Numeracy across
Visual Communication Design,
Levels 7–10

Linking the Numeracy Learning Progressions
and the Victorian Curriculum

Numeracy underpins learning across the Victorian Curriculum F–10. While much of the explicit teaching of numeracy occurs in the Mathematics learning area, it is strengthened, made specific and extended in other learning areas as students engage in a range of learning activities with significant numeracy demands. The Numeracy Learning Progressions are designed to assist schools and teachers in all learning areas to support their students to successfully engage with the numeracy demands of the Victorian Curriculum F–10.

**The Numeracy Learning Progressions are provided as advisory material only and are not mandated as part of the Victorian Curriculum F–10. To view the Visual Communication Design curriculum, visit the** [**Victorian Curriculum F–10 website**](https://victoriancurriculum.vcaa.vic.edu.au/the-arts/visual-communication-design/curriculum/f-10)**.**

In Visual Communication Design in the Victorian Curriculum, students develop conceptual and aesthetic understandings about design solutions in the world around them. Students investigate the practices of designers and the significance of visual communication design in different times, places and cultures. Students use visual communication design knowledge, understanding and skills to communicate ideas and information with a specific purpose. They use visual communication practices and technologies to generate ideas, and develop and refine visual communications.

The most relevant Numeracy Learning Progressions for Visual Communication Design Levels 7–10 are Number patterns and algebraic thinking, Comparing units, Understanding geometric properties, Positioning and locating and Understanding units of measurement.

**Number patterns and algebraic thinking** involves figuring out how a pattern brings predictability and allows the making of generalisations. This learning progression 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 Communication Design, students can extend and apply their knowledge of concepts relating to pattern, introduced through Mathematics in the early years of Primary school.

**Comparing units** 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.

**Understanding geometric properties** includes representing shapes and objects (sketching, model building, and using digital drawing packages) and identifying the different design elements that create a symmetrical and tessellating design.

Students use angle properties to identify perpendicular and parallel lines in paraline and perspective drawings.

**Positioning and locating** 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.

**Understanding units of measurement** 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.

Numeracy in the context of Visual Communication Design

The tables in this document make explicit the links between the Numeracy Learning Progressions and content descriptions in all four strands of Visual Communication Design.

In addition to these Numeracy Learning Progression links, the approximate relation to the Victorian Curriculum F–10 Mathematics levels has been included. For further information on the alignment of the Numeracy Learning Progressions and the Victorian Curriculum F–10 Mathematics, please refer to the [Numeracy Learning Progressions map on the VCAA website](https://www.vcaa.vic.edu.au/curriculum/foundation-10/crosscurriculumresources/Pages/Numeracy.aspx).

The ‘Numeracy in context’ section of each table provides examples of learning that connect to the Numeracy Learning Progressions, allowing for a deeper understanding of numeracy demands.

The achievement standards for Visual Communication Design have been included below for teachers’ reference.

Visual Communication Design Levels 7 and 8 achievement standard

By the end of Level 8, students identify and describe how designers use visual communication practices to respond to briefs in different historical, social and cultural contexts. They apply this knowledge in the development of their own visual communication practices.

Students select and use appropriate drawing conventions, methods, materials, media, design elements and design principles to create effective visual communications.

Students evaluate how they and others are affected and influenced by visual communications from different cultures, times and places. They identify and describe practices of visual communication designers in visual communications from different cultures, times and places.

Visual Communications and Design Levels 9 and 10 achievement standard

By the end of Level 10 students analyse and evaluate the visual communications they make and view, and how visual communications from different historical, social and cultural contexts communicate ideas and information.

Within visual communication fields, students develop briefs and visualise, generate and develop ideas in response to audience needs. They evaluate, reflect on, refine and justify their decisions and aesthetic choices.

Students demonstrate their use of visual communication design skills, techniques, conventions and processes in a range of design fields. They manipulate design elements and design principles, materials, methods, media and technologies to realise their concepts and ideas for specific purposes, audiences and needs

Links to Explore and Represent Ideas

In Visual Communication Design, students explore and experiment with ideas and representations for different audiences and purposes.

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| Relevant Victorian Curriculum content descriptions | Numeracy Learning Progression links (plus approximate relation to Victorian Curriculum F–10 Mathematics levels) |
| **Visual Communication Design Levels 7 and 8** | **Number patterns and algebraic thinking*** Identifying patterns (F)

**Understanding geometric properties** * Properties of shapes and objects (3–4)
* Symmetry (4)
* Angles and lines (5–7)
* Geometric properties (7–8)
 |
| Explore and apply methods, materials, media, design elements and design principles to create and present visual communications [(VCAVCDE001)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDE001) |
| **Visual Communication Design Levels 9 and 10** |
| Develop and present visual communications that demonstrate the application of methods, materials, media, design elements and design principles that meet the requirements of a specific brief and target audience [(VCAVCDE006)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDE006)Generate, develop and refine visual communication presentations in response to the brief (VCAVCDE007) |
| **Numeracy in context – Visual Communication Design, Levels 7–10** |
| **Number patterns and algebraic thinking**Students identify, continue and explore, and represent and create repeating patterns. They identify missing elements and use a range of manual and digital drawing methods to create visual communications, including alternating, repetition and pattern. **Understanding geometric properties**Understanding geometric properties includes representing shapes and objects (sketching, model building, and using digital drawing packages) and identifying the different design elements that create a symmetrical design.Students use angle properties to identify perpendicular and parallel lines in paraline and perspective drawings.  |

Links to Visual Communication Design Practices

In Visual Communication Design, students develop understanding and skills by exploring, selecting, applying and manipulating techniques, technologies and processes. They conceptualise, plan and design artworks.

