Boston West Academy

KS1 COMPUTING

Our Curriculum key drivers

Learning beyond the classroom (Outdoor learning)

The arts

Physical development and wellbeing

Language development and vocabulary

COMPUTING Curriculum Content in KS1

- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions.
- Write and test simple programs.
- Use logical reasoning to predict the behaviour of simple programs
- Organise, store, manipulate and retrieve data in a range of digital formats.
- Communicate safely and respectfully online, keeping personal information private, and recognise common uses of information technology beyond school.

Conscious connections

Use computing across the curriculum exploring online data, maps, information, apps for art and music, maths, spelling, phonics

Continuous provision ideas

Games—Allow students to create games in a programming language of your choice. Swift Playgrounds (www.apple.com/uk/swift/playgrounds) are both great ways for students to learn coding in a play-based environment.) Bebot App, Ongoing access to devices, and these apps, will enable students to become familiar with the logic and sequencing of algorithms. Chrome music lab.

Devices and apps- Provide devices and apps to support the use of computing across the curriculum: Translators and games that help EaL students to develop fluency and learn vocabulary. Use websites to aid learning. Accelerated reader, myon, natgeokids.

Y1 COMPUTING	
Skills Computer Science I can press buttons in the correct order to make a robot do what I want. I can describe what actions I will need to do to make something happen. Information Technology: I can talk about how technology is used in my home, my classroom and the world around me I can understand and follow sensible E-Safety rules. Digital Literacy: I can log onto a computer with support. I can use a keyboard/touch screen to enter text.	Coverage Use logical reasoning to predict the behaviour of simple programs. Recognise common use of Information Technology beyond school. Knowledge Understand what algorithms are. I can understand sensible E Safety rules. Vocabulary Algorithm – A list of instructions to complete an activity. Instructions, buttons, robots, patterns, program, bug, debug, turn. Resources musiclab.chromeexperiments.com Beebots /Probots saferinternet.org.uk (SMART)

Y2 COMPUTING	
Skills Computer Science I can program a robot with a set of instructions to make it do what I want. I can spot where a program goes wrong so that I can fix it. Information Technology: I can log on to a computer independently. I can use a keyboard to type sentences. I can save and open files on the device I am using. Digital Literacy: I can tell you why I use technology in the classroom, my home and the world around me. I can talk about ways to keep myself safe online.	Coverage Use logical reasoning to predict the behaviour of simple programs. Create and debug simple programs. Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Recognise common use of Information Technology beyond school. I can explain why I need to keep my password and personal information private. Vocabulary Algorithm – A list of instructions to complete an activity. Debugging – The process of identifying and removing errors from instructions or programs. Forwards, backwards, right-angle turn, algorithm, sequence, bug, debug, predict, input, output, data. Resources musiclab.chromeexperiments.com Beebots /Probots saferinternet.org.uk (SMART)

Boston West Academy

KS2 COMPUTING

Our Curriculum key drivers

Learning beyond the classroom (Outdoor learning)

The arts

Physical development and wellbeing

Language development and vocabulary

COMPUTING Curriculum Content in KS2

- Design and write programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- Use sequence, selections and repetition in programs; work with variables and various forms of input and output; generate appropriate inputs and predicted outputs to test programs.
- Use logical reasoning to explain how a simple algorithm works; detect and correct errors in algorithms and programs.
- Understand computer networks including the internet; understand how they can provide multiple services, such as the world wide web, and the opportunities they offer for communication and collaboration
- .Describe how internet search engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely.
- Select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

Conscious connections

All subjects have opportunities to use online services, promote online responsibility use and apply software to accomplish goals.

Continuous provision ideas

bbcbitesize.co.uk / Espresso

Music - garage band, chrome music lab, cheranga

Art - photography using i-pad and filters and effects

DT - research

Geography - digimaps, odizzi

History - natgeokids, national trust

English - spelling shed, accelerated reader, myonuk

Maths - ttrockstars

Science - Stem.org wowscience

PSHE—interland, thinkyouknow

French - Salut 365

Y3 COMPUTING	
Skills Computer Science I can input commands into a program, including repeat commands, to complete an algorithm. I can test my program and spot when I need to debug it. Information Technology: I can use a text, graphics and sound to present my learning. I can search a ready-made database to answer questions. I can add to a database. I can use a keyboard confidently to type sentences. Digital Literacy: I can use search tools to find and use an appropriate website. I can recognise appropriate images and information online. Vocabulary Algorithm, App, Animation, Background, Boolean, Bug, change, debugging, error, event, execute, input, instructions, loop, message box, object, operator, output, parameter, pixel, pointer, programme, properties, random, repeat, run, scope, selection, sequence, simulate simulation, sprite, string, syntax, tap, value, variable.	Coverage Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them in to smaller parts. Use search technologies effectively. Knowledge Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Resources Espresso coding-block coding Level 1-3 Power-point bbcbitesize databases Top trump cards Word Beinternetawesome.withgoogle.com (Interland - be internet brave)

Y4 COMPUTING

Skills

Computer Science

I can identify a quick way to simplify a program.

can recognise an error in a program and debug it.

Information Technology:

I can use photos, video and sound to create a mood when presenting to different audiences.

