At Junior Certificate level the student can:

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| 4 | **3D objects**  
   | Apply the knowledge and skills of drawing needed to understand the design and construction of 3D objects |
| 5 | **CAD programs**  
   | Apply the skills, knowledge and understanding needed to produce a graphic image using Autocad (or other suitable CAD program) |
| 10 | **Drawing: 2D shapes**  
    | Use basic drawing instruments to demonstrate the skills of drawing and the knowledge of basic 2D shapes |
| 11 | **Drawing: Complex 2D and 3D shapes**  
    | Use basic drawing instruments to demonstrate the skills of drawing and the knowledge of more complex 2D shapes and basic 3D shapes |
| 12 | **Scale drawings**  
    | Use the full range of drawing instruments to produce scale drawings |

Area of Experience: Technical Graphics

Tec.Graphics

Work begun | Work in progress | Work completed
At Junior Certificate level the student can:

**Apply the knowledge and skills of drawing needed to understand the design and construction of 3D objects**

**Learning Targets** - This has been demonstrated by your ability to:

1. Recognise the following 3D shapes from your environment: sphere, cube, cuboid, cone
2. Give examples of the above 3D shapes from the environment
3. Recognise the following 3D shapes: square-based, triangular-based and polygonal pyramids and prisms
4. Recognise and copy simple isometric objects made up of cubes and cuboids under direct teacher guidance
5. Estimate and measure a small 3D object with rectangular sides and record measurements on a given 3D drawing
6. Dismantle a cardboard container to show the shape of its construction
7. Understand an exploded view of a container
8. Draw and construct a simple 3D container from a given development drawing containing dimensions, using paper or card
9. Understand plan and front elevation of a simple object by reference to a 3D solid
10. Demonstrate an understanding of plan and front elevation of a simple object by colouring surfaces on given isometric drawings
11. Draw a plan and front elevation of a simple everyday solid and insert dimensions
12. Understand the following terms: elevation, isometric, development, envelopment
13. Follow a simple design brief to draw and construct a simple container from card, plastic, metal, or wood

**Work begun** □ □ □ | **Work in progress** □ □ □ | **Work completed** □ □ □
At Junior Certificate level the student can:

**Apply the skills, knowledge and understanding needed to produce a graphic image using Autocad (or other suitable CAD program)**

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**Learning Targets** - This has been demonstrated by your ability to:

1. Identify and name computer hardware materials: monitor, mouse, mouse pad, keyboard, printer, plotter, floppy disk
2. Identify software terms using 'Autocad' through MS DOS/Windows
3. Understanding the following commands: draw, line, circle, polygon, modify, erase, open, exit, save, properties etc.
4. Use the 'assist' menu
5. Draw objects to given dimensions
6. Save and retrieve drawings on different drives
7. Print a hard copy using a printer or a plotter
8. Use the following commands: fillet, chamfer, rotate, mirror, rectangular array
9. Identify which commands have been used to create a given drawing
10. Use 'layers' command as a control on information
11. Use CAD to produce a useful graphic image that conveys information without using words

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Work begun | Work in progress | Work completed
At Junior Certificate level the student can:

Use basic drawing instruments to demonstrate the skills of drawing and the knowledge of basic 2D shapes

Learning Targets - This has been demonstrated by your ability to:

1. Recognise and name drawing instruments: set square, T square and compass
2. Measure and transfer in mm and cm to given length
3. Lay out page neatly including title box
4. Draw horizontal and vertical lines using T square and set squares
5. Draw neat lettering in captials using guide lines
6. Name basic 2D shapes in your environment
7. Draw a rectangle and a square to given dimension, using a ruler and set squares
8. Construct triangles to given measurements using 90º/45º and 60º/30º angles
9. Draw a circle, using compass, ruler and set squares to given measurement
10. Identify circle, radius, diameter, arc and centre (and abbreviations or symbols where appropriate)
11. Recognise dimensions in a given drawing and apply set standards for dimensioning basic 2D shapes
12. Construct geometrical patterns within 2D images using drawing equipment

Refer also to: All subjects except Physical Education
At Junior Certificate level the student can:

Use basic drawing instruments to demonstrate the skills of drawing and the knowledge of more complex 2D shapes and basic 3D shapes

Learning Targets - This has been demonstrated by your ability to:

1. Copy to given dimensions, a drawing containing rectangles, squares and circles from printed materials
2. Recognise and understand the line types, centre line, hidden detail and construction lines
3. Draw octagons and hexagons in a circle using compass, T square and set square only
4. Measure given angles using a protractor
5. Construct and explain a variety of acute and obtuse angles using set squares
6. Use drawing instruments to construct pictorial views of basic 3D shapes
7. Draw triangles using ruler, compass and protractor
8. Draw octagon, hexagon, and pentagon of given dimension using ruler, compass and protractor
9. Construct basic geometrical 3D shapes (e.g. cube, rectangular prism and cylinder) to given measurements in oblique projection
10. Construct basic 3D geometrical shapes (e.g. cube, rectangular prism) to given measurements in isometric projection
11. Draw a cube using a 2 point perspective drawing
12. Enhance 3D images through the use of colour and shade

Refer also to: All subjects except Physical Education
At Junior Certificate level the student can:

**Use the full range of drawing instruments to produce scale drawings**

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**Learning Targets** - This has been demonstrated by your ability to:

1. Bisect a line using a compass
2. Draw parallel lines using set squares and a T square
3. Draw parallel lines using 2 set squares
4. Divide a line into 3 equal parts
5. Estimate and measure in meters
6. Draw a plan of a room outline and insert dimensions in meters (in sketch form only)
7. Understand scale drawings and identify symbols on simple house plans
8. Draw a simple scale in meters and use it to draw a plan of familiar rooms or buildings
9. Enlarge drawings using grid method
10. Enlarge a basic shape by projection

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Refer also to: All subjects except Physical Education