Unit Overview

These lessons are designed to be incorporated into a unit of work focusing on building and maintaining relationships at school. It investigates the processes used to solve everyday problems that occur in and around school. Students will work in groups to create flowchart posters about the different options available to them to solve a designated problem. These lessons can be used to set up classroom and school expectations for the year.

Other Curriculum Targeted Areas

Other curriculum areas can be targeted and assessed within this unit. Areas of interest may include:

- Personal Capabilities

Further investigation into these areas is required to ensure they align with the following activities. Activities may need to be modified to ensure Content Descriptions and Achievement Standards are met.

Australian Curriculum Alignment

The following sessions have been created using the Australian Curriculum: Digital Technologies Curriculum. Activities may need to be modified to ensure state Digital Technologies Curriculum Standards/Syllabus are met. ACS has support and documents to help align this unit to other Digital Technology Curricular.

Session

'Session' has been used to define the order of tasks to complete the unit. It does not define a set time required to complete the task. Time allocated to complete a session is the teacher's discretion. This allows for flexibility for to drive the duration of the task and make modifications if necessary. Sessions can be merged into one allocated class period or may run over multiple periods.

Key Preparation

The bulk of the Digital Technology Curriculum taught within these lessons is unplugged. Resources to help find information on solving situations may include https://kidshelpline.com.au/kids/issues. These resources can be used to assist students to recognise common issues that can develop at school and commence discussions on different solutions.

Flowcharts

Flowcharts are a way to organise and present algorithms in English. The Flowcharts at this level can be completed using arrows, images and texts. The focus is to show how instructions can be organised in a way that allows the user to follow instructions in a clear and concise direction.

ACS Resources

Resources have been created to help teachers and students unpack and understand topics found within the Digital Technologies Curriculum. These give brief explanations of the topic and the expectations to teach the topic at the curriculum year level. It is intended the information is presented in a way that will set the foundation for further research.

ACS ICT Educators Community

ACS has resources to support the teaching of the Digital Technologies Curriculum from Foundation to Year 10. Access the community and resources by joining for free via: https://www.acs.org.au/ict-educators.html

Key Understandings	Key Questions
Students will: ▪ Work collaboratively to communicate their ideas about the 'best' way to solve problems at school. ▪ Collect data from their peers to find out how others will solve problems at school. ▪ Create a flowchart poster that helps students recognise how to solve problems at school giving solutions and suggestions.	▪ What are common sticky situations we face at school? ▪ What different strategies we can use to help us get out of those situations? ▪ What instructions and advice would you give someone who was faced with a situation? ▪ How can a flowchart be used to help others problem solve? ▪ How can we give users the opportunity to make their own decisions on the flow chart? ▪ What happens if one solution isn't successful?

Key Vocabulary

Online collaboration, data, data collection, graphing, interpretation, flowchart, algorithms, instructions, branching, user input

Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher instruction	Whole class activity
1.	Collaboration	**Learning Intention** Students will use a digital platform to share their ideas and create their instructions to a common problem. **Success Criteria** I can share my ideas with my group using an online collaboration tool.	Students will be given the opportunity to freely explore, using a digital platform they can access and use simultaneously.	Students will need to set up space to work collaboratively over the next couple of sessions. Together they will create a document that explains how they will act with each other within the platform. They will create a document that will hold their work for the following sessions.
Session Resource	**Student Resources** • ACS Student Resource: Online Collaboration		**Teacher Resources** • ACS Teacher Resource: Online Collaboration	
2.	Data collection	**Learning Intention** Students will collect and display data. **Success Criteria** I can collect data and choose the best way to display that data with my group. I can discuss how this data will help to create instructions to solve a problem on the school yard.	Together brainstorm different strategies that are in place to help them solve a common issue in the school yard. Discuss as a group the best way to visual the data that was collected. Display that data using a chosen, agreed format.	In groups, students pick a different scenario (each group to have a different scenario). They collect data about different ways to solve the 'sticky situation' and perspectives of different strategies that will be used in their classroom. As a group they choose the best way to display their data (lists, tables, picture graphs or column graphs) and discuss their findings with their peers.
Session Resource	**Student Resources** • Kids Help Line Stories		**Teacher Resources** • ACS Teacher Resource: Data	

Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher instruction	Whole class activity
3.	Writing instructions	**Learning Intention** Students will write out multiple steps that will help their reader solve a problem. **Success Criteria** I can write out instructions that will help someone with a problem they might face.	Using the data collected in the previous session, students write instructions to help cope with a situation and provide instructions on how to solve that problem.	Using the data they created from the previous sessions, students created written instructions that would help a person solve the problem. This is to be completed in sentence as it provides the opportunity to discuss if there are better ways to display instructions clearly that are easy to follow.
Session Resources	**Student Resources**		**Teacher Resources**	
4.	Creating a flowchart	**Learning Intention** Students will create a flowchart with user input and branching to solve a school yard problem. **Success Criteria** I can show user input and branching in a flowchart.	Using the written instructions discuss what would happen if we wanted to display instructions that had different options for the one task or question. Model how user input will change the course of the instructions for each user.	Students transfer the written instructions and display it as a flowchart. The flowchart can contain arrows, images, words and sentences.
Session Resources	**Student Resources**		**Teacher Resources** • ACS Flowchart 'What happens if I get hurt' (located at the end of this document)	
5.	Evaluation	**Learning Intention** Students will evaluate their flowchart in relation to how it meets the school and personal needs. **Success Criteria** I can justify how my flowchart and solution helps a school and personal need.	Students share their flowcharts with their peers and explain the different scenarios they have used to create a solution to a school yard problem.	Students complete a final evaluation of their flowchart poster, ensure they focus on validating how it helps a school and personal need.
Session Resources	**Student Resources**		**Teacher Resources** • ACS Teacher Resource: Systems to Meet Needs	

Assessment – Australian Digital Technologies Curriculum			
Content Description	**Session Number**	**Assessment Piece**	**Assessment Statement**
Identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (ACTDIK007)	N/A		
Recognise different types of data and explore how the same data can be represented in different ways (ACTDIK008)	2	Collecting and representing the data	Students explained and validated their choice of representing data they collected from their peers.
Collect, access and present different types of data using simple software to create information and solve problems (ACTDIP009)	2	Interpreting collected data	Students collected data from their peers about strategies they currently use to solve problems and presented the data within a digital platform.
Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)	3	Flowchart	Students defined a problem that students encounter on the school yard and created a flowchart with branching and user input to provide steps to a solution.
Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)	N/A		
Explain how student solutions and existing information systems meet common personal, school or community needs (ACTDIP012)	5	Flowchart evaluation	Students evaluated their flowchart and explained how their flowchart would meet a personal need and school need.
Plan, create and communicate ideas and information independently and with others, applying agreed ethical and social protocols (ACTDIP013)	1	Use of online collaboration platform	Students worked collaboratively online to collect data about how to solve a school yard problem.

Assessment – Victorian Digital Technologies Curriculum			
Content Description	Session Number	Assessment Piece	Assessment Statement
Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data VCDTDS019)	N/A		
Recognise different types of data and explore how the same data can be represented in different ways (VCDTDI020)	2	Collecting and representing the data	Students explained and validated their choice of representing data they collected from their peers.
Collect, access and present different types of data using simple software to create information and solve problems (VCDTDI021)	2	Interpreting collected data	Students collected data from their peers about strategies they currently use to solve problems and presented the data within a digital platform.
Individually and with others, plan, create and communicate ideas and information safely, applying agreed ethical and social protocols (VCDTDI022)	1	Use of online collaboration platform	Students worked collaboratively online to collect data about how to solve a school yard problem.
Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them (VCDTCD023)	3	Flowchart	Students defined a problem that students encounter on the school yard and created a flowchart with branching and user input to provide steps to a solution.
Develop simple solutions as visual programs (VCDTCD024)	N/A		
Explain how student-developed solutions and existing information systems meet common personal, school or community needs (VCDTCD025)	5	Flowchart evaluation	Students evaluated their flowchart and explained how their flowchart would meet a personal need and school need.

Assessment – New South Wales Science and Technology Syllabus			
Outcomes and Objectives	**Session Number**	**Assessment Piece**	**Stage Statement**
Describes how digital systems represent and transmit data (ST2-11DI-T)	N/A		
Use a range of methods to represent data, including tables and column graphs	2	Collecting and representing the data	Students explained and validated their choice of representing data they collected from their peers.
Collect, access and present data, using software to present and communicate information and solve problems (ACTDIP009)	2	Interpreting collected data	Students collected data from their peers about strategies they currently use to solve problems and presented the data within a digital platform.
Defines problems, describes and follows algorithms to develop solutions (ST2-3DP-T)	3	Flowchart	Students defined a problem that students encounter on the school yard and created a flowchart with branching and user input to provide steps to a solution.
Develop a sequence of steps and decisions (algorithms) to solve a problem (ACTDIP010)			
Generate visual programs using algorithms to create simple digital solutions	N/A		
Explain how existing information systems meet personal, school or community needs (ACTDIP012)	5	Flowchart evaluation	Students evaluated their flowchart and explained how their flowchart would meet a personal need and school need.
Participate individually and collaboratively with clear roles and goals	1	Use of online collaboration platform	Students worked collaboratively online to collect data about how to solve a school yard problem.
Organise and perform strategic roles within a group to solve a problem	N/A		

