Digital Technologies Progression Points: Year 8 – v8.3

Independent Schools Queensland (ISQ) has developed Progression Points to support teachers in independent schools with implementation of version 8.3 of the Australian Curriculum.

A Word document version of the Progression Points is available so that teachers can rearrange the sequences of learning.

Personnel in independent schools are encouraged to consider how the Progression Points could be used to: -

* diagnose through formative assessment, the capabilities, strengths and weaknesses of individual students
* plan teaching programs to meet the needs of individuals and groups of students
* formally assess the progress of individuals and groups of students
* report to parents on the achievements of their children against the Australian Curriculum.

The “demonstrating” column accurately reflects the expectations of version 8.3 of the Australian Curriculum achievement standards.

ISQ welcomes any suggestions for improvement from teachers working very closely with the Progression Points.

**Digital Technology Progression Points – Year 8**

| **Strands and content descriptions for teaching**  ***Modes*** | | **Emerging** | **Developing** | **Demonstrating** | **Advancing** | **Extending** |
| --- | --- | --- | --- | --- | --- | --- |
| Beginning to work towards the achievement standard | Working towards the achievement standard | Demonstrating the achievement standard | Working beyond the achievement standard | Extending with depth beyond the achievement standard |
| * *With explicit prompts (step-by-step oral scaffolding, reference to charts, word wall, etc)* * *In familiar contexts* * *Learning to follow procedures* | * *With prompts (oral or written questions, reference to charts, word walls, etc)* * *In familiar contexts* * *Attempts to explain* | * *Independent (with access to charts, word walls, etc.)* * *In familiar contexts* * *Explains basic understanding* | * *Independent (with access to charts, word walls, etc.)* * *Applying in familiar contexts* * *Explains with detail* | * *Independent (with access to charts, word walls, etc.)* * *Applying in new contexts* * *Explains with connections outside the teaching context* |
| **ACHIEVEMENT STANDARD**  By the end of Year 8, students [distinguish](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Distinguish) between different types of networks and defined purposes. They [explain](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Explain) how text, image and audio data can be represented, secured and presented in digital systems.  Students plan and manage digital projects to create interactive information. They define and decompose problems in terms of functional requirements and constraints. Students [design](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) user experiences and algorithms incorporating branching and iterations, and test, modify and implement digital solutions. They [evaluate](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Evaluate) information systems and their solutions in terms of meeting needs, innovation and sustainability. They [analyse](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Analyse) and [evaluate](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Evaluate) data from a range of sources to model and create solutions. They use appropriate protocols when communicating and collaborating online. | | | | | | |
|  | | By the end of Year 8, students [distinguish](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Distinguish) between different types of networks and defined purposes | | | | |
| **KNOWLEDGE AND UNDERSTANDING** | Investigate how [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) is transmitted and secured in wired, wireless and mobile networks, and how the specifications affect performance [(ACTDIK023)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIK023) | **With explicit prompts, a student can:**   * **state** what a managed network is and some of the components used to operate them   *EG. routers, hubs, switches and that these can impact upon the speed and security of the network*   * **state** the names of the different communications protocols for data transmission in networks.   *EG. HTTP, FTP and TCP/IP* | **With prompts, a student can:**   * **define** what a managed network is and some of the components used to operate them.   *EG. routers, hubs, switches and that these can impact upon the speed and security of the network*   * **define** the different communications protocols for transmitting data in networks.   *EG. HTTP, FTP and TCP/IP* | **A student can independently:**   * **describe** what a managed network is and the components used to operate them.   *EG. routers, hubs, switches and that these can impact upon the speed and security of the network*   * **describe** the different communications protocols for transmitting data in networks.   *EG. HTTP, FTP and TCP/IP* | **A student can independently:**   * **compare** managed networks and the components used to operate them.   *EG. routers, hubs, switches and that these can impact upon the speed and security of the network*   * **compare** the different communications protocols for transmitting data in networks.   *EG. HTTP, FTP and TCP/IP* | **A student can independently and consistently:**   * **compare and analyse** managed networks and the components used to operate them.   *EG. routers, hubs, switches and that these can impact upon the speed and security of the network*   * **compare** **and analyse** the different communications protocols for transmitting data in networks.   *EG. HTTP, FTP and TCP/IP* |
