THE RIVERS SECONDARY COLLEGE
The heart of secondary education for Lismore

Assessment Task Notification

RICHMOND RIVER HIGH CAMPUS

Task Number	1	**Task Name**	Investigative Assignment
Course	Mathematics	**Faculty**	Mathematics
Teacher	Broadley, Tyson, Cabot, Whitehall.	**Head Teacher**	Humphrys
Issue date	7/3/2024	**Due date**	04/4/2024 3.15pm to Maths Staffroom
Focus (Topic)	Geometric Representations. How accessible is your school?	**Task Weighting**	25%

Outcomes

Topic	Outcomes

Student;

- develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing, and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly **MAO-WM-01**
- identifies and applies the properties of similar figures and scale drawings to solve problems **MA5-GEO-C-01**
- solves problems involving the characteristics of graphs/networks, planar graphs and Eulerian trails and circuits **MA5-NET-P-01**

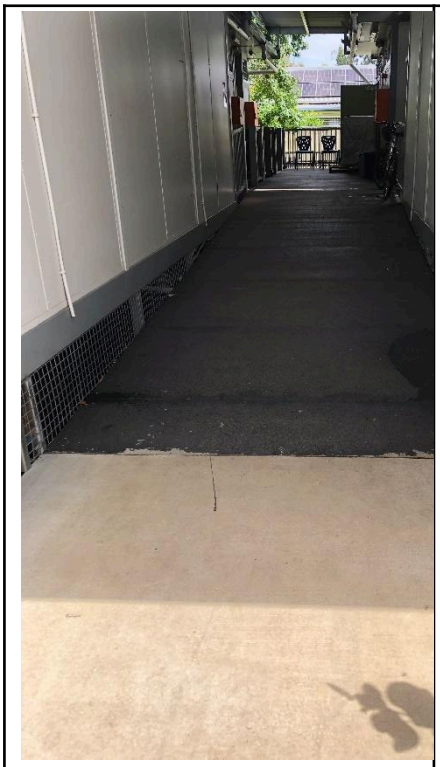
Task description

Our school is about to welcome a new student who uses a wheelchair to assist with their mobility. The principal has approached the SRC to seek their assistance with determining what modifications will need to be made to ensure accessibility for all.
You will investigate the necessary accessibility requirements and the existing pathways around your school to make recommendations about how we might improve accessibility.

Marking Guidelines

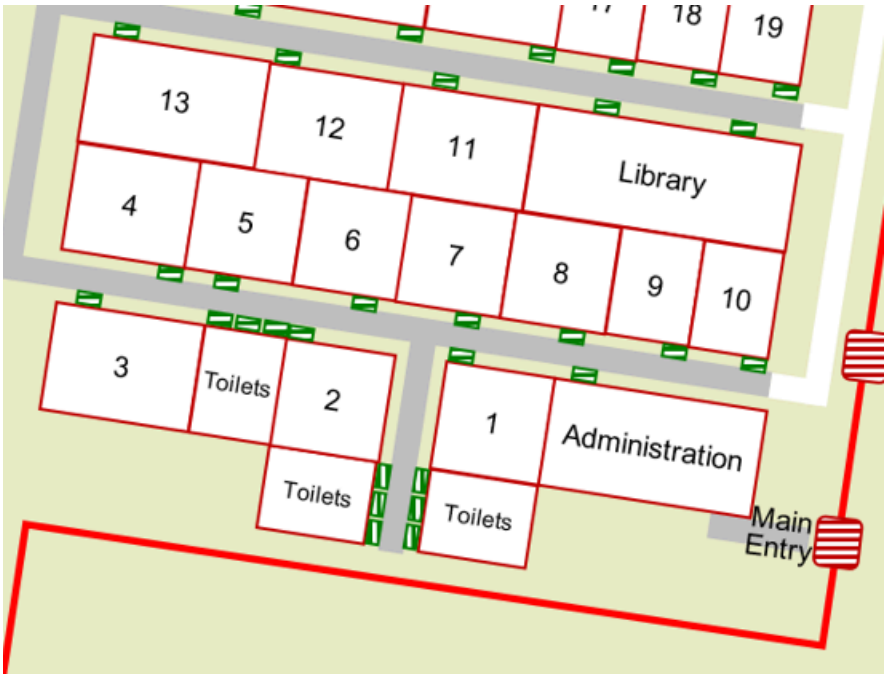
A marking rubric is provided at the end of this document

Part A Identifying Ramps in your School



Above are 2 photos of ramps in our school. Accurately mark on the school map where these are located.

(2 Marks)



Part B Create a scale drawing of a ramp

Choose one of the ramps. Make a neat 2D scale drawing of the ramp from the side view. Show clearly the scale used. Show any calculations you have made in creating the drawing. Use a ruler. Label each side with the dimensions: the Hypotenuse, horizontal distance and the perpendicular height on your diagram.

