

Australian Curriculum: Digital Technologies Years 5–6 assessment task
Student task portfolio: Encourage sun-safe fitness
Assessment focus: digital systems

Student name/s _____

Part A (Formative assessment questions)

1. Name the digital systems on the screen.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____

2. List some networked digital systems.

3. List some information systems.

4. List two ways to keep your information safe.

1. _____

2. _____

5. List some networked information systems.

6. Explain how global Positioning systems (GPS) are a networked information system.

7. Compare two online maps (geographic information systems (GIS)).

a. The two online maps we have compared are:

1. _____
2. _____

b. Complete the following table.

How they are similar	How they are different	How they are sustainable

What might online maps be able to do in the future?

c. Identify the features of online maps which are not available on traditional paper maps.

8. List some reasons it is important to keep personal information private in networked information systems.

9. List ways that a GIS about bushfire locations could be useful.

10. List ways that National Geographic MapMaker Interactive could be useful.

11. Go to Scribble Maps online and type your school address.
Take a screen shot and paste it here.

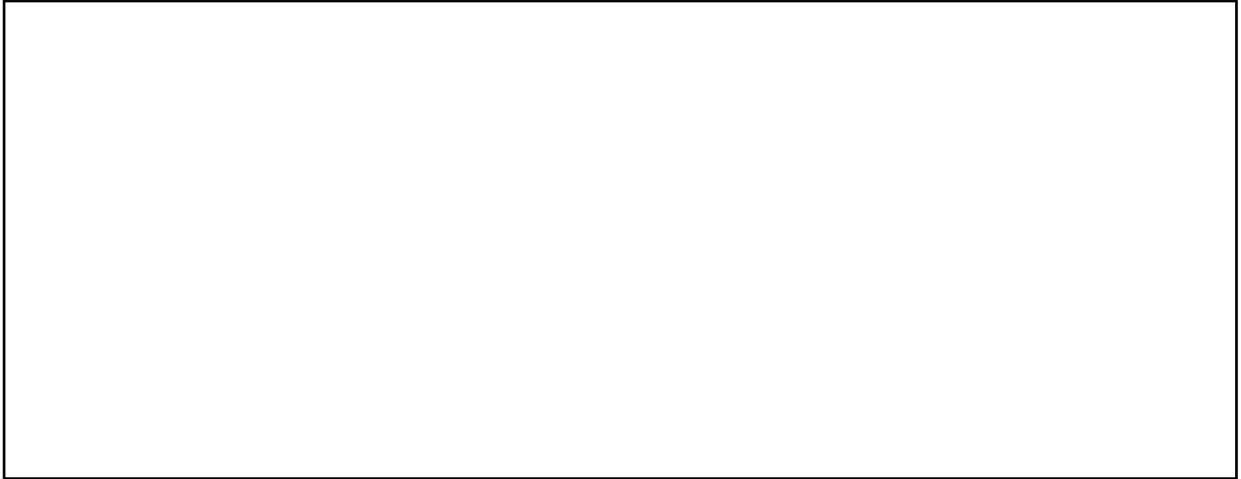
12. Use the polygon tool to draw a polygon around the perimeter of the school. Use the
measuring tool to hover over the polygon.

a. Take a screen shot of the measurement pop-up over the polygon and paste it here.

b. What data does it show?



