



## Purpose of the literacy and numeracy learning progressions

The purpose and intent of the progressions are to provide a tool to:

- locate the literacy and numeracy development of students
- plan for student progress in literacy and numeracy
- facilitate shared professional understanding of literacy and numeracy development
- support a whole school approach to literacy and numeracy development.

### Literacy and numeracy in the learning areas

The learning areas provide rich opportunities for extending and enriching literacy and numeracy. To effectively plan for differentiated teaching of literacy and numeracy in the learning areas, teachers draw on their knowledge of the Australian Curriculum and their knowledge of their students. Recognising that students learn at different rates; the learning progressions provide a continuum for teachers to identify and build on students' literacy and numeracy skills. The intention is that students will develop their literacy and numeracy expertise purposefully, in meaningful contexts.

### Literacy and numeracy in The Arts

Arts learning programs based on Australian Curriculum: The Arts Years 7-10 can provide opportunities for students to:

- develop aspects of the literacy and numeracy identified in the learning progressions that are also associated with specific arts practices, forms, skills, techniques and processes including processes for analysing, evaluating, critiquing and reflecting and interpreting ideas, meanings and messages
- apply and build on literacy and numeracy capability acquired in other learning areas and in earlier years of schooling. This might involve applying knowledge and skills in different contexts, for different purposes or deepening and broadening prior learning to explore new aspects of a concept or skill.

Through Arts learning students develop verbal and auditory working memory, visuo-spatial reasoning and their ability to interpret and use symbols and symbol systems to create meaning. These skills are transferrable across learning contexts and support development of literacy and numeracy capabilities.

### Using this advice and the learning progressions to plan for student progress in literacy and numeracy

This advice illustrates how the learning progressions can be used in Visual Arts to support student progress in literacy and numeracy. This advice:

- identifies the sub-elements of the learning progressions that are most relevant to studying Visual Arts
- identifies some aspects of an achievement standard that include literacy or numeracy demands
- lists some relevant indicators at one or more levels of the learning progressions to illustrate how the learning progressions might be unpacked to support student progress in literacy and numeracy in the study of Visual Arts
- identifies how students can develop literacy and numeracy capabilities purposefully and in meaningful contexts through Visual Arts.

Figure 1 illustrates how the learning progressions are to be used by teachers to identify where students are positioned on the literacy and numeracy continuum and plan for their ongoing development within the learning area. Therefore, this advice can support use of the learning progressions in developing explicit and targeted programs to ensure students are able to access discipline-specific knowledge, concepts, understanding and skills. While advice is provided on the most relevant sub-elements of each learning progression for the discipline of Visual Arts, whole school planning may address other sub-elements to progress students' literacy and numeracy.

Targeted Achievement Standard	Indicators of literacy development related to the standard		
A. Year 9	B. Level LIS2	C. Level LIS5	D. Level LIS8
Students: <ul style="list-style-type: none"> <li>interpret, process, analyse and organise information from a range of primary and secondary sources and use it as evidence to answer inquiry questions</li> </ul>	<ul style="list-style-type: none"> <li>responds to spoken texts (uses facial expressions, movements, turns towards the speaker)</li> <li>responds to spoken phrases relying on key words, tone of voice and intonation</li> <li>follows a simple sequence of instructions</li> <li>recognises one-syllable hyphenated words (see Phonological awareness)</li> <li>repeats familiar words heard in a text or conversation</li> </ul>	<ul style="list-style-type: none"> <li>listens to texts to engage with learning area content</li> <li>recalls specific information from learning area text</li> <li>attempts to sequence and report ideas</li> <li>uses simple strategies (asking questions to elicit extra information, using others' contributions to check own comprehension)</li> <li>uses simple strategies to extend or clarify next</li> </ul>	<ul style="list-style-type: none"> <li>identifies and paraphrases key points of a speaker's arguments (interprets speeches and uses own words to identify key historical events and arguments)</li> <li>uses the points of view expressed)</li> <li>identifies any shifts in direction, purpose or focus</li> <li>critically identifies the main points of the text, such as whose voice is missing? How has language been used to include or exclude?</li> </ul>

Figure 1: Annotated example of how to use learning area advice and the progressions to progress learning

## Numeracy in Visual Arts

In Visual Arts, students use calculation, estimation and measurement to plan and make visual art and design works and develop their capacity to recognise and use patterns and relationships, visualise 2D shapes and 3D objects and interpret maps, diagrams, data displays and chance events. Different aspects of numeracy are used across different visual forms such as ceramics, computer-generated artworks and photography. Students may also study the work of artists who use mathematical processes and content in their visual artworks or develop technical drawing skills.

