

CAD

Desirable features

-If pupils are working in the area of computer aided design there are some of the characteristics they may demonstrate and how these skills relate to the 5'Es which represent the Cross Curricular skill of ICT.

Level 3: Typically pupils may...

- Use CAD tools to create a component or simple product, incorporating use of colour (Express)
- Use CAD information to manufacture with a computer controlled machine (Exchange)
- Dimension a drawing appropriately for manufacture (Exchange)
- Make modifications to their work (Evaluate)
- Save work for further use using meaningful file names (Exhibit)

Level 4: Typically pupils may...

- Produce a 2D drawing and simulate 3d effects using rendering techniques such as a gradient fill or shadow (Explore)
- Add basic annotation of work including some dimensions and notes (Express)
- Save and organise their work (Exchange)
- Talk about possible changes to simple drawings (Evaluate)
- Print their work (Exhibit)

Level 5: Typically pupils may...

- Produce 2D or 3D drawings, interpreting information from a given dimensional drawing view (Explore)
- Annotate drawings using simple dimensions and text, considering a sense of audience and purpose (Express)
- Produce 3D components using a single feature such as extrude (Express)
- Save and organise drawings for future access and development using meaningful names and versions (Exchange)
- Save work in another format e.g. jpeg (Exchange)
- Make simple changes to designs e.g. changing dimensions, deleting a line, filleting a corner (Evaluate)
- Print drawing for insertion into portfolio (Exhibit)

Level 6: Typically pupils may...

- Design, model and manipulate 3D solutions (Explore)
- Investigating existing solutions through manipulating solid models (Explore)
- Explore the use of colour 3D models (Explore)
- Create annotated working drawings considering dimensions and a minimum of 2 views (Express)
- Produce 3D components using features such as extrude and revolve (Express)
- Save and e-mail drawings for review and manufacture (Exchange)
- Convert to appropriate file types for manufacturing (Exchange)
- Consider sizes and dimensions on drawing layouts to maximise material economy (Exchange)
- Comment on and discuss drawings / solid models (Evaluate)
- Review parts or components and consider modifications (Evaluate)
- Cut and paste images into design portfolios (Exhibit)
- Print and publish presentation drawings for appropriate audience (Exhibit)
- Create an assembly from two components (Exhibit)

Level 7: Typically pupils may...

- Design, model and manipulate 3D solutions to a set brief (Explore)
- Make predictions through the manipulation of solid models (Explore)
- Explore the use of 3D models in relation to aesthetics and surface finish (Explore)
- Produce quality and accurate annotated working drawings considering recognised orthographic standards (Express)
- Produce 3D components using advanced features such as sheet metal or lofting (Express)
- Use electronic means to exchange ideas and information on or about drawings (Exchange)
- Convert files to a range of formats for manufacturing techniques (Exchange)
- Give consideration that the proposed design solution will fit within machining parameters and strategies (Exchange)
- Comment and discuss drawings / solid models – sharing suggestions and improvements (Evaluate)
- Review parts or components, test and modify as necessary (Evaluate)
- Incorporate images into design portfolios with consideration to file sizes and types (Exhibit)
- Animate and publish drawings for desired audience and purpose, considering surface finish and rendering (Exhibit)
- Combine multiple part files to produce an assembly (Exhibit)