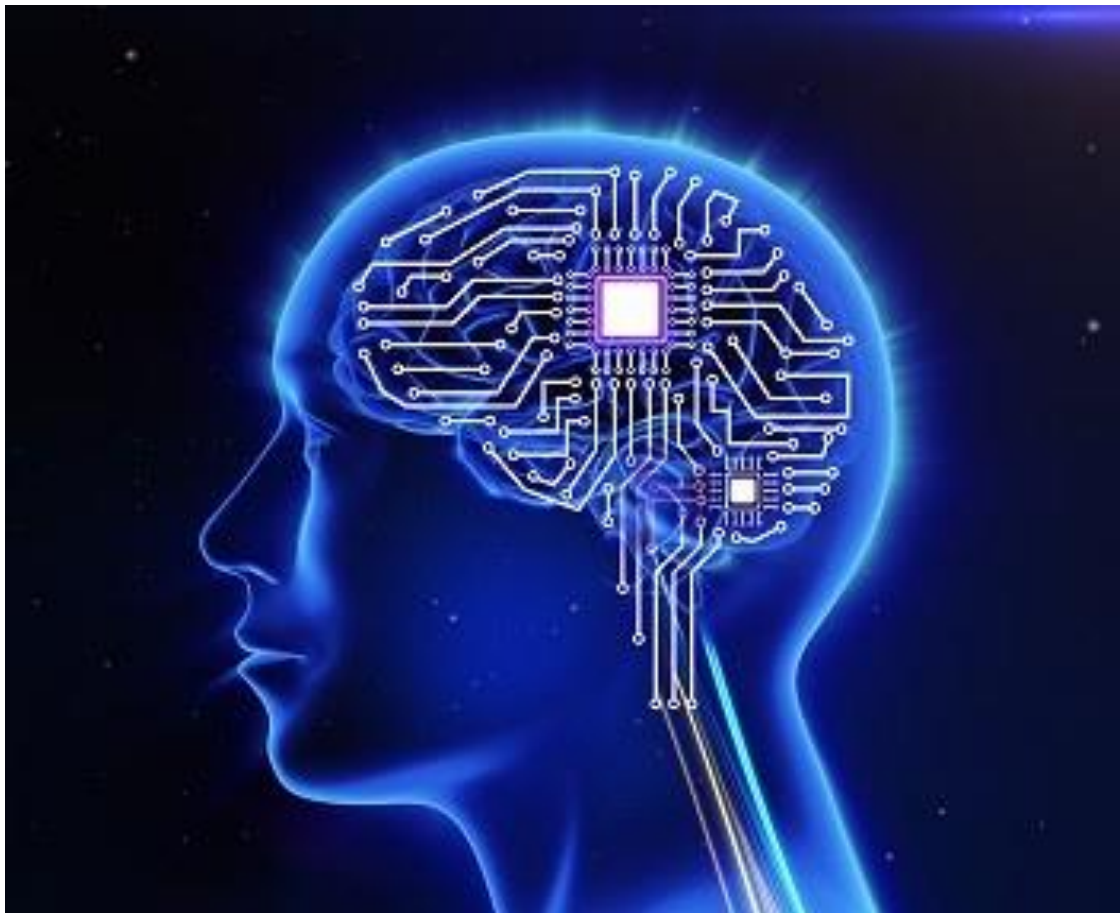




Eden Park

Computing Intent and Progression Statements



Computing

Eden Park Intent

Growing hearts and minds – together

In line with the National Curriculum for Computing, our aim is to provide a **high-quality computing education which equips children to use computational thinking and creativity to understand and the world**. The curriculum will teach children key knowledge about how computers and computer systems work, and how they are designed and programmed. Learners will have the opportunity to gain an understanding of computational systems of all kinds, *whether or not they include computers*.

At Eden Park we actively educate children about **managing risk and keeping themselves safe**. E-safety is embedded throughout our computing and wider curriculum and not just a bolt on. As they develop computing skills, Eden Park children will **search out bias, never taking 'facts' at face value**. Children will be able to **critically evaluate websites** for reliability of information and authenticity and demonstrate responsible use of online services and technologies. Children will know how to report risks and how to manage them effectively. The school will support and work with parents in partnership to keep children safe, highlight issues and challenge misinformation.