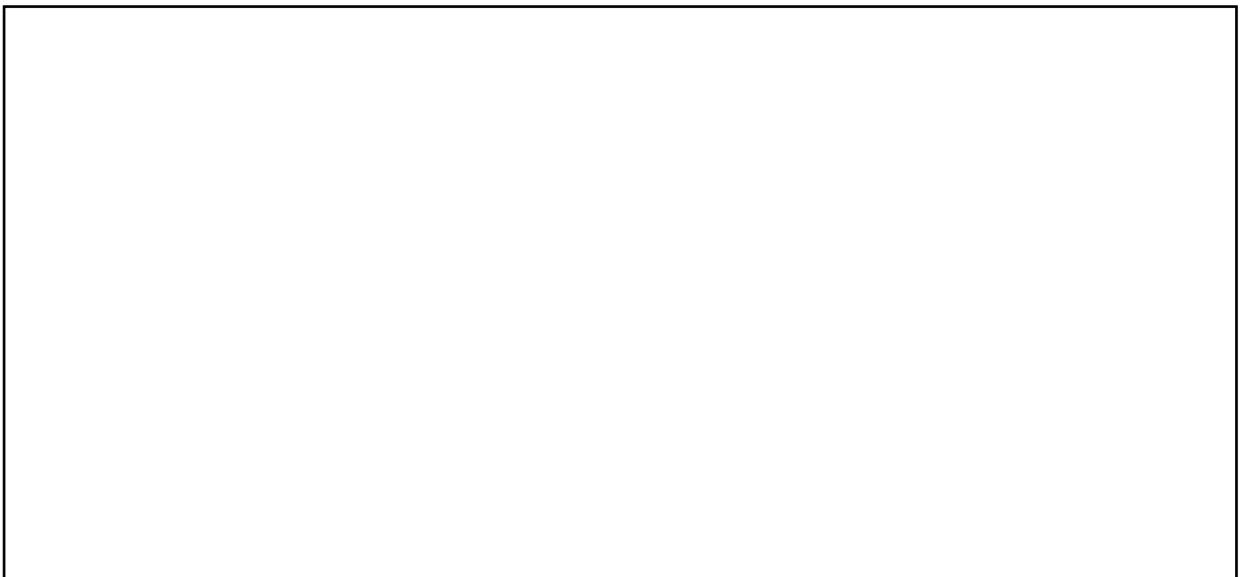
c. How could these data be useful? (What could we learn from them?)



13. Use the polygon tool to draw a series of polygons around the buildings of the school.

a. Take a screen shot and paste it here.

b. Calculate the total area of the buildings.



c. Use the polygon tool to draw a series of polygons around the outdoor shade spaces of the school. Take a screen shot and paste it here.

d. Calculate the total area of the outdoor shade spaces.



e. What do you notice?



14. List ways that Scribble Maps could help your local community.

15. a. How could we promote healthy physical activity at break time?

b. How do we ensure we stay sun-safe during our physical activity?

c. How can we make use of a geographic information system to find out how much **usable** shade for exercise is in our school? (What shady areas can be used for exercise activities?)

Part B (Summative assessment task)

1. How can an awareness of the shady areas of our school be combined with a digital system to create activities that promote fun and fitness? Brainstorm some ideas and list them here. Be as creative with your ideas as you like.

2. What could be invented to make people want to exercise in shady areas at lunchtimes? Narrow down your ideas to something that is achievable with the resources available to you at your school.

3. With your group, adapt your idea and design one digital system to promote physical activity in the shade at lunchtimes.

Once your group design is complete, submit it to your teacher for approval.

Teacher approval: _____

Portfolio items go here

As you plan to solve the problem include screen shots, images, diagrams, photos and filenames and locations here.

- a. Gather data about which shady spots exist in the school and which ones are the most popular. You could conduct a survey, create a check-in button on an interactive poster with a Makey Makey or a micro:bit, or tally numbers of visitors to a selected shady spot over a day. Record your findings here.

- b. Make suggestions about how we could increase the shady areas in our school and where these could be placed.



- c. Notes to assist you in creating a portfolio to show what data you have gathered and how you plan to solve the problem. Describe what you will create to encourage others to exercise in the shade. Explain how your design will be sustainable and meet needs.



Marking guide This rubric shows only Digital Technologies. **Note:** There are opportunities to include HASS, Literacy and Numeracy in the assessment.