Typically, students acquire knowledge and skill relating to many of the indicators listed below during their Primary years. As they learn in Visual Arts across Years 7-10 students can apply and build on this learning in new contexts. For example, students might use percentages or units of measurement or additive strategies or extend their knowledge about concepts such as positioning and locating or measuring time when designing, making or responding to visual artworks.

### Using the numeracy learning progression to support students in Visual Arts

The most relevant sub-elements of the numeracy learning progression for Visual Arts are *Number patterns and algebraic thinking, Positioning and locating, Understanding units of measurement, Comparing units (ratios, rates and proportion), Interpreting fractions, and Understanding geometric properties, Interpreting and representing data.*

#### **Number patterns and algebraic thinking**

Figuring out how a pattern works brings predictability and allows the making of generalisations. This sub-element describes how a student becomes increasingly able to identify a pattern as something that is a discernible regularity in a group of numbers or shapes. Through Visual Arts, students can extend and apply their knowledge of concepts relating to pattern, introduced through Mathematics in the early years of Primary school.

Targeted Achievement Standard	Examples of how indicators relate to the AC standard <i>Individual student literacy may be at different levels of the learning progression as indicated in Figure 1</i>
<b>Year 8</b>	<b>NPA1</b>
Students: <ul style="list-style-type: none"> <li>• identify and analyse how other artists use visual conventions and viewpoints to communicate ideas</li> <li>• plan their art making in response to exploration of techniques and processes used in their own and others' artworks.</li> </ul>	A student: <p><b>Identifying patterns</b></p> <ul style="list-style-type: none"> <li>• recognises simple patterns in everyday contexts (including random, linear, radial, or abstract patterns when analysing artworks)</li> <li>• copies simple patterns (creates random, linear, radial or abstract patterns in own artworks).</li> </ul>

## Comparing units (ratios, rates and proportion)

This sub-element addresses comparing units in ratios, rates and proportions. A ratio describes a situation in comparative terms and a proportion is taken to mean when this comparison is used to describe a related situation in the same comparative terms. For example, changing the ratio of white paint to blue paint results in different shades; the comparison is the amount of white to the amount of blue. Proportionally, the amount of white might be 2 parts and the amount of blue might be 5 parts.

Targeted Achievement Standard	Examples of how indicators relate to the AC standard <i>Individual student numeracy may be at different levels of the learning progression as indicated in Figure 1</i>
Year 10	CoU1/2/3
<p>Students:</p> <ul style="list-style-type: none"> <li>• evaluate how representations communicate artistic intentions in artworks they make and view</li> <li>• evaluate artworks and displays from different cultures, times and places</li> <li>• analyse connections between visual conventions, practices and viewpoints that represent their own and others' ideas</li> <li>• identify influences of other artists on their own artworks</li> <li>• manipulate materials, techniques and processes to develop and refine techniques and processes to represent ideas and subject matter in their artworks.</li> </ul>	<p>A student:</p> <p><b>Building ratios</b></p> <ul style="list-style-type: none"> <li>• uses knowledge of fractions as part-whole relationships to divide and compare quantities (for example, when analysing use of circles and segments in a visual artwork or using division of thirds as a tool for composition)</li> </ul> <p><b>Ratios</b></p> <ul style="list-style-type: none"> <li>• interprets ratios as a comparison between the same units of measure (calculating the aspect ratio of an image - the proportional relationship between its width and its height or a 1:5 scale model for a 3D work or exploring how artists from different times and cultures have used the Fibonacci sequence can be used to create patterns for art and design works or examples of patterns in nature that demonstrate the 'golden' ratio)</li> </ul> <p><b>Rates</b></p> <ul style="list-style-type: none"> <li>• uses rates to determine how quantities change (frames per second in a screen-based work or calculating the time it will take to fire a ceramic piece at a particular temperature)</li> </ul> <p><b>Applying proportion</b></p> <ul style="list-style-type: none"> <li>• demonstrates how increasing one quantity in a ratio will affect the total proportion (when mixing paint or clay)</li> <li>• interprets proportion as the equality of two ratios or rates (for example, 'the length of the outspread arms is equal to the height of a man', Leonardo da Vinci or dividing the body of a fish into five equal lengths – one for the head, three for the main body and one for the tail in <i>Swimming Carp</i>, from <i>A Picture Book Miscellany</i>, Utagawa Hiroshige, 1849, woodblock print, V&amp;A Images).</li> </ul>

## Interpreting fractions

This sub-element emphasises the development of the fraction concept and the size of fractions rather than the development of procedures or algorithmic skills.

