These series of lessons were created in collaboration with the Digital Technologies Specialist teacher from Hammond Park Primary School, Western Australia

## Unit Overview

This unit of work is specifically designed to be a unit of work that focuses on the data component of the Digital Technologies Curriculum. To incorporate data into the term, there was a link to other topics and units of work to be taught by the classroom teachers. This planner was created for a Digital Technologies Specialist teacher.

**Other Curriculum Targeted Areas**

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

- Science (biological science)
- Geography

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

**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. You can access these resources via: https://www.acs.org.au/ict-educators.html.

It is expected at this level to incorporate the use of digital technology to represent and display the data the students. This part of the lessons can be completed at any stage through this unit of work and will dependent on the technology and devices that are available at the school. The incorporation of digital technology will be at the discretion of the teacher. Digital systems are used to collect data on animals. has been used to collect data. Preparation will be needed in order to find the correct resources that will fit in with eh technology that is available to the school. ACS has provided some resources to assist with this preparation:

### Apps and Technology Monitoring Animals and Endangered Species

| | | | |
|---|---|---|---|
| Frog census information | Lion Article | Black Rhino Video | Wild life tracking information |
| Wild about whales | Animal Tracker | Horse health tracker app | Sharksmart |
| Fish Smart NSW | | | |

## Key Understandings

Students will:
- Collect data, sort and interpret data that is associated with a range of topics (personal data, weather, geography)
- Use digital systems to display data creatively
- Investigate and explain how different weather instructions collect data.
- Use their data to solve a problem that is related to

## Key Questions

- Why is it important to collect data?
- What data will you collect?
- How will you sort and represent your data?
- How will your data influence the design of your significant place?

## Key Vocabulary

Data, collect, sort, represent, pictures, diagrams, digital systems for information needs, problem solving

| Theme: Collecting Data About Our Class | | | | |
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| **Session Number** | **Session Topic Focus** | **Learning Intention and Success Criteria** | **Introduction/Teacher Instruction** | **Whole Class Activity** |
| 1. | Collecting and sorting data | **Learning Intention** Students will collect and sort data about themselves and compare this data with their peers. **Success Criteria** I can collect and sort data about me. | Introduce students to the concept of collect and sorting data. Discuss the importance of sorting data into easy to read graphs using pictures. Students are asked to represent the letters in their name with unifix blocks (or block that can be attached together). Each block is to represent one letter. Put in the front of the classroom without any guidance of how to sort. Discuss the best options to sort and organise the blocks. As a range of questions related to the data e.g. which name do you think this is? Before ordering the graph how many names do you think have 5 letters? | Use blocks to complete a range of number exercises to collect data. Students complete the activities in small groups and look at how the graph changes from each group. In the small groups they can extend the graphs by making graphs with first name, middle name and surnames, house number, age, shoe size (anything that can be represented with a numerical value). |
| **Session Resources** | • ACS Teacher Resource: Data | | | |
| 2. | Collecting and sorting and representing data | **Learning Intention** Students will generate a question that will enable them to collect data about their classmates. **Success Criteria** I can collect and sort data about my class. | Formulate a list of some of the questions that were asked in the previous session. Ask students to brainstorm other questions and ask them to think of ways they can present the data. Use the language of representing the data as a picture or a symbol. | Students will formulate a question to ask their peers. They will choose how to represent the data. They will take photos of the graphs they have created. They will answer a list of questions such as: I represented the people in my classroom by …, the diagram I have created is a…., this diagram works best because… |
| **Session Resources** | • ACS Teacher Resource: Data | | | |

