

This unit of work was created in collaboration with STEM Specialist Teacher from Keilor Views Primary School, Victoria.

Unit Overview

This unit aligns with a History unit where students study the First Fleet. It is expected that the prior learning of the history of the First Fleet has been completed before commencement of this unit. Students will recreate the journey of the First Fleet using Ozobots. Students will investigate the Ozobot in relation to peripheral devices. They will explore how data is represented through the different codes and colours used to represent different Ozobot commands. Students will use the visual programming platform Ozoblocky to code their journey of the First Fleet represented with the Ozobot.

Other Curriculum Targeted Areas

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

- History
- Design Technologies

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

Digital Devices

Ozobots were a device of choice to complete this unit of work. Other digital technologies can be used as a replacement for Ozobots at the professional discretion and based on the devices that are available at the school. If there is a change of robotics, Session 5 Data Representation may need to be replaced due to the direct alignment with the coloured commands specifically used with Ozobots. Once students have recreated the journey of the First Fleet, they will code the journey using the Ozobot coding platform Ozoblocky. This session is not vital for the completion of this unit, however if this session is not taught then the assessment for using visual programming languages will need to be taught and assessed at another time.

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>

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. In order to access these resources you will need to be logged into our community (see above paragraph for more details).

Key Understandings

Students will:

- Identify and explain how an Ozobot is a peripheral device.
- Identify and explain how colours can be used to represent the Ozobot data commands
- Recreate a map of the First Fleet by using the Ozobot and use multiple coloured commands.

Key Questions

- How can we use technology to help keep our past alive?
- How is the Ozobot robot a peripheral device?
- What colours are used to represent the Ozobot commands?
- How are the colours used to represent different commands?
- How will you use the Ozobot to Recreate the First Fleet Journey?
- What code will you need to use when coding your journey using Ozoblocky?

Key Vocabulary

Online collaboration, protocols, social protocols, ethical protocols, peripheral devices, input devices, output devices, storage devices, data representation, visual programming, algorithms, branching, user input.

FIRST FLEET JOURNEY

Levels 3-4



Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher instruction	Whole class activity
1.	Collaboratively working online	<p>Learning Intention Students will create and follow a set of protocols when completing online activities with their class.</p> <p>Success Criteria I can create a set of protocols and abide by these protocols when I am working online with my class and groups.</p>	Commence a discussion on the type of behaviours that are important when working in groups. Transfer that knowledge and behaviours to working in online spaces. Discuss with the students if the behaviours are different or the same.	<p>Students break into small groups and identify the top five (5) protocols (rules) that they consider to be the most important. They group the protocols as either social or ethical.</p> <p>Each group presents their top 5 protocols. Together as a class decide on a what the top 5 protocols and consequences are when working in the online space. Students write out the rules and sign the agreement.</p>
Session Resource	<p>Student Resources</p> <ul style="list-style-type: none"> ACS Student Resource: Online Collaboration 		<p>Teacher Resources</p> <ul style="list-style-type: none"> ACS Teacher Resource: Online Collaboration 	
2.	Peripheral Devices	<p>Learning Intention Students</p> <p>Success Criteria I can explain</p>	Introduce peripheral devices by discussing the types of devices they use and categorise them into input and output. Move the conversation to include Ozobots. Students identify different components	Students create a collaborative digital presentation that explains the components of the Ozobot.
Session Resource	<p>Student Resources</p> <ul style="list-style-type: none"> ACS Student Resource Peripheral Devices 		<p>Teacher Resources</p> <ul style="list-style-type: none"> ACS Teacher Resource: Peripheral Devices ACS Image Resource: Peripheral Devices ACS Presentation: Digital Systems Laptops and Peripheral Devices 	