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| Relevant Victorian Curriculum content descriptions | Numeracy Learning Progression links (plus approximate relation to Victorian Curriculum Mathematics levels) |
| **Visual Communication Design Levels 7 and 8** | **Number patterns and algebraic thinking*** Generalising patterns (4–5)

**Comparing units*** Ratios (8)
* Rates (8)

**Understanding geometric properties*** Properties of shape and objects (3–4)

**Positioning and locating*** Interpreting maps and plans (4–5)

**Understanding units of measurement*** Using formal units (3–5)
 |
| Use manual and digital drawing methods and conventions to create a range of visual communications [(VCAVCDV002)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDV002) |
| **Visual Communication Design Levels 9 and 10** |
| Use manual and digital drawing methods to create visual communications in the specific design fields of Environmental, Industrial and Communication Design [(VCAVCDV008)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDV008) |
| **Numeracy in context – Visual Communication Design, Levels 7–10** |
| **Number patterns and algebraic thinking**Students identify, continue and create repeating patterns, and they identify missing elements and use a range of manual and digital drawing methods to create. They use typographic conventions to create patterns using font types.Students investigate typographic conventions by exploring the layout ratios, tracking and kerning of font types. **Comparing units**Students interpret ratios as a comparison between the same units of measure. They use ratio to increase or decrease quantities and can apply this to the development of drawing to scale in environmental and industrial design. Students investigate typographic conventions by exploring the layout ratios, tracking and kerning of font types. **Understanding geometric properties**Understanding geometric properties includes representing shapes and objects (manual drawing, model building, and using digital drawing packages). Students identify the different shapes that create a symmetrical design.Students use angle properties to identify perpendicular and parallel lines in paraline and perspective drawings. **Positioning and locating**Students interpret the scale as a ratio used to create plans, elevations, orthogonal drawings, packaging nets or maps. They interpret plans involving a scale and create a range of visual communication design presentations in industrial or environmental design using manual and digital methods.**Understanding units of measurement**Students identify appropriate units of measurement with precision. They are able to differentiate and convert between units of measurement and use this knowledge when developing scaled drawings in industrial or environmental design. |

Links to Present and Perform

In Visual Communication Design, students develop and refine visual communication designs for different audiences and purposes. They consider the relationship between the designer’s intentions, audience characteristics and needs.

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| Relevant Victorian Curriculum content descriptions | Numeracy Learning Progression links (plus approximate relation to Victorian Curriculum Mathematics levels) |
| **Visual Communication Design Levels 7 and 8** | **Positioning and locating*** Using formal maps and plans (3)
* Interpreting maps and plans (4–5)

**Interpreting and representing data*** Collecting and displaying data (4–5)
 |
| Develop and present visual communications for different purposes, audiences and in response to specific needs [(VCAVCDP003)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDP003) |
| **Visual Communication Design Levels 9 and 10** |
| Develop a brief that identifies a specific audience and needs, and present visual communications that meet the brief [(VCAVCDP009)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDP009) |
| **Numeracy in context – Visual Communication Design, Levels 7–10** |
| **Positioning and locating**Students plan the format of their final presentations considering the layout of drawings, the positioning of conventions on a map, floor plans for architectural design or the components of a model of a product in industrial design. **Interpreting and representing data**Students collect and interpret data on the needs of audiences, to develop and design a brief suitable to their needs. They are able to use graphical representation relevant to the purpose and justify data collection methods to fit the context.  |

Links to Respond and Interpret

In Visual Communication Design, students analyse and evaluate visual communication designs for different audiences and purposes in different contexts.

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| Relevant Victorian Curriculum content descriptions | Numeracy Learning Progression links (plus approximate relation to Victorian Curriculum Mathematics levels) |
| **Visual Communication Design Levels 7 and 8** | **Positioning and locating*** Using formal maps and plans (3)

**Understanding units of measurement*** Using formal units (3–5)
 |
| Identify and describe the purpose, intended audience and context in a range of visual communications from different historical, social and cultural contexts [(VCAVCDR004)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDR004)Identify and describe the use of methods, media, materials, design elements and design principles in visual communications from different historical, social and cultural contexts [(VCAVCDR005)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDR005) |
| **Visual Communication Design Levels 9 and 10** |
| Analyse and evaluate the factors that influence design decisions in a range of visual communications from different historical, social and cultural contexts [(VCAVCDR010)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDR010)Analyse and evaluate the use of methods, media, materials, design elements and design principles in visual communications from different historical, social and cultural contexts [(VCAVCDR011)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCAVCDR011) |
| **Numeracy in context – Visual Communication Design, Levels 7–10** |
| **Positioning and locating**Students identify and evaluate visual communication from different cultures, times and places. They are able to identify locations and features on maps, as well as use compass directions to locate position. **Understanding units of measurement**Students research a range of designs in different contexts and different periods of time. They present the influences on the design in a timeline, annotating the influence and change to the design.  |