

REMOTE LEARNING MODULE

Subject: CS

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Subject:	CS	Teacher (if applicable):	Lead: GMA
Year:	10	Ability/Class (if applicable):	All
Module title:	Fundamentals of Algorithms		
Duration:	2 weeks <input type="checkbox"/>	4 weeks <input type="checkbox"/>	6 weeks <input checked="" type="checkbox"/> 8 weeks <input type="checkbox"/> Other:
Intent			
Intent Statement - at Landau Forte Amington, we believe learning powerful knowledge helps students achieve and creates a fairer society. How are you trying to accomplish this, with this module?			
To support the learning of pupils a remote environment whilst keeping in line with the subject aims and Academy values.			
Aims - what do you want pupils to be able to know and do by the time they finish this module?			
Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation Can analyse problems in computational terms, and apply systematic problem solving.			
Academy values – at Landau Forte Amington, we want students to be ambitious, brave and kind. How are these values promoted in this module?			
Brave: Empower pupils to become digitally literate in order to be able to use, and express themselves and develop their ideas through, information and communication technology. Encourages pupils independence by providing the opportunity to formulate solutions to the problems at hand, create a culture of error by encouraging pupils to create creative solutions to a complex problem and debug problems and modify for efficiency.			
Ambitious: Delivery of challenging concepts and ideas. Utilisation of tiered BEBRAS DNA, stretch tasks provided to challenge HA. Resilience promoted through independent learning.			
Kind: to become digitally literate in order to become active participants in a digital society and workplace. Alternative provision prepared in the eventuality of a local/national lockdown. Baseline testing and progressive knowledge auditing throughout to better plan lessons.			
Content – what is being covered, ensuring breadth & depth?		National Curriculum/Exam Specification - how does the content link to the NC or Exam Spec?	

<ol style="list-style-type: none"> 1. Abstraction – learning the definition of abstraction, how to extract the key points from long briefs, how to apply them ready for decomposition 2. Decomposition – learning the definition of decomposition, how to split a task into smaller components. 3. Flowcharts/pseudo-code - learning the interpretation of flowcharts and how to construct them correctly, learning the meaning of the elements of pseudo-code and how to utilise the code effectively 4. Algorithms – learning the definition of algorithms, knowing which to use and recognising their different applications through efficiency. 	<ol style="list-style-type: none"> 3.1.1 Representing algorithms 3.1.2 Efficiency of algorithms 3.1.3 Searching algorithms 3.1.4 Sorting algorithms
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Powerful Knowledge - what powerful knowledge is included in this module? Consider what knowledge is it important for our students to know, so that when they leave school they can engage in and lead discussions, with people from the most advantaged backgrounds?

How to program / Concepts of programming

Abstraction and Decomposition.

Implementation

KEY CONCEPTS

<p>Key Concepts – what are the key concepts being taught?</p>	<p>Progression – how will studying these key concepts support progression to the next academic year, or key stage?</p>
<ol style="list-style-type: none"> 1. Abstraction – learning the definition of abstraction, how to extract the key points from long briefs, how to apply them ready for decomposition 	<p>These key concepts follow the traditional curriculum plan in the initial implementation document.</p>

<ol style="list-style-type: none"> 2. Decomposition – learning the definition of decomposition, how to split a task into smaller components. 3. Flowcharts/pseudo-code - learning the interpretation of flowcharts and how to construct them correctly, learning the meaning of the elements of pseudo-code and how to utilise the code effectively 4. Algorithms – learning the definition of algorithms, knowing which to use and recognising their different applications through efficiency. 	<p>Taken from the existing traditional curriculum and modified to suit the needs of an extended leave of absence.</p>
LEARNING	
<p>Synchronous – what are the synchronous aspects of the module, including new material taught?</p>	<p>Asynchronous – what are the asynchronous aspects of the module, including deliberate practice?</p>
<p>In a group / live lesson there will be opportunity for discussion around the modelling of the tasks by the teacher and the key concepts of the topic I.E:</p> <ul style="list-style-type: none"> • Abstraction • Decomposition • Flowcharts/pseudo-code • Algorithms 	<p>Independently there will be opportunity each lesson to complete several tasks set by the teacher via MS Teams, e.g.</p> <ul style="list-style-type: none"> • Abstraction – learning the definition of abstraction, how to extract the key points from long briefs, how to apply them ready for decomposition • Decomposition – learning the definition of decomposition, how to split a task into smaller components. • Flowcharts/pseudo-code - learning the interpretation of flowcharts and how to construct them correctly, learning the meaning of the elements of pseudo-code and how to utilise the code effectively • Algorithms – learning the definition of algorithms, knowing which to use and recognising their different applications through efficiency.

ENGAGEMENT	
Accessibility – how are you going to ensure students without ICT can engage with this module?	Disengagement – how are you going to ensure students who are not engaging with this module are identified and supported?
Engage with pupils over Print as a booklet and post home.	Contact pupil via Edulink. Contact home via Edulink. Contact home via phonecall. Contact home via CL. Contact home via SLT.
FEEDBACK	
End of Module – what is the end of module assessment, which will be used to evaluate the knowledge and skills gained?	Review Points – what takes place at the review points, to monitor the progress of learners and provide feedback, or support?
A multiple choice assessment will be delivered via an online form to evaluate knowledge. Skills will be assessed through exit ticket / improvement templates.	2 Weeks Pupils answer exam style questions then upload to teams, this is then marked via a rubric and pupils given an opportunity to improve their work
	4 Weeks Pupils answer exam style questions then upload to teams, this is then marked via a rubric and pupils given an opportunity to improve their work
	6 Weeks End of unit test given on MS Forms
	8 Weeks
	Other

