

Scheme of Learning

Curriculum area: GCSE Computer Science Unit 2
Key Stage: 4

GCSE Computer Science Unit 2 - Computational thinking, algorithms and programming

Lesson.	<u>Lesson Objective/topic</u> This column contains the LO for each individual lesson	<u>Lesson Content/Outcomes</u> This column contains suggested strategies for delivering the content in order to meet the LO for the lesson and is hyperlinked to resources	<u>Cross curricular</u> <u>Prior learning</u>	Assessment + Resources Oak academy/Home Learning (for all home learning tasks. Go through videos, lessons and make notes on topics)
	<p><u>Use craig and videos:</u></p> <p>https://student.craigndave.org/gcse-videos</p> <p>https://www.youtube.com/playlist?list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-</p> <p>Unit 2 – programming skills</p>			
10 lessons	Skills in python	You need to go through the following python skills: <ul style="list-style-type: none">• Displaying text – using print function• Using operators	After each skill – give challenge	Presentation and task sheets in folder

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		<ul style="list-style-type: none">• Using variables• Data types• concatenation -• if statements -• For Loops• While Loops• Writing to files -• Reading from files• Functions Lesson• Arrays• Built in functions: <code>split()</code> -- <code>len()</code> - - <code>strip()</code>• Indexing strings and slicing <p>Complete different challenges</p> <p>Pupils need to be able to understand the code and program it.</p>	Midpoint test on skills End of unit test on skills PL: pupils have covered basic programming skills in Yr 8	Go to the following website and go through python tasks (to save your previous tasks you must sign up with snakify with school email): https://snakify.org/en
		Record marks on tracker		

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	Start unit 2.1 algorithms			
	<ul style="list-style-type: none">Understand the term and processes in computational thinking.Be able to use the skills of: Abstraction Decomposition Algorithmic thinking.	<p>Show video on sorting.</p> <p>Go through abstraction using powerpoint.</p> <p>Starter</p> <ul style="list-style-type: none">You need to write a program that simulates the International Space Station.<ul style="list-style-type: none">How are you going to do this?What do you need to know?How will you implement it? <p>Activity 1</p>	<p>PL: pupils have basic understanding of computational thinking in Yr 7</p> <p>Problem solving skills</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.1-algorithms</p> <p>Go through videos on abstraction and decomposition:</p> <p>https://www.youtube.com/watch?v=TVUvDdpmI70&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=37</p> <p>https://www.youtube.com/watch?v=4Ub85T9ybBs&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=38</p> <p>https://www.youtube.com/watch?v=03zOaHtIUQ4&list=PLCiOXwirraU</p>

