Computer Science at Litcham School

INTENT

The learning program in place at Litcham focuses on learners' understanding the building blocks required to be able to create software programs of varying complexity with a large focus on doing so independently. It supports weaker learners via a range of methods, and stretches most able pupils by providing a project based approach to learning, revisiting key aspects continually, and empowering learners to be as successful and knowledgeable as they desire. There are no boundaries in place to allow high achieving pupils the opportunity to work on projects outside the scope of the department scheme of work, with some Year 8 and 9 pupils having taken ICT qualifications[1], and an electronics club facilitating learners designing, building and coding actual physical systems.

Litcham School Computing department aims to equip students with the skills to participate in a rapidly-changing world through challenging and engaging topics. Students will develop an understanding and application in the fundamental principles of computer science by having the opportunity to develop software, improve their mathematical understanding, and develop legislation and environmental awareness.

Computing skills are a major factor in enabling children to be confident, creative and independent learners and it is our intention that children have every opportunity available to allow them to achieve this.

The national curriculum[2] for computing aims to ensure that all pupils at Key Stage 3 are taught the following:
- *use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions*
- *understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]*
- *understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits*
- *understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns*

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[1] As of 2018

[2] https://www.gov.uk/government/publications/national-curriculum-in-england-computing-programmes-of-study/national-curriculum-in-england-computing-programmes-of-study

IMPLEMENTATION

The objective at Key Stage 3 is to empower students to have the confidence and knowledge/skills to be able to develop computational skills that carry out a specific task that demonstrates the learners' knowledge has been transferred to skills. This means pupils can make sensible options choices in whether to pursue Computer Science at Key Stage 4.

Pupils have differing levels of enthusiasm and ability in all subjects and the computer Science department's attitude to learning reflects this. Whilst the Scheme of work is written, pupils have access to it and can work at their own pace to make sure they understand content which is reviewed by me before they move on. Enthusiastic high achieving pupils can flourish in this environment, and create software using techniques and constructs in advance of their school year. This environment can be fostered due to the department having tutorial videos on YouTube which enables all pupils to learn independently, at their own pace.

IMPACT

Pupils are assessed, and reassessed to address previous misconceptions, or confirm understanding. This is an ongoing process, and pupils can request to take assessments outside of assessment windows, as many are keen to map their progress onto their individual trackers.