



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

GENERAL EDUCATION AND TRAINING CERTIFICATE

NQF LEVEL 1

AET LEVEL 4 SITE-BASED ASSESSMENT

**LEARNING AREA : MATHEMATICS AND
MATHEMATICAL SCIENCES**

CODE : MMSC4

TOOL : PROJECT

DURATION : 3 WEEKS

MARKS : 50

This assessment tool consists of 4 pages.

INSTRUCTIONS AND INFORMATION FOR THE TEACHER

1. This task is set on unit standard: US 7464
: US 7452
2. This project must be completed over a period of THREE weeks.
3. It is important that class discussions be held and the progress of the learners is monitored at regular intervals
4. In this project learners will use their own measurements to calculate the areas.
5. Teachers are expected to provide pamphlets from the hardware store.
6. Learners must be able to use the theorem of Pythagoras.
7. Activity 1 is marked using a rubric and Activity 2 using a memorandum.

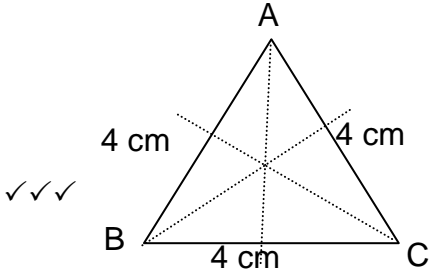
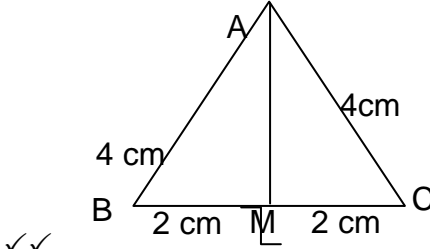
ACTIVITY 1

Levels of taxonomy			
LEVEL		LEVEL	
1	Knowing	3	Complex procedures
2	Routine procedure	4	Reasoning

Marking rubric for ACTIVITY 1.1–1.6

CRITERIA	LEVEL				MARKS
	MARKS 5-4	MARKS 3	MARKS 2-1	MARKS 0	
Planning	Thorough planning, sketch creatively presented and to scale. Fit chosen theme	Sufficient planning, classroom sketch indicate dimensions of classroom provided	Evidence of some planning, a sketch of the classroom is included	No planning, no sketch of classroom	
Research	Sufficient research, enough quotations, enough samples are included, samples are well presented	Sufficient research, enough quotations, enough samples are included	Research insufficient, some enough quotations, enough	No research done, no quotations, no samples	
Budget	Budget exceeds immediate requirements. Used diagrams, graphs to illustrate costs	Budget correctly and appropriately done. Calculations and estimations are correct	Budget included but with minor errors in calculations	No budget is included	
Mathematical reasoning	Proper logical reasoning. Identifies more than one strategy/method. Good use of mathematical language	Able to reach a consistent conclusion without contradiction. Consistent analyses and appropriate explanations	Same explanations or arguments are incorrect, ineffective or unclear. Inconsistent analysis and interpretation	No logical reasoning	
Context	Clear understanding of the context in which the problem is situated. Identifies social and economic issues and address them with creativity	A good grasp of social and economic values. Good motivation regarding choice of required items	Some aspects of context are comprehended. Motivations for choice of required items.	No comprehension of the context	

ACTIVITY 2

2.1			<p>Correct drawing of equilateral triangle</p> <p>Correct axes of symmetry</p> <p>Correct measurement of 4 cm</p>	(3)
2.2			<p>Correct perpendicular line AM</p> <p>Correct base BM and MC</p>	(2)
2.3(a)	$AM^2 = AB^2 - BM^2 \quad \text{Theorem of Pythagoras} \checkmark$ $AM^2 = (4 \text{ cm})^2 - (2 \text{ cm})^2 \checkmark$ $AM^2 = 16 \text{ cm}^2 - 4 \text{ cm}^2 \checkmark$ $AM = \sqrt{12 \text{ cm}^2}$ $AM = 3,5 \text{ cm} \checkmark$		<p>Correct reason</p> <p>Correct substitution</p> <p>Correct squaring</p> <p>Correct answer</p>	(4)
(b)	<p>By measurement = 3,5 cm ✓</p> <p>They are the same (almost the same) ✓</p>		<p>Correct measurement on drawing.</p> <p>They are the same</p>	(2)
2.4	$\text{Area of } \triangle ABM = \frac{1}{2} b \times h \checkmark$ $= \frac{1}{2} 4 \text{ cm} \times 3,5 \text{ cm} \checkmark$ $= 7 \checkmark \text{ cm}^2 \checkmark$		<p>Correct formula</p> <p>Correct substitution</p> <p>Correct answer</p> <p>Correct units</p>	(4)
2.5	<p>Total surface area of octahedron = area of eight triangle faces</p> $\text{Surface Area} = 8 \times 7 \text{ cm}^2 \checkmark$ $\text{Surface Area} = 56 \text{ cm}^2 \checkmark$		<p>Correct formula or substitution</p> <p>Correct answer</p>	(2)
2.6	2.6.1	$(53)^2 = (45)^2 + (28)^2 \checkmark$ $2809 = 2025 + 784 \checkmark$ $2809 = 2809 \checkmark$ <p>∴ the left-hand side = right-hand side (the sides do not form a right-angled triangle) ✓</p>	<p>Correct substitution</p> <p>Correct squaring</p> <p>Correct answer</p> <p>Correct statement</p>	(4)
	2.6.2	$(122)^2 = (120)^2 + (21)^2 \checkmark$ $14884 = 14400 + 441 \checkmark$ $14884 \neq 14841 \checkmark$ <p>∴ the left-hand side ≠ right-hand side (the sides do not form a right-angled triangle) ✓</p>	<p>Correct substitution</p> <p>Correct squaring</p> <p>Correct answer</p> <p>Correct statement</p>	(4)
				[25]

TOTAL: 50