Year 6 Computing Overview

YEAR 6	Text and Multimedia	Programming & Control	Communication & Collaboration	Simulations & Modelling	Data Handling	Digital Media (Graphics & Video)

Key stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

- use sequence, selection, and repetition in programs; work with variables and various forms of input and output

- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration

- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Please see below for medium term planning ideas

Year 6 Computing– Autumn 1
'Text & Multimedia'

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	SOFTWARE TOOLS	CROSS-CURRICULAR LINKS/NOTES
Multimedia & Word Processing **National Curriculum** • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	• I can select appropriate software for the task/audience. • I can plan structure and layout of presentation. • I can evaluate and select suitable information and media from a range of electronic resources. • I understand that images, sounds and text can be subject to copyright and abide by copyright rules when creating a presentation. • I can organise, refine and present information for a specific audience. • I can create a range of hyperlinks to produce a non-linear presentation. • Through peer assessment and self evaluation, I can make suitable improvements. • I can choose appropriate techniques to create an effective and well polished presentation considering the intended audience. • I can make effective use of transitions and animations in presentations. • I can discuss and evaluate the presentations and give reasons for the chosen styles and techniques. **When word processing children should:** • I can use various display features to communicate to an audience: e.g. fact/definition boxes, annotated illustration, leaflet layout. • I can delete/insert and replace text to improve clarity and mood. • I can make corrections using a range of tools (eg spell check, find and replace). • I can develop confidence using both hands when typing.	**Multimedia Packages:** **Powerpoint** - Create slides and add pictures, text, WordArt, Video**.** **Word processing Packages:** - Microsoft Word - J2vote (accessible through my.uso.im J2e) – typing for a different audience. **Microsoft Photostory** (as whole class) - Combines photos into a slideshow and allows sound, voice commentary and titles to be added. **Touch Typing Course:** - BBC Dance Mat Typing (www.bbc.co.uk/schools/typing) - 2type **Teachers Resources:** LGFL Audio Network (bank of sounds). *Plan a presentation including appropriate software, combine from a range of sources, organise and refine to suit purpose and audience.*	**CURRICULUM** **ENGLISH** • Writing for different audiences. • Create a leaflet using a variety of persuasive language. • Analyse the type of language used in different pieces of writing. • Create a presentation to support a talk. **MATHS** • Create a presentation explaining how to carry out a mathematical function to another year group. **SCIENCE** • Create a document explaining a science concept that another year group could use to learn from. **HISTORY** • Create a presentation on WW2. **GEOGRAPHY** • Create a presentation on mountains/earthquakes/volcanoes/ climate.

Year 6 Computing– Autumn 2
'Programming & Control'

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
Programming & Control **National Curriculum** • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts ▪ use sequence, selection, and repetition in programs; work with variables and various forms of input and output ▪ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs .	**Introduction to 'Programming & Control'** • I know that an 'algorithm' is a specific set of instructions used to control a function. • I can follow a simple algorithm. • I know that algorithms have to be accurate in order to work properly. (practical games eg. giving specific instructions to move from point A-B or how to complete a specific task Eg. complete a maze blindfolded) • I know that software relies on codes to run and that a range of different coding languages exist. (eg. look at the source code of some websites) • I can see that movements on screen are translated into a code/algorithm. **Project – 3-4 lessons (Flowol)** • I can use simple code language to give specific commands. • I can make predictions when creating sequences of commands. • I can create and test my own algorithm to control elements on screen. • I can create and test my own algorithm to control interface hardware. (eg, a bulb, buzzer or motor). • I can 'debug' (fix/change) a simple algorithm so that it is more effective.	**Everyday appliances** Look at real-life examples where code might be used Eg. work out the sequence needed for a microwave/traffic lights. **Code-it** http://code-it.co.uk *Ideas for teachers.* **Internet Explorer** (look at source codes) **Code Monster** Gets kids excited about programming. It is a combination of a game and tutorial where kids experiment with learning code. http://www.crunchzilla.com/code-monster **Codecademy** The easiest way to learn how to code. It's interactive, fin and you can do it with your friends. http://www.codecademy.com **Flowol Software** Input code to program simulations such as the lights of a house/a funfair ride. **Flowol Interface Hardware** Uses a control box that uses an output from	**CURRICULUM** **ENGLISH** • Grammar – understanding and giving accurate instructions. (orally and written). **MATHS** • Converting measurements to decimals (when programming a sprite). • Angles – predict the point where two sprites will meet. • Links with formulas and using/applying mathematical algorithms. **Homework** The children could look at various appliances at home/on their way to school that might use an algorithm.

| | | the computer to operate external clown, house and traffic light simulations. *Groups must take it in turns during the project weeks to use the flowol hardware and control box.*

If time permits/a bit of fun (covered in Year 5) **Scratch (Project software)** Children can drag pre-programmed instructions to make a sequence for the sprite to follow. *See 'Getting started with Scratch' document.* | |

Year 6 Computing– Spring 1
'Communication & Collaboration'

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
Electronic Communication National Curriculum • understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Blogging** • I know that computers can allow us to communicate with others. • I am aware of the dangers that electronic communication holds. (e-safety) • I know what a blog is. • I can publish my files to a global audience. Eg. blog, podcast. • I know that blog posts have to be sensored. • I can view a blog and make appropriate comments. **Email** • I can share and exchange my ideas using e-mail and electronic communication inside the school environment. • I can create a group or distribution list of contacts from an address book. • I can learn how to use the cc and bcc facilities when sending an e-mail and discuss when these should be used. • I can send 'group' e-mails and be aware of the benefits and risks in 'replying to all'. • I can add email addresses to a class address book.	**MUST USE CHROME** **Beaconsfield Primary School Blog** Access through My.uso.im J2webby **J2e** Accessible through my.uso.im (Only work produced in these programs can be blogged) Blog Posts will need to be moderated by the class teacher (logged in) before they can be posted. The 'Record of Learning' for this unit are the blog posts themselves and teacher comments relating to the posts accounts for 'marking'. **Londonmail** Accessible through London Grid for Learning.	**CURRICULUM LINKS** **ENGLISH** • *Blogging is great for promoting writing.* Use the school blog to publish stories, poems, limericks, written arguments, debates, speeches etc. • Write emails appropriate for different audiences. **MATHS** • Creating maths problems for peers to solve. **SCIENCE** • Discussing/providing facts about the topics covered. **HISTORY/GEOGRAPHY** Sharing research and information about the topics covered.

