DEVELOPMENT MODEL OF SCHOOL MATHEMATICS CURRICULUM IN AUSTRALIA

Lasia Agustina[1,2], Iwan Junaedi[1]
lasiaagustina@gmail.com
Universitas Negeri Semarang[1], Indonesia
Universitas Indraprasta PGRI[2], Indonesia

Abstract: The Education Curriculum in Australia emphasizes that all students are ensured to benefit from the ability to reason and learn mathematics in the creative and efficient application of mathematical understanding. Prepare students with in-depth learning of critical thinking and skills. Inviting teachers to be able to motivate students, increase students' self-confidence through the courage to ask questions and actively participate in challenging and interesting activities. The Australian curriculum aims to ensure that students are self-confident, creative and capable of mathematical reasoning/ability, as well as being able to analyze, apply it to their own lives and to the world of work while being active citizens in the development of an increasingly understanding process. advanced in mathematical concepts, fluency in processes, and able to propose and solve problems with calculations and concepts of algebra, measurement and geometry, as well as statistics and probability.

Introduction

Australia is a federal commonwealth of six states and two territories. The six states consist of New South Wales, Victoria, Queensland, Tasmania, South Australia and Western Australia, and the two territories consist of the Australian Capital Territory and Northern Territory. Each state and territory has responsibility for the process of providing school education in accordance with their respective boundaries. Australian education is always moving and growing. In 2016, Australia was ranked as the third largest provider of education for international students after the United States (US) and the United Kingdom (United Kingdom) (*The Australian Education System, Practitioner Level).* Each state and territory government consists of its own department or ministry of education, as well as a commonwealth government with its own department of education. The functions of states and territories can be delegated to the Commonwealth government after obtaining legal recognition in their respective government areas. One example is the *Australian Curriculum (ACARA)*. Australian schools are divided into three types: public schools (or state or territory government schools), Catholic schools and independent schools.

Tabel 1. Student enrolments by school affiliation, Australia, 2015-2019

	2019	2018	2017	2016	2015	2015-19 (% change)
Government	2,594,830	2,558,169	2,524,865	2,483,802	2,445,130	6.1
Catholic	769,719	765,735	766,870	767,050	765,539	0.5
Independent	584,262	569,930	557,490	547,374	540,304	8.1
TOTAL	3,948,811	3,893,834	3,849,225	3,798,226	3,750,973	5.3

As shown in table 1 is student registration data based on school affiliation, Australia, 2015-2019 (Autralian Bureau of Statistics, 1993). Public schools are schools established by the respective state and territory governments, while Catholic and independent schools are formed by religious organizations and community organizations. Despite having different statuses, each school in Australia, regardless of type, is entitled to an education budget either from the Commonwealth government or from the respective state territory. In 2008, all Australian governments agreed that quality education for all Australians is critical to maintaining Australian productivity and quality of life (Evans, Michael. 2010). Australia participates in various international assessments of mathematics achievement such as the Program for International Student Achievement (PISA) which assesses students aged 15 years, and Trends in International Mathematics and Science Study (TIMSS), which was conducted in 2002 and 2007, which assessed students in Grade 4 and Grade 8 (Peter Sullivan, 2011). In Australia, there is evidence of a downward trend in student achievement in international surveys, such as the Trends in Mathematics and Science Studies (Gusti, IND 2020). Mathematical thinking supports teachers to improve students' learning of math content as outlined in the Australian Mathematics Curriculum during the transition between Primary and Secondary School1 (currently Grades 7 and Grade 8 in South Australia) (Dix Katherine, et al. 2018).

The education system in Australia is divided into three levels of formal school education, namely *primary* (primary school or *Years* 1-6 or 1-7); *junior secondary* or *middle school* (junior high school, grades 7-10 or 7-9 or 8-10); and *senior secondary* (high school, Grades 11-12 or 10-12). The length of primary school education in Australia varies by state and territory. Table 1 below provides basic information on the length of primary school education in Australia. At primary schools in Australia, student attendance is mandatory from the age of five to the age of 17. The following is the latest statistical data (ACARA, 2016b), 82.5% of students from grade 10 to grade 12. (Michie, 2017)

Table 2. Basic information on the duration of school education in an Australian state or territory (ACARA, 2016b)