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		<ul style="list-style-type: none">• Consider how abstraction would be used to represent a map on a computer.• Complete the worksheet by answer the questions and/or drawing the map as it would appear in a computer model. <p>Go through decomposition</p> <p>Activity 2</p> <p>Complete the diagram to show decomposition for the game of Battleships.</p> <p>Algorithmic Thinking</p> <ul style="list-style-type: none">• What are the steps involved with making a cup of tea?• What are the steps involved in the calculation $200 \div 12$?		AvkTPDWeeSqAKty3LAG37-&index=39
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		<ul style="list-style-type: none">• What are the steps involved in checking if a player has hit part of a ship in battleships?• How could you make the 'Positioning of Ships' more efficient in Activity 2? <p>Plenary</p> <ul style="list-style-type: none">• Get into pairs, or groups of 3.• Test each other on definitions for:<ul style="list-style-type: none">- Computational thinking- Abstraction- Decomposition- Algorithmic thinking.• Add to each other's definitions to make sure they are complete and correct.		
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Lesson 1	<ul style="list-style-type: none">• Be able to use a linear search to find data.• Be able to use a binary search to find data.• Understand the differences between a linear and a binary search.	<p>Starter</p> <ul style="list-style-type: none">• How do you search for an item that you have lost? Or search for a book in a library?• How does a search engine find specific websites?• How would you tell a computer how to search for something? <p>Go through binary search.</p> <p>Activity 1 (you will need playing cards to do this activity)</p> <ul style="list-style-type: none">• Deal 10 cards, face side up.• Put the cards in numerical order (Ace = 1, Jack = 10, Queen = 11, King = 12).• Turn the cards face down.	<p>This is a new topic the pupils will learn</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.1-algorithms</p> <p>Go through video, make notes and create a poster:</p> <p>Linear search:</p> <p>https://www.youtube.com/watch?v=mce2XxIVkVU&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=40</p> <p>Binary search:</p> <p>https://www.youtube.com/watch?v=Eiy5DAr1ijs&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=41</p>
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		<ul style="list-style-type: none">• Use a binary search to see if you have the number 8 (no cheating! Make sure you follow the search rules).• Deal a new set of cards. Use a binary search to see if you have a King. <p>Go through linear search.</p> <p>Activity 2 (you will need playing cards to do this activity)</p> <ul style="list-style-type: none">• Deal 10 cards, face side down.• Use a linear search to see if you have the number 8.• Use a linear search to see if you have a King.• Use a linear search to see if you have an Ace. <p>Activity 3</p>		
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		<ul style="list-style-type: none">• Write down a list of instructions for someone who is not in the class to tell them how to perform a linear and binary search.• Extension:<ul style="list-style-type: none">- Can you write these in pseudocode?- Or a programming language? <p>Plenary</p> <ul style="list-style-type: none">• Get into pairs.• Identify one student as student 1, the other as student 2.• Student 1 needs to give student 2 direct instructions on how to perform a linear, or binary, search.• Student 2 needs to act out the exact instructions on the deck of cards.		
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		<ul style="list-style-type: none">• Student 2 needs to be ready to correct student 1 if needed.• If you finish, swap over and student 2 needs to tell student 1 how to perform the other type of search.		
1 lesson	<ul style="list-style-type: none">• Understand the principles of a bubble sort.• Be able to perform a bubble sort on a set of data.• Understand how the number of comparisons increases in a bubble sort.	<p>Starter</p> <ul style="list-style-type: none">• When do you need to sort things in your daily activities?<ul style="list-style-type: none">- Sort your room?- Sort DVDs, books or computer games so they are in order?- Sort out old clothes that you don't want anymore?• How do you think a computer sorts items? <p>Go through bubble sort</p>	<p>PL: pupils of understanding of sorting data. However, bubble sort is a new method.</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.1-algorithms</p> <p>Go through video, make notes and create a poster</p> <p>https://www.youtube.com/watch?v=5GqZ0Gueb0Q&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=42</p>

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		<p>Activity 1 (you will need playing cards for this activity)</p> <ul style="list-style-type: none">• Deal 10 cards face down.• Use the Bubble sort to put the cards into the correct order.• You can only turn over two cards at a time. Turn them back over when finished with. <p>Activity 2</p> <ul style="list-style-type: none">• Use a bubble sort to sort the data on the worksheet.• Make sure you show each step of the process. <p>Plenary</p> <ul style="list-style-type: none">• Get into pairs.• Identify one student as student 1, the other as student 2.		
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		<ul style="list-style-type: none">• Student 1 needs to give student 2 direct instructions on how to perform a bubble sort.• Student 2 needs to act out the exact instructions on the deck of cards.• Student 2 needs to be ready to correct student 1 if needed.• If you finish, swap over and student 2 needs to tell student 1 how to perform the other type of search.		
1 lesson	<ul style="list-style-type: none">• Understand the principles of a merge sort.• Be able to perform a merge sort on a set of data	<p>Starter</p> <p>Ask pupils what merge sort is?</p> <p>Then go through merge sort</p> <p>Activity 1</p> <ul style="list-style-type: none">• Work in pairs to merge the two lists: 3,7,8,10,11	<p>New topic</p> <p>Problem solving skills</p> <p>PL: pupils of understanding of sorting data. However, merge sort is a new method.</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.1-algorithms</p> <p>Go through video, make notes and create a poster</p> <p>https://www.youtube.com/watch?v=TcNNPUIRqI8&list=PLCiOXwirraU</p>

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		<p>4,6.8,13</p> <ul style="list-style-type: none">• Show each step of the process.• If you have two values the same, add one (it doesn't matter from which list), and then add the second. <p>Go through merge sort lists</p> <p>Activity 2 (you will need a pack of cards for this activity)</p> <ul style="list-style-type: none">• Deal 10 cards, face up.• Perform a merge sort on the cards.• Split the cards into individual elements.• Keep sorting the sub-lists until they are in order. <p>Activity 3</p> <ul style="list-style-type: none">• Use a merge sort to sort the list:		<p>AvkTPDWeeSqAKty3LAG37-&index=43</p>
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		<p>2,19,3,45,77,10,25,29,60,1</p> <p>Activity 4</p> <ul style="list-style-type: none">• Work in pairs to set up one list of up to 12 items to order.• One person use a bubble sort to sort the list.• One person use a merge sort to sort the list.• Record how many moves (a comparison is a move) each one takes.• Which was fastest?• Why? <p>Plenary</p> <ul style="list-style-type: none">• Get into pairs.• Identify one student as student 1, the other as student 2.		
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		<ul style="list-style-type: none">• Student 1 needs to give student 2 direct instructions on how to perform a merge sort.• Student 2 needs to act out the exact instructions on the deck of cards.• Student 2 needs to be ready to correct student 1 if needed.• If you finish, swap over and student 2 needs to tell student 1 how to perform the other type of search.		
1 lesson	<ul style="list-style-type: none">• Understand the principles of an insertion sort.• Be able to perform an insertion sort on a set of data	<p>Starter</p> <p>There are approximately 10 common sorting methods.</p> <p>Go through insertion sort.</p> <p>Activity 1 (you will cards for the activity)</p> <ul style="list-style-type: none">• In pairs, deal 10 cards face down.• Perform an insertion sort.	<p>Problem solving skills</p> <p>PL: pupils of understanding of sorting data. However, insertion sort is a new method.</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.1-algorithms</p> <p>Go through video, make notes and create a poster</p> <p>https://www.youtube.com/watch?v=ZV3Gd2wZBro&list=PLCiOXwirraU</p>

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		<p>- Keep the sorted list separate to the unsorted list.</p> <p>Activity 2</p> <p>Use an Insertion Sort, to sort the list:</p> <p>3,19,2,44,56,7,12,3</p> <p>Activity 3</p> <ul style="list-style-type: none">• Work in 3s to set up one list of up to 12 items.• One person use a bubble sort to sort the list.• One person use a merge sort to sort the list.• One person use an insertion sort to sort the list.• Record how many moves (each comparison is a move) each one takes.		<p>AvkTPDWeeSqAKty3LAG37-&index=44</p>
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		<ul style="list-style-type: none">• Which was fastest?• Why? <p>Plenary</p> <ul style="list-style-type: none">• Use the MCQs on sorting algorithms.		
1 lesson	<ul style="list-style-type: none">• Be able to produce an algorithm using a flowchart.• Be able to produce an algorithm using pseudocode.	<p>Starter</p> <p>What is an algorithm?</p> <p>Go through flowcharts and symbols on the powerpoint.</p> <p>Activity 1</p> <ul style="list-style-type: none">• Follow the flowchart on the worksheet.• Use the data provided when a flowchart asks for an input. <p>Go through pseudocode and pseudocode algorithms.</p> <p>Activity 2</p>	<p>PL:Pupils will be able to identify symbols. However, need support using them</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.1-algorithms</p> <p>Go through video, make notes and create a poster</p> <p>https://www.youtube.com/watch?v=wvAblqsEj54&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=45</p>

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		<p>Write a pseudocode algorithm for each of the algorithms on the worksheet.</p> <p>Plenary</p> <ul style="list-style-type: none">• What are the symbols used in flowcharts?• What are the differences between pseudocode and programming code?		
1 lesson	<ul style="list-style-type: none">• Be able to find and correct errors in algorithms.• Be able to complete algorithms where code is missing.	<p>Starter</p> <ul style="list-style-type: none">• You are presented with a pseudocode algorithm that doesn't work.• How will you find and fix the errors? What do you do? <p>Go through powerpoint on correcting algorithms</p>	Problem solving skills	<p>Presentation and task sheets in folder</p> <p>Unit-2.1-algorithms</p>

