Indicative progress descriptions

The Victorian Curriculum F–10 has been designed as a continuum of learning, with achievement standards provided at the end of a level or, more typically, at the end of a band of levels. As students progress along the curriculum, indicative progress descriptions can be used by teachers to describe what student progress looks like *between* achievement standards. Such a description of a student’s progression of learning may be useful to a teacher when they need to assess and report the student’s learning progress *when they are only partially through teaching the level* and hence the student is still working towards the level achievement standard.

To assist teachers to develop their own indicative progress descriptions, the VCAA has provided an annotated example of indicative progress, a curriculum-specific example of indicative progress and indicative progress templates prepopulated with the curriculum-specific achievement standards (see below).

Teachers are encouraged to look at both the annotated example below and the curriculum-specific example of indicative progress (see page 2), before filling in the indicative progress template from page 3 onward.

Annotated example of indicative progress

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| **Curriculum Area**  **Step 1:** *Identify the curriculum area and the levels the assessment will span.*  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Descriptions:**  **Step 5:** *Develop a description of what a student would be expected to do, make, say or write as they progress towards the next achievement standard.* | | |
| **Level X Achievement Standard** | **Example of indicative progress towards achievement standard** | **Level Y Achievement Standard** |
| By the end of Level X students can: … | When progressing towards Level Y students can: …  **Step 4:** *Highlight the specific elements of the achievement standard that are being targeted in this context.* | By the end of Level Y students can: … |

**Step 2:** *Draw the context from the learning plan and include an outline of the unit or topic.*

**Step 3:** *Choose which content descriptions will be taught and assessed in this unit.*

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| **CURRICULUM AREA: Mathematics (Statistics and Probability) sequence towardLevel 9 achievement standard** | | |
| **Context:** Students cover related content and proficiencies when they engage in learning activities where they:  2   * make two-step selections from a given set both with and without replacement, such as selecting coloured balls from a jar, with and without technology * construct and interpret back-to-back stem-and-leaf plots for different sets of sample data in relation to two categories, such as house sale prices in two different suburbs/regions or hours worked in different occupations * use technology to draw many random samples of the same size from a population and discuss variation in sample means. | | |
| **Content Descriptions:**   * List all outcomes for two-step chance experiments, both with and without replacement using tree diagrams or arrays. Assign probabilities to outcomes and determine probabilities for events [(VCMSP321)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP321) * Construct back-to-back stem-and-leaf plots and histograms and describe data, using terms including ‘skewed’, ‘symmetric’ and ‘bi modal’ [(VCMSP325)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP325) * Apply set structures to solve real-world problems [(VCMNA307)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA307) | | |
| **Mathematics Level 8 Achievement Standard** | **Example of Indicative Progress toward Level 9 Achievement Standard** | **Mathematics Level 9 Achievement Standard**  5 |
| By the end of Level 8:   * Students explain issues related to the collection of sample data and discuss the effect of outliers on means and medians of the data. * They use various approaches, including the use of digital technology, to generate simple random samples from a population. * Students model situations with Venn diagrams and two-way tables and explain the use of 'not', 'and' and 'or' Students choose appropriate language to describe events and experiments. | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 9 achievement standard may be when students:   * apply tree diagrams to solve problems involving two-step selections with and without replacement * use back-to-back stem-and-leaf plots to compare the distributions of two sets of like numerical data for different categories, such as height of students in a class with respect to gender * draw random samples from a population and calculate sample means   4 | By the end of Level 9:   * They construct histograms and back-to-back stem-and-leaf plots with and without the use of digital technology. * Students identify mean and median in skewed, symmetric and bi-modal displays and use these to describe and interpret the distribution of the data. * They calculate relative frequencies to estimate probabilities. Students list outcomes for two-step experiments and assign probabilities for those outcomes and related events. |

Curriculum-specific example of indicative progress

Below is a curriculum-specific example with each step marked, to demonstrate how to complete an indicative progress template.

