

These series of lessons were created in collaboration with the teachers from Newhaven College, Phillip Island, Victoria

Unit Overview

This lesson will be part of a Unit of Work that focuses on investigating how living things grow and change. The focus of these lessons to collect data and capturing changes of living and nonliving things. After the data collection process is complete, students will interpret their data and generate a range of statements.

Other Curriculum Targeted Areas

Other curriculum areas can be targeted and assessed within this unit.

Other areas of interest may include:

- Science (Biological Science)
- Mathematics (Data)

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

It is expected that digital technology will be used to present their data. This technology is at the discretion of the teacher and will change depending on the devices and technology available at the school. Use of digital devices to record their data may include:

- Use a Stop Motion platform to create a stop motion of their images
- Use a slide show creator – each slide is an image over the course of the project, students can add writing when interpreting the images
- Use a digital book– each page is an image over the course of the project, students can add a voice recording when interpreting the images

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>.

Key Understandings

Students will:

- Collect data over the course of a selected time frame (at teacher discretion)
- Use a digital device to collect and represent the data
- Interpret the data they have collected.

Key Questions

- What data will you collect?
- How will you use a digital device/iPad to record your data?
- How will you use your digital device/iPad present your data?
- What have you found out by collect the data?

Key Vocabulary

Data, data collection, data representation, software, graph, change, images, predictions, interpretations.

GROWTH AND CHANGE

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Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
1.	Data collection	<p>Learning Intention Students will represent data as images.</p> <p>Success Criteria I can use a camera to take a photo to collect data of my living thing changing.</p>	Bring in a living thing (plant or small animal) as a stimulus for the lesson. Initiate a discussion about making prediction about what will happen to the living thing over one day, two days and even longer period of time. Steer the conversation about keeping record of the data the best way to capture the data.	<p>Commence a walk around the school looking for items they will use to collect data, ensuring the item is no bigger than the zip lock bag or container.</p> <p>Students commence record keeping of their items. They take one photo, with both of the items side by side. Throughout the process of taking photos, ensuring the items are in the same spots to help with build comparisons. They take the first picture of their items and record predictions and findings.</p>
Session Resources	<ul style="list-style-type: none"> ACS Teacher Resource: Data 			
2.	Data Collection	<p>Learning Intention Collect and sort data of living objects over a long period of time (a term)</p> <p>Success Criteria Collect pictures over a long time to show how my living thing has changed</p>	Use the whole class living object stimulus to model how to take photos and record observable changes.	<p>Students will collect the data of how their living object has changed over time. They will take a photo of their object (daily, every second day). Ensure the collection of the data is occurred over a long period of time (at least couple of weeks to have observable changes).</p> <p>This session will occur multiple times for a duration depicted by the teacher.</p>
Session Resources	<ul style="list-style-type: none"> ACS Teacher Resource: Data 			

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Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
3.	Sorting data	Learning Intention Students will create a graph using a digital platform to interpret their data. Success Criteria I can use digital technology to organise my data	Model to the students how to represent their data using a chosen digital software. Bring the conversation into ensure the data they have collected is kept the same order and the consequences of changing the sequence of the data they have collected.	Students take photos of the data they have collected over the duration and using digital technology to represent the data. See key preparation for examples.
Session Resources	<ul style="list-style-type: none">• ACS Teacher Resource: Data			
4.	Presenting data	Learning Intention Students will share their data and interpret their data to make statements. Success Criteria I can share my data with my class.	Discuss what the final product looks like with the students. Share different ideas of what they have seen from the data collection, noting the changes in colour, size, texture or any other visual changes.	Working in groups, students share their digital representations of their software. Together, they look for similarities and differences and patterns in the data they have collected.
Session Resources	<ul style="list-style-type: none">• ACS Teacher Resource: Data			

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Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
5.	Using technology for a purpose	Learning Intention Students will explain the purpose of using the camera to collect data. Success Criteria I can explain why the camera was used as a purpose to collect data.	Create a list of positive and negative reasons of using the camera to collect data. Discuss how the photos were taken and how they were saved.	Students create a short reflection (video or written) about why and how the camera was used purposefully to collect data.
Session Resources	<ul style="list-style-type: none">ACS Teacher Resource: Hardware and Software			