FIRST FLEET JOURNEY

Levels 3-4



Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher instruction	Whole class activity
3.	Playing with tech	<p>Learning Intention Students will familiarise themselves with the Ozobot and complete a selection of tasks that focus on technology development</p> <p>Success Criteria I can complete a range of tasks that involve using the Ozobot.</p>	Recap on the different features of the Ozobot. Demonstrate to student show the Ozobot moves on the black line.	Students complete a selection of tasks to develop their skills when using the Ozobot. The tasks are in order to build skill when using the Ozobot.
Session Resources	<p>Students Resources</p> <ul style="list-style-type: none"> • Tasks to complete: <ul style="list-style-type: none"> ○ Connect the Ozobot ○ Ozobot to travel a straight line ○ Ozobot to travel around a cross ○ Ozobot to complete a circle ○ Ozobot to complete a maze 		<p>Teacher Resources</p> <ul style="list-style-type: none"> • Digital Technologies Hub: Ozobot • STEM Activities for Kids Using Ozobots in the classroom 	
4.	Mapping out the First Fleet	<p>Learning Intention Students will create the map voyage of the first fleet and use the Ozobot to follow the journey.</p> <p>Success Criteria I can create a map of the First Fleet that my Ozobot will complete.</p>	Discuss with students the journey of the First Fleet.	In small groups students create a map of the first fleet. This is s simple and will be used to build and improve on. This map will be used in future lessons as a design map. Then they will create another map that includes different Ozobot codes and images and parts to include. (see Ozobot Educators of the month link below for inspiration).
Session Resources	<p>Student Resources</p> <ul style="list-style-type: none"> • 		<p>Teacher Resources</p> <ul style="list-style-type: none"> • Ozobot Educators of the Month: Third Graders Bring Back the Oregon Trail 	

FIRST FLEET JOURNEY

Levels 3-4



Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher instruction	Whole class activity
5.	Data representation	<p>Learning Intention Students will identify and explain how the Ozobot data is represented through RGB.</p> <p>Success Criteria I can identify how to represent data with the Ozobot by using different colours and sequence of colours.</p>	Start the lesson by identifying the different emotions that are associated with different emojis. Focus on how the visual data of each image represents an emotion. Look at the colours of the different emojis faces and how red and green has been used to represent different	<p>Show students the different data images that are represented with the Ozobot. Allow students to guess what they might mean.</p> <p>Students will explore the Ozobot and the representation of the different colours. They create an online poster to explain the representation of the colours.</p>
Session Resources	<p>Student Resources</p> <ul style="list-style-type: none"> • Emojis poster (not provided) • Ozobot Colour Code Charts PDF 		<p>Teacher Resources</p> <ul style="list-style-type: none"> • SDLC Partenrs Data visualisation Age Emoji • Digi Day – Guide Things Emoji • Emjiopedia People • Ozobot How To: Get Started with Colour Codes • Ozobot How To: Colour Codes 	
6.	Data presentation Ozobots	<p>Learning Intention Students will design a Ozobot track that replicates the journey of the First Fleet.</p> <p>Success Criteria I can create an Ozobot track that represents the journey of the First Fleet.</p>	Recap on the different codes that is used to represent different functions with the Ozobots. Discuss with students how they can include the different commands in their Frist Fleet Journey map.	<p>Students are provided with a list of the codes that is represented for the Ozobot. They will use different codes and include them in their First Fleet Journey. They will plan the codes out on their map from the previous lesson and include other items and identify where they will be placed.</p> <p>Students create another first fleet map and include the different codes. This will be there final map and include different items.</p>
Session Resources	<p>Student Resources</p> <ul style="list-style-type: none"> • Ozobot Colour Code Charts PDF • First fleet journey from previous session 		<p>Teacher Resources</p>	

