NCCA
National Council for Curriculum and Assessment
An Chomhairle Náisiúnta Curaclaim agus Measúnachta

# FIRST YEAR COMMON INTRODUCTORY COURSE

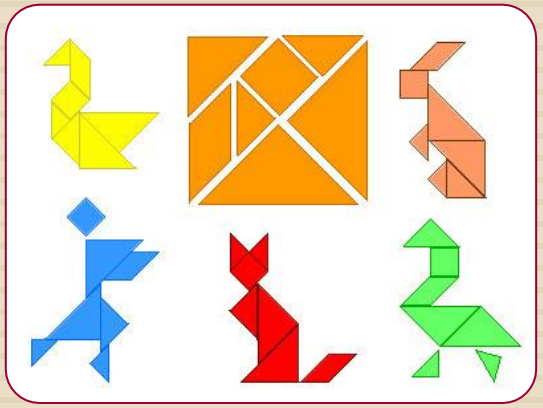
Project Maths

# Primary School Curriculum, 1999

Strand: Shape and Space

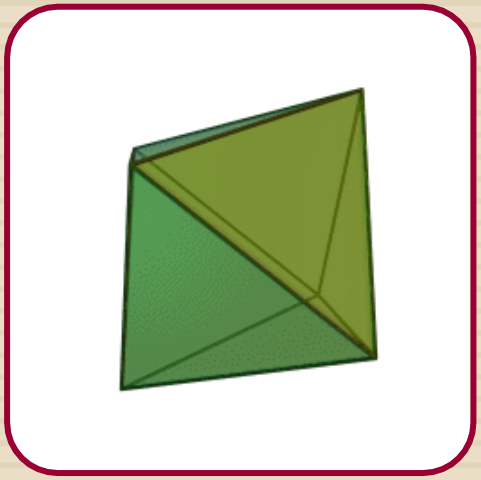
# Strand Unit: 2 – D Shapes

- Informal deductions about 2-D shapes
- Classify and describe triangles, quadrilaterals including trapezium, scalene triangle and regular hexagons
- Construct triangles from given sides or angles
- Identify the properties of the circle
- Construct a circle of given radius or diameter
- Tessellate combinations of 2-D shapes
- Classify 2-D shapes according to their lines of symmetry
- Use 2-D shapes and properties to solve problems
- Plot simple co-ordinates

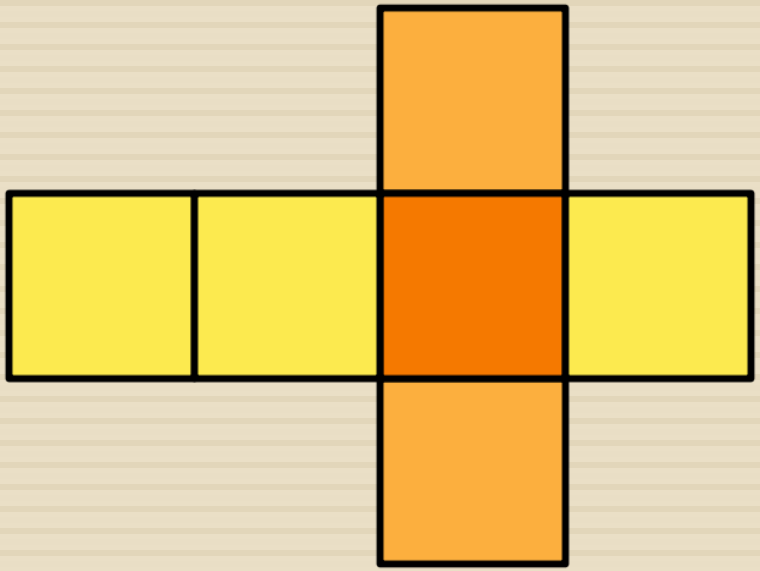


# Strand Unit: 3 – D Shapes

- Identify and examine 3 – D shapes and explore relationships, including octahedron (faces, edges and vertices)



- Draw the nets of simple 3 – D shapes and construct the shapes



# Strand Unit: Lines and Angles

- Recognise, classify and describe angles and relate angles to shape and the environment
- Recognise the angles in terms of a rotation
- Estimate, measure and construct angles in degrees
- Explore the sum of the angles in a triangle

# 1st Year Common Introductory Course

## 2.1 Synthetic Geometry

## 2.2 Transformation Geometry

## 2.3 Co-ordinate Geometry

# Convince themselves through investigation that theorems 1 – 6 are true

## 2.1 Synthetic Geometry

1. Vertically opposite angles are equal in measure.
2. In an isosceles triangle the angles opposite the equal sides are equal (and converse).
3. If a transversal makes equal alternate angles on two lines then the lines are parallel (and converse).
4. The angles in any triangle add to 180°.
5. Two lines are parallel if and only if, for any transversal, the corresponding angles are equal.
6. Each exterior angle of a triangle is equal to the sum of the interior opposite angles.