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		<p>Activity 1</p> <ul style="list-style-type: none">Find the errors in the algorithm on your worksheet and correct them. <p>Activity 2</p> <ul style="list-style-type: none">Complete the algorithm on your worksheet. <p>Homework</p> <p>Revise 2.1 algorithms</p>		
		<p>Test on 2.1 algorithms</p> <p>Record marks on tracker</p>		<p>Pupils to go to the following websites read through them and watch videos and make notes :</p> <p>https://www.bbc.co.uk/bitesize/guides/z4rbcj6/revision/1</p> <p>Complete the following quiz:</p>

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				https://www.bbc.co.uk/bitesize/guides/z4rbcj6/test
	Start unit 2.2 programming techniques			
12 lessons		Go through all powerpoint and skills bellows: Variables Operators Sequence Selection Iteration File handling String manipulation SQL Records	PL: Basic skills covered in Yr 8 Problem solving skills	Presentation and task sheets in folder Unit-2.2-programming-techniques First of all go through all the videos below and make notes: https://www.bbc.co.uk/bitesize/guides/z6m7xfr/revision/1 https://www.bbc.co.uk/bitesize/guides/znh6pbk/revision/1 https://www.bbc.co.uk/bitesize/guides/znh6pbk/video https://www.bbc.co.uk/bitesize/guides/zb3yb82/revision/1

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		Arrays Sub programs Data types		<p>https://www.bbc.co.uk/bitesize/guides/zb3yb82/video</p> <p>Then go through following videos and make notes:</p> <p>Use of variables:</p> <p>https://www.youtube.com/watch?v=AaLk_fEVCiY&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=46</p> <p>use of programming constructs:</p> <p>https://www.youtube.com/watch?v=TuysZSLqh4M&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=47</p> <p>basic string manipulation:</p> <p>https://www.youtube.com/watch?v=F_dpYmI74E0&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=48</p>
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				<p>use of basic file handling:</p> <p>https://www.youtube.com/watch?v=zQWUgu7f_0E&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=49</p> <p>use of records:</p> <p>https://www.youtube.com/watch?v=F3w0DOqhik4&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=50</p> <p>use of SQL:</p> <p>https://www.youtube.com/watch?v=YejAkhvh6N0&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=51</p> <p>use of arrays:</p> <p>https://www.youtube.com/watch?v=-tBUH5qfL4&list=PLCiOXwirraUAvk</p>
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				<p>TPDWeeSqAKty3LAG37-&index=52</p> <p>use of sub-programs:</p> <p>https://www.youtube.com/watch?v=9qyO0ZOXQU4&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=53</p> <p>use of data types and casting</p> <p>https://www.youtube.com/watch?v=_IqVcodSjHM&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=54</p> <p>the common Boolean operators</p> <p>https://www.youtube.com/watch?v=Qlff2wXoRSw&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=56</p> <p>Ensure you have completed tasks on snakify. https://snakify.org/en</p>
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				<p>Go to following website and open coding challenges booklet:</p> <p>https://www.ocr.org.uk/Images/260930-coding-challenges-booklet.pdf</p> <p>Now you must go through programming challenges on the following website:</p> <p>https://repl.it/languages/python</p>
	Test 2.2			<p>Complete the following quiz:</p> <p>https://www.bbc.co.uk/bitesize/guides/z6m7xfr/test</p> <p>https://www.bbc.co.uk/bitesize/guides/znh6pbk/test</p> <p>https://www.bbc.co.uk/bitesize/guides/zb3yb82/test</p>
	Start unit 2.3 robust programs			
1 lesson	1. To understand the elements of	Starter		Presentation and task sheets in folder