FIRST FLEET JOURNEY

Levels 3-4



Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher instruction	Whole class activity
7.	Testing and presenting	<p>Learning Intention Students will their digital solution to ensure it complete the correct commands. Students will create a video, presenting their final project.</p> <p>Success Criteria I can test the Ozobot to make sure it completes the task correctly and I can present my journey to the class.</p>	Students describe and showcase parts of their map that they have created. Students test their journey, making sure it completes the task without any errors.	Once students have completed and tested their journey (and all parts are functioning correctly), each group is given a chance to share their first fleet journey. Students can record a video explanation of their journey. They can use questions and prompts to help explain how they created the first fleet journey.
Session Resources	<p>Student Resources</p> <ul style="list-style-type: none"> • Questions and prompts to create a video: <ul style="list-style-type: none"> ○ What parts were the hardest to code? ○ What parts were the easiest? ○ Describe and explain what code you have used and why? ○ Show use a final demonstration of your First Fleet Journey. 		Teacher Resources	
8.	Coding the Ozobot	<p>Learning Intention Students will use the Ozoblockly software program and code (in visual programming) the Ozobot to complete the journey of the First Fleet.</p> <p>Success Criteria I can use Ozoblockly to code my First Fleet journey.</p>	Students are intruded to OzoBlockly. They are taken through the interface and are given time to connect and code the Ozobot. Provide students with basic tasks to complete such as straight lie, stopping starting, going in a curve shape. Ensure these tasks correspond with the type of movement completed in their first fleet journey.	To start the coding process, students one part of the first fleet and code the part, this could be a straight line or a part that the speed changes (from slower to faster). As students develop their skills for coding, they take part if their first fleet journey to eventually coding the whole course.
Session Resources	Student Resources		<p>Teacher Resources</p> <ul style="list-style-type: none"> • OzoBlockly • Ozobot: Introduction to Ozobot Blockly 01: Basic Training 	

FIRST FLEET JOURNEY

Levels 3-4



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)	2	Explanation of the Ozobot Robotics as a peripheral device.	Students explained how the Ozobot was a peripheral device. They demonstrated how the device connects to their laptop/iPad and identified the type of data that is transmitted to enable to Ozobot to move.
Recognise different types of data and explore how the same data can be represented in different ways (ACTDIK008)	5	Representation of the Ozobots coloured coding commands	Students identify and explained how Ozobots commands used. They explained how the use of different sequence of colours represented different commands.
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)	6	Representation of the Ozobot First Fleet Journey.	Students plan and create a sequence of steps using the Ozobots to represent the journey of the First Fleet.
Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)	8	Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlockly to program the Ozobot to represent the journey of the First Fleet.
Explain how student solutions and existing information systems meet common personal, school or community needs (ACTDIP012)	N/A		
Plan, create and communicate ideas and information independently and with others, applying agreed ethical and social protocols (ACTDIP013)	1	Use of online collaborative tools to complete a range of tasks throughout the unit	Students worked in a collaborative online platform to complete a range of tasks to recreate the journey of the First Fleet. They identified a number of ethical and social protocols needed to work successfully when online.

FIRST FLEET JOURNEY

Levels 3-4



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)	2	Explanation of the Ozobot Robotics as a peripheral device.	Students explained how the Ozobot was a peripheral device. They demonstrated how the device connects to their laptop/iPad and identified the type of data that is transmitted to enable the Ozobot to move.
Recognise different types of data and explore how the same data can be represented in different ways (VCDTDI020)	5	Representation of the Ozobots coloured coding commands	Students identify and explained how Ozobots commands used. They explained how the use of different sequence of colours represented different commands.
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)	1	Use of online collaborative tools to complete a range of tasks throughout the unit	Students worked in a collaborative online platform to complete a range of tasks to recreate the journey of the First Fleet. They identified a number of ethical and social protocols needed to work successfully when online.
Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them (VCDTCD023)	6	Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlockly to program the Ozobot to represent the journey of the First Fleet.
Develop simple solutions as visual programs (VCDTCD024)	8	Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlockly to program the Ozobot to represent the journey of the First Fleet.
Explain how student-developed solutions and existing information systems meet common personal, school or community needs (VCDTCD025)	N/A		Students worked in a collaborative online platform to complete a range of tasks to recreate the journey of the First Fleet. They identified a number of ethical and social protocols needed to work successfully when online.

