DTiF

Digital Technologies in focus

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acara AUSTRALIAN CURRICULUM, ASSESSMENT AND REPORTING AUTHORITY

CLASSROOM IDEAS: YEARS 1–6

Create a 'choose your own adventure' story

In Digital Technologies, students from Year 1 onwards should be planning and implementing projects that include branching (decision-making). Creating a 'choose your own adventure' story is an excellent way for students to design and implement a project that makes use of branching. The following sample activities show two possible ways that students could do this using:

- Presentation software: PowerPoint /Google Slides or Keynote on iPad/Mac (branching) (Years 1 – 4)
- Scratch 3.0 (Year 3 onwards)

Figure 1: PowerPoint title slide for a choose your own adventure story

PowerPoint/Google Slides (or Keynote on iPad/Mac)

Example: View the example story Going to the Park (Figure 1): australiancurriculum.edu.au/media/6635/acara-simple-choose-your-own-adventure-story-going-to-the-park.pptx

Years 1–4

This activity will address the planning aspect of content descriptions as children learn to create algorithms to sequence their story. The Scratch version of this activity will address the visual programming aspect of content descriptions.

Sequence:

1. Plan a story with choices to create an algorithm (sequence of steps).
   Hint: Allow students to look at images from Creative Commons (CC) or open-source photograph sites or use their own photographs or pictures during the planning phase.

   This sort of story could be planned in teams with a group of four planning the beginning and then pairs splitting off to come up with the outcomes for the two choices. Alternatively, start as a whole class and give students the story starter. Then have teams

plan their own choices and come back as a creative writers' circle to plan the next part of the story.

- See simple planning template (two choices) www.australiancurriculum.edu.au/media/6634/simple-2-choice-choose-your-own-adventure-planning-template.pptx
- See advanced planning template (four choices) australiancurriculum.edu.au/media/6633/4-choice-choose-your-own-adventure-story-template.pptx

2. Select pictures and plan layout (design user interface). This can be done concurrently with step 1 if there is access to the internet during story planning phase.
3. Plan hyperlinks between slides in the presentation (computational thinking – algorithm). Note: See useful links in this document for instructions on how to do this.

   Implement program in PowerPoint using paired programming (students sit in pairs and work on the project).

Scratch 3.0

Example: View the example choose your own adventure story (Figure 2): scratch.mit.edu/projects/325099291/

Figure 2: Start screen for a choose your own adventure story made using Scratch 3.0

Years 3–6

Sequence:

1. Plan story with choices to create an algorithm. Students should develop a user story before they begin (version 9).
   Hint: Allow students to look at backdrops and sprites available in Scratch and import backdrops from open-source photograph sites or use their own photographs or pictures during the planning phase. This sort of story could be planned in teams with a group of four planning the beginning and then pairs splitting off to come up with the outcomes for the two choices. Alternatively, start as a whole class with a story starter. Teams can then plan their own choices and come back as a creative writers' circle to plan the next part of the story.

   - See planning template (Figure 3).
   - See example story plan (Figure 4).

2. Select pictures and sprites (design user interface) This can be done concurrently with step 1 if there is access to Scratch during the story planning phase.
3. Plan code blocks (computational thinking – algorithm).

4. Implement program in Scratch using paired programming (students sit in pairs and work on sections of the project). Discuss more efficient ways of coding the story.

Choose your own adventure story – sample story plan template

Copy, paste and modify as required. Not all branches need to be followed and extra boxes can be added. Download a copy of this template at the following link

australiancurriculum.edu.au/media/6636/choose-your-own-adventure-story-planning-template.docx