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	<p>defensive program design</p> <p>2. Know how comments and indentation can support maintainability</p> <p>3. Describe the role of testing, including how to identify errors and select appropriate test data.</p>	<p>Show pupils the video:</p> <p>https://www.youtube.com/watch?feature=player_embedded&v=rGIIClLzYts</p> <ul style="list-style-type: none">• What caused the SONY hack?• What are the outcomes of this hack?• How could SONY have prevented the attack?• How might SONY alter their programs to prevent this kind of attack in the future? <p>Defensive Design Considerations</p> <ul style="list-style-type: none">• Make a list of where you commonly enter data.<ul style="list-style-type: none">• How much of this is personal data?	<p>Problem solving skills</p>	<p>Unit-2.3-robust-programs</p> <p>Go through video, make notes and create a poster</p> <p>Defensive design:</p> <p>https://www.youtube.com/watch?v=JyIki33P9g0&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=57</p> <p>https://www.youtube.com/watch?v=8ppQsdQPBeU&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=58</p> <p>Maintainability:</p> <p>https://www.youtube.com/watch?v=PgRnMpMDkuA&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=59</p>
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		<ul style="list-style-type: none">• When data is entered into a program it is important that it is valid in order for the program to operate correctly. <p>Activity 1</p> <ul style="list-style-type: none">• Sort the cards into the correct order create a table of the:<ul style="list-style-type: none">• Name of the validation technique• A definition• An example <p>Input Sanitisation Activity 2</p> <p>Go through:</p> <p>Anticipating Misuse</p> <p>Planning for contingencies</p> <p>Authentication</p>		
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		<p>Activity</p> <p>Make a list of programs where authentication is required and what type of authentication happens</p> <p>Go through:</p> <p>Maintainability</p> <p>Indentation</p> <p>Comments</p> <p>Activity 3/Homework</p> <ul style="list-style-type: none">• Create a simple 'Top 10 tips for effective coding' poster• For example:<ul style="list-style-type: none">• <i>add comments as you write the program and be polite</i>• Include examples and best practice		
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		<ul style="list-style-type: none">You could include screen shots and images <p>Plenary</p> <ul style="list-style-type: none">Play Pictionary: draw words / terms related to the lesson content.Evaluate a program(s) that you have written:<ul style="list-style-type: none">Are they robust? Make a list of features that are and that are notApply defensive design to your own programs.		
1 lesson	<ul style="list-style-type: none">Understand the purpose of testingIdentify different types of program errorsKnow the difference between iterative	<p>Starter</p> <ul style="list-style-type: none">For each letter of the Alphabet write down one test that begins with that letter.For example	<p>PL: pupils will have understanding of testing especially as they have tested their code.</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.3-robust-programs</p> <p>Go through video, make notes and create a poster</p>

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	<p>and terminal testing</p> <ul style="list-style-type: none">• Be able to select suitable test data	<ul style="list-style-type: none">• D Driving Test• G GCSE exam <p>Show pupils the following video:</p> <p>https://www.youtube.com/watch?feature=player_embedded&v=8oI_laHhGjE</p> <p>program errors</p> <ul style="list-style-type: none">• What errors have you come across?• Could the Heartbleed have been avoided?• Who is responsible for the Heartbleed bug? <p>Discuss this article</p> <ul style="list-style-type: none">• http://www.bbc.co.uk/news/technology-35361150		<p>Purpose of data types and testing:</p> <p>https://www.youtube.com/watch?v=Of0seygmDNg&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=60</p> <p>identify syntax and logic errors</p> <p>https://www.youtube.com/watch?v=EZGuVwaP4kc&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=61</p> <p>suitable test data:</p> <p>https://www.youtube.com/watch?v=ouh5DsxvJEk&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=62</p>
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		<p>Go through what is an error</p> <p>Activity</p> <ul style="list-style-type: none">• Look at the code on the following slide• There are some errors/bugs<ul style="list-style-type: none">• Can you identify what they are.• Check with another student and compare to see if you have found them all. <p>Debug this Pseudocode There are three errors</p> <p>Go through: runtime errors, syntax errors, and logic errors</p> <p>Activity 2</p> <ul style="list-style-type: none">• Look back at the code from the previous task and consider each error.		
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		<ul style="list-style-type: none">• Classify them as either Syntax or Logic errors. Make sure you can justify your answer. <p>Activity 2 – Identify and define the errors for dividing two numbers</p> <p>Go through: Types of Testing</p> <ol style="list-style-type: none">1. Share with another students three new elements that you have learnt this lesson2. Open a program that you have written and test it for errors.3. Identify the errors in term so f syntax or logic4. Create an example of a logic error in a programing language of your choice <p>Homework</p> <p>Revise for test next lesson</p>		
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		Test on unit 2.3 robust programs Record marks on tracker		2.3 Robust Programs Pupils to go to the following websites read through them and watch videos and make notes : https://www.bbc.co.uk/bitesize/guides/z4cg4qt/revision/1 https://www.bbc.co.uk/bitesize/guides/z4cg4qt/video Complete the following quiz: https://www.bbc.co.uk/bitesize/guides/z4cg4qt/test
	Start unit 2.4 computational logic			
2 lessons	1. Explain why data needs to be in binary form 2. Draw diagrams for the AND, OR and NOT gates	Starter What is binary? Create a circle map of all things associated with binary	Problem solving skills	