# Construct:

1. the bisector of a given angle, using only compass and straight-edge.
2. the perpendicular bisector of a segment, using only compass and straight-edge.
4. a line perpendicular to a given line l, passing through a given point on l.
5. a line parallel to a given line, through a given point.
6. divide a line segment into 2 or 3 equal segments, without measuring it.
8. a line segment of given length on a given ray.

# Strand 2

## 2.2 Transformation Geometry

- Use drawings to show central symmetry
- Use drawings to show axial symmetry

## 2.3 Co – ordinate Geometry

- Co - ordinate the plane
- Locate points on the plane using co - ordinates

# Teacher Handbook

- **Section 1**

  Geometry: Thinking at Different Levels:  The Van Hiele Theory

- **Section 2**

  Guide to Theorems, Axioms and Constructions at all Levels

- **Section 3**

  A possible sequence for teaching the First Year Common Course

- **Section 4**

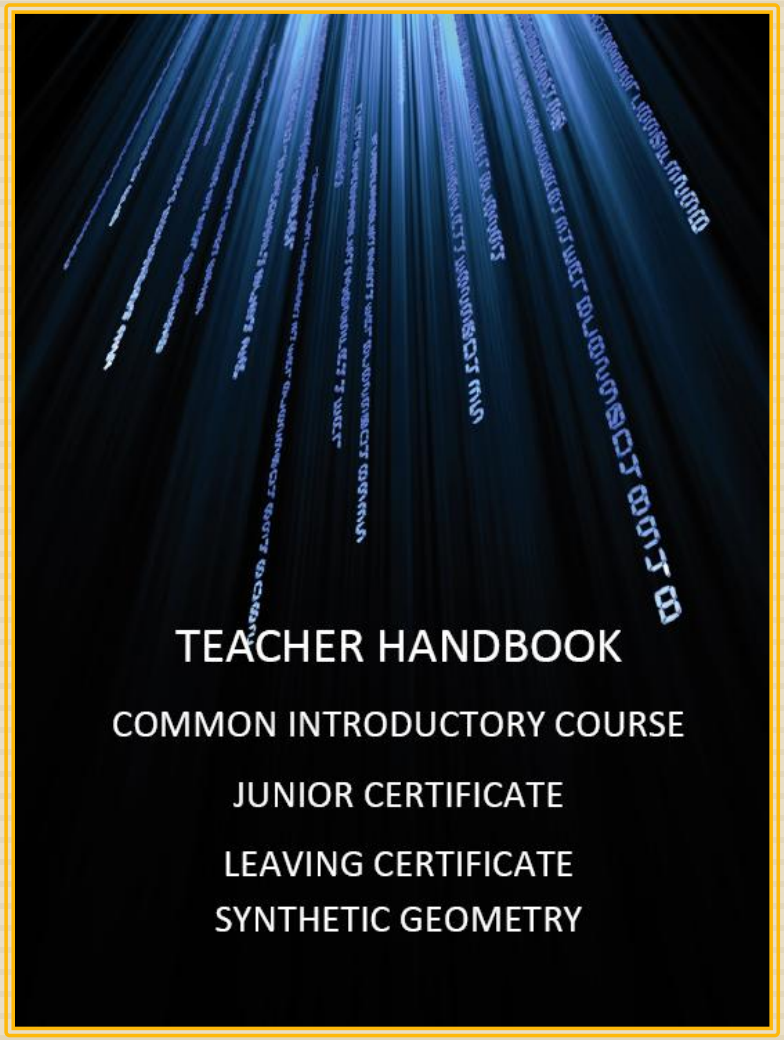
  A possible sequence for teaching Second Year Students