| Theme: Collecting Data that is connected to Biological Science | | | | |
|---|---|---|---|---|
| **Session Number** | **Session Topic Focus** | **Learning Intention and Success Criteria** | **Introduction/Teacher Instruction** | **Whole Class Activity** |
| 3. | Collecting and sorting data | **Learning Intention** Students will choose from a selection of diagrams to represent their data and explain the purpose of the different diagrams. **Success Criteria** I can collect and sort data about animals and explain the best diagram I have used to sort my data. | Look at range of different diagrams to represent data e.g.: pictograph, Venn Diagram, Tally (consider which are best for your students). Take a selection of images/pictures of animals and demonstrate how to use the chosen diagrams. Model how to answer the questions that relate to | Using the same images, students gather the data of different animals and they present that data in a range of diagrams and presentations. It is expected that students will use different data and present that data a number of ways. After they have completed a diagram, students will reflect on the data they have created. They will answer a range of question such as: |
| **Session Resources** | • ACS Teacher Resource: Data | | | |
| 4. | Using digital technology to collect data | **Learning Intention** Students will explore how digital technology has been used to collect and collate data about animals. **Success Criteria** I can explore and explain the importance of collecting data about animals. | Together look at how technology is used to gather data about animals. Discuss why it is important to gather data about animals and their habitats. | In different groups, students explore the Frog Census app. Each group is given a different state to investigate. They investigate what is happening with frogs in that state. Students come back together and discuss each state and Australia's Frog population. Compare the data from individual states then as Australia. |
| **Session Resources** | • ACS Teacher Resource: Data | | | |

| | Theme: Collecting Data that is connected to Biological Science | | | |
|---|---|---|---|---|
| Session Number | Session Topic Focus | Learning Intention and Success Criteria | Introduction/Teacher Instruction | Whole Class Activity |
| 5. | Using digital technologies to collect data | **Learning Intention**<br>Students will explore how digital technology has been used to collect and collate data about animals.<br><br>**Success Criteria**<br>I can recognise patterns in the data I have collected and use that to show what I have found out about animals. | Reflect how and why digital technologies is important to help us find data on animals. Look at another app together and look at the type of data this one collects about animals. Together, compare and discuss how this system meets the needs of the animals. | Students will explore a range of apps and digital technologies that are used to collect data bout animals. They will extract their own data and present that data in a creative way. The students' presentation of the data can be in digital or hard copy. |
| **Session Resources** | • ACS Teacher Resource: Hardware and Software<br>• ACS Teacher Resource: Information Systems to Meet Needs | | | |

| | Theme: Collecting Data that is connected to Earth Science (Weather) | | | |
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| **Session Number** | **Session Topic Focus** | **Learning Intention and Success Criteria** | **Introduction/Teacher Instruction** | **Whole Class Activity** |
| 6. | Collecting and sorting data | **Learning Intention** Students will explore patterns in data and use the data to make predictions about the weather. **Success Criteria** I can look for patterns in data and use the patterns to predict the weather. | Collect weather over a week/fortnight. Display the data (out of order) and discuss with students what they can see. Arrange the data in different ways (so it is easy and difficult to interpret). Create an agreed way to collect and present weather data over a certain period. | Students copy the weather data and represent the data in a way they liked and to ensure it is easy to read. They answer a set of questions that is related to the data and make predictions about the following week. |
| **Session Resources** | • ACS Teacher Resource: Data | | | |
| 7. | Collecting and sorting data | **Learning Intention** Students will explore patterns in data and use the data to make predictions about the weather. **Success Criteria** I can look for patterns in data and use the patterns to predict the weather. | Continue to collect ongoing data about the weather. This is activity is intended to be a short sharp activity. It can be completed as a whole class activity or individually. | Students use iPads to take photos of the weather at the beginning of each session. They create a digital graph/diagram and each week session add data. They reflect on the data they have collected by explaining the data they have collected and what it might mean for the following day/week. |
| **Session Resources** | • ACS Teacher Resource: Data | | | |

| Theme: Collecting Data that is connected to Earth Science (Weather) | | | | |
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| Session Number | Session Topic Focus | Learning Intention and Success Criteria | Introduction/Teacher Instruction | Whole Class Activity |
| 8. | Using digital systems for a need | **Learning Intention** Students create a weather stations and explain how it meets information needs. <br><br> **Success Criteria** I can explain the purpose of weather stations and design my own weather station. | Investigate different types of weather stations and devices that gather data about the weather. They look at why these systems are needed and how the system helps with information needs. | Students design a weather station for a different purpose. They draw it out and look at how their weather station could help meet the information need at school and how this could impact sports or lunch time. (will it rain or not by lunch time etc.) |
| Session Resources | • ACS Teacher Resource: Data <br> • ACS Teacher Resource: Information Systems to Meet Needs <br> • Website: The Weather Station – Types of Weather Instruments <br> • Website: Sciencing – Weather Instruments Uses | | | |