Negara bagian atau teritori	Tinggi Penyekolahan (year = kelas)		
	Primary (SD)	Junior high / middle school (SMP)	Senior high school (SMA)
New South Wales, Victoria, Tasmania, Australian Capital Territory	Years 1-6	Years 7-10	Years 11-12
Northern Territory	Years 1-6	Years 7-9	Years 10-12
Queensland, South Australia, Western Australia	Years 1-7	Years 8-10	Years 11-12

Mathematics is part of the content dimension of the Australian Curriculum, while numeracy is part of general skills (David Evans, 2017). Studying mathematics provides opportunities and benefits the lives of everyone in Australia. Mathematics provides students with good skills, knowledge and mathematical skills in the fields *of numbers and algebra* , *measurement and geometry,* as well as *statistics and probability* . It provides students with numeracy skills that can be used in life, work and social life, as well as providing the foundations for mathematical abilities and building skills in applying mathematics. Mathematics has its own degree and elegance. In the Australian curriculum, Mathematics aims to foster students' understanding of the beauty and strength of mathematical reasoning. Many mathematical concepts have developed in all cultures over thousands of years, up to the present day. Technology today facilitates the development of mathematical concepts and provides avenues for new discoveries of mathematics. The Australian curriculum is centered on developing and enhancing mathematical abilities in understanding, fluency, reasoning and problem solving skills. These abilities allow students to be responsive to all situations and conditions by using a mathematical approach in making decisions and solving problems appropriately.

Mathematics emphasizes that there is an interaction between the various components in mathematics itself, as well as the relationship between mathematics and other disciplines. Mathematics itself consists of several interrelated and dependent concepts and systems that will be able to be applied by students outside the mathematics class. In science, for example, in understanding the root of a problem and its impact on the provisions, an important conclusion is drawn, namely by using a mathematical model. In the field of geography, understanding data in calculating the number of human populations and their physical environment, both in history, students must be able to imagine timelines and time frames to connect related events, and in the field of English, the ability to analyze situations thoroughly is an important aspect in make meaningful reading. The Australian curriculum ensures that schools will ensure all students benefit from the ability to reason and learn mathematics in the creative and efficient application of mathematical understanding. The Mathematics curriculum in Australia provides students with an in-depth study of critical thinking and skills. Inviting teachers to help students in self-motivation, increase self-confidence through the courage to ask questions and actively participate in challenging and interesting activities.

Discussion

In Australia there are three types of levels of government, namely commonwealth or national government; six state and two local governments; and many local governments. Elementary and Middle School education is the responsibility of the state government or local government (region) which includes preparing the curriculum. Although the national school curriculum was approved by all levels of state and territory government in 2008, the Australian Curriculum, Assessment and Reporting Authority (ACARA) was created by the Australian Parliament with the ACARA Act 2008 (EVENTS, 2012). According to ACARA (2016a), achievement standards and content descriptions are important elements of learning areas or subjects in the curriculum.
The Australian

Education System Australian education has a high standard of system and is internationally recognized. Participating in school activities is mandatory in all Australian states, and it is hoped that in the future it will contribute to the literacy level after attending school activities of 99 percent. All Australian schools aim to develop skills and build self-confidence in each of their students, while graduates from the University of Astralia excel in research and discovery, as well as in vocational and technical education aimed at advancing the rapidly growing industrial sector. Australia has been named as one of the world's leading providers of education and training for both international and local students, especially in English language training (Isri, S.2015).

The Australian education system is broadly structured as follows (*The Australian Education System, Foundation Level)*:

1. Primary school: seven or eight years, from Primary Education (also known as kindergarten/preparatory/pre-school) to Grade 6 or 7
2. Secondary school: four years from Years 7 or 8 to 10
3. High school: two years from Years 11 to 12
4. Higher education: includes higher education and vocational education and training (VET).

Curriculum Goals in Australia The Australian

Curriculum, which is currently being developed for the learning areas defined in the Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008), identifies numeracy as one of seven general skills applicable across all disciplinary content (In J. Dindyal, et al 2012). The Mathematics curriculum in Australia aims to ensure that students are confident, creative and able to have the power/ability of mathematical reasoning and able to analyze, apply it to their personal life and into their work as active citizens develop an increasingly sophisticated understanding of mathematical concepts, process fluency, and be able to propose and solve problems with calculations and algebraic concepts, measurements and geometry, and statistics and probability. And understand the relationship between mathematics and other fields of science, and can appreciate mathematics as a science that can be learned in a fun way. The main key to learning mathematics is having the ability to understand concepts, skills, and reasoning and problem solving abilities. This series of abilities can be seen from the attitude of students when learning and using mathematical content. Although not all sets of abilities are used in every mathematical content, it shows the breadth of mathematics that can be conveyed by a teacher.

