

Junior Cycle Mathematics Units of Learning

This unit was developed as part of a series of units which were discussed in the *Planning for Teaching Learning & Assessment: One School's Approach* webinar, a recording can be accessed at www.jct.ie/maths/planning_resources.

Third Year

Concept:	Relationships and Variables VI Development of understanding in relation to patterns, relationships and the meaning of a mathematical function
Student Context:	Third Year Students with prior knowledge of patterns, relationships, dependant and independent variables, multiple representations, frequent engagement with problem posing and problem solving and the use of algebraic generalisation to model curricular and real-life motivated situations
Learning Outcomes:	AF7 (c), (d), AF4 (a), (b), (d), AF6, GT1, GT2 (a), (b), (c), (d), (e), N3 (b), GT4, GT 5 (b), (c) Learning outcomes from the Unifying strand are decided by the class teacher
Key Learning:	<ul style="list-style-type: none"> • Students understand that a function is a relation in which the value of a variable is dependent on one or more other variables and that particular values for the independent variable generate one and only one outcome for the dependant variable (Watson <i>et al</i> 2013) <i>See also page 41 of current LC Syllabus: '[Students] were formally introduced to the concept of a function as that which involves a set of inputs, a set of possible outputs and a rule that assigns one output to each input.'</i> • Students understand that quantitative relationships can be represented as functions for the purpose of: <ul style="list-style-type: none"> ○ Formulating and mathematising problems ○ Communicating effectively and precisely, including justifying reasoning, interpreting results and explain conclusions ○ Solving mathematical problems in familiar and unfamiliar contexts • Students should further develop their use of a variety of representations that are useful for solving problems, including: <ul style="list-style-type: none"> ○ Understanding that different representations have strengths and limitations, including: <ul style="list-style-type: none"> ▪ Graphs may require estimation but easily let us identify important features such as highest point or steepest section ▪ Tables immediately let us find output values but only for limited input values ▪ Equations let us precisely compute outputs for all inputs, but only one at a time ○ Understanding that the strengths and limitations of different representations can help choose and justify appropriate strategies for problem solving
Ongoing Assessment	<p>Can students flexibly translate between mathematical representations?</p> <p>Can students differentiate between the use of specified formulae as a calculation tool and specified formulae as functions?</p> <p>Can students transition between a variable and a fixed unknown in context?</p>
Learning Experiences	
Notes/Reflection	