|  | | They [explain](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Explain) how text, image and audio data can be represented, secured and presented in digital systems. | | | | |
| **KNOWLEDGE AND UNDERSTANDING** | Investigate how digital systems represent text, image and audio [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) in [binary](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=binary) [(ACTDIK024)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIK024) | **With explicit prompts, a student can:**   * **Identify** corresponding characters to numbers defined by a character set   *EG. ‘A’ corresponds to 65 in the ASCII, 65 in decimal is 01000001 in 8-bit binary* | **With prompts, a student can:**   * **Identify** corresponding characters to numbers defined by a character set   *EG. ‘A’ corresponds to 65 in the ASCII, 65 in decimal is 01000001 in 8-bit binary* | **A student can independently:**   * **Create** corresponding characters to numbers defined by a character set   *EG. ‘A’ corresponds to 65 in the ASCII, 65 in decimal is 01000001 in 8-bit binary* | **A student can independently:**   * **Create and explain** howcorresponding characters to numbers defined by a character set   *EG. ‘A’ corresponds to 65 in the ASCII, 65 in decimal is 01000001 in 8-bit binary* | **A student can independently and consistently:**   * **Create and explain** in detail howcorresponding characters to numbers defined by a character set   *EG. ‘A’ corresponds to 65 in the ASCII, 65 in decimal is 01000001 in 8-bit binary* |
|  | | They [analyse](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Analyse) and [evaluate](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Evaluate) data from a range of sources to model and create solutions. | | | | |
| **PROCESSES AND PRODUCTION SKILLS** | Acquire [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) from a range of sources and evaluate authenticity, accuracy and timeliness [(ACTDIP025)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP025) | **With explicit prompts, a student can:**   * **identify a** search engine query used to find specific information on the web using a given example and check the validity of the result   *EG. intitle: and inurl* | **With prompts, a student can:**   * **identify** a search engine query to find specific information on the web and check the validity of the result   *EG. intitle: and inurl* | **A student can independently:**   * **create** a search engine query to find specific information on the web and check the validity of the result   *EG. intitle: and inurl* | **A student can independently:**   * **create** a search engine query to find specific information on the web and check the validityof the result and **compare** the results with information found in a wiki   *EG. intitle: and inurl* | **A student can independently and consistently:**   * **create** a search engine query to find specific information on the web and **evaluate** the validity of the results and **compare** the results with information found in a wiki   *EG. intitle: and inurl* |
| **PROCESSES AND PRODUCTION SKILLS** | Analyse and visualise [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) using a range of software to create information, and use structured [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) to [model](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=model) objects or events [(ACTDIP026)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP026) | **With explicit prompts, a student can:**   * **identify** conditions and with assistance applies these to filter a spreadsheet to organise and filter data. **Describes** how to query the database using simple structured query language (SQL) to SELECT specific entries or fields.   *EG. example conditional formatting and sorting data* | **With prompts, a student can:**   * **identify** given conditions and with assistance applies these to filter a spreadsheet to organise and filter data. **Explains** how to query the database using simple structured query language (SQL) to SELECT specific entries or fields.   *EG. example conditional formatting and sorting data* | **A student can independently:**   * **create** given conditions to filter a spreadsheet with some assistance to organise and filter data. **Apply** a given query to the database using simple structured query language (SQL) to SELECT specific entries or fields and able to **identify** the attributes of these records or fields.   *EG. example conditional formatting and sorting data* | **A student can independently:**   * **create** and **apply** given conditions to filter a spreadsheet to organise and filter data. **Create** and **apply** a query from suggested queries in simple structure query language (SQL) to SELECT specific entries or fields and able to manage the attributes of these records or fields.   *EG. example conditional formatting and sorting data.* | **A student can independently and consistently:**   * **create** and **apply** conditions to filter a spreadsheet to organise and filter data. **Create** and **apply** querieson the database using simple structured query language (SQL) to SELECT specific entries or fields and being able to **modify** the attributes of these records or fields.   *EG. example conditional formatting and sorting data.* |
