SKJ Education

JC HL MATHS

FOUNDATION PROGRAM

+353 85 8457951
www.skjeducation.co
steven@skjeducation.com

1 Overview of 8-week JC HL Maths Program

JC HL Maths - Foundation Program

Are you struggling to keep up with Junior Cycle Higher Level Maths? This 8-week Foundation Program is specifically designed to build confidence and master the essential mathematical concepts needed to excel in maths. We transform the anxiety many students feel about maths into excitement and self-assurance. Through a science-based metacognition approach, students don't just learn what to think—they learn how to think like mathematicians. This isn't about memorising formulas; it's about developing genuine understanding and problem-solving skills that will serve them well in exams and beyond. In just 8 weeks, you will build the strong foundation needed to not just keep up, but to truly excel in Junior Cycle Maths.

Here are links to extra questions and resources on StudyClix for this 8-week program, should you wish to use them.

Links	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topic 1	Number Systems	Algebra - Expressions	Algebra - Factorising	Numbers Patterns	Geometry	Transformation Geometry	Statistics	Counting/ Permutations
Topic 2	Sets	Algebra - Inequalities	Algebra - Solving Equations	Financial Maths	Trigonometry	Area & Volume	Working with Graphs	Probability

The program is structured in two 4-week blocks, designed to build mathematical thinking from the ground up.

- **Block 1 (Weeks 1-4): Building Numerical & Algebraic Fluency.** Establish rock-solid foundations in number sense, patterns, and algebraic thinking—the essential building blocks for all mathematical success.
- **Block 2 (Weeks 5-8): Applying Mathematical Thinking.** Extend these core principles to geometric reasoning, data analysis, and probability, developing the ability to solve real-world problems.
- **Interleaved Revision:** From Week 2 onwards, every worksheet and assessment intentionally revisits and integrates concepts from previous weeks. This proven approach combats the "forgetting curve" and builds the flexible, interconnected understanding needed for exam success.

2 Sample Study Plan

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Review Key Terms & LO's. Watch video *(30 mins)*	Start Ex. Worksheet *(60 mins)*	Finish Ex. Work Sheet, Correct Work sheet. *(75 mins)*	Online Lesson *(45 mins)*	Error Analysis Exercise *(40 mins)*	Exam Q Assessment *(60 mins)*	Self-Correct & Prep Day *(30 mins)*

3 Weekly Study Resources

1. **Key Terms:** Key vocabulary, definitions and formulae required for the worksheets (i.e., a cheat sheet/quick guide to this topic).
2. **Learning Objectives & Indicative Content (aligned JC HL Maths curriculum & specification):** Clear, quantifiable, achievable **goals** for the coming week.
3. **Exercise Worksheet:** Your main learning tool. It contains clear notes, worked examples, and key questions to solidify your understanding.
4. ***Students have an online lesson after the exercise worksheet is completed***
5. **Error-Based Analysis Exercise:** A unique exercise where you'll find and fix common mistakes, training yourself to think like an examiner.
6. **Exam Question Assessment:** A short exam-style test to check your progress and get comfortable with the format of the real thing.
7. **Self-Correction & Progress Tracking Protocol:** see below.

4 Self-Correction & Progress Tracking Protocol

(This is the MOST IMPORTANT task of the week – complete this on Sunday, then immediately plan the following week's study to guarantee consistency).

1. **Mark your work.** Use a different colour pen.
2. **For each question, categorise your result:**
   - **Fluent:** I got it right and knew why.
   - **Lucky:** I got it right but was guessing/doubtful. I could not fully explain why this is the answer/how I got it.
   - **Error:** I got it wrong.
3. **For each Error, complete this sentence:**

   "The root cause of this was: I _____."
   (e.g., "I confused positive and negative rules," or "I forgot to use BOMDAS.")
4. **For each Lucky answer, mark with a highlighter for later revision tests.**
5. **Action Plan:** Based on your analysis, what is **one specific thing** you will do before next week's lesson? (e.g., "Practice BOMDAS questions," "Make flashcards for geometry formulas," "Watch the video on solving equations again").
6. **Confidence Rating:** On a scale of 1-5, how confident do you now feel with this week's core concepts? (1 = Not at all, 5 = Rock Solid). Go through every Learning Objective and rank them. Continue this at the end of every week.