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Assessment – Australian Digital Technologies Curriculum			
Content Description	Session Number	Assessment Piece	Assessment Statement
Recognise and explore digital systems (hardware and software) components for a purpose (ACTDIK001)	5	Exploring digital systems to take photos	Students explored the hardware of a digital camera to take photos to collect data. They recognised through their reflection why the technology was used and how it benefited their data collection.
Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (ACTDIK002)	4	Data collection	Students used software to digital represent data that depicted growth and change of living things.
Collect, explore and sort data, and use digital systems to present the data creatively (ACTDIP003)	1, 2 & 3	Digital presentation of their data	Students collated data to demonstrate how living things grow and change. They used cameras on a digital device to collect photos.
Following, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (ACTDIP004)	N/A		
Explore how people safely use common information systems to meet information, communication and recreation needs (ACTDIP005)	N/A		
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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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)	5	Exploring digital systems to take photos	Students explored the hardware of a digital camera to take photos to collect data. They recognised through reflection why the technology was used and how it benefited their data collection.
Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (VCDTDI014)	4	Data collection	Students used software to digital represent data that depicted growth and change of living things.
Collect, explore and sort data, and use digital systems to present the data creatively (VCDTDI015)	1, 2 & 3	Digital presentation of their data	Students collated data to demonstrate how living things grow and change. They used cameras on a digital device to collect photos.
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)	N/A		
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			
Outcomes and Objectives	Session Number	Assessment Piece	Stage Statement
observes, questions and collects data to communicate and compare ideas (ST1-1WS-S)	4	Interpretation of data	Students observed the changings of living things and compared these to nonliving things. They collected data to help them make valid conclusions and they communicated these ideas with their peers.
collect, sort, organise and present data to communicate information (ACTDIP003)	1, 2 & 3	Data collection	Students collated data to demonstrate how living things grow and change. They used cameras on a digital device to collect photos. Students used software to digital represent data that depicted growth and change of living things.
Identifies digital systems and explores how instructions are used to control digital devices (ST-e7DI-T)	5	Exploring digital systems to take photos	Students explored the hardware of a digital camera to take photos to collect data.

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Assessment - Western Australian Digital Technologies Curriculum			
Pre-Primary Syllabus	Session Number	Assessment Piece	Assessment Statement
Digital systems (hardware and software) are used at home, in the school and in the community (ACTDIK001)	5	Exploring digital systems to take photos	Students explored the hardware of a digital camera to take photos to collect data.
Data can have patterns and can be represented as pictures and symbols (ACTDIK002)	4	Data collection	Students used software to digital represent data that depicted growth and change of living things.
Collect and use data of any kind (ACTDIP003)	1, 2 & 3	Digital presentation of their data	Students collated data to demonstrate how living things grow and change. They used cameras on a digital device to collect photos.
Use data to complete a task (ACTDIP003)	N/A		
Engage with information known people have shared in an online environment, and model strategies to stay safe online (ACTDIP006)	N/A		
Explore needs for design (WATPPS01)	N/A		
Generate and record design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps (WATPPS02)	N/A		
Use given components and equipment to safely make simple solutions (WATPPS03)	N/A		
Use personal preferences to evaluate the success of simple solutions (WATPPS04)	N/A		
Work independently, or with others when required, for solutions (WATPPS05)	N/A		

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Assessment - Western Australian Digital Technologies Curriculum			
Year 1 Syllabus	Session Number	Assessment Piece	Assessment Statement
Digital systems (hardware and software) are used in everyday life and have specific features (ACTDIK001)	5	Exploring digital systems to take photos	Students explored the hardware of a digital camera to take photos to collect data.
Data can have patterns and can be represented as pictures, symbols and diagrams (ACTDIK002)	1, 2 & 3	Data collection	Students collated data to demonstrate how living things grow and change. They used cameras on a digital device to collect photos.
Present data of any kind using a variety of digital tools (ACTDIP003)	4	Interpretation of data	Students used software to digital represent data that depicted growth and change of living things.
Use data to solve a simple task/problem (ACTDIP003)	N/A		
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)	N/A		
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		

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Assessment - Western Australian Digital Technologies Curriculum			
Year 2 Syllabus	Session Number	Assessment Piece	Assessment Statement
Digital systems (hardware and software) are used for an identified purpose (ACTDIK001)	5		
Data can have patterns and can be represented and used to make simple conclusions (ACTDIK002)	1, 2 & 3	Data collection	Students collated data to demonstrate how living things grow and change. They used cameras on a digital device to collect photos.
Present data using a variety of digital tools (ACTDIP003)	4	Interpretation of data	Students used software to digital represent data that depicted growth and change of living things.
Use data to solve similar tasks/problems (ACTDIP003)	N/A		
Share and publish information in a safe online environment, with known people (ACTDIP006)	N/A		
Explore design to meet needs or opportunities (WATPPS11)	N/A		
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		