

DIGITAL GAMES THROUGH THE YEARS

Levels F-2



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

Unit Overview

Students will observe and evaluate how digital gaming has changed through the years. They are provided with hands on experience that allows them to be immersed into retro games. They will have the opportunity to play the first ever digital game – ‘Pong’ and discuss how digital gaming has changed and developed over time. They will research common gaming characters and look at how the graphics have also changed. Using their knowledge of how games have changed over time they will design (through drawing and labelling) a game for the future and a game they think that would be better than Pong!

Other Curriculum Targeted Areas

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

Other areas of interest may include:

- Media Arts
- Design and Technology

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.

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Key Preparation

A selection of games need to be uploaded on the chosen devices used within the classroom. A selection of 'retro' games and current games allows students to explore how games have developed over time and how graphics, complexity and styles of games have changed also. The types of games that are used will depend on the devices that are available. If devices are unavailable for students to access – research into screen shots and videos of how these games are played may suffice the purpose of comparing and evaluating games for recreation purposes.

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:

- Investigate how hardware and software are used to create and play digital games.
- Investigate how gaming technology has changed over the years.
- Design a new digital game for the future.

Key Questions

- What hardware and software will I use when I play different digital games?
- How has gaming changed through the years?
- How have images and graphics in games changed through the years?
How will digital games be different in the future?
If I designed a game what would it look like? What characters would it have and what is the purpose of the game?

Key Vocabulary

Hardware, software, digital systems for recreation purposes, images, pixels, digital images, digital solution

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Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
1.	Evaluating Digital Technologies.	<p>Learning Intention Students will evaluate how digital technology and gaming has changed and developed over time.</p> <p>Success Criteria I can explain how digital games have changed over time.</p>	As a class, identify and discuss different technology games students play. Make a list of characters, plots, purpose and the type of environment.	<p>Using iPads play a range of games starting at Pong to a common game. Evaluate how digital games have changed over time. Look at colours and image quality.</p> <p>Students will make notes on the games they are playing and evaluate them by answering a set of questions and prompts.</p>
Session Resources	<p>Student Resources</p> <ul style="list-style-type: none"> A range of apps predownloaded on iPad for students to play. 		<p>Teacher Resources</p> <ul style="list-style-type: none"> ACS Teacher Resource: Information Systems to Meet Needs 	
2.	Hardware and software	<p>Learning Intention</p> <p>Success Criteria I can identify the hardware and software that is needed to play different games and access different apps.</p>	Look at the type of hardware and software that is used to create a game	Students play a selection of games (with and without digital technologies). They look at the equipment that is needed. When looking into digital games, students create a list of all the hardware and software that is needed to play that game.
Session Resources	<p>Student Resources</p> <ul style="list-style-type: none"> List of different hardware and software (images to choose from) 		<p>Teacher Resources</p> <ul style="list-style-type: none"> Selection of games preinstalled that use a range of hardware and software (such as camera, keyboard, mouse etc). 	

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Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
3.	Changes in Technology	<p>Learning Intention Students will evaluate how digital technology and gaming has changed and developed over time.</p> <p>Success Criteria I can explain how gaming characters have changed over time.</p>	Discuss Mario and all the characters that are part of the Mario Bros. games.	<p>Investigating how Mario has changed overtime. Provide students will Mario and how he has developed overtime.</p> <p>Students will sequence images of Mario from the original to the current character. They will identify and discuss changes in the characters appearances and style of the images.</p>
Session Resources	<p>Student Resources</p> <ul style="list-style-type: none"> • Pictures of Mario Bros. characters throughout the years 		<p>Teacher Resources</p> <ul style="list-style-type: none"> • Entertainment Blog – Old School Super Mario Bros 	
4.	Digital Images	<p>Learning Intention Students will learn about pixels and use grid paper to create characters.</p> <p>Success Criteria I can create a picture drawing of gaming characters.</p>	<p>Introduce students to the term ‘pixel’ and explain how digital images are create with pixels.</p> <p>Using the grid paper demonstrate to students how to draw and create an image using squares/pixels.</p>	<p>Students are provided with grid paper and they attempt to recreate a digital picture. They will copy and create a known Mario Bros. character.</p> <p>Students can create and design a new Mario Bros pixel image. This could be a new character or a new style for an existing character.</p>
Session Resources	<p>Student Resources</p> <ul style="list-style-type: none"> • Grid paper/blank 100’s chart paper 		<p>Teacher Resources</p> <ul style="list-style-type: none"> • ACS Teacher Resource: Images and pixels • Griffin Education Enterprise Blog – How to Successfully Teach Pixel Art in your Classroom • Pixel images of different gaming characters 	

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Session Number	Session Topic Focus	Learning Intention and Success Criteria	Introduction/Teacher Instruction	Whole Class Activity
5.	Digital Solutions	<p>Learning Intention Students will reflect on how gaming can change for the future.</p> <p>Success Criteria I can design a new Mario Bros. game for the future.</p>	Recap of Mario and then try and predict what gaming could look like in the future. Discuss what type of devices they could use to play a game.	Students design game through drawing on what Mario Bros will look in the future. They can draw different images, characters, scenes in their games and write a summary to explain their new Mario Bros. game.
Session Resources	Student Resources		Teacher Resources	
			<ul style="list-style-type: none"> ACS Resource: Digital Systems Meeting Needs 	
6.	Digital Solutions	<p>Learning Intention Students will design a digital game to meet recreation needs.</p> <p>Success Criteria I can create my own digital technologies game.</p>	Discuss with students how digital games and gaming help with meeting recreation needs. Discuss with students their ideas about the types of they would design and create.	Students create a game through building, sketching and drawing. They write a summary of their game and instructions on how to play, and draw a selection of screens that they game would include. They explain how their new game meets recreation needs.
Session Resources	Student Resources		Teacher Resources	
			<ul style="list-style-type: none"> ACS Resource: Digital Systems Meeting Needs 	
7.	Online Collaboration	<p>Learning Intention Students will share their designs of their games through a dedicated online platform.</p> <p>Success Criteria I can share my ideas with my class mates.</p>	Demonstrate to students how to use the online platform for sharing. Go through the basic features to share their work. Model how to create an audio reflection. With student brainstorm different prompts they can use.	Students will upload photos of their game to an online platform. They will use an audio recording to help them explain how their new game meets recreation needs.
Session Resource	Student Resources		Teacher Resources	
			<ul style="list-style-type: none"> Online platform to share content, available for student use 	

