# DIGITAL TECHNOLOGY TO PROMOTE HEALTH

Levels 5-6

This unit of work was created in collaboration with teachers from St Francis of Assisi Primary School, Mill Park, Victoria.

## Unit Overview

These lessons are designed to be incorporated into a unit of work that is centred around Health. The Digital Technologies Curriculum will be used as a catalyst to look at current digital systems used to help promote healthy lifestyles and healthy choices. Students will research current technologies available and investigate how they function (through transmitting data, gathering and graphing data) and provide the user with useful information. Using this information students will design and create an app that helps promote a healthy lifestyle. To the incorporate the use of the visual programming into the lessons, students will use a digital platform to a prototype.

### Other Curriculum Targeted Areas

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

- Design and Technology
- Health
- Personal Capabilities

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.

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| Key Preparation |
| --- |
| **App Development and Visual Programming**<br>Using visual programming, students will build a digital prototype of their app. To suffice the curriculum standards, a visual programming platform is required. App building programs may include, not limited to:<br>• Code.org (students can log in using a Google or Microsoft account)<br>• AppyPie (need to create an account)<br>• Scratch<br>• MIT App Inventor (students can log in using a Google account)<br><br>The above App building programs are examples only to enable teachers to start the process of looking for a suitable platform. ASC does not endorse specific products and decisions of platform to utilise will vary between schools based on accessibility. |

| Key Understandings | Key Questions |
| --- | --- |
| Students will:<br>▪ Explain the core features of a digital solution.<br>▪ Design an app to help keep a user healthy.<br>▪ Explain how their app meets the needs of the wider community. | ▪ What type of digital technology is available to help people stay healthy? What are the main features and how does it work?<br>▪ What type of app would you create to help a user stay healthy?<br>▪ What type of functions would your app need? What type of features are important to your user?<br>▪ How would your app function?<br>▪ How does your app meet needs? |

## Resources

**Technology Resources**

Examples of technology to help with promote healthy choices and lifestyles:

| | | |
|---|---|---|
| Sleep Cycle (tracks sleep patterns) App | Plant Nanny (app with game based style to keeps plants alive by how much water the user drinks) | Fooducate (nutrition tracker app) |
| Sleep Cycle Website | | Fooducate |
| Fitbit Smart Scales | Health Apple App | Hirdate Spark (tracks how much water you drink) |
| | Apple Watch | |

**Flow charts**

Flow charts are a way to organise and present algorithms in English. The flow charts can either be generated by hand writing the commands, this will suffice the curriculum requirements.

## Key Vocabulary

Data, transmit, networks, digital system, hardware, software, systems thinking, computational thinking, design thinking, design solution, algorithms, iteration, branching, user experience, user interface, user input

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| Session Number | Session Topic Focus | Learning Intention and Success Criteria | Introduction/Teacher Instruction | Whole Class Activity |
|---|---|---|---|---|
| 1. | Using technology to Collaborate | **Learning Intention**<br>Students will identify a set of protocols to follow when working in online spaces.<br><br>**Success Criteria**<br>I can generate a list of dos and don'ts and explain why they are important protocols to follow. | Discuss the similarities and differences of working in the classroom and online and the importance of continually abiding by these protocols (rules). | Students work in small groups and connect with each other in an online document that allows them to collaborate. They create a list of 'dos and don'ts' to successfully work online.<br><br>They explain why it is important that the protocols are upheld. |
| **Session Resources** | **Student Resources** | | **Teacher Resources**<br>• ACS Teacher Resource: Online Collaboration | |
| 2. | Technologies used in society | **Learning Intention**<br>Students will identify and evaluate how digital technology are used to help promote a healthy lifestyle.<br><br>**Success Criteria**<br>I can explain how a digital system works, identify main components and evaluate purpose. | Brainstorm how students use digital technology in their lives.<br><br>Bring the conversation to focus on: Is digital technology good for our health?<br><br>Evaluate a digital system together – an app or a physical device. | Students are broken into groups and each group investigates a different technology to promote a healthy lifestyle.<br><br>Students complete the Existing app evaluation questions then present their findings with the class. |
| **Session Resources** | **Student Resources**<br>• ACS Student Resource: Common Components<br>• ACS Student Resource: Data Transmission | | **Teacher Resources**<br>• ACS Teacher Resource: Data<br>• ACS Teacher Resource: Components of a Digital System<br>• Existing App Evaluation (located at the end of this document) | |

