

MATHEMATICS CONTENT KNOWLEDGE

Content area	General content focus	Senior Phase specific content focus
<p>Numbers, Operations and Relationships</p>	<p>Development of number sense that includes:</p> <ul style="list-style-type: none"> • the meaning of different kinds of numbers • relationship between different kinds of numbers • the relative size of different numbers • representation of numbers in various ways • the effect of operating with numbers • the ability to estimate and check solutions. 	<ul style="list-style-type: none"> • Representation of numbers in a variety of ways and moving flexibly between representations • Recognising and using properties of operations with different number systems • Solving a variety of problems, using an increased range of numbers and the ability to perform multiple operations correctly and fluently
<p>Patterns, Functions and Algebra</p>	<p>Algebra is the language for investigating and communicating most of Mathematics and can be extended to the study of functions and other relationships between variables. A central part of this content area is for the learner to achieve efficient manipulative skills in the use of algebra. It also focuses on the:</p> <ul style="list-style-type: none"> • description of patterns and relationships through the use of symbolic expressions, graphs and tables; and • identification and analysis of regularities and change in patterns, and relationships that enable learners to make predictions and solve problems. 	<ul style="list-style-type: none"> • Investigation of numerical and geometric patterns to establish the relationships between variables • Expressing rules governing patterns in algebraic language or symbols • Developing algebraic manipulative skills that recognize the equivalence between different representations of the same relationship • Analysis of situations in a variety of contexts in order to make sense of them • Representation and description of situations in algebraic language, formulae, expressions, equations and graphs
<p>Space and Shape (Geometry)</p>	<p>The study of Space and Shape improves understanding and appreciation of the pattern, precision, achievement and beauty in natural and cultural forms. It focuses on the properties, relationships, orientations, positions and transformations of two-dimensional shapes and three-dimensional objects.</p>	<ul style="list-style-type: none"> • Drawing and constructing a wide range of geometric figures and solids using appropriate geometric instruments • Developing an appreciation for the use of constructions to investigate the properties of geometric figures and solids • Developing clear and more precise descriptions and classification categories of geometric figures and solids • Solving a variety of geometric problems drawing on known properties of geometric figures and solids
<p>Measurement</p>	<p>Measurement focuses on the selection and use of appropriate units, instruments and formulae to quantify characteristics of events, shapes, objects and the environment. It relates directly to the learner's scientific, technological and economic worlds, enabling the learner to</p> <ul style="list-style-type: none"> • make sensible estimates; and • be alert to the reasonableness of measurements and results. 	<ul style="list-style-type: none"> • Using formulae for measuring area, perimeter, surface area and volume of geometric figures and solids • Selecting and converting between appropriate units of measurement • Using the Theorem of Pythagoras to solve problems involving right-angled triangles
<p>Data Handling</p>	<p>Data Handling involves asking questions and finding answers in order to describe events and the social, technological and economic environment. Through the study of data handling, the learner develops the skills to collect, organize, represent, Interpret, analyse and report data. The study of probability enables the learner to develop skills and techniques for making informed predictions, and describing randomness and uncertainty.</p>	<ul style="list-style-type: none"> • Posing of questions for investigation • Collecting, summarizing, representing and critically analysing data in order to interpret, report and make predictions about situations • Probability of outcomes include both single and compound events and their relative frequency in simple experiments