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 1 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context: [INSERT Context from the learning plan and include an outline of the unit or topic you are assessing]** | | |
| **Content Description(s): [INSERT Content description/s which will be taught and assessed in this unit]** | | |
| **Mathematics Foundation Level Achievement Standard** | **Example of Indicative Progress toward Level 1 Achievement Standard** | **Mathematics Level 1 Achievement Standard** |
| By the end of the Foundation level:   * Students sort familiar categorical data into sets and use these to answer yes/no questions and make simple true/false statements about the data | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 1 achievement standard may be when students: | By the end of Level 1:   * Students describe data displays. * They ask questions to collect data and draw simple data displays. * Students classify outcomes of simple familiar events |

Indicative progress template

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 2 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 4 Achievement Standard** | **Example of Indicative Progress toward Level 2 Achievement Standard** | **Mathematics Level 2 Achievement Standard** |
| By the end of Level 1:   * Students describe data displays. * They ask questions to collect data and draw simple data displays. * Students classify outcomes of simple familiar events | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 2 achievement standard may be when students: | By the end of Level 2:   * Students collect data from relevant questions to create lists, tables and picture graphs with and without the use of digital technology. * They interpret data in context. * Students use everyday language to describe outcomes of familiar events |

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 3 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 2 Achievement Standard** | **Example of Indicative Progress toward Level 3 Achievement Standard** | **Mathematics Level 3 Achievement Standard** |
| By the end of Level 2:   * Students collect data from relevant questions to create lists, tables and picture graphs with and without the use of digital technology. * They interpret data in context. * Students use everyday language to describe outcomes of familiar events | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 3 achievement standard may be when students: | By the end of Level 3:   * Students carry out simple data investigations for categorical variables. * They interpret and compare data displays. * Students conduct chance experiments, list possible outcomes and recognise variations in results |

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 4 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 3 Achievement Standard** | **Example of Indicative Progress toward Level 4 Achievement Standard** | **Mathematics Level 4 Achievement Standard** |
| By the end of Level 3:   * Students carry out simple data investigations for categorical variables. * They interpret and compare data displays. * Students conduct chance experiments, list possible outcomes and recognise variations in results | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 4 achievement standard may be when students: | By the end of Level 4:   * Students describe different methods for data collection and representation, and evaluate their effectiveness. * They construct data displays from given or collected data, with and without the use of digital technology. * Students list the probabilities of everyday events. * They identify dependent and independent events |

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 5 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 4 Achievement Standard** | **Example of Indicative Progress toward Level 5 Achievement Standard** | **Mathematics Level 5 Achievement Standard** |
| By the end of Level 4:   * Students describe different methods for data collection and representation, and evaluate their effectiveness. * They construct data displays from given or collected data, with and without the use of digital technology. * Students list the probabilities of everyday events. * They identify dependent and independent events. | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 5 achievement standard may be when students: | By the end of Level 5:   * Students pose questions to gather data and construct various displays appropriate for the data, with and without the use of digital technology. * They compare and interpret different data sets. * Students list outcomes of chance experiments with equally likely outcomes and assign probabilities as a number from 0 to 1 |

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 6 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 5 Achievement Standard** | **Example of Indicative Progress toward Level 6 Achievement Standard** | **Mathematics Level 6 Achievement Standard** |
| By the end of Level 5:   * Students pose questions to gather data and construct various displays appropriate for the data, with and without the use of digital technology. * They compare and interpret different data sets. * Students list outcomes of chance experiments with equally likely outcomes and assign probabilities as a number from 0 to 1 | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 6 achievement standard may be when students: | By the end of Level 6:   * Students interpret and compare a variety of data displays, including displays for two categorical variables. * They analyse and evaluate data from secondary sources. * Students compare observed and expected frequencies of events, including those where outcomes of trials are generated with the use of digital technology. * They specify, list and communicate probabilities of events using simple ratios, fractions, decimals and percentages |