Curriculum Structure in Australia Australia

Mathematics curriculum consists of three areas and four skills. The three fields here consist of *numbers and algebra* , *measurement and geometry,* and *statistics and probability* . These areas describe what teachers and students must teach and learn. The skills expected in the Australian mathematics curriculum include *understanding* , *fluency* , *problem solving* and *reasoning skills* . These skills explain how the three areas of the Australian mathematics curriculum are studied and developed, through the ability to think and work mathematically. The content strand shows what students must learn and the proficiency strand shows the type of learning experience that students must be exposed to in order to learn the content (Day, L 2014). This can be used as the basis for the development of understanding concepts in mathematics learning so that it can be used as a reference in the three fields in the Australian mathematics curriculum. This approach is carried out to ensure that students have the ability in math skills and are able to develop the existing curriculum at school so that it gets better every year.

Description of the Mathematics Fields Included in the Australian Curriculum

1. Numbers and Algebra

Numbers and algebra were developed jointly in Australian schools, as they are interrelated. Students learn the concept of numbers as well as the processes and steps in counting. They study the types and properties of numbers. There are various approaches in problem solving skills and understanding of concepts among number operations. Students are taught to recognize number patterns and understand the concepts of variables and functions. The Australian mathematics curriculum seeks to build understanding of concepts in students in describing the relationships between concepts as a whole. Students are expected to be able to identify equations and find solutions to inequalities. The Australian mathematics curriculum applies skills in numbers and algebra to research, problem solving and conceptual understanding skills.

2. Measurement and Geometry

Measurement and geometry are delivered simultaneously in Australian schools to emphasize that there is a relationship between measurement and geometry to each other, as well as to make it easier for students to learn the relationship between the two. Students are expected to develop a better understanding in terms of measurements, planes, the location of a field, and the displacement (transformation) of two fields in either two-dimensional space or three-dimensional space. Students are also expected to be able to conduct research on an object and apply their understanding of the object

so that later it can be defined, compared and can design the object under study. Students in Australia also develop basic geometric skills. They design an exact measurement , then determine an appropriate size . Then students form an understanding of the relationship between fields and calculate measurements such as area, velocity and density of an object.

3.   Statistics and Opportunities

Statistics and odds initially developed simultaneously but then slowly statistics and odds began to be distinguished/separated from each other. Students study and analyze data and draw conclusions. They process, conclude and analyze data and conduct investigations that aim to draw conclusions from the processing of data. Students make an assessment of the possibilities and opportunities by using an approach through experiments and theoretical studies. Students develop a better ability to critically assess opportunities and data concepts, make judgments using reasoned conclusions, and create the ability to evaluate statistical data and develop the ability to understand data/information.

Sections of Mathematical Skills

The descriptions of the three areas of mathematics found in the Australian curriculum are grouped into sections of mathematics skills, to explain the types and sequences of concept development across all levels of education. Australia strongly supports students in schools so that they have the ability to see the relationship between one field and another and are able to develop concepts sequentially from the most basic level of education / Foundation (F) / to the 10th year of education.

Table 3: Grouping of the three areas in the Australian Curriculum from primary education to year -10

Numbers and Algebra	Measurement and Geometry	Statistics and Probability
Numbers and place values (F – 8)	Using units of measurement (F – 10)	Probability (1–10)
Fractions and decimals (1–6)	Flat planes (F – 7)	Overview and understanding a data (F – 10)
Real numbers (7–10)	Geometric reasoning (3–10)	N / A
Financial mathematics (1–10)	Locations and shifts (transformations) (F – 7)	N / A
Patterns and algebra (F – 10)	Pythagoras and trigonometry (9–10)	N/A
Linear and nonlinear equations (7-10)	N/A	N/A

Education Level Explanation
Basic Level/Foundation(F)

The abilities that students are expected to have at the basic level include the ability to understand, the existence of skills, problem solving and reasoning which will later relate to parts of the mathematics field among the three fields in the curriculum, including: numbers and algebra , measurement and geometry, and statistics and probability. The need for mathematical thinking skills in all three areas of the Australian curriculum illustrates how important the content of these areas of mathematics should be to develop. The Australian curriculum provides rules for building developmental aspects of learning mathematics. Achievement at the basic level reflects the achievement of ability and readiness in each of its fields.