Assessment – Western Australian Digital Technologies Syllabus			
Year 3			
Content Description	Session Number	Assessment Piece	Assessment Statement
Digital systems and peripheral devices are used for different purposes (ACTDIK007)	N/A		
Different types of data can be represented in different ways (ACTDIK008)	2	Collecting and representing the data	Students explained and validated their choice of representing data they collected from their peers.
Collect and present different types of data using simple software to create useful information (ACTDIP009)	2	Interpreting collected data	Students collected data from their peers about strategies they currently use to solve problems and presented the data within a digital platform.
Use visually represented sequenced steps (algorithms), including steps with decisions made by the user (branching) (ACTDIP011)	3	Flowchart	Students defined a problem that students encounter on the school yard and created a flowchart with branching and user input to provide steps to a solution.
Create and communicate ideas and information safely (ACTDIP013)	1	Working collaboratively	Students worked collaboratively to create a flowchart poster to help them solve school yard issues.
Create a sequence of steps to solve a given task (WATPPS16)	5	Flowchart	Students defined a problem that students encounter on the school yard and created a flowchart with branching and user input to provide steps to a solution.
Develop and communicate ideas using labelled drawings and appropriate technical terms (WATPPS17)	3	Creating the flowchart	Students created a flowchart through drawings, symbols and written instructions.
Select, and safely use, appropriate components with given equipment to make a solution (WATPPS18)	N/A		

Assessment – Western Australian Digital Technologies Syllabus			
Year 4			
Content Description	**Session Number**	**Assessment Piece**	**Assessment Statement**
Digital systems and peripheral devices are used for different purposes and can store and transmit different types of data (ACTDIK007)	N/A		
Data can be represented in different ways (ACTDIK008)	2	Collecting and representing the data	Students explained and validated their choice of representing data they collected from their peers.
Collect and present different types of data for a specific purpose using software (ACTDIP009)	2	Interpreting collected data	Students collected data from their peers about strategies they currently use to solve problems and presented the data within a digital platform.
Use simple visual programming environments that include a sequence of steps (algorithm) involving decisions made by the user (branching) (ACTDIP011)	N/A		
Create and communicate ideas and information safely, using agreed protocols (netiquette) (ACTDIP013)	1	Use of online collaboration platform	Students worked collaboratively online to collect data about how to solve a school yard problem.
Define a sequence of steps to design a solution for a given task (WATPPS21)	3	Flowchart	Students defined a problem that students encounter on the school yard and created a flowchart with branching and user input to provide steps to a solution.
Identify and choose the appropriate resources from a given set (WATPPS22)	N/A		
Develop and communicate design ideas and decisions using annotated drawings and appropriate technical terms (WATPPS23)	3	Creating the flowchart	Students created a flowchart through drawings, symbols and written instructions.
Select, and safely use, appropriate components and equipment to make solutions (WATPPS24)	N/A		
Use criteria to evaluate and justify simple design processes and solutions (WATPPS25)	5	Flowchart evaluation	Students evaluated their flowchart and explained how their flowchart would meet a personal need and school need.
Work independently, or collaboratively when required, to plan, create and communicate ideas and information for solutions (WATPPS26)	Throughout the unit	Small group work	Students worked in small groups to create flowcharts to explain how to solve everyday problems at school.

WHAT HAPPENS IF SOMEONE GETS HURT OUTSIDE?

You see someone fall over in the playground

↓

Don't laugh, falling over isn't funny

↓

Are they with their friends?

✗

↓

Ask them if they are ok and need help

↓

Do you think a teacher is needed?

✗ → Help them: Offer to sit with them and chill for 5 minutes

↓

Help them: Suggest a drink of water to calm their nerves → Help them: Find their friends so they have someone to play with → Go and play. They are happy

✓ → Go and find the nearest teacher and explain what happened → Go and play. They are getting help!

Does the person need extra help?

✓ (leads to Do you think a teacher is needed?)

✗ → Don't crowd around and watch! → Go and play. They are getting help!