(3 marks)

What scale did you use? 1cm: M

Part C Record the Dimensions of your ramp

Notice your ramp is a right angled triangle? State the horizontal distance of your ramp and perpendicular height of your ramp to 1d.p.

Length = M Height = M (2 Marks)

Part D Comparing Ramps - Does yours come up to standard?

Ramps are required for accessibility where steps or kerbs exist. Ramps are measured using the ratio of the perpendicular height to the horizontal distance. For example, the ramp below would have a ratio of 1:10.

Figure 1 – example ramp

Different ratios are required depending on where the ramp is placed. This information can be seen in the table below.

Table 1 – Australian Standards for ramps, landings, and walkways

Ramp type	Ratio (maximum steepness)
Kerb ramp	1:8
Step ramp (for 1 step)	1:10
Stair ramp (flight of stairs)	1:14

Consider the ramp in your scale drawing in Part B.

Does it satisfy the Australian Standard?.

State the ratio required by the standard in your context:

:

(2 marks)

State the ratio of your ramp:

:

(2 marks)

Explain, in 50 words, why/why not your ramp satisfies the Australian Standards:

_____

_____

_____

_____

_____

_____

_____

_____

_____

(9 marks)

Part E Movement throughout the school

The SRC are collecting " a day in the life of a student " information. You will select a day of your timetable, sketch your movements on a map, then convert this into a network diagram.

Select one day of your timetable. For example, Thursday B Week.
List the room number of your classes

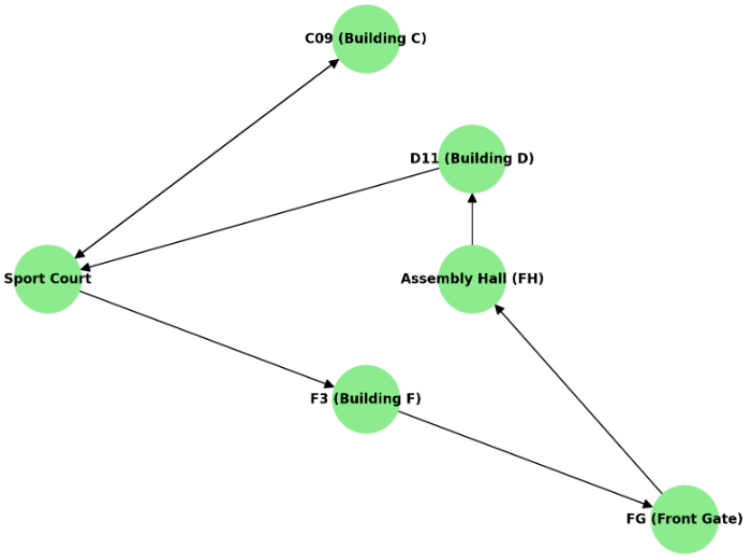
(2 marks)