At Eden Park, we actively teach children to use precise, technical computing vocabulary, empowering them to **communicate** in an ever complex digital world.

By the time they leave Eden Park, children will have gained key knowledge and skills in the three main areas of the computing curriculum:

- **computer science** (programming and understanding how digital systems work)
- **information technology** (using computer systems to store, retrieve and send information)
- **digital literacy** (evaluating digital content and using technology safely and respectfully). The objectives within each strand support the development of learning across the key stages, ensuring a solid grounding for future learning and beyond.

Computing at Eden Park will be:

ACTIVE: Pupils should be **actively engaged** and **motivated** in their learning - typically this will be doing something on a computer, but could also be taking part in a discussion or an activity away from the computer.

CONSTRUCTIVE: This can be understood both in the sense of constructing meaning, developing pupils' mental mode of computation and technologies, and in the sense of making something, whether this is a computer program, a presentation or a blog post.

INTENTIONAL: Ideally, pupils should have some degree of **choice** over how they tackle a task or project, or perhaps even over the task or project itself. It is unlikely they will learn much from copying a worked solution off an IWB screen, and many projects can be constructed or adapted to allow plenty of scope for **individual creativity**.

AUTHENTIC: Wherever possible, try to link activities with **pupils' own experiences**, both within and beyond school; cross curricular projects work well, as do those link to pupils' experiences of technology.

COOPERATIVE: Computing, in both industrial and academic contexts, is a **collaborative** endeavour. Where possible, our curriculum will construct activities so that pupils can **work together**, supporting one another in their learning.

There are **three main areas** of the computing curriculum:

1. Computer science (programming and understanding how digital systems work)

<https://www.bbc.co.uk/bitesize/topics/zkcqn39/articles/zxgdwmn>

2. Information technology (using computer systems to store, retrieve and send information)

KS1 - <https://www.bbc.co.uk/bitesize/topics/zbhgjxs>

KS2 - <https://www.bbc.co.uk/bitesize/topics/zf2f9j6>

3. Digital literacy (evaluating digital content and using technology safely and respectfully).

KS1 - <https://www.bbc.co.uk/bitesize/topics/zymyqqt>

KS2 - <https://www.bbc.co.uk/bitesize/topics/zv63d2p>



INFORMATION TECHNOLOGY Progression Statements

What is a computer?

EYFS	KS1	Lower KS2	Upper KS2
Use different digital devices	Name a range of digital devices	Open and save a file to a suitable folder	Use the keyboard confidently to type at a suitable pace
Understand that you can access content on a digital device	Explain what the basic parts of a computer are used for, e.g. mouse, screen, keyboard	Use suitable file names when saving work	Use common keyboard shortcuts
Use a mouse, touchscreen or appropriate access device to target and select options on screen	Understand that you can find information from a website	Use a search engine to find information using keyword searches	Create and use a strong password where appropriate
Recognise a range of digital devices	Use a simple password when logging on, where relevant	Understand that school computers are connected (if relevant)	Organise files effectively using folders
Recognise the basic parts of a computer, e.g. mouse, screen, keyboard	Understand that you can share digital content	Type using all fingers	Use more advanced searching techniques when using a search engine
Recognise key parts of a keyboard, e.g. spacebar, numbers and letters	Recognise and use a range of input devices, e.g. mouse, keyboard, microphone, touchscreen	Understand you can organise files using folders	Understand that different devices can have different operating systems, and can give examples, e.g. Windows, iOS, Android
Understand that you can access	Recognise and use a range of output devices, e.g. printer, speakers, monitor/screen	Delete, move and copy files	Understand the main functions of an operating system
		Use right-click, left-click and double-click appropriately on a mouse	
		Use a search engine to find specific	