| Session Number | Session Topic Focus | Learning Intention and Success Criteria | Introduction/Teacher Instruction | Whole Class Activity |
|---|---|---|---|---|
| 3. | Potentials of technology | **Learning Intention**<br>Students will generate ideas to design and build an app.<br><br>**Success Criteria**<br>I can generate and choose an idea to design and build an app. | Initiate a conversation about creating technology for a purpose by posing the question: What type of app would you use to promote a healthy life style?<br><br>As a group, brainstorm as many different ideas. | Students form small groups and choose one (or create a new idea) for an app they would create to promote a healthy lifestyle. As a group they complete the Student App Design Brief. |
| **Session Resources** | **Student Resources**<br>• Student App design brief (located at the end of this document) | | **Teacher Resources**<br>• Student App design brief (located at the end of this document) | |
| 4. | Computational thinking | **Learning Intention**<br>Students will create a flowchart to organise their ideas and explain the functions of the app.<br><br>**Success Criteria**<br>I can create a flowchart that explains the functions within my app.<br><br>I can identify where user input, iteration and branching has been used. | Commence by introducing students to flowcharts and the purpose of a flowchart.<br><br>Video to watch Friendship Algorithm scene from The Big Bang Theory. Discuss how the flowchart helps the layout of instructions. | Using their design brief from the previous session students create a flow chart to show how the app will function. This includes how the user will move between the screens and the layout of each screen. Ensure repeats (iteration) and multiple options (branching) are found within the instructions. |
| **Session Resources** | **Student Resources**<br>• ACS Student Resource: Algorithms<br>• Big Bang Theory Friendship Algorithm Scene | | **Teacher Resources**<br>• ACS Teacher Resource: Algorithms | |

| Session Number | Session Topic Focus | Learning Intention and Success Criteria | Introduction/Teacher Instruction | Whole Class Activity |
|---|---|---|---|---|
| 5. | Designing an app | **Learning Intention**<br>Students will design the interface of their app.<br><br>**Success Criteria**<br>I can design the interfaces of my app. | Look through a selection of app screen shots and discuss the functions and design of each screen shot. | Using their design brief and the flowchart, students commence the interface design of their app. This activity is completed in pencil, students will draw the screens. Students will reflect on aspects of their design process. |
| **Session Resources** | **Student Resources**<br>• ACS Teacher Resource: User Interface<br>• App storyboard (located at the end of this document) | | **Teacher Resources**<br>• ACS Teacher Resource: User Interface<br>• App storyboard (located at the end of this document) | |
| 6. | Creating a digital prototype | **Learning Intention**<br>Students will use a digital platform to create a digital prototype of their app.<br><br>**Success Criteria**<br>I can use visual programming to create a digital version of my app. | If introducing the students to the platform for the first time, dedicate 10 minutes to 'tinker' and use the platform without teacher instruction. This allows students to freely explore the functions. Students are given the opportunity to share with others the functions they found within the app. | Individually students create their app. Students can continue working in groups however each student will produce an app. |
| **Session Resources** | **Student Resources**<br>• | | **Teacher Resources**<br>• ACS Teacher Resource: Visual Programming<br>• Chosen digital platform to create digital app prototype | |
| 7. | Evaluation of design | **Learning Intention**<br>Student will evaluate their design against a set criterion.<br><br>**Success Criteria**<br>I can evaluate my design and app based on a set criterion. | Students share their designs and digital prototypes with their peers. Students explain their functions and include how it meets the need of the community. | Students are to complete an evaluation of their design and the design process on a set criterion to focus on meetings community needs and sustainability. |
| **Session Resource** | **Student Resources**<br>• ACS Teacher Resource: Evaluating Digital Solutions | | **Teacher Resources**<br>• Final evaluation (located at the end of this document) | |
| **Assessment – Australian Digital Technologies Curriculum** | | | | |