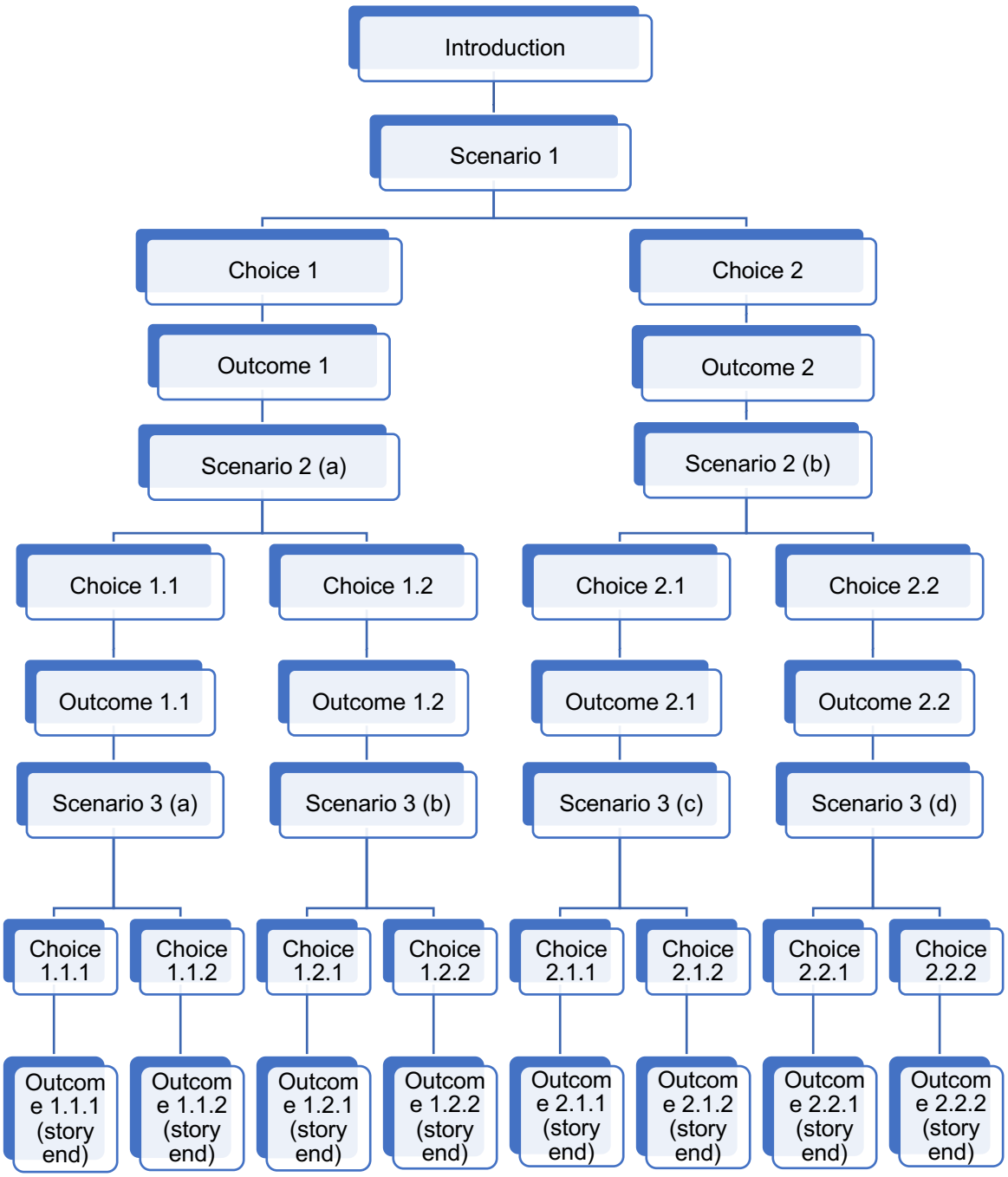

Figure 3

Choose your own adventure example story plan

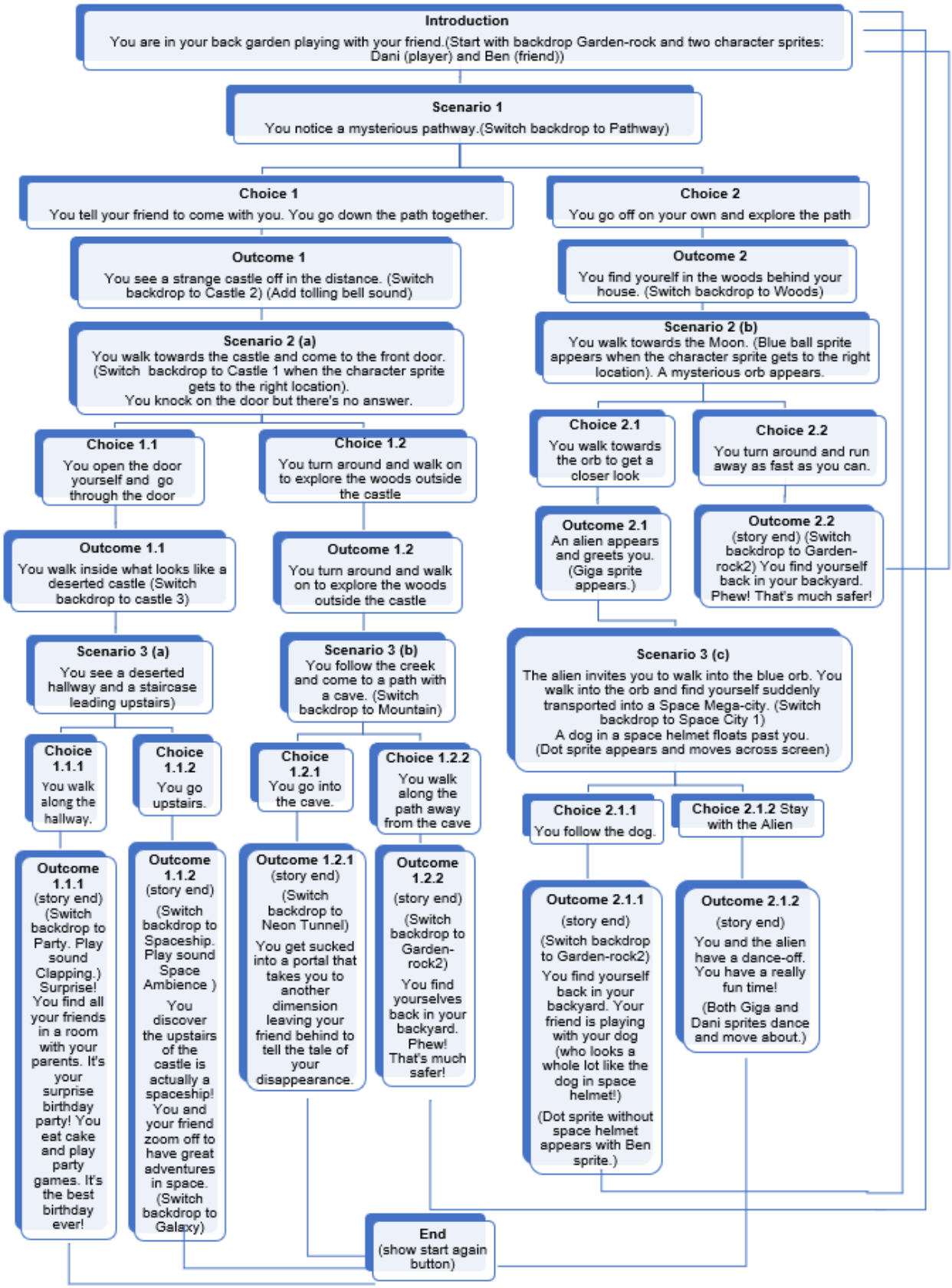

Figure 4

Links to the Australian Curriculum

Tables 1 – 3 outline Australian Curriculum links version 9 which may be addressed depending on the task.

Table 1: Links to the Australian Curriculum: Digital Technologies Years 1–2 (V9)

Digital Technologies ***Achievement standard***	By the end of Year 2 students show how simple digital solutions meet a need for known users. Students represent and process data in different ways. They follow and describe basic algorithms involving a sequence of steps and branching. With assistance, students access and use digital systems for a purpose. They use the basic features of common digital tools to create, locate and share content, and to collaborate, following agreed behaviours. Students recognise that digital tools may store their personal data online.		
Strand ***Sub-strand***	Digital Technologies Knowledge and understanding • Digital systems • Data representation Processes and production skills • Investigating and defining • Generating and designing • Collaborating and managing		
Content descriptions	• identify and explore digital systems and their components for a purpose AC9TDI2K01 • represent data as pictures, symbols, numbers and words AC9TDI2K02 • investigate simple problems for known users that can be solved with digital systems AC9TDI2P01 • follow and describe algorithms involving a sequence of steps, branching (decisions) and iteration (repetition) AC9TDI2P02 • use the basic features of common digital tools to create, locate and communicate content AC9TDI2P04		
Technologies Core concepts	• Systems • Data • Interactions and impact • Systems thinking • Computational thinking • Design thinking • Technologies process and production skills • Project management skills • Enterprise skills and innovation	***Digital Technologies Core concepts***	• Digital systems • Data representation • Abstraction • Specification • Algorithms • Implementation
		General capabilities	• Digital Literacy • Literacy • Numeracy
Cross-curriculum priorities		***Learning area or subject connections***	• English