<p>the same content on different devices</p> <p>Add text to a document using the keyboard (where appropriate)</p> <p>Understand that information and media can be stored on a digital device, e.g. they ask to view a photo that has been taken on a tablet</p>	<p>Recognise that a range of devices contain computers, e.g. washing machine, car, laptop</p> <p>Know where to save and open work</p> <p>Understand that you can use a search engine to find information using keyword searches</p> <p>Understand that all devices, programs, websites, apps and games are designed and manufactured by real people to fulfil specific tasks</p>	<p>information</p> <p>Know how to copy text and images into another document</p> <p>Remember an individual password</p>	<p>Recognise common file types and extensions</p>
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Understanding and sharing data

EYFS	KS1	Lower KS2	Upper KS2
<p>Access content in a range of formats, e.g. image, video, audio</p> <p>Sort familiar objects into 1 or more categories</p> <p>Answer basic questions about information displayed in images, e.g. more or less</p> <p>Can distinguish between text,</p>	<p>Identify an object by asking yes/no questions</p> <p>Recognise charts, tables or branching databases and understand why we use them</p> <p>Explain information shown in a simple chart, pictogram, infographic or database</p>	<p>Appreciate that different programs work with different types of data, e.g. text, number</p> <p>Explore a record database to find out information</p> <p>Know that there is a difference between data and information</p> <p>Use filters in a database to find out</p>	<p>Appreciate that different programs work with different types of data, e.g. text, number</p> <p>Explore a record database to find out information</p> <p>Know that there is a difference between data and information</p> <p>Use filters in a database to find out</p>

<p>image, video and audio content</p> <p>Collect simple data (e.g. likes/dislikes) on a topic</p> <p>Can present simple data using images, e.g. number of animals</p>	<p>Use specific software to create simple charts</p> <p>Collect data on a topic (eye colour, pets etc.)</p> <p>Present data in a pictogram independently</p> <p>Identify an object using a branching database</p> <p>Recognise an error in a branching database</p> <p>Create a branching database using pre-prepared images and questions</p> <p>Find out similar information in different formats, e.g. text, video, audio</p> <p>Explain how different formats communicate information and their benefits</p> <p>Independently plan out and create a branching database</p> <p>Evaluate a given branching database and suggest improvements</p> <p>Understand that the questions you ask are important, when collecting</p>	<p>specific information</p> <p>Understand the benefits of using a computer to create charts and databases</p> <p>Understand that information can be stored and shared on the Internet</p> <p>Understand that search engines store information in databases</p> <p>Design a questionnaire and collect a range of data on a theme</p> <p>Enter data into a database package and test</p> <p>Draw conclusions from information stored in a database, table or chart</p> <p>Understand that the Internet is made up of computers from all around the world connected together</p> <p>Understand that that school computers are connected together in a network</p> <p>Understand that we use a web browser to access information stored on the Internet</p> <p>Present data in a number of different ways to convey information</p>	<p>specific information</p> <p>Understand the benefits of using a computer to create charts and databases</p> <p>Understand that information can be stored and shared on the Internet</p> <p>Understand that search engines store information in databases</p> <p>Design a questionnaire and collect a range of data on a theme</p> <p>Enter data into a database package and test</p> <p>Draw conclusions from information stored in a database, table or chart</p>
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	data		
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DIGITAL LITERACY

Communicating: Text, Images & Multimedia

EYFS	KS1	Lower KS2	Upper KS2
Use technology to explore and access digital content	Select media (e.g. images, video, sound) to present information on a topic	Edit existing media to make new content with an awareness of copyright	Identify and use appropriate hardware and software to fulfil a specific task
Operate a digital device with support to fulfil a task	Understand that you can edit and change digital content	Evaluate existing and their own digital content	Remix and edit a range of existing and their own media to create content
Create simple digital content, e.g. digital art	Select basic options to change the appearance of digital content	Edit digital content to improve it according to feedback	Recognise the audience when designing and creating digital content
Choose media to convey information, e.g. image for a poster	Combine media with support to present information, e.g. text and images	Design and create digital content for a specific purpose	Understand the benefits of using technology to collaborate with others
Choose a digital device from a selection to complete a specific task	Apply edits to digital content to achieve a particular effect	Collaborate with peers using online tools, e.g. blogs, Google Drive, Office 365	Are aware of a range of Internet services, e.g. email, VOIP (Voice Over Internet Protocol e.g. Skype, FaceTime), World Wide Web, and what they do
	Plan out digital content	Collect, organise and present information effectively using a range of media	Select, combine and use Internet services to fulfil a purpose
	Present ideas and information by combining media independently	Use a range of tools to edit and enhance media for a particular effect	
	Talk about what makes digital content good or bad		