- **Section 5**

  A possible sequence for teaching Third Year Students

- **Section 6**

  A possible sequence for teaching Leaving Cert



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- **Section 1**

  Geometry: Thinking at Different Levels: The Van Hiele Theory

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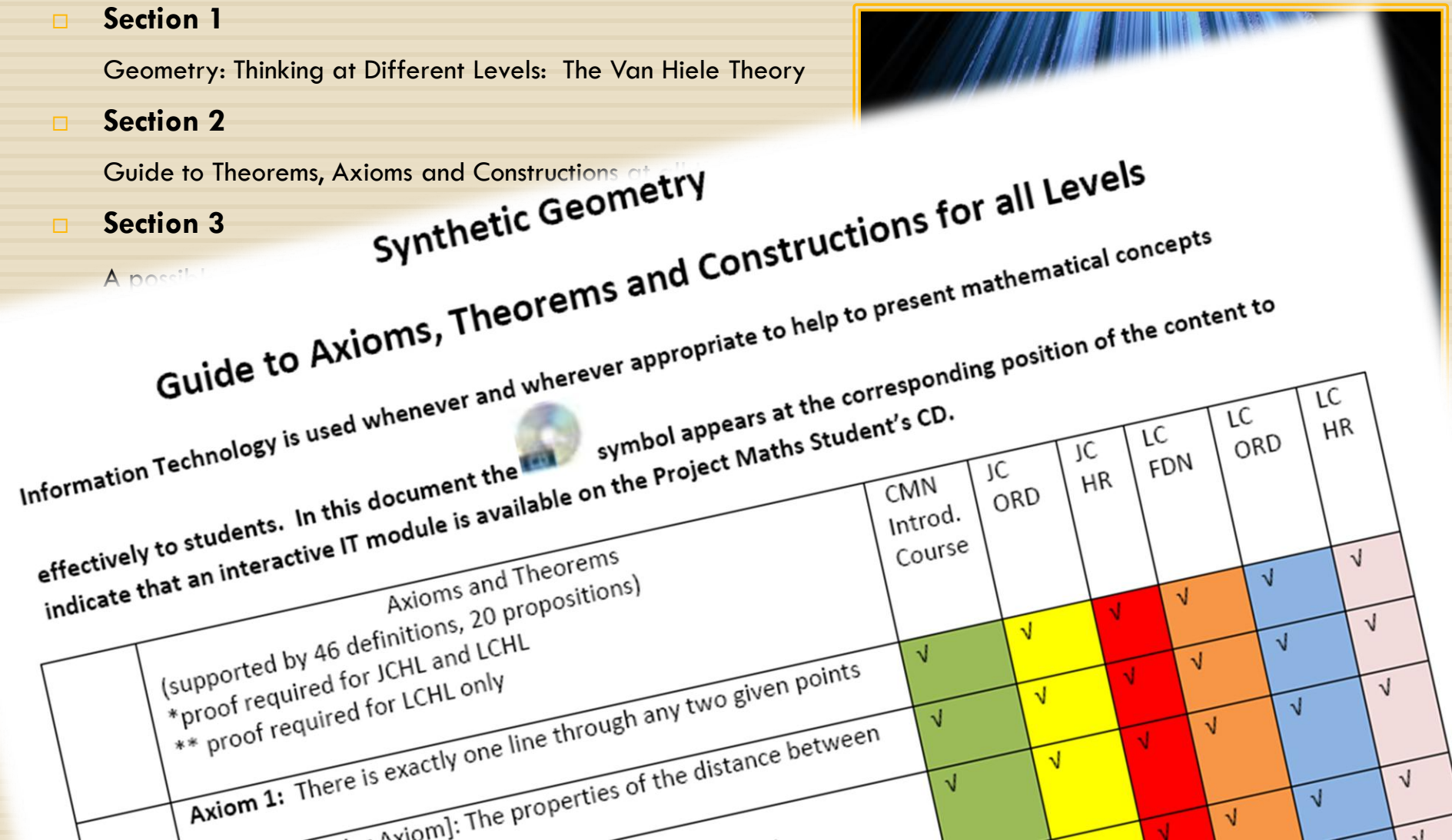
  Guide to Theorems, Axioms and Constructions at all

- **Section 3**

  A possib



Synthetic Geometry

Guide to Axioms, Theorems and Constructions for all Levels

Information Technology is used whenever and wherever appropriate to help to present mathematical concepts effectively to students. In this document the symbol appears at the corresponding position of the content to indicate that an interactive IT module is available on the Project Maths Student's CD.

| | Axioms and Theorems (supported by 46 definitions, 20 propositions) *proof required for JCHL and LCHL ** proof required for LCHL only | CMN Introd. Course | JC ORD | JC HR | LC FDN | LC ORD | LC HR |
|---|---|---|---|---|---|---|---|
| | **Axiom 1:** There is exactly one line through any two given points | √ | √ | √ | √ | √ | √ |
| | [Axiom]: The properties of the distance between | √ | √ | √ | √ | √ | √ |

# Teaching & Learning Plans

## Plan 6: Planes and Points

Junior Certificate Syllabus

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# Teaching & Learning Plans

## Plan 7: Introduction to Angles

Junior Certificate Syllabus

Project Maths