Basic Level Achievement Standards

At the end of the elementary level education year, students are directed to look for relationships between types of numbers, numbers and quantities up to the 10th digit. Students compare objects using mass, length and volume. Students associate activities with the names of the days of the

week. Students are expected to be able to explain the sequence and duration of an activity. Students can express their opinions by using the right language to describe the location of a place. Students can count to 20 and make small groups of a number. Students can group objects based on general characteristics and sort the shapes of these objects. Students are able to answer simple questions to gather information and make a simple conclusion.

1st Year Level

Abilities that students are expected to have at this level include: ability understanding, skills, problem solving and reasoning skills are an integral part of the three areas of mathematics, namely: numbers and algebra, measurement and geometry, and statistics and probability. Mathematical skills reinforce the importance of acting and thinking mathematically in accordance with three areas that are still being developed in the Australian curriculum. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. The basic success at this level is the ability to represent the content of learning mathematics.

Standard of Achievement Year 1

At the end of Year 1, students are expected to be able to describe the sequence of numbers resulting from counting with certain jumps. Students can identify and show the form of the value or number one and a half. Students there learn to use Australian coins. Students can explain the time span. Students can describe two-dimensional and three-dimensional shapes. Students can describe a data display. Students can count up to 100 and are able to find values/numbers on a number line. Students can perform simple addition and subtraction operations using arithmetic operations. Students can group numbers according to their place values. Students can find simple patterns involving numbers and objects. Students can arrange an object based on length and volume using non-standard units. Students can provide information about time. Students can use existing rules to move from one place to another. Students can group data from the results of simple experiments. Students can group data from a question, draw simple data views and make simple conclusions from data

2nd Year Level

The expected abilities at this level include: ability understand, have the skills, problem-solving and reasoning appropriate to the three areas of mathematics in the Australian curriculum: numbers and algebra, measurement and geometry, and statistics and probability. The mathematical skills expected by students in Australian schools are the ability to act and think mathematically in accordance with three areas that are still being developed in the Australian curriculum. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. Fundamental to success at the 2nd year level is the ability to apply areas of the Australian curriculum.

2nd Year Achievement Standards

At the end of 2nd Year, students are expected to be able to understand sequence relationships in a number, perform multiplication and division operations. Students can imply the use of Australian coinage with the value of the currency. Students can identify parts that are not in the sequence of a number. Students can recognize the characteristics of three-dimensional objects. Students can read a simple map of a known location. Students can explain the results of shifting a field. Students can understand the information that has been collected. Students can count up to 1000. Students can perform calculations ranging from simple addition and subtraction using various methods/methods. Students can perform division operations using an object into two parts, quarters and eight parts. Students can arrange the shape of an object using non-standard units. Students can provide time information about the value of a quarter hour and can use the calendar to determine the dates and months that belong to a season. Students can draw two-dimensional shapes. Students can explain the activities carried out every day. Students can collect, process and explain data to make simple conclusions.

3rd Year Level

The expected abilities at this level include: ability understand, have the skills, problem-solving and reasoning appropriate to the three areas of mathematics in the Australian curriculum: numbers and algebra, measurement and geometry, and statistics and probability. The mathematical skills expected by students in Australian schools are the ability to act and think mathematically in accordance with three areas that are still being developed in the Australian curriculum. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. Fundamental to success at this level is the ability to apply areas of the Australian curriculum.

3rd Year Achievement Standards

At the end of 3rd year, students are expected to be able to understand the relationship between addition and subtraction and be able to solve problems using multiplication operations correctly. Students can make models and explain the concept of fractions. Students can use the value of a currency to study. Students can explain the concept of symmetry. Students can place an area on a map with the information obtained. Students can identify the location of an angle in real conditions. Students understand and compare the appearance of a data. Students can count up to 10,000. Students can

classify numbers as odd or even. Students are able to remember and apply the concepts of addition and multiplication for single digit numbers. Students can correctly calculate calculations in a financial transaction. Students can continue number patterns using addition and subtraction. Students can use units of length, mass and volume. Students can provide information about time. Students can make models of three-dimensional objects. Students can conduct experiments and list possible outcomes. Students can conduct research on simple data with a variable or category.