5 Why This System Works

- **Smarter Learning, Not More Learning:** Our materials are designed using proven learning science to help you understand and retain information more effectively.
- Confidence Through Mastery: Start with the absolute essentials, ensuring you have a rock-solid foundation before moving on. No gaps, no confusion. Ask as many questions as you can.
- **You Learn How to Learn:** This program will teach you how to review your work, spot your own mistakes, and identify what you need to focus on. This is a skill that helps you in every subject.
- **Focus on Weaknesses:** By directing most of your time to analysing mistakes and revising difficult topics, you are forcing your brain to grow rapidly.

6 Weekly Learning Objectives

Week 1: Numerical Fluency & Operations

- **1.1:** Perform calculations with integers (positive and negative numbers) using the correct order of operations (BOMDAS/PEMDAS).
- **1.2:** Understand and work with decimal numbers, including place value, rounding, and basic operations.
- **1.3:** Apply the laws of indices (exponents) for multiplication and division of like bases.
- **1.4:** Convert between recurring decimals and fractions.

Week 2: Patterns & Sequences

- **2.1:** Identify and describe arithmetic patterns and sequences.
- **2.2:** Find the next term and the general term (nth term) of a linear sequence.
- **2.3:** Apply knowledge of sequences to solve simple real-world problems.
- **2.4:** Develop problem-solving strategies for non-routine questions (e.g., "how many handshakes?" problems).

Week 3: Algebraic Foundations I

- **3.1:** Simplify algebraic expressions by gathering like terms.
- **3.2:** Solve linear equations with one variable, including equations with brackets.
- **3.3:** Solve and represent simple linear inequalities on a number line.
- **3.4:** Substitute values into algebraic formulae to solve problems.

Week 4: Algebraic Foundations II

- **4.1:** Factorise algebraic expressions by identifying common factors.
- **4.2:** Factorise quadratic expressions of the form x^2+bx+c.
- **4.3:** Use substitution and elimination methods to solve systems of simultaneous linear equations.
- **4.4:** Apply algebraic techniques to solve real-world problems.

****Students will have a "Reading Week" between Weeks 4 and 5.****

Week 5: Geometry I - Measurement

- **5.1:** Calculate the perimeter and area of common 2D shapes (rectangle, triangle, parallelogram, circle).
- **5.2:** Calculate the volume and surface area of common 3D shapes (prism, cylinder).
- **5.3:** Solve compound area problems (e.g., area of a shaded region).
- **5.4:** Apply measurement concepts to real-world scenarios (e.g., painting a room, fencing a field).

Week 6: Geometry II - Angles & Shapes

- **6.1:** Define and classify types of angles (acute, obtuse, reflex) and lines (parallel, perpendicular).
- **6.2:** Calculate unknown angles using rules related to vertical angles, angles on a line, angles in a triangle, and angles in parallel lines (transversals).
- **6.3:** Understand and apply the properties of special triangles and quadrilaterals (isosceles, equilateral, square, rectangle, parallelogram, rhombus).
- **6.4:** Apply geometric theorems to solve multi-step problems.

Week 7: Statistics & Data Analysis

- **7.1:** Classify different types of data (categorical vs. numerical).
- **7.2:** Calculate and interpret measures of central tendency: mean, median, and mode.
- **7.3:** Calculate and interpret measures of spread: range.
- **7.4:** Represent and interpret data using appropriate graphical methods (bar charts, pie charts, stem-and-leaf plots).

Week 8: Probability

- **8.1:** Calculate the probability of single events using the formula: Probability = (Number of favourable outcomes) / (Total number of possible outcomes).
- **8.2:** Use two-way tables and tree diagrams to calculate probabilities for compound events.
- **8.3:** Understand and use set notation (union, intersection) in the context of probability.
- **8.4:** Synthesise knowledge from all topics to solve complex, multi-strand exam-style problems.