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 7 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 6 Achievement Standard** | **Example of Indicative Progress toward Level 7 Achievement Standard** | **Mathematics Level 7 Achievement Standard** |
| By the end of Level 6:   * Students interpret and compare a variety of data displays, including displays for two categorical variables. * They analyse and evaluate data from secondary sources. * Students compare observed and expected frequencies of events, including those where outcomes of trials are generated with the use of digital technology. * They specify, list and communicate probabilities of events using simple ratios, fractions, decimals and percentages | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 7 achievement standard may be when students: | By the end of Level 7:   * Students identify issues involving the collection of discrete and continuous data from primary and secondary sources. * They construct stem-and-leaf plots and dot-plots. * Students identify or calculate mean, mode, median and range for data sets, using digital technology for larger data sets. * They describe the relationship between the median and mean in data displays. * Students determine the sample space for simple experiments with equally likely outcomes, and assign probabilities outcomes |

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 8 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 7 Achievement Standard** | **Example of Indicative Progress toward Level 8 Achievement Standard** | **Mathematics Level 8 Achievement Standard** |
| By the end of Level 7:   * Students identify issues involving the collection of discrete and continuous data from primary and secondary sources. * They construct stem-and-leaf plots and dot-plots. * Students identify or calculate mean, mode, median and range for data sets, using digital technology for larger data sets. * They describe the relationship between the median and mean in data displays. * Students determine the sample space for simple experiments with equally likely outcomes, and assign probabilities outcomes | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 8 achievement standard may be when students: | By the end of Level 8:   * Students explain issues related to the collection of sample data and discuss the effect of outliers on means and medians of the data. * They use various approaches, including the use of digital technology, to generate simple random samples from a population. * Students model situations with Venn diagrams and two-way tables and explain the use of 'not', 'and' and 'or'. * Students choose appropriate language to describe events and experiments. * They determine complementary events and calculate the sum of probabilities |

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 9 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 8 Achievement Standard** | **Example of Indicative Progress toward Level 9 Achievement Standard** | **Mathematics Level 9 Achievement Standard** |
| By the end of Level 8:   * Students explain issues related to the collection of sample data and discuss the effect of outliers on means and medians of the data. * They use various approaches, including the use of digital technology, to generate simple random samples from a population. * Students model situations with Venn diagrams and two-way tables and explain the use of 'not', 'and' and 'or'. * Students choose appropriate language to describe events and experiments. * They determine complementary events and calculate the sum of probabilities | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 9 achievement standard may be when students: | By the end of Level 9:   * Students compare techniques for collecting data from primary and secondary sources, and identify questions and issues involving different data types. * They construct histograms and back-to-back stem-and-leaf plots with and without the use of digital technology. * Students identify mean and median in skewed, symmetric and bi-modal displays and use these to describe and interpret the distribution of the data. * They calculate relative frequencies to estimate probabilities.   Students list outcomes for two-step experiments and assign probabilities for those outcomes and related events |

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| **CURRICULUM AREA – Mathematics (Statistics and Probability) toward Level 10 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 9 Achievement Standard** | **Example of Indicative Progress toward Level 10 Achievement Standard** | **Mathematics Level 10 Achievement Standard** |
| By the end of Level 9:   * Students compare techniques for collecting data from primary and secondary sources, and identify questions and issues involving different data types. * They construct histograms and back-to-back stem-and-leaf plots with and without the use of digital technology. * Students identify mean and median in skewed, symmetric and bi-modal displays and use these to describe and interpret the distribution of the data. * They calculate relative frequencies to estimate probabilities. * Students list outcomes for two-step experiments and assign probabilities for those outcomes and related events | In **Mathematics (Statistics and Probability)**, indicative progression towards the Level 10 achievement standard may be when students: | By the end of Level 10:   * Students compare univariate data sets by referring to summary statistics and the shape of their displays. * They describe bivariate data where the independent variable is time and use scatter-plots generated by digital technology to investigate relationships between two continuous variables. * Students evaluate the use of statistics in the media. * They list outcomes for multi-step chance experiments involving independent and dependent events, and assign probabilities for these experiments |