4th Year Level

The abilities that students are expected to have at this level include understanding, skills, problem solving and reasoning skills that are relevant to the three areas of mathematics in the Australian curriculum, namely: numbers and algebra, measurement and geometry, and statistics and opportunity. Understanding skills include making relationships between numbers, grouping and combining numbers correctly, learning decimal place values, using appropriate expressions to explain the concept of time and describing symmetrical plane shapes. Skills include the ability to remember multiplication tables, explain simple fraction sequences. , using instruments for the measurement process accurately, making patterns with shapes and their transformations, as well as grouping and processing data, solving problems including formulating, modeling and recording information clearly involving arithmetic operations, as well as comparisons, comparing the duration of time and using patterns of a number to continue the reasoning process including equalizing perceptions about the concept of numbers and the results of a calculation, obtaining steps in the process of multiplication and division tasks, comparing angles, conveying information using t image display and provide an assessment between the suitability of the existing images.

4th Year Achievement Standards

At the end of 4th year, students are expected to have the right steps for the calculation process involving multiplication and division operations. Students are able to recognize equivalent fractions and connect fractions with decimal notation up to two decimal places. Students are expected to be able to solve the problem of the concept of buying and selling in a simple way. Students are expected to be able to identify and explain the steps to find unknown concepts in a mathematical sentence. Students are able to describe the pattern of numbers resulting from multiplication. Students are able to compare the fields of regular and irregular shapes using non-standard units. Students are able to solve problems related to time limits. Students are able to interpret the data and information contained in an image/map. Students are able to identify an event that is related and independent (unrelated). Students are able to explain different methods for collecting and designing data, as well as evaluating their relationship.

5th Year Level

The abilities that students are expected to have in year 5 include: comprehension skills, skills, problem solving and reasoning abilities that are relevant to the three areas of mathematics in the Australian curriculum, namely: numbers and algebra, measurement and geometry, and statistics and odds. The ability to understand and act and think mathematically reinforces mathematical ideas in terms of how to explore and develop the mathematics curriculum in Australia. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. Fundamental success at this level is the ability to explain the content of a concept that covers the area of expertise.

5th Year Achievement Standards

At the end of 5th year, students are expected to be able to solve simple problems involving four arithmetic operations using various steps. Students are expected to be able to check the results of their work using calculations and rounding. Students are expected to be able to identify and describe the concept of factors and multiples . Students are expected to be able to identify and explain strategies to find unknown values and information in mathematical sentences involving four arithmetic operations. Students are expected to be able to explain a simple budget plan. Students can relate three-dimensional objects to the two-dimensional concept images they already have. Students can describe changes from two-dimensional shapes into grooves and rotations of an axis of symmetry. Students are able to analyze different data sets.

6th Year Level

The expected abilities of students at the 6th year level include: **ability understanding, having skills, problem-solving** and **reasoning** appropriate to the three areas of mathematics in the Australian curriculum: numbers and algebra, measurement and geometry, and statistics and probability. The ability to understand and act and think mathematically reinforces mathematical ideas in terms of how to explore and develop the mathematics curriculum in Australia. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. Fundamental success at this level is the ability to explain the content of a concept that covers the area of expertise.

6th Year Achievement Standards

At the end of 6th Year, students are expected to recognize the properties of numbers, composites, squares and triangles. Students can explain the use of integers in everyday contexts. Students can solve problems involving the four operations of counting integers. Students can relate fractions, decimals, and percentages as different representations of the same number. Students can solve problems involving addition and subtraction operations on fractions. Students are able to make connections between the powers of 10 and the multiplication and division of decimals. Students are able to explain the rules used in the sequence of integers, fractions, and decimals. Students are able to connect decimal forms into the form of charts and determine the correct measurement operation to carry out the calculation process. Students are able to relate between capacity and volume. Students are able to solve problems related to length and area. Students are able to design a schedule. Students are able to describe the combination of a displacement. Students can solve problems using the help of angles. Students are able to compare an observed concept with the expected concept. Students are able to analyze and compare various data displays including displays for two categorical variables.