Year 6 Computing– Spring 2
'Simulations & Modelling

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
Simulations & Modelling **National Curriculum** • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	• I understand that there are different types of data, e.g: numeric, , date, alphanumeric, currency etc. • I understand that spreadsheets can automate functions, making it quicker to perform calculations • I can begin to understand how those formula are constructed. • I understand that spreadsheets make it easy to test variables, e.g., when planning a budget you can change the number of items and see the changes to total cost. • I can explore the effects of changing variables in a spreadsheet in order to explore different scenarios. • I can make and test predictions. • I can describe the advantages of using such tools compared to mental / handwritten methods.	**MS Excel** **Ready-Made spreadsheets for analysis and modification** **You could use:** Simon Haughton has some useful activities for introducing children to various uses of spreadsheets. Some of the following activities refer to resources you can download and use from his website (Marked SH). There are others: http://www.simonhaughton.co.uk/introducing-spreadsheets/ *Wherever possible try to ensure the use of a spreadsheet is for a genuine and relevant purpose, related to something _real_ happening in the school.*	**CURRICULUM LINKS** **ENGLISH** • The spreadsheet could link to an aspect of the text studied. Eg. 'There's a boy in the girl's bathroom'. **MATHS** • Rounding numbers. • Using and calculating decimal numbers. • Using mathematical formulae. • Solving problems involving the calculation of percentages.

Year 6 Computing– Summer 1
'Data Handling'

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
Data Handling National Curriculum • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Understanding the importance of data-collection** • I understand the need for data protection and some of the rights of individuals over stored data and how it affects use and storage of data in the real world. • I can compare different graphs and evaluate their usefulness for different types of data & different purposes. • I recognise the consequences of inaccurate data in the real world: (eg: doctors, banks, police etc). **Collecting & Presenting Data** • I can design a form for a survey / questionnaire to collect the required data. • I can collect data & enter it in to a database under appropriate field headings. • I can use the database to answer questions by searching & sorting a single field. (eg: how many children have blonde hair?) • I can raise further questions relevant to the data I have collected. • I can search data on more than one criterion understanding the difference between AND & OR searches. (eg: "How many children have blonde hair AND blue eyes?" and "How many children have blonde OR blues eyes?") • I can select relevant data and appropriate graphs to present to others perhaps as part of a multimedia presentation. • I can evaluate the effectiveness and impact of my data collection.	**Ready-Made databases for searching and interpreting** **You could use:** http://www.simonhaughton.co.uk/2011/10/developing-database-skills-in-upper-ks2.html **J2Vote** You could use this to explore data collection as a whole class. **2investigate** Use for creating the databases based on the children's data collection. **j2e5** Includes a graph-making facility. Completed documents can be published to the Year 6 blog & allow the children to comment/make adjustments where necessary. **Microsoft Powerpoint** The children could create a short presentation based on their data collection.	**CURRICULUM LINKS** **ENGLISH** • Write a questionnaire appropriate for a specific target audience. • Use the data collected as supporting evidence for a debate. • Creating appropriate questions. **MATHS** • Creating and interpreting pie charts and graphs to solve problems. • Interpreting data.

Year 5 Computing– Summer 2
'Digital Media'

COMPUTING ELEMENT	LEARNING OBJECTIVES/SKILLS	HARDWARE/SOFTWARE	CROSS-CURRICULAR LINKS/NOTES
Digital Media **National Curriculum** • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • understand computer networks including the internet. • use technology safely, respectfully and responsibly.	**Introduction to Film-making** • I know what makes a good film • I understand basic film terminology: long / wide shot, focus, close-up / zoom / panning / crane / tracking. • I can plan a short film for a target audience. **Making a short film** • I can capture video and sounds using appropriate hardware. • I understand basic film editing terminology: trim / split / video & audio tracks / transitions/ title / credits, etc. • I can use film-making software to appropriately sequence media I have collected. • I can edit sound / video and add titles, credits and effects as appropriate. **Evaluating & Adapting** • I can discuss and evaluate my own and others' images and movies. • I can make changes in response to audience feedback. • I understand the implications of copyright and apply this to my work.	**The children should be applying the skills learnt in the 'sound' module to support their project.** **Windows Movie Maker** Create a short movie including, video (interviews), images, sounds, music & text. To allow finished videos to be viewed by a wider audience they should be uploaded to LGfL VideoCentral and linked to, or embedded on the school website / learning platform, or myUSO area. **Possible themes for movies:** • *Promote an area of the school eg. reading/the arts.* • *Link to our Rights Respecting School Award.* • *An aspect of citizenship.* • *Link to PGL Trip.*	**CURRICULUM LINKS** **ENGLISH** • Write a film script to act out and record. • Write a news report to film. • Recount an event. (PGL) • Think about how the film will be appealing for a specific audience. **MATHS** • Links with 'time'/units of time. • Decimal number – in relation to timings. **MUSIC** • Improvise and compose music for a range of purposes using the inter-related dimensions of music.