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	<p>3. Create a Truth Table for AND, OR and NOT gates</p> <p>4. Draw Logic Circuits and Truth Tables for 2nd Level Logic Circuits</p>	<p>Go through following answers:</p> <ul style="list-style-type: none">• Binary is the representation of the 'presence' of electricity• If present or 'on' we use a: 1• If absent or 'off' we use a: 0• We can use this idea to change 1 and 0 states through the use of logic gates• Logic Gates take inputs and convert them to an output <p>Watch this video to see why we need binary, logic and transistors: https://www.youtube.com/watch?v=GdqLmdKgw4</p> <p>Task 1</p>	<p>Binary covered in Yr 8 and Data representation unit</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.4-computational-logic</p> <p><u>Oak Academy</u></p> <p>Go through video and complete tasks</p> <p>logic gates</p> <p>https://classroom.thenational.academy/lessons/logic-gates-61h64d</p> <p>logic problems</p> <p>https://classroom.thenational.academy/lessons/logic-problems-6rr30d</p>
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		<ul style="list-style-type: none">• In Groups of 2, create a 1 sentence description of the following gates and draw the gates:<ul style="list-style-type: none">• AND• OR• NOT <p>Go through PowerPoint on logic gates and truth tables for each of the gates.</p> <p>Task 2</p> <p>Pupils to create truth tables for the different logic gates.</p> <p>Task 3</p> <ul style="list-style-type: none">• Develop your work from the starter activity to create a mini guide/notes on all three logic gates		
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		<ul style="list-style-type: none">• Create 3 questions that you can ask a friend to check they understand Logic Gates!• Create a Key Word Dictionary for Logic Gates <p><u>Task</u></p> <p>Create the Truth Table for the following:</p> <p>$A \wedge (B \vee C)$</p> <p>Go through answers above</p> <p>Give the pupils further examples of truth tables and go through answers</p> <p>Activity 3 – Computational Logic Challenges – complete the activity</p> <p>In the following folder are further lessons on: lessons and tasks on Computational Logic</p>		
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		<p>Go through further examples of logic gates and truth tables</p> <p>Plenary</p> <ul style="list-style-type: none">• Complete the Multiple Choice Quiz• Peer Assess each other's answers• Try an exam question on Logic and see how well you did• Write down anything you are not sure on, on a Post-It and give to teacher <p>Homework</p> <p>Revise for test for next lesson</p>		
		<p>Record marks on tracker</p>		<p>Pupils to go to the following websites read through them and watch videos and make notes :</p> <p>https://www.bbc.co.uk/bitesize/guides/zjw8jty/revision/1</p>

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				Complete the following quiz: https://www.bbc.co.uk/bitesize/guides/zjw8jty/test
	Start Unit-2.5-translators-and-facilities-of-languages			