7th Year Level

The expected abilities of students at the 7th year level include: **ability understanding, having skills, problem-solving** and **reasoning** appropriate to the three areas of mathematics in the Australian curriculum: numbers and algebra, measurement and geometry, and statistics and probability. The ability to understand and act and think mathematically reinforces mathematical ideas in terms of how to explore and develop the mathematics curriculum in Australia. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. Fundamental success at this level is the ability to explain the content of a concept that covers the area of expertise.

7th Year Achievement Standard

At the end of Grade 7, students are expected to be able to solve problems related to the concepts of comparison, addition and subtraction of integers. Students are expected to be able to make connections between integers and notation instructions as well as the relationship between perfect square numbers and square roots . Students are expected to be able to solve problems involving percentages and the four arithmetic operations using fractions and decimals. Students are expected to be able to compare the prices of goods for decision making on financial mathematical concepts. Students are expected to be able to state the concept of numbers by using variables. Students are expected to be able to connect the laws of algebra with algebraic concepts. Students are expected to be able to analyze simple forms of linear equations with known basic information. Students are able to describe different views of a three-dimensional object. Students are able to draw a picture of an area on a Cartesian plane. Students are able to solve simple numerical problems involving angles formed by a plane that crosses two lines. Students are able to identify problems related to continuous data collection. Students are able to describe the relationship between the median and the mean in a data.

8th Year Level The

Abilities that students are expected to have at the 8th year level include: **ability understanding, having skills, problem-solving** and **reasoning** appropriate to the three areas of mathematics in the Australian curriculum: numbers and algebra, measurement and geometry, and statistics and probability**.** The ability to understand and act and think mathematically reinforces mathematical ideas in terms of how to explore and develop the mathematics curriculum in Australia. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. Fundamental success at this level is the ability to explain the content of a concept that covers the area of expertise.

Grade 8th Achievement Standards

By the end of Grade 8, students are expected to be able to solve everyday problems related to finance, comparisons, and percentages. Students are expected to be able to explain instructions and the application of operations on integers. Students are expected to be able to explain rational and irrational numbers. Students are expected to be able to solve problems involving profit (profit) and loss. Students are expected to be able to explain factoring in algebra. Students are expected to be able to solve problems related to the volume of a prism. Students are expected to understand the concept of time applied in everyday life. Students are expected to be able to identify the concept of a triangle and conclude the properties that exist in a quadrilateral. Students are expected to be able to make questions using two-way tables and Venn diagrams. Students are expected to be able to explain the events of an experiment. Students are expected to be able to explain problems related to data collection in which there is a median in the data.

9th Year Level

The expected abilities of students in the 8th year class include: **ability understanding, having skills, problem-solving** and **reasoning** appropriate to the three areas of mathematics in the Australian curriculum: numbers and algebra, measurement and geometry, and statistics and probability**.** The ability to understand and act and think mathematically reinforces mathematical ideas

in terms of how to explore and develop the mathematics curriculum in Australia. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. Fundamental success at this level is the ability to explain the content of a concept that covers the area of expertise.

Grade 9th Achievement Standards

By the end of Grade 9, students are expected to be able to solve problems involving interests. Students are expected to be able to explain a comparison and scale in an image. Students can explain the similarity of a triangle. Students are able to recognize the relationship between similarities and trigonometric comparisons. Students are expected to be able to compare data collection techniques from primary and secondary data. Students are expected to be able to determine the mean (mean) and median (median) values in describing and interpreting data.

10th Year Level

The abilities that students are expected to have in their 10th year class include: **ability understanding, having skills, problem-solving** and **reasoning** appropriate to the three areas of mathematics in the Australian curriculum: numbers and algebra, measurement and geometry, and statistics and probability. Ability to understand and acting and thinking mathematically reinforces ideas in mathematics in terms of how to explore and develop the mathematics curriculum in Australia. The Australian curriculum prepares rules to facilitate the process of building developmental aspects of learning mathematics in schools. Fundamental success at this level is the ability to explain the content of a concept that covers the area of expertise.

Grade 10th Achievement Standards

By the end of Grade 10, students are expected to understand the relationship between the concept of compound interest. Students are expected to be able to solve problems involving linear equations and inequalities. Students are expected to be able to make connections between algebraic concepts and curves (graphs). Students are expected to be able to solve problems regarding the area of an area and volume. Students are expected to understand the relationship between parallel lines and perpendicular lines. Students are expected to be able to apply deductive reasoning using a proof and have the ability to practice numerically involving a field. Students are expected to be able to compare data sets by referring to the shape of the various data displays. Students are expected to be able to describe bivariate data with the independent variable being time. Students are able to explain the statistical relationship between two continuous variables. And students are able to evaluate a statistical data.