Table 2: Links to the Australian Curriculum: Digital Technologies Years 3–4 (V9)

Digital Technologies ***Achievement standard***	By the end of Year 4 students create simple digital solutions and use provided design criteria to check if solutions meet user needs. Students process and represent data for different purposes. They follow and describe simple algorithms involving branching and iteration and implement them as visual programs. Students securely access and use digital systems and their peripherals for a range of purposes, including transmitting data. They use the core features of common digital tools to plan, create, locate and share content, and to collaborate, following agreed behaviours. Students identify their personal data stored online and recognise the risks.		
Strand ***Sub-strand***	Digital Technologies knowledge and understanding • Digital systems • Data representation Processes and production skills • Investigating and defining • Generating and designing • Producing and implementing • Evaluating • Collaborating and managing		
Content descriptions	• explore and describe a range of digital systems and their peripherals for a variety of purposes AC9TDI4K01 • recognise different types of data and explore how the same data can be represented differently depending on the purpose AC9TDI4K03 • define problems with given design criteria and by co-creating user stories AC9TDI4P01 • follow and describe algorithms involving sequencing, comparison operators (branching) and iteration AC9TDI4P02 • generate, communicate and compare designs AC9TDI4P03 • implement simple algorithms as visual programs involving control structures and input AC9TDI4P04* • discuss how existing and student solutions satisfy the design criteria and user stories AC9TDI4P05 • use the core features of common digital tools to create, locate and communicate content, following agreed conventions AC9TDI4P06		
Technologies Core concepts	• Systems • Data • Interactions and impact • Systems thinking • Computational thinking • Design thinking • Technologies process and production skills • Project management skills • Enterprise skills and innovation	***Digital Technologies Core concepts***	• Digital systems • Data representation • Abstraction • Specification • Algorithms • Implementation
		General capabilities	• Digital Literacy • Literacy • Numeracy

Cross-curriculum priorities		***Learning area or subject connections***	• English

* Content descriptions may be wholly or partially addressed depending upon the activity and or whether visual programming such as Scratch is used.

Table 3: Links to the Australian Curriculum: Digital Technologies 5–6 (V9)

Digital Technologies ***Achievement standard***	By the end of Year 6 students develop and modify digital solutions, and define problems and evaluate solutions using user stories and design criteria. They process data and show how digital systems represent data. Students design algorithms involving complex branching and iteration and implement them as visual programs including variables. They securely access and use multiple digital systems and describe their components and how they interact to process and transmit data. Students select and use appropriate digital tools effectively to plan, create, locate and share content, and to collaborate, applying agreed conventions and behaviours. They identify their digital footprint and recognise its permanence.		
Strand ***Sub-strand***	Digital Technologies knowledge and understanding • Digital systems • Data representation Digital Technologies processes and production skills • Investigating and defining • Generating and designing • Producing and implementing • Evaluating • Collaborating and managing		
Content descriptions	• investigate the main internal components of common digital systems and their function AC9TDI6K01 • explain how digital systems represent all data using numbers AC9TDI6K03 • define problems with given or co-developed design criteria and by creating user stories AC9TDI6P01 • design algorithms involving multiple alternatives (branching) and iteration AC9TDI6P02 • generate, modify, communicate and evaluate designs AC9TDI6P04 • implement algorithms as visual programs involving control structures, variables and input AC9TDI6P05* • evaluate existing and student solutions against the design criteria and user stories and their broader community impact AC9TDI6P06 • select and use appropriate digital tools effectively to create, locate and communicate content, applying common conventions AC9TDI6P07		
Technologies Core concepts	• Systems • Systems thinking • Computational thinking • Data • Technologies processes and production skills • Interactions and impact • Project management skills	***Digital Technologies Core concepts***	• Digital systems • Data representation • Abstraction • Specification • Algorithms • Implementation
		General capabilities	• Digital Literacy • Literacy • Numeracy

	• Enterprise skills and innovation		
Cross-curriculum priorities		***Learning area or subject connections***	• English

* Content descriptions may be wholly or partially addressed depending upon the activity and or whether visual programming such as Scratch is used.