FIRST FLEET JOURNEY

Levels 3-4



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)	2	Explanation of the Ozobot Robotics as a peripheral device.	Students explained how the Ozobot was a peripheral device. They demonstrated how the device connects to their laptop/iPad and identified the type of data that is transmitted to enable to Ozobot to move.
Use a range of methods to represent data, including tables and column graphs	5	Representation of the Ozobots coloured coding commands	Students identify and explained how Ozobots commands used. They explained how the use of different sequence of colours represented different commands.
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)	6	Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlockly to program the Ozobot to represent the journey of the First Fleet.
Develop a sequence of steps and decisions (algorithms) to solve a problem (ACTDIP010)			
Generate visual programs using algorithms to create simple digital solutions	6	Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlockly to program the Ozobot to represent the journey of the First Fleet.
Explain how existing information systems meet personal, school or community needs (ACTDIP012)	N/A		
Participate individually and collaboratively with clear roles and goals	1	Use of online collaborative tools to complete a range of tasks throughout the unit	Students worked in a collaborative online platform to complete a range of tasks to recreate the journey of the First Fleet. They identified a number of ethical and social protocols needed to work successfully when online.
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)	2	Explanation of the Ozobot Robotics as a peripheral device.	Students explained how the Ozobot was a peripheral device. They demonstrated how the device connects to their laptop/iPad and identified the type of data that is transmitted to enable to Ozobot to move.
Different types of data can be represented in different ways (ACTDIK008)	5	Representation of the Ozobots coloured coding commands	Students identify and explained how Ozobots commands used They explained how the use of different sequence of colours represented different commands.
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)	8	Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlocky to program the Ozobot to represent the journey of the First Fleet.
Create and communicate ideas and information safely (ACTDIP013)	1	Use of online collaborative tools to complete a range of tasks throughout the unit	Students worked in a collaborative online platform to complete a range of tasks to recreate the journey of the First Fleet. They identified a number of ethical and social protocols needed to work successfully when online.
Create a sequence of steps to solve a given task (WATPPS16)	6	Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlocky to program the Ozobot to represent the journey of the First Fleet.
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)	6	Use of robotics	Students safely and appropriately used the robotics to complete the programmable version of the Australian First Fleet.

FIRST FLEET JOURNEY

Levels 3-4



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)	2	Explanation of the Ozobot Robotics as a peripheral device.	Students explained how the Ozobot was a peripheral device. They demonstrated how the device connects to their laptop/iPad and identified the type of data that is transmitted to enable the Ozobot to move.
Data can be represented in different ways (ACTDIK008)	5	Representation of the Ozobots coloured coding commands	Students identify and explained how Ozobots commands used. They explained how the use of different sequence of colours represented different commands.
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)		Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlockly to program the Ozobot to represent the journey of the First Fleet.
Create and communicate ideas and information safely, using agreed protocols (netiquette) (ACTDIP013)	1	Use of online collaborative tools to complete a range of tasks throughout the unit	Students worked in a collaborative online platform to complete a range of tasks to recreate the journey of the First Fleet. They identified a number of ethical and social protocols needed to work successfully when online.
Define a sequence of steps to design a solution for a given task (WATPPS21)	8	Program of the First Fleet using Ozoblocky	Students used the visual programming platform OzoBlockly to program the Ozobot to represent the journey of the First Fleet.
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)	N/A		
Select, and safely use, appropriate components and equipment to make solutions (WATPPS24)	6	Use of robotics	Students safely and appropriately used the robotics to complete the programmable version of the Australian First Fleet.
Use criteria to evaluate and justify simple design processes and solutions (WATPPS25)	N/A		
Work independently, or collaboratively when required, to plan, create and communicate ideas and information for solutions (WATPPS26)	N/A		