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Name of the Software		
What's the purpose of the game?		
Tick which hardware components you used when you were playing the game. Identify the special features of the hardware and software.		
Monitor		
Keyboard		
Mouse		
Camera		
Touch Screen		
Speakers		
Memory (can you save your progress?)		
Printer (did you print off anything)		



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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)	2	Identification of different hardware and software used to play digital games.	Students identified the different hardware and software used to play digital games. They identified specific features when identifying the hardware and software.
Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (ACTDIK002)	N/A		
Collect, explore and sort data, and use digital systems to present the data creatively (ACTDIP003)	N/A		
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)	6 & 7	Explanation on how their game meets recreation needs.	Students explained how their game design meets recreation needs.
Create and organise ideas and information using information systems independently and with others, and share these with known people in safe online environments (ACTDIP006)	7	Uploading and presenting their work to their peers in a collaborative platform.	Students uploaded their game design ideas to a collaborative, secure online platform. They shared their design with their peers in a safe online environment.

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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)	2	Identification of different hardware and software used to play digital games	Students identified the different hardware and software used to play digital games. They identified specific features when identifying the hardware and software.
Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (VCDTDI014)	N/A		
Collect, explore and sort data, and use digital systems to present the data creatively (VCDTDI015)	N/A		
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)	6 & 7	Explanation on how their game meets recreation needs.	Students explained how their game design meets recreation needs.
Independently and with others create and organise ideas and information using information systems, and share these with known people in safe online environments (VCDTDI016)	7	Uploading and presenting their work to their peers in a collaborative platform	Students uploaded their game design ideas to a collaborative platform. They shared their design with their peers in a safe online environment.

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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)	7		
collect, sort, organise and present data to communicate information (ACTDIP003)	N/A		
Identifies digital systems and explores how instructions are used to control digital devices (ST-e7DI-T)	2	Identification of different hardware and software used to play digital games	Students identified the different hardware and software used to play digital games.

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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)	1	Identification of different hardware and software	Students identified the different hardware and software used to play digital games.
Data can have patterns and can be represented as pictures and symbols (ACTDIK002)	N/A		
Collect and use data of any kind (ACTDIP003)	N/A		
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)	7	Students uploading and presenting their work to their peers in a collaborative platform.	Students uploaded their game design ideas to a collaborative, secure online platform. They shared their design with their peers in a safe online environment.
Explore needs for design (WATPPS01)	5 & 6	Explanation on how their game meets recreation needs	
Generate and record design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps (WATPPS02)	6	Design of a new game	
Use given components and equipment to safely make simple solutions (WATPPS03)	N/A		
Use personal preferences to evaluate the success of simple solutions (WATPPS04)	7	Uploading and presenting their work to their peers in a collaborative platform	Students uploaded their game design ideas to a collaborative, secure online platform. They shared their design with their peers in a safe online environment.
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)	1	Identification of different hardware and software	Students identified the different hardware and software used to play digital games. They identified specific features when identifying the hardware and software.
Data can have patterns and can be represented as pictures, symbols and diagrams (ACTDIK002)	N/A		
Present data of any kind using a variety of digital tools (ACTDIP003)	N/A		
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)	7	Students uploading and presenting their work to their peers in a collaborative platform.	Students uploaded their game design ideas to a collaborative, secure online platform. They shared their design with their peers in a safe online environment. While uploading their work, student modelled safe strategies to work in online spaces.
Explore opportunities for design (WATPPS06)	5 & 6	Explanation on how their game meets recreation needs	
Develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps (WATPPS07)	6	Design of a new game	Students designed a new game through drawings, summaries and written text. They created voice recordings to explain how their game functions.
Use given components and equipment to safely make solutions (WATPPS08)	N/A		
Use personal preferences to evaluate the success of design processes (WATPPS09)	7	Evaluation of the game design	Students evaluated their work through creating recordings of their explanations and reflections of their design game.
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)	1	Identification of different hardware and software	Students identified the different hardware and software used to play digital games.
Data can have patterns and can be represented and used to make simple conclusions (ACTDIK002)	N/A		
Present data using a variety of digital tools (ACTDIP003)	N/A		
Use data to solve similar tasks/problems (ACTDIP003)	N/A		
Share and publish information in a safe online environment, with known people (ACTDIP006)	7	Students uploading and presenting their work to their peers in a collaborative platform.	Students uploaded their game design ideas to a collaborative platform.
Explore design to meet needs or opportunities (WATPPS11)	5 & 6	Explanation on how their game meets recreation needs	Students explained how their game design meets recreation needs.
Develop, communicate and discuss design ideas through describing, drawing, modelling and/or a sequence of steps (WATPPS12)	6	Design of a new game	Students designed a new game through drawings, summaries and written text. They described how they game work by creating voice recordings.
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)	7	Evaluation of game	Students evaluated their work through creating recordings of their explanations and reflections of their design game.
Work independently, or collaboratively when required, to organise information and ideas to create and safely share sequenced steps for solutions (WATPPS15)	N/A		