| Theme: Collecting Data that is connected to Geography | | | | |
|---|---|---|---|---|
| Session Number | Session Topic Focus | Learning Intention and Success Criteria | Introduction/Teacher Instruction | Whole Class Activity |
| 9. | Collecting and sorting data | **Learning Intention** Students will collect data from images and photos to show similar/different elements between significant places **Success Criteria** I can collect, sort and display data about significant places. | Have a photograph of the playground equipment at your school. Collect different features of items that are in the | Students look at different significant places (photos and images) and collected data bout different things they can see in the pictures. They create different diagrams to present this data (this will be dependent on what data they are collecting). Students can choose the most appropriate method to collect and display data. |
| **Session Resources** | • ACS Teacher Resource: Data | | | |
| 10. | Solving problems with data | **Learning Intention** Students will use the data they have collected to create an updated version of a significant place. **Success Criteria** I will use my data to create a great place. | Pose the question – what make a 'great place?' Students are encouraged to share their ideas. This data becomes the drive to create a new design. Discuss the importance of taking the data into consideration when designing a playground (even if it is different your opinion!). | Using the data students collected in the previous session, students design a 'great' place. They explain how the data they have collected has helped them redesign a playground for the school. |
| **Session Resources** | • ACS Teacher Resource: Data | | | |

| Assessment – Australian Digital Technologies Curriculum | | | |
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| **Content Description** | **Session Number** | **Assessment Piece** | **Assessment Statement** |
| Recognise and explore digital systems (hardware and software) components for a purpose (ACTDIK001) | N/A | | |
| Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (ACTDIK002) | 1-7 | Data collection and representation throughout the term. | Students found patterns in data they had collected throughout the term. Over the course of the term they present the data as pictures, symbols and used a range of diagrams (such as tallies, pictographs, Venn Diagrams). |
| Collect, explore and sort data, and use digital systems to present the data creatively (ACTDIP003) | 1-7 | | **Weather Sessions** Using data collected about the weather, students explored patterns and used the data to make predictions about future forecasts. |
| Following, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (ACTDIP004) | | | |
| Explore how people safely use common information systems to meet information, communication and recreation needs (ACTDIP005) | 5 & 8 | Creation of a new weather and explanation of how weather stations collect data.<br><br>Investigating how technology is used to collect data about animals. | **Biological Science Sessions** Students identified the importance and need of using technology to track and keeping records and information about animals. **Weather sessions** Students explored the uses of different weather stations. They designed a weather station for a new purpose. |
| Create and organise ideas and information using information systems independently and with others, and share these with known people in safe online environments (ACTDIP006) | N/A | | |

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# DATA IS ALL AROUND US
Levels F-2

| Assessment – Victorian Digital Technologies Curriculum | | | |
|---|---|---|---|
| **Content Description** | **Session Number** | **Assessment Piece** | **Assessment Statement** |
| Identify and explore digital systems (hardware and software components) for a purpose (VCDTDS013) | N/A | | |
| Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (VCDTDI014) | 1-7 | Data collection and representation throughout the term | Students found patterns in data they had collected throughout the term. Over the course of the term they present the data as pictures, symbols and used a range of diagrams (such as tallies, pictographs, Venn Diagrams). |
| Collect, explore and sort data, and use digital systems to present the data creatively (VCDTDI015) | 1-7 | The data collected about themselves, including the questions and data they collected independently | **About Me Sessions** Students completed a range of activities that collected data about themselves. They formulated a question independently and collected sorted and represented data about their classmates. Over the course of the Term, students used a range of technology to display their data. |
| Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (VCDTCD017) | N/A | | |
| Explore how people safely use common information systems to meet information, communication and recreation needs (VCDTCD018) | 8 | Explanation of how a weather station operates. Explanation of how digital systems are used to collect data on endangered species | **Weather Sessions** Students explored the uses of different weather stations. They designed a weather station for a new purpose. **Biological Science Sessions** Students identified the importance and need of using technology to track and keeping records of animals. |
| Independently and with others create and organise ideas and information using information systems, and share these with known people in safe online environments (VCDTDI016) | N/A | | |

