Computing
Skills and progression Ladders Year 6 - 12 lessons per term approx.

Learning objectives and skills

Advent		Lent		Pentecost	
6.1 Computing systems and networks - Communication and collaboration Communication and collaboration - Exploring how data is transferred by working collaboratively online.	**6.2 Creating media – Web page creation** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	**6.3 Programming A – Variables in games** Variables in games - Exploring variables when designing and coding a game.	**6.4 Data and information – Spreadsheets** Introduction to spreadsheets Answering questions by using spreadsheets to organise and calculate data.	**6.5 Creating media – 3D Modelling** 3D modelling - Planning, developing, and evaluating 3D computer models of physical objects.	**6.6 Programming B - Sensing movement** Sensing movement Designing and coding a project that captures inputs from a physical device
1. To explain the importance of internet addresses • I can describe how computers use addresses to access websites • I can explain that internet devices have addresses • I can recognise that data is transferred using agreed methods **2. To recognise how data is transferred across the internet** • I can explain that all data transferred over the internet is in packets • I can explain that data is transferred over networks in packets • I can identify and explain the main parts of a data packet **3. To explain how sharing information online can help people to work together** • I can explain that the internet allows different media to be shared • I can recognise how to access shared files stored online • I can send information over the internet in different ways **4. To evaluate different ways of working together online** • I can explain how the internet enables effective collaboration • I can identify different ways of working together online • I can recognise that working together on the internet can be public or private. **5. To recognise how we communicate using technology** • I can choose methods of communication to suit particular purposes • I can explain the different ways in which people communicate • I can identify that there are a variety of ways to communicate over the internet **6. To evaluate different methods of online communication** • -I can compare different methods of communicating on the internet • - I can decide when I should and should not share information online • - I can explain that communication on the internet may not be private	**1. To review an existing website and consider its structure** • I can discuss the different types of media used on websites • I can explore a website • I know that websites are written in HTML **2. To plan the features of a web page** • I can draw a web page layout that suits my purpose • I can recognise the common features of a web page • I can suggest media to include on my page **3. To consider the ownership and use of images (copyright)** • I can describe what is meant by the term 'fair use' • I can find copyright-free images • I can say why I should use copyright-free images **4. To recognise the need to preview pages** • I can add content to my own web page • I can evaluate what my web page looks like on different devices and suggest/make edits • I can preview what my web page looks like **5. To outline the need for a navigation path** • I can describe why navigation paths are useful • I can explain what a navigation path is • I can make multiple web pages and link them using hyperlinks **6. To recognise the implications of linking to content owned by other people** • Design, build, test, evaluate and modify the system; ensuring that it is fit for purpose. •	**1. To define a 'variable' as something that is changeable** • I can explain that the way a variable changes can be defined • I can identify examples of information that is variable • I can identify that variables can hold numbers or letters **2. To explain why a variable is used in a program** • I can explain that a variable has a name and a value • I can identify a program variable as a placeholder in memory for a single value • I can recognise that the value of a variable can be changed **3. To choose how to improve a game by using variables** • I can decide where in a program to change a variable • I can make use of an event in a program to set a variable • I can recognise that the value of a variable can be used by a program **4. To design a project that builds on a given example** • I can choose the artwork for my project • I can create algorithms for my project • I can explain my design choices **5. To use my design to create a project** • I can choose a name that identifies the role of a variable • I can create the artwork for my project • I can test the code that I have written **6. To evaluate my project** • I can identify ways that my game could be improved • I can share my game with others • I can use variables to extend my game	**1. To create a data set in a spreadsheet** • I can collect data • I can enter data into a spreadsheet • I can suggest how to structure my data **2. To build a data set in a spreadsheet** • I can apply an appropriate format to a cell • I can choose an appropriate format for a cell • I can explain what an item of data is **3. To explain that formulas can be used to produce calculated data** • I can construct a formula in a spreadsheet • I can explain which data types can be used in calculations • I can identify that changing inputs changes outputs **4. To apply formulas to data** • I can apply a formula to multiple cells by duplicating it • I can calculate data using different operations • I can create a formula which includes a range of cells **5. To create a spreadsheet to plan an event** • I can apply a formula to calculate the data I need to answer questions • I can explain why data should be organised • I can use a spreadsheet to answer questions **6. To choose suitable ways to present data** • I can produce a chart • I can suggest when to use a table or chart • I can use a chart to show the answer to questions	**1. To recognise that you can work in three dimensions on a computer** • I can add 3D shapes to a project • I can move 3D shapes relative to one another • I can view 3D shapes from different perspectives **2. To identify that digital 3D objects can be modified** • I can lift/lower 3D objects • I can recolour a 3D object • I can resize an object in three dimensions **3. To recognise that objects can be combined in a 3D model** • I can duplicate 3D objects • I can group 3D objects • I can rotate objects in three dimensions **4. To create a 3D model for a given purpose** • I can accurately size 3D objects • I can combine a number of 3D objects • I can show that placeholders can create holes in 3D objects **5. To plan my own 3D model** • I can analyse a 3D model • I can choose objects to use in a 3D model • I can combine objects in a design **6. To create my own digital 3D model** • I can construct a 3D model based on a design • I can explain how my 3D model could be improved • I can modify my 3D model to improve it	**1. To create a program to run on a controllable device** • I can apply my knowledge of programming to a new environment • I can test my program on an emulator • I can transfer my program to a controllable device **2. To explain that selection can control the flow of a program** • I can determine the flow of a program using selection • I can identify examples of conditions in the real world • I can use a variable in an if, then, else statement to select the flow of a program **3. To update a variable with a user input** • I can experiment with different physical inputs • I can explain that checking a variable doesn't change its value • I can use a condition to change a variable **4. To use a conditional statement to compare a variable to a value** • I can explain the importance of the order of conditions in else, if statements • I can modify a program to achieve a different outcome • I can use an operand (e.g. <>=) in an if, then statement **5. To design a project that uses inputs and outputs on a controllable device** • I can decide what variables to include in a project • I can design the algorithm for my project • I can design the program flow for my project **6. To develop a program to use inputs and outputs on a controllable device** • I can create a program based on my design • I can test my program against my design • I can use a range of approaches to find and fix bugs

#BTK and Links with other subjects					
Key Vocabulary					