	Edit digital content to improve it		Identify success criteria for creating digital content for a given purpose and audience Evaluate their own content against success criteria and make improvements accordingly
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Online Safety & Digital Literacy

EYFS	KS1	Lower KS2	Upper KS2
Are aware that some online content is inappropriate	Understand that you can share digital content online	Understand that we can search for information in a variety of ways and that we influence the outputs of searches depending on our input	Know where to find copyright free images and audio, and why this is important
Are aware that information can be public or private	Understand what personal information is and the need to keep it private	Know different ways of reporting unacceptable content and contact online	Demonstrate responsible use of online services and technologies, and know a range of ways to report concerns
Recognise inappropriate content and know to tell an appropriate adult	Know who to tell if concerned about content or contact online	Understand when to share personal information and when not to	Critically evaluate websites for reliability of information and authenticity
Can describe what makes a good friend	Understand that digital content belongs to the person who first created it	Understand that games and films have age ratings, and what that means	Understand what makes a strong password and why this is important at school and in the wider world
	Save and reuse digital content found online	Understand that people can give permission for others to use their content.	Become increasingly savvy online consumers: know that algorithms
	Understand why we use passwords		

	<p>Can remember a simple password and know not to tell anyone</p> <p>Understand what makes a good online friend and the need to be kind and thoughtful online as in the real world</p> <p>Can identify rules to add to an acceptable use policy for the class</p> <p>Understand that spending a long time in front of a computer screen can be unhealthy</p> <p>Understand that when we share content online, we might not be able to delete it</p> <p>Know that not all information found online is true</p> <p>Understand that the digital content we make belongs to us and others need to ask permission to use it</p>	<p>Are aware that some people lie about who they are online</p> <p>Recognise what kind of websites are trustworthy sources of information</p> <p>Can rate a game or film they have made and explain their rating</p> <p>Understand the benefits of a good password</p> <p>Recognise the benefits and risks of different apps and websites</p> <p>Understand that the media can portray groups of people differently</p>	<p>are used to track online activities with a view to targeting advertising and information</p> <p>Know that there are laws around the purchase of games; the production, sending and storage of images; what is written online; and around online gambling</p>
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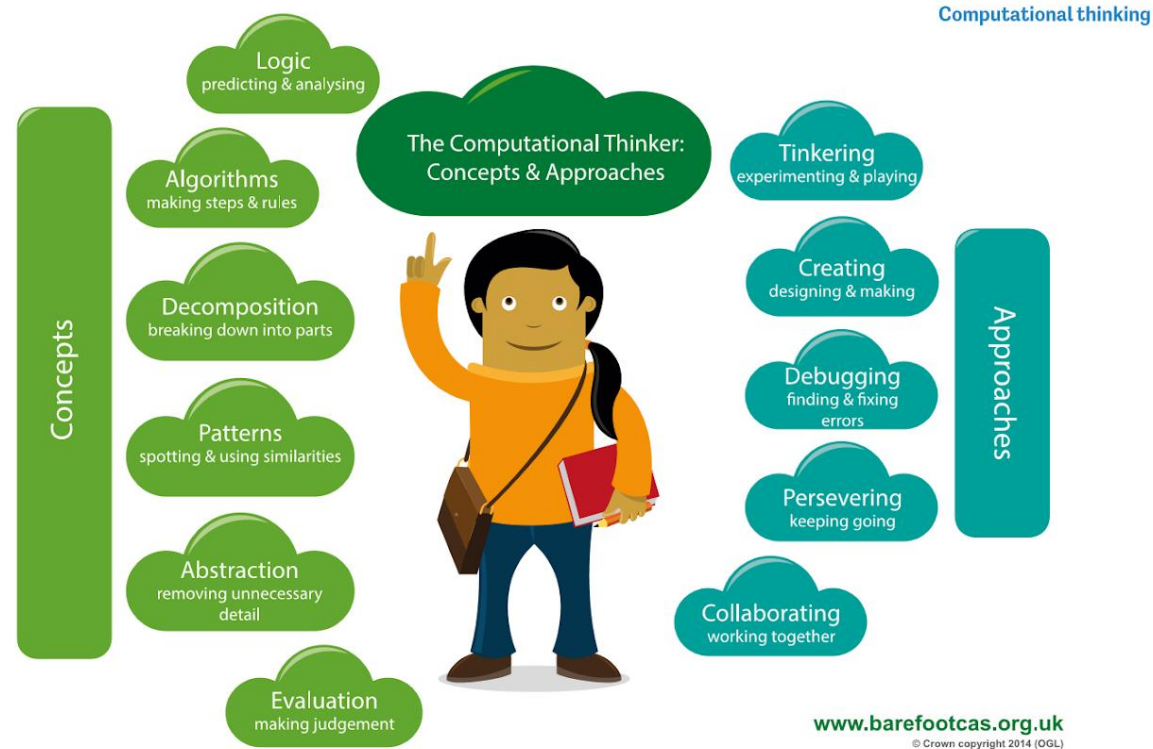
COMPUTER SCIENCE