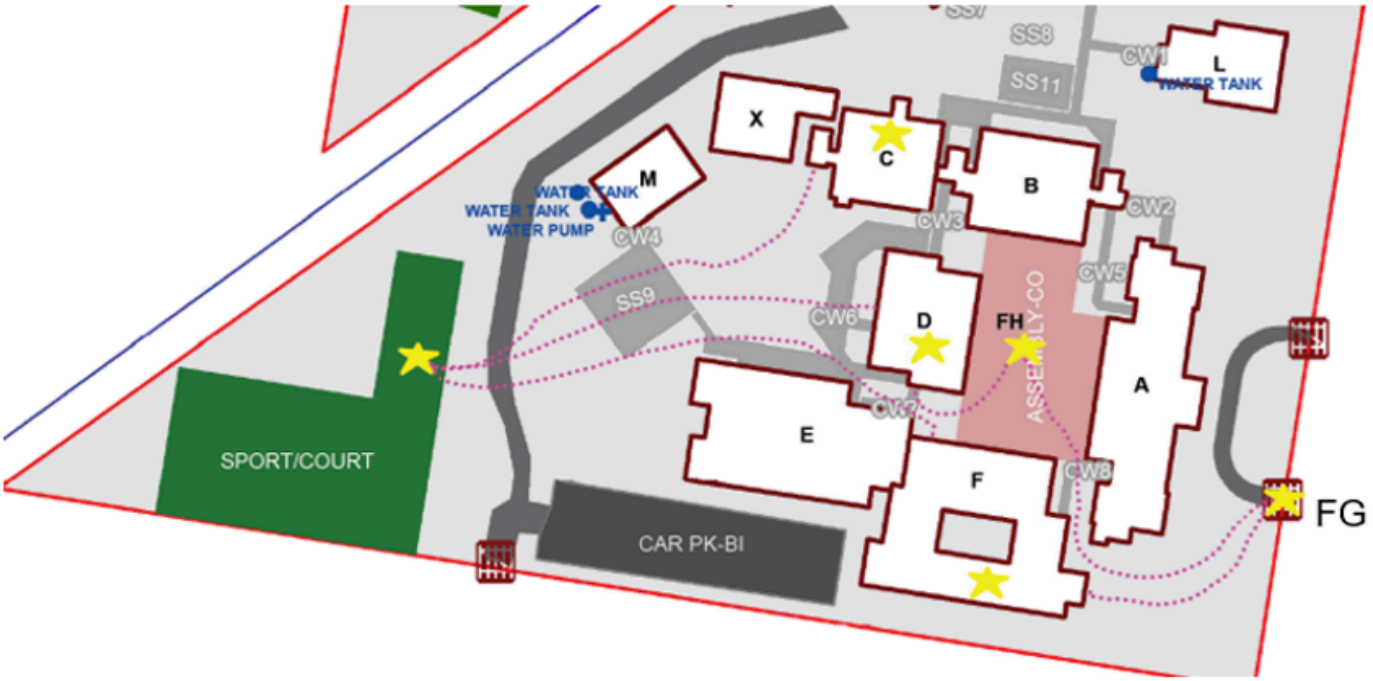
ThuB 27/2

Part B Your Path

This is an example of a diagram that another student made at a different school, Nodes are green, paths taken are edges with direction indicated by arrows.I

ThuB 27/2		
Roll Call	Assembly Hall	
Maths	Room	D11
PE	Room	Sport Court
ENG	Room	C09
ENG	Room	C09
Wood Tech	Room	F3
Wood Tech	Room	F3





Draw the path you take from when you enter the school to when you leave on the map below.
If you take the same path more than once do not repeat that path.

(5 marks)

Part C Convert to a network diagram

Construct a network diagram that shows the different rooms (Nodes) of each of your lessons are in, as well as any major areas (such as the Koala quad or Canteen) and the routes you that you pass through on your way to each lesson(Edges).

Nodes represent key locations (Sport Court, Buildings, Water Pump, Fire Hydrant, etc.).
Edges show the paths taken during the journey.
The structure is simplified into a **graph theory model**, focusing on **connections rather than physical distances**.

(8 marks)

Mathematics Stage 5 Investigative Assignment Rubric
(Aligned with NSW Mathematics Stage 5 Syllabus)

Criteria	Yes I Can! (High Achievement)	Almost There (Developing Understanding)	Not Yet (Needs Support)
Identifying Ramps (2 marks)	Accurately marks both ramps on the map with correct placement.	Marks at least one ramp correctly but has minor errors.	Incorrect placement or missing ramps.
Scale Drawing of a Ramp (3 marks)	Creates a neat, labeled, and accurate scale drawing using correct calculations.	Drawing is mostly correct but has minor errors in labeling, scale, or calculations.	Drawing is unclear, missing labels, or has significant errors.
Recording Dimensions (2 marks)	Correctly records the horizontal distance and height to 1 decimal place.	Provides dimensions but lacks accuracy or correct rounding.	Missing or incorrect dimensions.
Comparing Ramps to Standards (13 marks)	Accurately states required ratio, calculates ramp ratio correctly, and provides a clear and logical explanation in 50 words.	Attempts calculations and provides an explanation but lacks accuracy or depth.	Incorrect or missing calculations and explanation.
Mapping School Movements (2 marks)	Lists all class locations for one full day accurately.	Lists most class locations but with minor omissions.	Missing or incorrect class locations.
Path Sketch (5 marks)	Clearly sketches movement path on the school map with correct direction and avoids repeating paths.	Sketch is mostly correct but has minor errors in direction or clarity.	Path is unclear, missing, or incorrect.
Network Diagram (8 marks)	Creates an accurate and well-structured network diagram with nodes and edges correctly representing movement.	Includes most required elements but may have some errors in connections or labeling.	Diagram is incomplete, unclear, or does not represent movement correctly.

Success Criteria for Learning:

- Students will demonstrate **mathematical fluency** by correctly applying concepts related to geometry and networks.
- Students will use **problem-solving skills** to analyze and evaluate accessibility in their school.
- Students will apply **mathematical reasoning** in comparing real-world ramps to Australian Standards.

- Students will effectively **communicate** their findings using scale drawings, mathematical calculations, and network diagrams.

Using This Rubric for Learning:

- If you are in **Not Yet**, focus on reviewing modelled examples and practicing key concepts.
- If you are in **Almost There**, work on refining your accuracy and communication.
- If you are in **Yes I Can!**, apply your skills to new contexts or extend your learning further!