I can change the appearance of text to help the reader.

I can use a spellchecker to review my spelling in a sustained piece of text.

I can plan, create and search a database to answer questions.

Digital Literacy:

I can create a hyperlink to a resource on the internet (through the use of Word or Powerpoint).

I can talk about the ways I can protect myself and my friends from inappropriate context, including social media.

Vocabulary

Algorithm, App, Animation, Background, Boolean, Bug, change, debugging, error, event, execute, input, instructions, loop, message box, object, operator, output, parameter, pixel, pointer, programme, properties, random, repeat, run, scope, selection, sequence, simulate simulation, sprite, string, syntax, tap, value, variable.

Coverage

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them in to smaller parts.

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. CEOP (Child exploitation)

Knowledge

Understand computer networks including the Internet; how they can provide multiple services, such as the World Wide Web. Appreciate how (search) results are selected and ranked.

Resources

Espresso coding-block coding Level 4-6

i-movie

Branching databases

Power-point

Beinternetawesome.withgoogle.com (Interland - secure your secrets)

How are we protected at school using filter systems?

Iwf.org.uk

www.ceop.police.uk/safety-centre/

barefootcomputing.org

Y5 COMPUTING	
Skills Computer Science I can write an algorithm for a program to achieve an outcome. I can detect and debug mistakes in a program. Information technology I can use a combination of text, photo, sound and video editing tools to present my learning. I can use a spreadsheet and database to collect and record data, including branching databases. Digital Literacy: I can use a search engine to find appropriate information and check how accurate it is. I can identify the different parts of a webpage. I know that anything I post online can be seen, used and may affect others. Vocabulary Action, algorithm, array, bug, code, command, console, debugging, error, excecute, integer, library, module, output, parameter, pixels, programme, properties, random, repeat, RGB, run, selection, sequence, simulate, step, syntax, turtle, variable,	Coverage Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them in to smaller parts. 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. Knowledge Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Use search technologies effectively. Be discerning in evaluating digital content. Understand the opportunities (networks) offer for communication and collaboration. Resources Espresso coding-python Power-point and i-movie Excel Google tools Interland - Share with care, don’t fall for fake

Y6 COMPUTING	
Skills Computer Science • I can write an algorithm to achieve a specific outcome and talk about each of the steps. • I can evaluate the effectiveness of my algorithm while I continually test the programming for mistakes. Information Technology: • I can use text, images, sound, transitions, video, hyperlinks and HTML code to present learning and show how they can be modified. • I can evaluate the effectiveness of my own work and the work of others. • I can present and interpret data collected. Digital Literacy: I know the Internet services I need to use for different purposes. I can explain the consequences of sharing too much about myself online. Vocabulary Background bug, error, event, hexadecimal, input, JavaScript, link, message box, output, pixel, programme, properties, RGB, tags, tap.	Coverage • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them in to smaller parts. 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. Knowledge • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • Use search technologies effectively. • Be discerning in evaluating digital content. • Understand the opportunities (networks) offer for communication and collaboration. I talk about the way search results are selected and ranked. Resources Discovery education coding HTML Interland Social networking awareness / Understand Linkedin

KS2 Longitudinal learning—to revisit ideas and concepts to enable deeper learning . It is expected that by the end of Y6 the vast majority of students have an advancing understanding and some will have a

deeper understanding.

Basic	Advancing	Deep
Give students directions as to the aspect of coding that has a problem (e.g. appearance or variables). Give students suggestions as to the type of changes they may make to a piece of coding given to them. Give students suggestions as to which areas of learning can be used for a blog. Provide templates or frameworks suitable for the area of learning that is being written about. Reinforce the rules for commenting on the work of others. Ask students to find, record and reference information for specific questions. Students respond to suggestions on how to devise ways to record the information. (e.g. How were the pharaohs buried?). Students respond to tasks, working collaboratively and seeking support from the teacher when necessary. Students respond to suggestions as to which collaboration features and tools to use.	Ask students to identify problems and then suggest which aspect of coding may be at fault. Provide students with a piece of coding and ask them to play around with elements of their choice to observe the effects. Ask students to suggest ideas for and ways to present suitable information for the blog. Students articulate the rules for appropriate comments when commenting on the work of others. Ask students to summarise information they have searched, giving an opinion on the quality of the evidence (e.g. Summarise life for the pharaohs, giving your evidence on an adapted database, along with reasons why you think the evidence is suitable). Students suggest projects and work collaboratively to produce works that they refine. Students select appropriate collaboration features and tools to use.	Give students faults in multiple areas of the coding so that they need to identify and suggest fixes, using trial and error. Ask students to select combinations of pre-provided code to create their own set of sequences. They should experiment with changing elements in one sequence and observe the effects on other sequences. Students suggest innovative and imaginative ways to present a range of curriculum material. Students show sensitivity and discretion when commenting on the work of others. Ask students to create a resource based on their findings from searches (e.g. Tell us about the pharaohs.). Students must present imaginative and compelling, referenced materials that are searchable by using a database they have constructed. Students create visually appealing and content-rich works that show imagination and refinement. Students show well-thought out ways to use collaboration features.