|  | | They define and decompose problems in terms of functional requirements and constraints. | | | | |
| **PROCESSES AND PRODUCTION SKILLS** | Define and [decompose](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=decompose) real-world problems taking into account functional requirements and economic, environmental, social, technical and usability constraints [(ACTDIP027)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP027) | **With explicit prompts, a student can:**   * **explore** proposed solutions and products for a given target audience   *EG. user with vision loss will require audio-described buttons on a website.*   * **identify** real-world system and statethe difficulties with each stage of implementation the model   *EG. In the development of a website.* | **With prompts, a student can:**   * **explore** proposed solutions and products for specific target audiences   *EG. user with vision loss will require audio-described buttons on a website*.   * **create** a basic real-world system that has increased in complexity from a simplified system and describethe difficulties with each stage of implementation the model   *EG. In the development of a website.* | **A student can independently:**   * **decompose** proposed solutions and products and **identify** differences required for specific target audiences   *EG. user with vision loss will require audio-described buttons on a website.*   * **create** a real-world system that has increased in complexity from a simplified system and correctly **describe** the difficulties with each stage of implementation the model   *EG. In the development of a website.* | **A student can independently:**   * **decompose and analyse** proposed solutions and **identify** differences required products for specific target audiences   *EG. user with vision loss will require audio-described buttons on a website.*   * **create** a real-world system that has increased in complexity from a simplified system and **analyse** the difficulties with each stage of implementation the model   *EG. In the development of a website*. | **A student can independently and consistently:**   * **decompose and modify** proposed solutions and **identify** differences required products for specific target audiences   *EG. user with vision loss will require audio-described buttons on a website.*   * **Create and modify** a real-world system that has increased in complexity from a simplified system and **analyse** the difficulties with each stage of implementation the model   *EG. In the development of a website.* |
|  | | Students [design](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) user experiences and algorithms incorporating branching and iterations, and test, modify and implement digital solutions. | | | | |
| **PROCESSES AND PRODUCTION SKILLS** | Design the user experience of a [digital system](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=digital+system), generating, [evaluating](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=evaluating) and communicating alternative designs [(ACTDIP028)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP028) | **With explicit prompts, a student can:**   * **identify** plans for user interfaces using a range of design tools   *EG. Using a storyboard and wire-frames.*   * **list** design principles when planning and generating a range of solutions. * **list** the success of the solution for the target audience | **With prompts, a student can:**   * **identify** plans for user interfaces using a range of design tools   *EG. Using a storyboard and wire-frames.*   * **describe** whichdesign principles should be utilised when planning and generating a range of solutions. * **describe** the success of the solution for the target audience | **A student can independently:**   * **create** plans for user interfaces using a range of design tools   *EG. Using a storyboard and wire-frames.*   * **describe** correctly whichdesign principles should be applied when planning and generating a range of solutions. * **draw** basic conclusions aboutthe success of the solution for the target audience | **A student can independently:**   * **create** plans for user interfaces using a **wide** range of design tools   *EG. Using a storyboard and wire-frames.*   * **analyse** design principles that have been applied when planning and generating a range of solutions. * **draw** detailed conclusions about the success of the solution for the target audience | **A student can independently and consistently:**   * **create** plans for user interfaces using a **wide** range of design tools   *EG. Using a storyboard and wire-frames*.   * **analyse and justify** design principles that have been applied when planning and generating a range of solutions. * **draw** justifiable conclusions about the success of the solution for the target audience |