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| Assessment – New South Wales Science and Technology Syllabus | | | |
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| Outcomes and Objectives | Session Number | Assessment Piece | Stage Statement |
| observes, questions and collects data to communicate and compare ideas (ST1-1WS-S) | 1-7 | | |
| collect, sort, organise and present data to communicate information (ACTDIP003) | Majority of sessions | Activities completed throughout the unit of work | Students found patterns in data they had collected throughout the term. Over the course of the term they present the data as pictures, symbols and used a range of diagrams (such as tallies, pictographs, Venn Diagrams). **Weather Sessions** Using data collected about the weather, students explored patterns and used the data to make predictions about future forecasts. |
| Identifies digital systems and explores how instructions are used to control digital devices (ST-e7DI-T) | N/A | | |

| Assessment – Western Australian Digital Technologies Curriculum | | | |
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| **Year 1 Syllabus** | | | |
| **Content Descriptions** | **Session Number** | **Assessment Piece** | **Assessment Statement** |
| Digital systems (hardware and software) are used in everyday life and have specific features (ACTDIK001) | N/A | | |
| Data can have patterns and can be represented as pictures, symbols and diagrams (ACTDIK002) | 1-7 | | Students found patterns in data they had collected throughout the term. Over the course of the term they present the data as pictures, symbols and used a range of diagrams (such as tallies, pictographs, Venn Diagrams). |
| Present data of any kind using a variety of digital tools (ACTDIP003) | 1-7 | A selection of diagrams to represent data | Over the course of the term, students used a range of data collection methods and representations to display their data.  Students used technology to create and interpret their data. |
| Use data to solve a simple task/problem (ACTDIP003) | 10 | Design of a new significant place | Students gathered data about significant places. They used this data to create a 'new and improved' significant place for their school. |
| Share and publish information with known people in an online environment, modelling strategies to stay safe online (ACTDIP006) | N/A | | |
| Explore opportunities for design (WATPPS06) | 8 | Design of a new significant place | Students gathered data about significant places. They used this data to create a 'new and improved' significant place. |
| Develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps (WATPPS07) | N/A | | |
| Use given components and equipment to safely make solutions (WATPPS08) | N/A | | |
| Use personal preferences to evaluate the success of design processes (WATPPS09) | N/A | | |
| Work independently, or with others when required, to create and safely share sequenced steps for solutions (WATPPS10) | N/A | | |

| Assessment – Western Australian Digital Technologies Curriculum | | | |
|---|---|---|---|
| **Year 2 Syllabus** | | | |
| **Content Descriptions** | **Session Number** | **Assessment Piece** | **Assessment Statement** |
| Digital systems (hardware and software) are used for an identified purpose (ACTDIK001) | N/A | | |
| Data can have patterns and can be represented and used to make simple conclusions (ACTDIK002) | 1-7 | Data collected and represented by students | Students generated a selection of conclusion About people in their classroom buy collecting and sorting data about each other. |
| Present data using a variety of digital tools (ACTDIP003) | 1-7 | | Over the course of the term, students used a range of data collection methods and representations to display their data. |
| Use data to solve similar tasks/problems (ACTDIP003) | 10 | Design of a new significant place | Students gathered data about significant places. They used this data to create a 'new and improved' significant place for their school. |
| Share and publish information in a safe online environment, with known people (ACTDIP006) | N/A | | |
| Explore design to meet needs or opportunities (WATPPS11) | 8 | Design of a weather station | Students explored the uses of different weather stations. They designed a weather station for a new purpose. |
| Develop, communicate and discuss design ideas through describing, drawing, modelling and/or a sequence of steps (WATPPS12) | N/A | | |
| Use components and given equipment to safely make solutions (WATPPS13) | N/A | | |
| Use simple criteria to evaluate the success of design processes and solutions (WATPPS14) | N/A | | |
| Work independently, or collaboratively when required, to organise information and ideas to create and safely share sequenced steps for solutions (WATPPS15) | N/A | | |