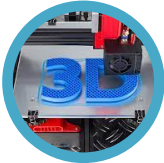


KEY IDEAS



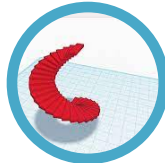
3D printing turns digital 3D models into solid objects by building them up in layers.



A variable hold information that can be changed by the program, the user or the variable itself.



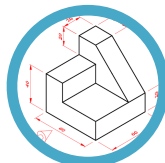
The 3D printing process turns a whole object into thousands of tiny little slices, then makes it from the bottom-up, slice by slice. Those tiny layers stick together to form a solid object.



3D printing is becoming increasingly common, and it begins with creating a 3D design.



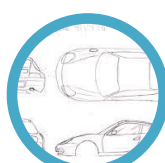
Design is a process of making creative decisions to create something and then refining those decisions until you, as the creator, determines the project is complete.



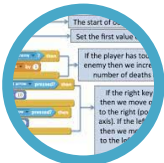
To understand something complex, it's best to look at it in pieces. You can use "orthographic projection" to break down a design and study it.



The same thing is true for coding, it is a process where you make decisions, using commands, until you have achieved the outcome that you are looking for.



Orthographic drawings are a way of drawing an 3D object from different directions. A person looking at the drawing can see all the important sides.



Variables play an important part in programming. They allow values to be stored and manipulated.



Used by engineers, architects, and construction managers, CAD has replaced manual drafting. It helps users creating designs in either 2D or 3D so that they can visualise the construction.

KEY VOCABULARY

Computer Aided Design (CAD)	Computer-aided design is a way to digitally create 2D drawings and 3D models of real-world products—before they're ever manufactured.
2D	Two-dimensional.
3D	Three-dimensional.
3D Printing	The action or process of making a physical object from a three-dimensional digital model, typically by laying down many thin layers of a material in succession.
Loop	The action of doing something over and over again.
Repeat	Refers to one element repeated.
Variable	Are data values that can change when the user is asked a question, for example, their age. Variables may change during program execution.
Pattern	A repeated design or recurring sequence of elements.