| **PROCESSES AND PRODUCTION SKILLS** | Design algorithms represented diagrammatically and in English, and trace algorithms to predict [output](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=output) for a given [input](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=input) and to identify errors [(ACTDIP029)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP029) | **With explicit prompts, a student can:**   * **list** common algorithms to control sequences in systems * **explore** the accuracy of an algorithm before it is implemented * **produce** structured English statements in a logical algorithmic sequence when guided | **With prompts, a student can:**   * **describe** common algorithms to control sequences in systems * **explore** the accuracy of an algorithm before it is implemented * **recognize** structured English against logical sequenced algorithmic instructions when guided | **A student can independently:**   * **create** common algorithms to control sequences in systems * **investigate** the accuracy of an algorithm before it is implemented * **compare** structured English against logical sequenced algorithmic instructions | **A student can independently:**   * **create and modify** common algorithms to control sequences in systems * **analyse** the accuracy of an algorithm before it is implemented * **create** structured English to express logical sequenced algorithmic instructions | **A student can independently and consistently:**   * **Generates and modify** common algorithms to control sequences in systems * **analyse and justify** the accuracy of an algorithm before it is implemented * **create and modify** structured English to express logical sequenced algorithmic instructions |
|  | | Students plan and manage digital projects to create interactive information. | | | | |
| **PROCESSES AND PRODUCTION SKILLS** | Implement and modify programs with user interfaces involving [branching](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=branching), [iteration](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=iteration) and functions in a general-purpose programming language [(ACTDIP030)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP030) | **With explicit prompts, a student can:**   * **identify** algorithms in user interfaces or to program robots   *EG. EV3, Scratch, Tynker.*   * **list how to** program a robot to recognise particular objects and to treat them differently.   *EG. EV3 sensor choose objects based on colour.*   * **explore** digital products that include user navigation and prompts | **With prompts, a student can:**   * **identify** algorithms in user interfaces or to program robots.   *EG. EV3, Scratch, Tynker.*     * **describe how** to programming for a robot to recognise particular objects and to treat them differently.   *EG. EV3 sensor choose objects based on colour.*   * **produce basic** digital productsthat include user navigation and prompts | **A student can independently:**   * **create** algorithms in user interfaces or to program robots   *EG. EV3, Scratch, Tynker.*   * **describe and implement** programming for a robot to recognise particular objects and to treat them differently.   *EG. EV3 sensor choose objects based on colour.*   * **produce** digital products, **with some planning,** that include user navigation and prompts | **A student can independently:**   * **create and modify** algorithms in user interfaces or to program robots   *EG. EV3, Scratch, Tynker.*   * **implement and modify** programming for a robot to recognise particular objects and to treat them differently.   *EG. EV3 sensor choose objects based on colour.*   * **plan and create** digital products that include user navigation and prompts | **A student can independently and consistently:**   * **create and modify** algorithms in user interfaces or to program robots   *EG. EV3, Scratch, Tynker.*   * **implement and modify** programming for a robot to recognise particular objects and to treat them differently.   *EG. EV3 sensor choose objects based on colour.*   * **plan, create and test** digital products that include user navigation and prompts |
|  | | They [evaluate](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Evaluate) information systems and their solutions in terms of meeting needs, innovation and sustainability. They use appropriate protocols when communicating and collaborating online. | | | | |
| **PROCESSES AND PRODUCTION SKILLS** | Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability [(ACTDIP031)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP031) | **With explicit prompts, a student can:**   * **list the differences between** student solutions with existing solutions that solve similar problems **and when prompted can explain** how these differences affect the usability or appeal of the solution   *EG. Game design.*   * **identify** the success of information systems in meeting an economic, environmental or social objective, such as increasing market share   *EG. A database for a local business.*   * **identify** a cloud-based information systems and a client-based information system   *EG. Apple I-cloud and internal servers* | **With prompts, a student can:**   * **describe** student solutions with existing solutions that solve similar problems **and with scaffolding can explain** how these differences affect the usability or appeal of the solution   *EG. Game design.*   * **describe** the success of information systems in meeting an economic, environmental or social objective, such as increasing market share.   *EG. A database for a local business.