Delivery: Lesson 1 provided as an example				
1	1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)	3) Learning Intentions (what, why & how)
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>	BEBRAS Activity
	Blended (live in classroom and remote as study)	<input type="checkbox"/>	Why To practice methods of problem solving	

					How	E	To understand and explain the term algorithm
						4 - 5	To understand and explain the term decomposition
						5 +	To understand and explain the term abstraction
Number of lessons in cycle:	4) New Material (previous learning/ new material)		5) Check for Understanding (questioning/checking)		6) Prepare for Practice (model/ scaffold)		Synchronous (live)
	Algorithms, decomposition, abstraction, problem solving, flowcharts, pseudo-code Live lesson supported by PPT and Worksheet.		The starter is used to gauge prior knowledge of problem solving Use of various questioning techniques throughout the lesson In live lesson using hand up or chat function		The teacher will, during the discussions, challenge any misconceptions and guide the discussions to keep them on topic Modelling in presentation mode of teams		
	7) Deliberate Practice (guided/ independent)		8) Feedback (light/deep)		9) Review (daily/monthly)		
	The task is a group discussion around the key terms, lead and guided by the teacher via MS Teams.		The teacher will ask for volunteers to provide their answers with the group, via the MS teams		N.A		Asynchronous (remote)
2	1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)		
	Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>			What		
	Blended (live in classroom and remote as study)	<input type="checkbox"/>			Why		
					How		
z	4) New Material (previous learning/ new material)		5) Check for Understanding (questioning/checking)		6) Prepare for Practice (model/ scaffold)		Sync hron

		7) Deliberate Practice (guided/ independent)		8) Feedback (light/deep)		9) Review (daily/monthly)				Asynchronous (remote)
3	Number of lessons in cycle:	1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)				
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>			What				
		Blended (live in classroom and remote as study)	<input type="checkbox"/>			Why				
			4) New Material (previous learning/ new material)		5) Check for Understanding (questioning/checking)		6) Prepare for Practice (model/ scaffold)			Synchronous (live)
			7) Deliberate Practice (guided/ independent)		8) Feedback (light/deep)		9) Review (daily/monthly)			Asynchronous (remote)
4	Number of lessons in cycle:	1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)				
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>			What				
		Blended (live in classroom and remote as study)	<input type="checkbox"/>			Why				
	≥ 3		4) New Material (previous learning/ new material)		5) Check for Understanding (questioning/checking)		6) Prepare for Practice (model/ scaffold)			Synchronous

		7) Deliberate Practice (guided/ independent)		8) Feedback (light/deep)		9) Review (daily/monthly)					Asynchronous (remote)	
		1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)						
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>			What						
		Blended (live in classroom and remote as study)	<input type="checkbox"/>			Why						
						How						
5	Number of lessons in cycle:	4) New Material (previous learning/ new material)		5) Check for Understanding (questioning/checking)		6) Prepare for Practice (model/ scaffold)					Synchronous (live)	
		7) Deliberate Practice (guided/ independent)		8) Feedback (light/deep)		9) Review (daily/monthly)					Asynchronous (remote)	
		1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)						
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>			What						
		Blended (live in classroom and remote as study)	<input type="checkbox"/>			Why						
						How						
6	≥ 3	4) New Material (previous learning/ new material)		5) Check for Understanding (questioning/checking)		6) Prepare for Practice (model/ scaffold)					Sync hron	

		7) Deliberate Practice (guided/ independent)	8) Feedback (light/deep)	9) Review (daily/monthly)	Asynchronous (remote)

7	Number of lessons in cycle:	1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)	
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>		What		
		Blended (live in classroom and remote as study)	<input type="checkbox"/>		Why		
			How				
			4) New Material (previous learning/ new material)	5) Check for Understanding (questioning/checking)	6) Prepare for Practice (model/ scaffold)	Synchronous (live)	
		7) Deliberate Practice (guided/ independent)	8) Feedback (light/deep)	9) Review (daily/monthly)	Asynchronous (remote)		

8	Number of lessons in cycle:	1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)	
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>		What		
		Blended (live in classroom and remote as study)	<input type="checkbox"/>		Why		
			How				
	≥ 3	4) New Material (previous learning/ new material)	5) Check for Understanding (questioning/checking)	6) Prepare for Practice (model/ scaffold)	Sync hron		

		7) Deliberate Practice (guided/ independent)	8) Feedback (light/deep)	9) Review (daily/monthly)	Asynchronous (remote)

9	Number of lessons in cycle:	1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)	
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>		What		
		Blended (live in classroom and remote as study)	<input type="checkbox"/>		Why		
			4) New Material (previous learning/ new material)	5) Check for Understanding (questioning/checking)	6) Prepare for Practice (model/ scaffold)	Synchronous (live)	
			7) Deliberate Practice (guided/ independent)	8) Feedback (light/deep)	9) Review (daily/monthly)	Asynchronous (remote)	

10	Number of lessons in cycle:	1) Lesson Type (remote or blended)		2) DNA (Do Now Activity/Reading)		3) Learning Intentions (what, why & how)	
		Remote (live on MS Teams and remote as study)	<input checked="" type="checkbox"/>		What		
		Blended (live in classroom and remote as study)	<input type="checkbox"/>		Why		
	≥ 3		4) New Material (previous learning/ new material)	5) Check for Understanding (questioning/checking)	6) Prepare for Practice (model/ scaffold)	Sync ron	

		7) Deliberate Practice (guided/ independent)	8) Feedback (light/deep)	9) Review (daily/monthly)	Asynchronous (remote)