These series of lessons were created in collaboration with the Digital Technologies Specialist Teacher from Ngalangangpum School, Western Australia

Unit Overview

These series of lessons will be used to compliment a unit of work on Healthy Eating. Students will complete the sessions and just robotics and visual program to create a digital solution to choose healthy foods.

Other Curriculum Targeted Areas

Other curriculum areas can be targeted and assessed within this unit.
Other areas of interest may include:
- Health and Physical Education

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. Tasks may need to be modified to ensure state Digital Technologies Curriculum content descriptions and achievement standards 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 the teacher to drive the duration of the task and make modifications if necessary. Sessions can be merged into one set period or one session may run over multiple periods.

Key Preparation

Digital Devices and Technologies

Robotics (Bee-Bots) have been included within the introduction lessons. If access to robotics is not available for your school, completing the unplugged lessons will suffice some of the 3-4 standards. Investigated into the assessment will be required.

Scratch Junior has also been used as the chosen platform to complete introduction coding sessions for the 3-4 students. This app was chosen because this unit was designed as an introduction to coding. If Scratch Junior is unavailable other platforms such as Scratch may be replaced. Investigation into the right fit for technology will be required as the technology will be dependent on what is available at your school.

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 has resources to support the teaching of the Digital Technologies Curriculum from Foundation to Year 10. Access the ICT Educators resources via:
https://www.acs.org.au/ict-educators.html

Key Understandings	Key Questions
Students will: ▪ Follow, describe and represent a sequence of steps and decisions needed to solve simple problems. ▪ Use coding platforms	▪ What instructions do I need to give my robot? ▪ Why is it important to give correct instructions? ▪ What happens if my robot comes across more than one option? ▪ How can I show branching? ▪ How can I repeat an instruction to make the coding easier to write?

Key Vocabulary

Algorithms, coding, programming, branching, user input, sequence of steps, diagrams, digital solutions, meeting community needs, meeting local needs

Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
1.	Introduction to Algorithms	**Learning Intention** Students will create a sequence of steps for a robot to follow. **Success Criteria** I can create a sequence of steps for my Bee Bot to follow.	Pose the question – if you had a robot that you took shopping, what are the types of healthy foods you would want it to buy? If that robot came across an unhealthy food, what would you want it to do? Model drawing foods on your bee bot template. Then draw arrows and create a path that only leads to the healthy items. Introduce branching by creating instructions based on the food the Bee-Bot locates. Eg: Take 3 steps forward. Land on the food. Is the food Healthy? If Yes – take it, If No = leave it.	Students will be provided with a blank Bee Bot mat. They will draw a set of different foods (both healthy and unhealthy). After they have drawn the foods they will create a path to the healthy foods. Students will create a sequence of steps by creating a path to the different foods. Students will present their algorithms as a diagram similar to the one that was presented to them in the introduction session.
Session Resources	**Student Resources** • ACS Student Resource: Algorithms • Flowchart diagram		**Teacher Resources** • ACS Teacher Resource: Algorithms	
2.	Algorithms and visual programming	**Learning Intention** Students will learn a range of functions in **Success Criteria** I can complete a range of tasks that enable me to code in Scratch Junior.	Students are prompted by the question: How much information can you find out about Scratch Junior in 10 minutes? Students come together and share one new thing they have learnt. Create a poster of functions and skills that are used in Scratch Junior. This poster can be used as reference point for the remainder of the unit.	Students complete a range of mini projects using Scratch Junior. The purpose of these activities is to provide time for students to learn how to use the program and become familiar with the different features and code.
Session Resources	**Student Resources** • ACS Student Resource: Algorithm		**Teacher Resources** • ACS Teacher Resource: Algorithms	

Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
3.	Diagrams	**Learning Intention** Students will plan how their healthy foods program will function in Scratch Junior. **Success Criteria** I can create a diagram that shows my plan of my program.	Students will create a program using Scratch junior that: When clicked on a food provides information about that food. Or Food items are sorted into healthy and unhealthy foods. Model how to create a diagram/flowchart of their ideas. This diagram will not be fully completed. Complete together as group.	Before coding, students will create a plan of their program. They will create a diagram (like the one used in the first session) to show the foods they will choose, messages that will appear and the different functions they will need to use to create their program. Words and symbols can be used.
Session Resources	**Student Resources** • ACS Student Resource: Flowcharts and Diagrams		**Teacher Resources** • ACS Teacher Resource: Flowcharts and Diagrams	
4.	Creating a digital solution	**Learning Intention** Students will use their diagram to code a program to show healthy foods. **Success Criteria** I can use my diagram to create a program in Scratch Junior that is about healthy foods.	Students share their diagram with each other and verbally discuss the functions in their program.	Students will transfer their plan and commence working on creating a coding activity using Scratch Junior. Students will share their work with their peers and attempt to use each other's program.
Session Resources	**Student Resources** • ACS Student Resource: Algorithms		**Teacher Resources** • ACS Teacher Resource: Algorithms	

Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
5.	Evaluation	**Learning Intention** Students will explain and evaluate how their digital solution will meet community needs. **Success Criteria** I can explain how my program can help people learn about healthy and unhealthy foods.	Students will share and brainstorm how the different programs within the classroom her and support community needs. They identify the different people within their community that would benefit from using the digital solution.	Students will evaluate their work and explain how their digital solution will help their wider school and local community. To complete the evaluation, students can talk screen shot of their work and create a video recording explaining their digital solution.
Session Resources	**Student Resources**		**Teacher Resources** • ACS Teacher Resource: Digital System Meeting 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)	N/A		
Collect, access and present different types of data using simple software to create information and solve problems (ACTDIP009)	N/A		
Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)	1 & 2	Diagram of sequence of steps	Students created a sequence of sequence to solve a task of a robot going shopping to pick up healthy foods only.
Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)	3 & 4	Creating and coding of healthy eating program	Students designed and created a program in Scratch Junior to show which foods are healthy and which are unhealthy.
Explain how student solutions and existing information systems meet common personal, school or community needs (ACTDIP012)	5	Design evaluation	Students explained through evaluating their design, how their digital solution can help people learn about healthy and unhealthy foods.
Plan, create and communicate ideas and information independently and with others, applying agreed ethical and social protocols (ACTDIP013)	N/A		

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)	N/A		
Collect, access and present different types of data using simple software to create information and solve problems (VCDTDI021)	N/A		
Individually and with others, plan, create and communicate ideas and information safely, applying agreed ethical and social protocols (VCDTDI022)	N/A		
Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them (VCDTCD023)	1 & 2	Diagram of sequence of steps	Students created a sequence of sequence to solve a task of a robot going shopping to pick up healthy foods only.
Develop simple solutions as visual programs (VCDTCD024)	3 & 4	Creating and coding of healthy eating program	Students designed and created a program in Scratch Junior to show which foods are healthy and which are unhealthy.
Explain how student-developed solutions and existing information systems meet common personal, school or community needs (VCDTCD025)	5	Design evaluation	Students explained through evaluating their design, how their digital solution can help people learn about healthy and unhealthy foods.

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	N/A		
Collect, access and present data, using software to present and communicate information and solve problems (ACTDIP009)	N/A		
Defines problems, describes and follows algorithms to develop solutions (ST2-3DP-T)	1	Diagram of sequence of steps	Students created a sequence of sequence to solve a task of a robot going shopping to pick up healthy foods only.
Develop a sequence of steps and decisions (algorithms) to solve a problem (ACTDIP010)	2	Diagram of sequence of steps (to create their own program)	Students designed and created a program in Scratch Junior to show which foods are healthy and which are unhealthy.
Generate visual programs using algorithms to create simple digital solutions	3 & 4	Creating and coding of healthy eating program	Students designed and created a program in Scratch Junior to show which foods are healthy and which are unhealthy.
Explain how existing information systems meet personal, school or community needs (ACTDIP012)	5	Design evaluation	Students explained through evaluating their design, how their digital solution can help people learn about healthy and unhealthy foods.
Participate individually and collaboratively with clear roles and goals	N/A		
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)	N/A		
Collect and present different types of data using simple software to create useful information (ACTDIP009)	N/A		
Use visually represented sequenced steps (algorithms), including steps with decisions made by the user (branching) (ACTDIP011)	1 & 2	Coding in Scratch Junior	Students designed and created a program in Scratch Junior to show which foods are healthy and which are unhealthy.
Create and communicate ideas and information safely (ACTDIP013)	N/A		
Create a sequence of steps to solve a given task (WATPPS16)	1 – 4	Use of robotics and creation of diagram to complete a task	Students designed and created a program in Scratch Junior to show which foods are healthy and which are unhealthy.
Develop and communicate ideas using labelled drawings and appropriate technical terms (WATPPS17)	N/A		
Select, and safely use, appropriate components with given equipment to make a solution (WATPPS18)	4	Use of robotics and software programs to code	Students used hardware and software through this project to create a digital solution to show the difference between healthy and unhealthy food.

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)	N/A		
Collect and present different types of data for a specific purpose using software (ACTDIP009)	N/A		
Use simple visual programming environments that include a sequence of steps (algorithm) involving decisions made by the user (branching) (ACTDIP011)	4		
Create and communicate ideas and information safely, using agreed protocols (netiquette) (ACTDIP013)	N/A		
Define a sequence of steps to design a solution for a given task (WATPPS21)	1 – 4	Sequence of steps to complete a task	Students designed and created a program in Scratch Junior to show which foods are healthy and which are unhealthy.
Identify and choose the appropriate resources from a given set (WATPPS22)	4	Student digital solution	Students used hardware and software through this project to create a digital solution to show the difference between healthy and unhealthy food.
Develop and communicate design ideas and decisions using annotated drawings and appropriate technical terms (WATPPS23)	3	Diagram	Students created a diagram to show what would happen when users clicked on different foods.
Select, and safely use, appropriate components and equipment to make solutions (WATPPS24)	4	Use of robotics and software programs to code	Students used hardware and software through this project to create a digital solution to show the difference between healthy and unhealthy food.
Use criteria to evaluate and justify simple design processes and solutions (WATPPS25)	5	Design evaluation	Students explained through evaluating their design, how their digital solution can help people learn about healthy and unhealthy foods.
Work independently, or collaboratively when required, to plan, create and communicate ideas and information for solutions (WATPPS26)	N/A		

TAKING A ROBOT TO THE SUPERMARKET

Bee-Bot moves 3 spaces right
→ 1 → 2 → 3

Bee-Bot lands on food → Is the food healthy? → No → Do not pick up the food

→ Yes → Place food in trolley

Bee-Bot moves 1 space down
↓ 1

Bee-Bot lands on food → Is the food healthy? → No → Do not pick up the food

→ Yes → Place food in trolley

Bee-Bot moves 2 spaces left
← 1 ← 2

Bee-Bot lands on food → Is the food healthy? → No → Got to the checkout and pay for your food

→ Yes