Programming & Computational Thinking

EYFS	KS1	Lower KS2	Upper KS2
Explore technology	Identify and list the steps of a known task in order	Understand that we can decompose a problem into smaller steps to make it simpler	Recognise that different solutions exist for the same problem
Repeat an action with technology to trigger a specific outcome	Understand that we control computers by giving them instructions	Remix and change an existing program	Predict what will happen in a program or algorithm (e.g. change of output) when the input changes (e.g. sensor, data or event)
Recognise the success or failure of an action	Create a simple program e.g. to control a floor robot	Use repetition to make programs more efficient	Recognise variables in a program
Follow simple instructions to control a digital device	Understand what an algorithm is	Predict the outcome of a program, e.g. Scratch or Flowol	Use two-way selection, i.e. if... then... else...
Try alternative approaches to achieve a goal	Create a simple algorithm	Use diagrams to represent an algorithm, e.g. a flowchart	Create programs including repeat until loops
Understand that we control computers	Identify and explain patterns in groups of objects	Use forever loops in a program	Create simple variables, e.g. to keep score or remove lives in a game
Can order the steps of a known task	Debug an error in a simple algorithm or program e.g. for a floor robot	Create a program using a range of events/inputs to control what happens	Understand the difference between and use if... then... and if... then... else... statements
Input a short sequence of instructions to control a device	Predict the outcome of a simple algorithm or program	Use selection in algorithms and programs, i.e. if... then...	Combine a variable with relational operators (< = >) to determine when a program changes, e.g. if score > 5, say "well done"
Recognise patterns in groups of objects	Understand that computers have no intelligence and we have to program them to do things	Decompose a problem and create a solution (sub-routine) for each step	
	Understand that the order of instructions in an algorithm is important	Use procedures in programs to create a sub-routine e.g. a procedure called 'square' in Logo	