*   * **identify** the difference between cloud-based information systems to client-based information systems   *EG. Apple I-cloud and internal servers* | **A student can independently:**   * **compare** student solutions with existing solutions that solve similar problems and explaining how these differences affect the usability or appeal of the solution   *EG. Game design*.   * **investigate and describe** the success of information systems in meeting an economic, environmental or social objective, such as increasing market share.   *EG. A database for a local business*.   * **identify a** cloud-based information systems and compare these to client-based information systems   *EG. Apple I-cloud and internal servers*. | **A student can independently:**   * **evaluate** student solutions with existing solutions that solve similar problems and explaining how these differences affect the usability or appeal of the solution   *EG. Game design*.   * **evaluate** the success of information systems in meeting an economic, environmental or social objective, such as increasing market share   *EG. A database for a local business.*   * **investigate** cloud-based information systems and **compare** these to client-based information systems   *EG. Apple I-cloud and internal servers*. | **A student can independently and consistently:**   * **evaluate in detail** student solutions with existing solutions that solve similar problems and explaining how these differences affect the usability or appeal of the solution   *EG. Game design.*   * **evaluate and justify** the success of information systems in meeting an economic, environmental or social objective, such as increasing market share   *EG. A database for a local business.*   * **investigate and justify** the need for both cloud-based information systems and client-based information systems   *EG. Apple I-cloud and internal servers*. |
| **PROCESSES AND PRODUCTION SKILLS** | Plan and manage projects that create and communicate ideas and information collaboratively online, taking safety and social contexts into account [(ACTDIP032)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP032) | **With explicit prompts, a student can:**   * **produce** basic web-based information to meet specific needs utilising a given template.   *EG. Modifying an existing website template or using web-authoring software including using HTML and cascading style sheets (CSS) to create a website that allows customers to interact with an enterprising solution*   * **List** the sequence of tasks that need to be done   *EG. Timelines, file naming conventions, collaboration, backing-up.*   * **list** protocols to manage collaborative creation of solutions   *EG. emailing files or USB sharing student to student* | **With prompts, a student can:**   * **produce** basic web-based information to meet specific needs utilising a given template.   *EG. Modifying an existing website template or using web-authoring software including using HTML and cascading style sheets (CSS) to create a website that allows customers to interact with an enterprising solution*   * **produce** basic documentation to sequence the tasks that need to be done   *EG. Timelines, file naming conventions, collaboration, backing-up.*   * **describe** protocols to manage collaborative creation of solutions   *EG. Timelines, file naming conventions, collaboration, backing-up.* | **A student can independently:**   * **plan** and **produce** web-based information to meet specific needs utilising a given template.   *EG. Modifying an existing website template or using web-authoring software including using HTML and cascading style sheets (CSS) to create a website that allows customers to interact with an enterprising solution.*   * **develop** documentation to sequence the tasks that need to be done   *EG. Timelines, file naming conventions, collaboration, backing-up.*   * **describe** correctly protocols to manage collaborative creation of solutions   *EG. Timelines, file naming conventions, collaboration, backing-up.* | **A student can independently:**   * **plan** and **create** web-based information to meet specific needs.   *EG. Modifying an existing website template or using web-authoring software including using HTML and cascading style sheets (CSS) to create a website that allows customers to interact with an enterprising solution*   * **develop** and **test** projects and associated documentation to sequence the tasks that need to be done   *EG. Timelines, file naming conventions, collaboration, backing-up.*   * **analyse** protocols to manage collaborative creation of solutions   *EG. Timelines, file naming conventions, collaboration, backing-up.* | **A student can independently and consistently:**   * **plan, create and manage** web-based information to meet specific needs.   *EG. Modifying an existing website template or using web-authoring software including using HTML and cascading style sheets (CSS) to create a website that allows customers to interact with an enterprising solution*   * **develop, test** and **modify** projects and associated documentation to effectively sequence the tasks that need to be done   *EG. Timelines, file naming conventions, collaboration, backing-up.*   * **analyse** and **modify** protocols to manage collaborative creation of solutions   *EG. Timelines, file naming conventions, collaboration, backing-up.* |