Continue to develop an understanding of how technology works, with a focus on developing computational thinking • Use a range of visual based programing software (e.g Scratch and Kodu) to plan and design basic software (for example a simple game), controlling the movement and responses of different elements on screen. (2012-13 only) • Use a range of visual programing software to plan and design more complex software (for example a multi-level game)

		(2013-14 onwards) • Control an on-screen icon using text based controls, including responding to sensors and repeating written algorithms (e.g. Robomind) • Begin to explore text based programing languages and create basic scripts (for example writing a python script to identify if a number is odd or even)
	Modelling and simulation Working above: Working below:	**To understand that ICT allows for complex situations to be modelled, or those which it would be impractical to try out in real life investigate the effect of changing variables in these simulations.** **Know that simulations are often guided by hidden rules** **To use software to model 3D objects, working to a scale.** • Use software to create models of 3D objects, landscapes or items, including creating to scale • Use a range of more complex simulations, exploring the link to 'real life' and the impact of changing variables. Link the work exploring simulations to creating their own basic simulations in excel (see Using Data strand).
	Using Data Working above: Working below:	**To continue to use, search, enter data into and create their own databases.** **To continue to use technology, including spreadsheets to create graphs and present data in different ways. To be able to design, construct, evaluate and modify simple models i.e. enter data, enter formulae, copy cells and use simple formatting in a spreadsheet.** **To use a spreadsheet to draw a graph to show data** **To understand that ICT allows quick and easy changes to be made to different variables once a spreadsheet is set up.** **Talk about how the spreadsheet helps them to manipulate a model easily** • Continue to use, query and create their own databases as appropriate, linking into work across the curriculum • Understand what a spreadhseet is and the basic features of a spreadsheet and how these may be used in real life applications. Linked into a theme, or real life application, create a spreadhseet, enter basic formulae (simple calculations and SUM) and change data in a spreadsheet to model situations and answer 'What if…' questions.