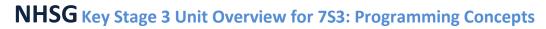




Scheme of Learning	7S3 – Programming Concepts IPOSS – basic concepts	Spring term
Learning outcomes	By the end of the unit, students should have knowledge and understanding of what an algorithm is, how an algorithm is represented using flowcharts, why sequence matters, the difference between inputs and outputs., what a variable is and how to change the direction of a program using selection. This unit will introduce students to the use of flowcharts for creating control programs. It will develop the student's computational thinking skills.	
Key Question	Can I create a control program for a complex system that requires the use of inputs, outputs, processes sequences and decisions?	
Knowledge	Key concepts What is an algorithm? Flowcharts Sequence Inputs Outputs Variables Selection Key Skills Building confidence in using a keyboard and mouse (extends from 7S1) Learning the basics of flowcharts Developing Computational Thinking Developing visual interrogation methods Developing error finding skills	Key terminology





	Progress and understanding is monitored through lessons by the teacher and a series of MS Forms and exercises. Students are expected to self-evaluate their achievements I the lesson using the provided template of key questions. They will then use homework time to secure a weak area that they have identified.	
Ongoing Assessment	Answers are expected to be in the student's own words and not paraphrased or directly copied from online	
	resources.	
	You will have access the resources used via SharePoint/Teams and will be expected to continue familiarising with	
	the systems each day outside of class. Students are expected to access Computer Science resources via Teams outside of lesson time and this is monitored throughout the year.	
	There are two assessment periods for Year 7. These take towards the end of the Autumn term, and towards the	
	beginning of the Summer term. Each assessment will check understanding of the units recently covered as well as	
	their sustained understanding of previous units. The self-evaluation sheets should be used as the basis of what they	
	need to revise.	
Key Assessment		
	These assessments will have the same number of marks across the year group, though there may be some variety in the questions depending on the progress of the individual class. They are written tests on paper and consist of three	
	sections: Knowledge (facts), Application, Explanation. The reports are based on how each student does in comparison with the rest of the year group in these assessments.	
	Basics of programming:	
Clear sequencing of content	• Flowcharts	
	PRIMM technique	
	• Outputs	
	• Inputs	
	Variables	
	Sequence	
	Selection – simple then complex	
	 Actuators/motors 	









NHSG Key Stage 3 Unit Overview for 7S3: Programming Concepts

	These lessons build on new functions each time and introduce new concepts and how they are applied in Flowol. These concepts are then built upon in 8S3 and 9S3 but using text-based programming languages and practical programming.	
Links to Careers	Software development, particularly in numerical industries including engineering. Robotics, smart device functions.	
Diversity and Inclusion	Scenarios used for creating algorithms are related to day-to-day experiences for students. They are encouraged to come up with, and share, algorithms from their own life.	
Additional Support	Self-Assessment RAG sheets act as knowledge organisers with key questions for each lesson SharePoint with knowledge PowerPoints Year 8 mentors available one lunchtime a week upon request, or under direction if deemed necessary	
Challenge	Coding Club TuringLabs – Farmbot and SmartCities https://projects.raspberrypi.org/en/projects/astro-pi-mission-zero https://projects.raspberrypi.org/en/projects/hello-world/0	