This sub-element describes how a student becomes increasingly able to use fractions as numbers that describe a relationship between two abstract measures of quantity. For example, in Visual Arts students might refer to fractions when using a grid to plan an artwork or when using numbers or geometric shapes as subject matter.

It is important to note that, even though the achievement standards in Years 7-10 Visual Arts do not include overt references to Interpreting fractions, these skills are essential and implied in the following aspects of the achievement standard:

Targeted Achievement Standard	Examples of how indicators relate to the AC standard <i>Individual student numeracy may be at different levels of the learning progression as indicated in Figure 1</i>
<b>Year 8</b>	<b>InF6/7</b>
Students: <ul style="list-style-type: none"><li>• identify and analyse how other artists use visual conventions and viewpoints to communicate ideas</li><li>• explain how an artwork is displayed to enhance its meaning</li><li>• evaluate how they and others are influenced by artworks from different cultures, times and places</li><li>• plan their art making in response to exploration of techniques and processes used in their own and others' artworks</li><li>• demonstrate use of visual conventions, techniques and processes to communicate meaning in their artworks.</li></ul>	A student: <b>Fractions as numbers</b> <ul style="list-style-type: none"><li>• understands the relationship between a fraction, decimal and percentage as different representations of the same quantity (<math>\frac{1}{2} = 0.5 = 50\%</math>, for example, interchangeably writes or speaks about the way space is partitioned in a visual artwork, or describing a small square as being <math>\frac{1}{4}</math>, 25% or 0.25 of another square)</li></ul> <b>Using fractions</b> <ul style="list-style-type: none"><li>• uses strategies to find a fraction of a quantity (for example, when using a whole shape and fractional parts of the same shape in a visual artwork).</li></ul>

## Understanding units of measurement

This sub-element describes how a student becomes increasingly able to recognise attributes that can be measured and how units of measure are used and calculated. In making the transition from informal to formal units, a student attends to the structure of units used to measure how they are assembled end-to-end, side-by-side or in layers without gaps or overlapping. The structure of the units gives rise to ways of calculating length, area and volume.

In dealing with mass and capacity, experience helps develop estimates associated with commonly available reference objects (a cupful in cooking or the mass of an egg).

Developing standard and agreed units of measurement is critically vital in areas as diverse as medicine and trade.

The relationship between units of measurement is applied in ratios, rates and proportions as well as decimals and percentages.

Targeted Achievement Standard	Examples of how indicators relate to the AC standard <i>Individual student numeracy may be at different levels of the learning progression as indicated in Figure 1</i>
<b>Year 8</b>	<b>UuM</b>
Students: <ul style="list-style-type: none"> <li>identify and analyse how other artists use visual conventions and viewpoints to communicate ideas</li> <li>plan their art making in response to exploration of techniques and processes used in their own and others' artworks</li> <li>demonstrate use of visual conventions, techniques and processes to communicate meaning in their artworks.</li> </ul>	A student: <p><b>Using informal units of measurement</b></p> <ul style="list-style-type: none"> <li>uses multiple informal units to measure length, mass or capacity (when measuring the proportions of a face for drawing or painting)</li> </ul> <p><b>Using equal units for indirect comparison</b></p> <ul style="list-style-type: none"> <li>chooses and uses a selection of the same size and type of units to make indirect comparisons of mass and capacity (when comparing the sizes of artworks or calculating the amount of clay required to make a ceramic vessel).</li> </ul>

### **Understanding geometric properties**

This sub-element describes how a student becomes increasingly able to identify the attributes of shapes and objects and how they can be combined or transformed. Being able to use spatial reasoning and geometric properties to solve problems is important for a range of tasks. For example, in Visual Arts students use their understanding of geometric properties when they use and manipulate shapes to communicate expressive qualities, for example, inverting triangles to create a sense of imbalance or using implied lines (converging/orthogonal lines) to create an imaginary vanishing point.