Tables 4 and 5 outline Australian Curriculum links version 8.4 which may be addressed depending on the task.

Table 4: Links to the Australian Curriculum: Digital Technologies Years 3–4 (V 8.4)

Digital Technologies ***Achievement standard***	**Years 3 and 4** By the end of Year 4, students describe how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes. They explain how the same data sets can be represented in different ways. Students define simple problems, design and implement digital solutions using algorithms that involve decision-making and user input. They explain how the solutions meet their purposes. They collect and manipulate different data when creating information and digital solutions. They safely use and manage information systems for identified needs using agreed protocols and describe how information systems are used.		
Strands	Digital Technologies processes and production skills • Creating designed solutions by – investigating and defining – producing and implementing – collaborating and managing		
Content descriptions	**Years 3 and 4** *(Depending on the task, one or more of the following may apply.)* • Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010) • Implement simple digital solutions as visual programs* with algorithms involving branching (decisions) and user input (ACTDIP011) [*visual programs relates to Scratch version of this activity only] • Plan, create and communicate ideas and information independently and with others, applying agreed ethical and social protocols (ACTDIP013)		
Key concepts	• specification • algorithms • implementation • interactions	***Key ideas***	Thinking in Technologies • computational thinking
Cross-curriculum priorities		***General capabilities***	• Information and Communication Technology (ICT) Capability • Literacy

* Content descriptions may be wholly or partially addressed depending upon the activity and or whether visual programming such as Scratch is used.

Table 5: Links to the Australian Curriculum: Digital Technologies Years 5–6 (V 8.4)

Digital Technologies ***Achievement standard***	**Years 5 and 6** By the end of Year 6, students explain the fundamentals of digital system components (hardware, software and networks) and how digital systems are connected to form networks. They explain how digital systems use whole numbers as a basis for representing a variety of data types. Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. They incorporate decision-making, repetition and user interface design into their designs and implement their digital solutions, including a visual program. They explain how information systems and their solutions meet needs and consider sustainability. Students manage the creation and communication of ideas and information in collaborative digital projects using validated data and agreed protocols.		
Strands	Digital Technologies processes and production skills • Creating designed solutions by – investigating and defining – generating and designing – producing and implementing – collaborating and managing		
Content descriptions	**Years 5 and 6** • Define problems in terms of data and functional requirements drawing on previously solved problems (ACTDIP017) • Design a user interface for a digital system (ACTDIP018) • Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) (ACTDIP019) • Implement digital solutions as simple visual programs* involving branching, iteration (repetition), and user input (ACTDIP020) [*visual programs relates to Scratch version of this activity only] • Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social and technical protocols (ACTDIP022)		
Key concepts	• specification • algorithms • implementation • interactions	***Key ideas***	Thinking in Technologies • computational thinking
Cross-curriculum priorities		***General capabilities***	• Information and Communication Technology (ICT) Capability • Literacy

* Content descriptions may be wholly or partially addressed depending upon the activity and or whether visual programming such as Scratch is used.

Useful links

- Digital Technologies Hub
  - Visual programming www.digitaltechnologieshub.edu.au/teachers/topics/visual-programming
  - Plan a choose your own adventure story www.digitaltechnologieshub.edu.au/teachers/lesson-ideas/integrating-digital-technologies/plan-a-'choose-your-own-adventure'-story

- PowerPoint
  - How to hyperlink to a slide within a presentation www.tinyurl.com/y3l3kz4g
  - How to set up PowerPoint with hyperlinks and in kiosk mode for improved user interface www.youtube.com/watch?v=MITJc9d02TE
- Australian Curriculum www.australiancurriculum.edu.au/
  - Digital Technologies in focus implementation resources and information www.australiancurriculum.edu.au/resources/digital-technologies-in-focus
  - Digital Technologies Curriculum information www.australiancurriculum.edu.au/f-10-curriculum/technologies/digital-technologies/
- Scratch website www.scratch.mit.edu/
  - Scratch tutorials www.scratch.mit.edu/projects/editor/?tutorial=getStarted
  - Resources for teachers www.scratch.mit.edu/educators/#resources

PowerPoint/Slide show templates are adapted from source: www.ursinus.edu/live/files/1380-choose-your-own-adventure-templatepptx accessed 1/11/19)