	<p>Understand that instructions in an algorithm need to be clear and unambiguous</p> <p>Evaluate the success of an algorithm or program</p> <p>Identify and correct errors in a given algorithm or program (debugging)</p> <p>Use the language <i>if... then</i> to describe the relationship between two actions</p>		<p>Can design a physical computing system that uses sensors, e.g. using a flow chart</p>
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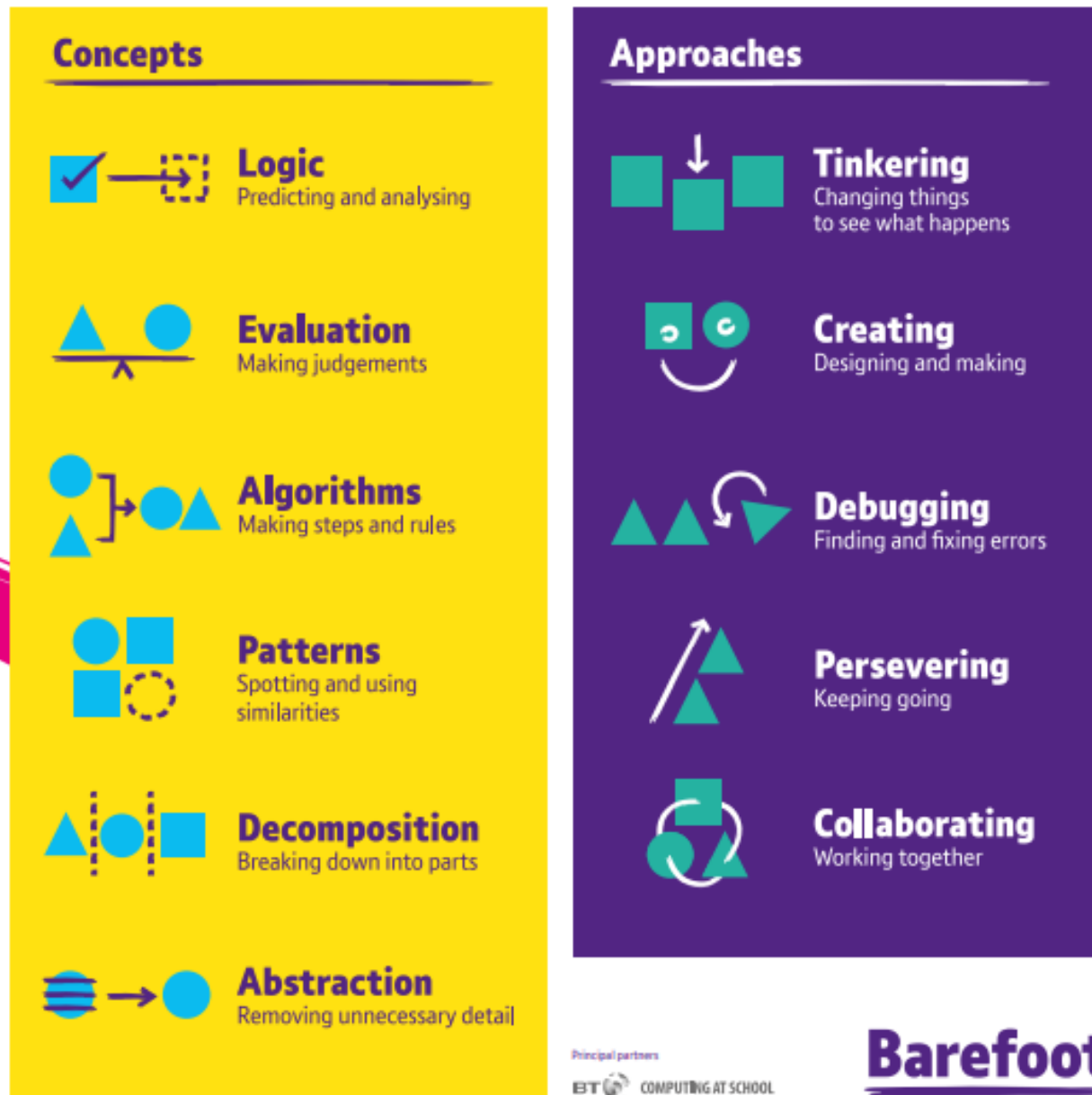
What is COMPUTATIONAL THINKING?



Computational thinking lies at the heart of a high quality Computing and ICT Curriculum and further details regarding these concepts and approaches can be found at CAS:

<https://www.barefootcomputing.org/concept-approaches/computational-thinking-concepts-and-approaches>

COMPUTATIONAL THINKING involves 6 different concepts and 5 different approaches to working:



ALGORITHM:
step by step instructions to solve a problem




DEBUG:
find and fix mistakes in a computer program



INPUT:
data that goes into a computer




PROCESS:
something that happens to change data into useful information



OUTPUT:
information that comes out of a computer



PROGRAM:
a list of instructions that tells a computer exactly what to do



SEQUENCE:
more than one instruction to be followed in order



SELECTION:
when your program has to make a choice



REPETITION:
doing the same instruction more than once



VARIABLE:
something your program needs to remember that might change