It is important to note that, even though the achievement standards in Years 7-10 Visual Art do not include overt references to Understanding geometric properties, these skills are essential and implied in the following aspects of the achievement standard:

Targeted Achievement Standard	Examples of how indicators relate to the AC standard <i>Individual student numeracy may be at different levels of the learning progression as indicated in Figure 1</i>
<b>Year 10</b>	<b>UGP2/3/4/5/6</b>
Students: <ul style="list-style-type: none"> <li>evaluate how representations communicate artistic intentions in artworks they make and view</li> <li>evaluate artworks and displays from different cultures, times and places</li> <li>analyse connections between visual conventions, practices and viewpoints that represent their own and others' ideas</li> <li>identify influences of</li> </ul>	A student: <p><b>Familiar shapes and objects</b></p> <ul style="list-style-type: none"> <li>uses everyday language to describe and compare shapes and objects</li> <li>finds similar shapes or objects in the environment (uses a collection of objects with a similar 2D shape or 3D form as subject matter for a visual artwork and documents the similarities and differences between each object that has inspired their work)</li> </ul> <p><b>Features of shapes and objects</b></p> <ul style="list-style-type: none"> <li>identifies and describes features of shapes and objects</li> </ul>

Targeted Achievement Standard	Examples of how indicators relate to the AC standard <i>Individual student numeracy may be at different levels of the learning progression as indicated in Figure 1</i>
Year 10	<b>UGP2/3/4/5/6</b>
<p>other artists on their own artworks</p> <ul style="list-style-type: none"> <li>manipulate materials, techniques and processes to develop and refine techniques and processes to represent ideas and subject matter in their artworks.</li> </ul>	<ul style="list-style-type: none"> <li>describes what an object may look like from a different perspective</li> <li>recognises features of shapes of different sizes and in different orientations following flips, slides and turns (manipulates familiar 2D shapes and 3D forms in a visual artwork by, for example, elongating, inverting, repeating, and documents this in an artists' journal or compares representation of familiar shapes and objects in visual artworks from different cultures, times and places)</li> </ul> <p><b>Properties of shapes and objects</b></p> <ul style="list-style-type: none"> <li>relates the faces of a three-dimensional object (form) to two-dimensional shapes (for example, using shading, size or linear perspective)</li> <li>represents shapes and objects (in 2-D, 3-D or 4-D visual artworks)</li> </ul> <p><b>Symmetry</b></p> <ul style="list-style-type: none"> <li>recognises that shapes can have lines of symmetry (for example, discusses lines of symmetry, asymmetry or radial symmetry when evaluating how representations communicate artistic intentions in artworks they make and view or using symmetry in an artwork they make)</li> </ul> <p><b>Angles and lines</b></p> <ul style="list-style-type: none"> <li>uses angle properties to identify perpendicular and parallel lines, (when analysing and evaluating visual artworks)</li> </ul> <p><b>Geometric properties</b></p> <ul style="list-style-type: none"> <li>uses relevant properties of geometrical figures to find unknown lengths and angles (when making visual artworks).</li> </ul>

### ***Positioning and locating***

This sub-element describes how a student becomes increasingly able to recognise the attributes of position and location and to use positional language to describe themselves and/or objects in various locations. A student learns to reason with representations of shapes and objects regarding position and location and to visualise and orientate objects to solve problems in spatial contexts, such as when manipulating proportion to communicate a particular meaning.

Targeted Achievement Standard	Examples of how indicators relate to the AC standard <i>Individual student numeracy may be at different levels of the learning progression as indicated in Figure 1</i>
Year 8	PoL2/5
Students: <ul style="list-style-type: none"> <li>• identify and analyse how other artists use visual conventions and viewpoints to communicate ideas.</li> </ul>	A student: <p><b>Position to other</b></p> <ul style="list-style-type: none"> <li>• interprets a simple diagram or picture to describe the position of an object (in an artwork)</li> </ul> <p><b>Position to other</b></p> <ul style="list-style-type: none"> <li>• interprets the <u>scale</u> as a ratio used to create plans, drawings or maps</li> <li>• interprets plans involving scale (when creating thumbnail drawings that will be proportionally scaled up for larger scale artworks).</li> </ul>