



Curriculum Overview: Engineering - CAD

Year group 7

What your child will learn each rotation {9 weeks}

This overview shows the key topics, skills, and knowledge your child will be learning in **Technology Engineering - CAD** in **Year 7**. It helps families understand what's being taught, how it builds on previous learning, and how you can support your child at home.

- **What we are learning:** The topic or focus for rotation/
- **Key knowledge & skills:** What students should understand and be able to do.
- **How we assess learning:** knowledge checks, practical tasks, written responses and formal assessments.
- **Key words to know:** Vocabulary students will learn and use.

CAD Unit	What we are learning	Key knowledge	Key skills	How we will assess learning in this unit	Homework	Key vocabulary for this unit
9 Week Rotation	Design – Identify and solve design problems, creating clear specifications for innovative, functional, and appealing products. Generate creative ideas using approaches like biomimicry or user-centred	Expert Knowledge To use a computer aided program to draw basic shapes 2/3 D shape Design a computer generated 3 D camera / house with	Technical Skills CAD Navigation – Use the SolidWorks interface; rotate, zoom, and pan in 3D. 2D & 3D Drawing – Create 2D shapes (square, circle, polygon) and turn them into 3D forms (cube, cylinder, pyramid). 3D Modelling – Group, align, and edit using tools like extrude, cut, rotate, mirror, and scale. Build complex models (e.g. camera, house) from simple shapes.	Knowledge check on CAD skills every lesson. Short written task on CAD skills, lesson 5 Final assessment of CAD and written work, lesson 9.	Find images to items to design in CAD, eg a camera, their own house, or some other building, or an analogy clock	2D Shapes – Flat shapes like squares and circles with length and width. 3D Forms – Solid shapes like cubes and cylinders with length, width, and height. 3D Modelling – Creating 3D objects using CAD software. Align – Neatly lining up shapes. Camera / House – Examples of products designed in CAD. Combine / Group – Join shapes to form one object. Composite Object – A complex model made from simple shapes. Concept – An idea or plan for a design. Cube / Cylinder / Square – Basic 3D and 2D shapes.
	design, and communicate them through sketches, models, and digital tools	these shapes Evaluate their designs against a set criteria	Design & Creativity Conceptual Design – Visualise and plan a 3D product or structure before modelling.			Design – Planning and creating something new. Draw / Extrude – Make and stretch shapes into 3D. Materials – What an object is made from. Mirror – Flip a shape like a reflection. Model – 3D computer design of an object.
	Make – Use computer-aided manufacturing programs to		Evaluation & Reflection Design Evaluation – Review and improve design ideas.			Mouse Controls / Pan / Zoom / Rotate / Scale – Move, view, and resize designs. Physical Prototype – A real test version of a model. Polygon – Flat shape with straight sides.
	produce designs. Evaluate – Test and refine designs against specifications, considering		Knowledge & Understanding CAD Principles – Know what CAD is, why it's used in engineering, design, and architecture, and its advantages (precision, speed, easy editing). Materials & Applications – Understand links between CAD			Precision – Being accurate in your design. Product – Something made to use or sell. SolidWorks – A 3D CAD program. Speed – How quickly you create or edit designs. Visualise – Picture your idea before making it.

	feedback from users and others.		models, 3D printing, and real-world prototypes.			
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