Subject on a Page- Computing

Intent – we aim to…

Teach skills and knowledge that progress from year 3 to year 6

Develop a technical know-how in all our children; from how networks function to how micro:bits operate – at BJA we desmystify the protocols and technologies that help us thrive in a digital world

Develop our core 5R Values

Teach children to use digital devices to become Information Technology **content creators**: from Photoediting to CAD design via website creation.

Teach children to be **digitialy literate**: to recognise acceptable/unacceptable behaviour and identify ways to report concerns about content and contact

Develop a range of skills that will be useful in the next stage of their school journey: regular access to an **online learning platform** – MS Teams - and the core system & device skills to access Office-class apps and the means to utliise them to engage in communication and collaboration over a network

Provide children with **computer science skills**, such as programming, coding, the input/output relationship, understanding algorithms along with computational thinking skills

Implementation – How do we achieve our aims?

Planning

At BJA, we use a range of complementary computing units from a variety of sources: teachcomputing.org, Project Evolve, Micro:bit, barefoot computing and Bebras for our lesson planning and curriculum content. The units have been organsied to offer full coverage of the National Curriculum, as well as being sequenced and progressive. The units are based on a spiral curriculum, meaning that each of the computing strands is revisited regularly (at least once in each KS phase); pupils revisit each theme through a new unit that consolidates and builds on prior learning within that strand. The progression document details these steps of progression. This style of curriculum design supports retention and reduces the amount of knowledge lost.

Assessment

Computing is assessed at the end of each unit. We use bespoke assessment grids/rubrics created by the computing subject leader based on the **Computing at School Progression Pathway**. These integrate into our school curriculum as well as the National Curriculum and the clear steps are outlined in the progression pathway. Summative assessments are conducted for tracker children in all year groups and include PP and SEND pupils. Y5/6 assessments are conducted as assignments in Teams whereas Y3/4 are conducted as R-A-G questioning and teacher observations. Children also self-assess using their **Skills journals.**

Extra Curr Opps

Mr. Pyburn runs a weekly lunchtime extra-curriculum coding club providing children extra hands-on opportunities with to develop computer science skills. Accessing the Bebras materials provides children in Y5/6 opportunities to develop their computational thinking skills.

SEND

In Years 3 and 4, TA support is provided to the children who require additional support - this allows for additional scaffolding for those pupils. Lessons are carefully planned and resourced so all our children can access their learning at an appropriate level that engages and challenges them. As our curriculum is progressive and skills are mapped out in the **Progression Pathway**, Mr. Pyburn can track back to support learners working at a different stage to expected within their chronological age. Our clear assessment of tracker children includes SEND children to ensure that their progress is at least inline with their peers. Scaffolded questioning is also used in lessons along with **peer support**; there is a big emphasis on '**Relationships**' within our computing lessons.

E-Safety

It is our statutory duty to protect our pupils and specifically address online safety, especially with regards to online child-on-child abuse, relationships on social media and the use of mobile and smart technology. Therefore, E-Safety is taught through the whole computing curriculum and always explicitly within Autumn Term 1. We use the SWGfL Project Evolve materials to support the teaching of these skills, covering eight strands (https://projectevolve.co.uk/toolkit/resources/strand/) with outcomes and competencies that are mapped to age and show clear progression. In an ever increasingly digital world, it is essential that our children understand the benefits, risks and responsibilities of using information technology. Children are taught how to use technology safely, respectfully and responsibly, to promote healthy and positive realtionships and to recognise acceptable/unacceptable behaviour and identify ways to report concerns about content and contact.

Vocabulary

Specific vocabulary is made explicit in planning, is mentioned within objectives as part of the progression document and within individual lesson slides. For each unit, vocabulary is displayed in class and is directly referred to in lesson.
Mr. Pyburn promote the use of effective vocabulary during verbal responses in lessons.

Values

Respect: We promote children to demonstrate respect to each other and their input into lessons. We encourage them to show respect when working collaboratively. We also teach the children to respect the digital devices that they use to support their learning.
Resilience: Many of the tasks within computing are challenging involving many problem solving steps! This is especially true in computer sciences (coding) and on occasions when the digital devices and/or network are not functioning at optimum or peak levels!
Reflection: We provide children with opportunities for children to comments on their work to show how they feel about their learning. Y3/4 Children will be asked to self assess using the R-A-G method. Y5/6 children reflect on their understanding within assessment assignments after each unit. Children are encouraged when they make mistakes "why" they feel they went wrong.
Relationships: In lessons children have frequent opportunities to work with talk partners. Often tasks are designed for children to work collaboratively with a team or partner. Children often support each other to promote learning. This is just as true within Microsoft Teams as it is in the classroom.
Responsibility – Children will use computers in a manner that demonstrates a mature level of responsibly when interacting and communicating with others. They will take their own eSafety responsibly, understanding the actions which they can take if encountering online bullying or harassment. They will be responsible for demonstrating their understanding of the importance of the nine protected characteristics and this will be evidenced in the quality of their digital communication, particularly within Microsoft Teams. **These values are developed every lesson as we begin with an 'R' focus.**

Computer Sciences

The foundation to a successful computing curriculum is the teaching and learning of Computer Sciences. Our primary means to do so is through the **coding of the micro:bit hardware**; this allows us a means to explore algorithms and debugging, along with controlling hardware seeing the imput/output model. We also explore the 'blocky code' language of Scratch which helps us develop these skills. Papert's Logo Turtle programming environment provides extra CS opportunities. In addition, in Y5/6 we develop our computational thinking skills through the Barefoot materials, including unplugged activities and access to the Bebras challenge computational thinking materials.

Impact – How do we know if we've achieved our aims?

Our Progression document, based on the **Computing at School Progression Patheway**, is key to ensuring the planning, content creation and delivery of a skills and knowledge curriculm that shows clear progression.

Children will be able to share their knowledge of how computing systems, infrastructure and networks operate including our own at school. We are also 'hands-on' with micro:bit hardware in all Year Group teaching and in computing club.

Children become respectful, resilient, and reflective learners, who can work as a team and take responsibility for their own learning and who will be able to verbalise how they demonstrate 5Rs in their computing work.

Children will meet the age and ability-related targets in the progression document so as to create content such as photo editing, web site creation, TinkerCad models and animated GIFs. These opprotunities provide children with the opportunities to see digital devices as tools essential to the role of creation.

Children will be able to openly discuss and demonstrate the positive messages of eSafety, leading to a healthy and happy digitally connected life as explored within the eight strands of SWGfL's Project Evolve. Again, they will meet age- and ability-related targets from the progression document.

Y3 chidlren will be able to log into the school network and from Term 1 onwards, will demonstrate a basic use of channels in our Teams to access learning. By Y5/6, children will routinely show they can use the features and functions of Teams inc. messaging, class Notebook and assessment assignments. They will use Office 365's content creation and collaboration tools such as Outlook. Y5/6 will show proficiency when using Google Sites for web site creation.

Children will demonstrate and discuss CS skills developed through the blocky coding environment of micro:bit coding (virtual and hardware based); this is supported with Scratch coding, Papert's Logo Turtle and computational thinking opportunities including those that are 'unplugged'. Children will meet the age- and ability-related targets in the progression pathway document for Computer Sciences.