10thA Year Level

This level is an elective level and is intended for students who need additional fields to enrich and expand their mathematical knowledge taken at the same time as completing the general curriculum of Year 10 Classes. It is not taken into account that all students will try the field at the year 10A level, but it will benefit students who intend to take Method Mathematics (Course e C) or Specialist Mathematics (Course D) in the high school years. The choice of materials or fields in the 10A curriculum can be tailored to the needs and interests of students.

10thA Achievement Standards

There is no standard of achievement for Grade 10A in the Australian Curriculum: Mathematics. Please refer to the 10th Year Achievement Standard.
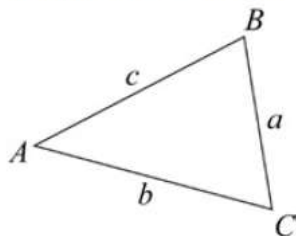
Examples of

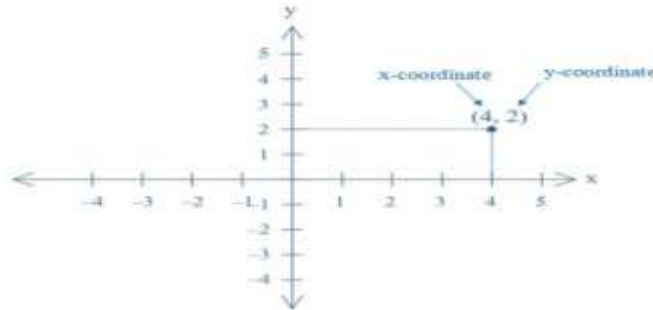The Australian Curriculum: Mathematics

cosine rule

In any triangle ABC, $c^2 = a^2 + b^2 - 2ab\cos C$

The Australian Curriculum: Mathematics

Cartesian plane

The Cartesian plane or Cartesian coordinate system is a system that describes the exact location of any point in a plane using an ordered pair of numbers, called coordinates. It is defined by the intersection of a horizontal and vertical number line at a point called the origin. The coordinates of the origin are (0, 0). The Cartesian plane is divided into four quadrants by these perpendicular axes called the x-axis (horizontal line) and the y-axis (vertical line). The axes can be used to identify any point in the plane using a pair of coordinates, as shown in the diagram below.

The Australian Curriculum: Mathematics

pyramid

A pyramid is a polyhedron with a polygonal base and triangular sides that meet at a point called the vertex. The pyramid is named according to the shape of its base.

square-based pyramid   triangular-based pyramid   hexagonal-based pyramid
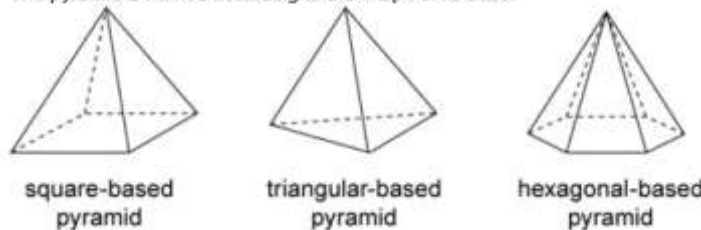
Conclusion

The Mathematics curriculum in Australia aims to ensure that students in schools are self-confident, creative and capable of mathematical reasoning/ability and are able to analyze, apply it in their personal lives and into their work as citizens who actively develop understanding who are increasingly sophisticated about mathematical concepts, smooth processes, and are able to pose and solve problems with calculations and concepts of algebra, measurement and geometry, as well as statistics and probability. The Mathematics curriculum in Australia consists of three areas and four skills. The three fields here consist of *numbers and algebra* , *measurement and geometry,* and *statistics and probability* . These areas describe what teachers and students must teach and learn. The skills expected in the Australian mathematics curriculum include *understanding* , *fluency/skills* , *problem solving* and *reasoning skills* . These skills explain how the three areas of the Australian mathematics curriculum are studied and developed, through the ability to think and work mathematically. There are 10 levels of education based on the Australian curriculum, starting from basic education (foundation / F) to education in the 10th year, each level has a different standard of achievement.

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