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| Content Description | Session Number | Assessment Piece | Assessment Statement |
|---|---|---|---|
| Examine the main components of common digital systems and how they may connect together to form networks to transmit data (ACTDIK014) | 2 | Existing app evaluation | Students explained how the different components of a digital system function to form a network and transmit data. |
| Examine how whole numbers are used to represent all data in digital systems (ACTDIK015) | N/A | | |
| Acquire, store and validate different types of data, and use a range of software to interpret and visualise data to create information (ACTDIP016) | N/A | | |
| Define problems in terms of data and functional requirements drawing on previously solved problems (ACTDIP017) | 3 | Student App design brief | Students generated a design of an app based on apps already on the market. The app they designed the app to promote healthy living and identify the types of functions they wanted their app to do. |
| Design a user interface for a digital system (ACTDIP018) | 5 | App storyboard | Student designed an app interface to encourage a healthy lifestyle. |
| Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) ACTDIP019 | 4 | Flowchart | Students created a flowchart that details how their healthy app functions. They identified where their app shows branching and iteration. |
| Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input (ACTDIP020) | 6 | Digital app prototype | Students created a digital prototype of their app using visual programming. The code included branching (multiple options), iteration (repeats) and allowed the user to control the direction of the app. |
| Explain how student solutions and existing information systems are sustainable and meet current and future local community needs (ACTDIP021) | 7 | Final evaluation | Students explained how their healthy app design would meet a range of needs. |
| Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social and technical protocols. (ACTDIP022) | 1 | Evidence of working in an online environment to work collaboratively | Students used a digital platform to generate and communicate their ideas to develop their app design. |

| Existing App Evaluation | | |
|---|---|---|
| **Topic** | **Question** | **Comment** |
| **Purpose** | How does this meet the users need to stay healthy? | |
| | Would you use it? | |
| **Functionality** | What does the app do? | |
| | What common features does it require to perform the tasks? | |
| | How do you navigate through the app? Have the developers used any interesting techniques, links or pictures? | |
| **Data** | What data does it collect? | |
| | How is that data displayed? | |
| **Components and Networks** | Is it part of a network of devices? | |
| | How does the app connect with other devices? | |
| | What digital components are needed for the app to function? | |
| | What type of hardware does it require? | |
| | What type of software does it require? | |

| Student App Design Brief | | |
|---|---|---|
| **Topic** | **Question** | **Comment** |
| **Purpose** | What is the problem you want to help solve? | |
| | How has another app tried to solve this problem? | |
| | What preexisting ideas can you use to help build your app? | |
| **Functionality** | What would you call your app? | |
| | What are the main functions you will need to have on your app? | |
| | Any fun things (videos, hyperlinks, memes, music etc.) you want to include in your app? | |
| | How does it relate to the problem you are solving? | |
| | What colours and style will you use in your app? | |
| | How will you help your users navigate through the app? (button and links) | |
| **Data** | What type of data do you need to collect? | |
| | What data does the user need to give? | |
| | How will you present that data on the app? | |

| Final evaluation | | |
|---|---|---|
| **Topic** | **Question** | **Comment** |
| **Purpose** | How does your app meet the needs of the user? | |
| | What are the advantages of using this app? | |
| **Functionality** | How does your app work? | |
| | What are the key features of your app? | |
| **Needs** | How does the app support sustainability (by lasting a long time)? | |
| | How could this app help future needs? | |
| | What would you change if you had the chance to design it again? | |

**App Design Template**