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2 lessons	<ul style="list-style-type: none">• To be able to describe the different generations of programming language• To be able to describe the differences between Low Level and High Level Languages• To evaluate the benefits of programming in both Low and High Level languages• To state which translator is needed for each and why	<p>Starter</p> <p>Start the lesson by showing pupils the following video: https://www.youtube.com/watch?feature=player_embedded&v=1OukpDfsuXE</p> <p>Activity 1</p> <p>For the map below, identify what would make code easier for a computer to understand and what makes code easier for a computer to understand.</p> <p>Go through answers</p> <p>Activity 2</p> <p>Go through system architecture little man computer. Then get pupils to complete activity 2</p> <ul style="list-style-type: none">• Identify the errors in a section of Machine Code that you have been given.• What are the issues to the programmer?• Imagine if the code was much larger?	<p>New topic.</p> <p>Pupils have understanding of translating code</p>	<p>Presentation and task sheets in folder</p> <p>Unit-2.5-translators-and-facilities-of-languages</p> <p><u>Oak Academy</u></p> <p>Assembly language programming I</p> <p>https://classroom.thenational.academy/lessons/assembly-language-programming-i-6cw34d</p> <p>Purpose of translators:</p> <p>https://www.youtube.com/watch?v=GJxgQVyakJQ&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=64</p>
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		<ul style="list-style-type: none">• What are the advantages of programming in the language that you are familiar with? <p>Go through powerpoint on 1st, 2nd, 3rd and 4th generation programming languages</p> <p>Ask pupils to identify the generation</p> <p>Activity 4</p> <p>Produce Graphics organiser to identify the differences between the different Generations of Programming Languages using the method on the worksheet</p> <p>Plenary</p> <ul style="list-style-type: none">• Split class into groups• Each group is given a generation of programming language (1st, 2nd or 3rd)• They have 10 minutes to prepare an argument as to why their generation is best• Students then vote on which argument 'won' at the end of the debate		
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	<ul style="list-style-type: none">To be able to describe how an Assembler worksTo be able to describe the differences in operation between a Compiler and InterpreterTo be able to describe the common tools and facilities in an Integrated Development Environment (IDE)	<p>Starter</p> <p>What are the key differences between the different levels of Programming Languages?</p> <p>What differences are there between the different Language Translators?</p> <p>Go through the following:</p> <ul style="list-style-type: none">Language Translators are used to translate a language into a form that the will be able to directly execute<ul style="list-style-type: none">Assemblers are used for 2nd GenerationCompilers/Interpreters are used for 3rd Generation		<p>Presentation and task sheets in folder</p> <p>TUnit-2.5-translators-and-facilities-of-languages</p> <p>Assembly language programming II</p> <p>https://classroom.thenational.academy/lessons/assembly-language-programming-ii-6wtp2c</p>
		Activity		

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		<p>You will be handed either a sheet on Compilers or Interpreters:</p> <ol style="list-style-type: none">1. Spend 10-15 minutes completing the task given on the sheet to produce a diagrammatic form of the text (e.g. MindMap, Cartoon etc).2. Work with a partner to explain to them what is meant by Compiler/Interpreter using only your notes.3. Check understand (peer assess each other) <p>Go through assemblers, interpreters, compilers and IDE</p> <p>Activity 4</p> <p>Open up the python programming language that you are familiar with and produce a series of screen shots / notes that identify:</p>		<p>Assemblers, compilers and interpreters</p> <p>https://www.youtube.com/watch?v=VBORpzT6maU&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=65</p> <p>IDE's</p> <p>https://www.youtube.com/watch?v=NEtzxrtZxNY&list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37-&index=66</p>
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		<ul style="list-style-type: none">- Where the editor is located and how it is used- Where the error diagnostics can be found and used- How the run-time environment looks and the features of this- Examples of using the Compiler and Interpreter		
1 lesson		<p>Go to the following folder:</p> <p>Programming Languages-translators</p> <p>And complete exam questions on the topic</p> <p>Record marks on tracker</p>		<p>Pupils to go to the following websites read through them and watch videos and make notes :</p> <p>https://www.bbc.co.uk/bitesize/guides/z6x26yc/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/z6x26yc/video</p> <p>Complete the following quiz:</p>

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				https://www.bbc.co.uk/bitesize/guides/z6x26yc/test
		Go through all topics and create revision maps		