Relevant sections of the achievement standard	Below standard Students:	At standard Students:	Above standard Students:
<p>Digital systems Students explain the fundamentals of digital system components (hardware, software and networks) and how digital systems are connected to form networks.</p>	<ul style="list-style-type: none"> recognise that geographic information systems (GIS) are online maps but will not understand that they can be used to locate useful information recognise the term GPS but not understand how the components communicate and pinpoint location 	<ul style="list-style-type: none"> explain the fundamentals of how geographic information systems (GIS) work to help us locate information on a map explain the fundamentals of how GPS works 	<ul style="list-style-type: none"> explain how geographic information systems (GIS) work to help us locate information on a map giving examples of the ways GIS can do things that paper maps cannot do, for example have overlays of bicycle pathways or show how geographic environments have changed over time. explain how GPS works and how satellites interact with digital systems to form interconnected global networks
<p>Collecting and managing data Students manage the creation and communication of ideas and information in collaborative digital projects using validated data and agreed protocols.</p>	<ul style="list-style-type: none"> interact with GIS to explore their satellite image of the school interact with members of their group with limited understanding of why they are gathering data 	<ul style="list-style-type: none"> collect and analyse data from GIS to determine the level of shade in their school. gather data on the popularity of shaded areas in the school and discuss the data with their group. 	<ul style="list-style-type: none"> collect and analyse data from GIS to determine the level of shade in their school and use this data to inform planning and development of a digital systems that promote physical activity in the shade. gather data on the popularity of shaded areas to determine usable shaded areas and to inform their design choices for creating digital systems that promote safe physical activity in confined spaces. make recommendations about ways to improve shaded areas in the school based on the data.

<p>Specification (Defining) Students define problems in terms of data and functional requirements</p>	<ul style="list-style-type: none"> • explore GIS. • miss important connections between data and end users so are unable to formulate the problem in a way that would enable a digital solution to be designed. 	<ul style="list-style-type: none"> • collect and analyse data from GIS to determine the level of shade in their school • define the problem of lack of shaded spaces for sun-safe exercise in the school • determine criteria for success of addressing the problem 	<ul style="list-style-type: none"> • make links between the data and the usable shade in the school and use the data to thoughtfully inform decisions around designing solutions to promote sun-safe physical activity. • take into account data and functional requirements when determining their success criteria using decomposition and pattern recognition and consider the needs of the end user.
<p>Algorithms (Designing) They incorporate decision-making, repetition and user interface design into their designs</p>	<ul style="list-style-type: none"> • design simple digital solutions without considering repetition in their algorithms. • do not show evidence of consideration of user needs in their designs. 	<ul style="list-style-type: none"> • design digital systems that incorporate decision-making and repetition to promote physical activity • explain how their design will meet the needs of the users (school community). 	<ul style="list-style-type: none"> • design digital systems that incorporate efficient programming constructs including decision-making, repetition and functions to promote physical activity. • take into account user needs which they incorporate into user interface designs • explain how their design will meet the needs of the school community and make further recommendations for improvement of general wellbeing through design of new shade structures/spaces.
<p>Implementing (coding) (optional) <i>Students implement their digital solutions, including a visual program.</i></p>	<ul style="list-style-type: none"> • may attempt to build and or program their solution. 	<ul style="list-style-type: none"> • iteratively build and visually program their digital solutions. 	<ul style="list-style-type: none"> • iteratively build and visually program their digital solutions and amend their designs in response to user feedback.

<p>Evaluating They explain how information systems meet needs and consider sustainability.</p> <p><i>Optional: Students explain how their solutions meet needs.</i></p>	<ul style="list-style-type: none"> • explore GIS • fail to make a connection between the needs of the user and the digital system they are attempting to build 	<ul style="list-style-type: none"> • explain how GIS meet needs. • explain how their digital systems meet needs of their school community 	<ul style="list-style-type: none"> • explain how GIS meet needs by considering user traits and identifying which overlays could be useful, for example, the measuring tool could enable the school grounds keeper to determine the area of grass in the school to calculate required amount of 'lawn food' to prepare. • explain how their digital systems meet needs of their school community and make further recommendations of how the digital system can form part of a wider program to promote healthy activity in the school community.
<p>Collaborating and managing Students manage the creation and communication of ideas and information in collaborative digital projects using validated data and agreed protocols.</p>	<ul style="list-style-type: none"> • interact with members of their group with limited understanding of why they are gathering data and what makes data collection invalid 	<ul style="list-style-type: none"> • ensure the data they collect is valid • work collaboratively to plan, design <i>and create*</i> digital systems 	<ul style="list-style-type: none"> • ensure the data they collect is valid and use the data to inform the designs of their digital solutions. • work collaboratively to plan, design <i>and create</i> digital systems to meet the needs of their school community. Students may take on specific roles in the group to ensure the task is completed on time.

*optional part of task

Teacher comments: