



## **Education and Sport Development**

Department of Education and Sport Development  
Departement van Onderwys en Sportontwikkeling  
Lefapha la Thuto le Tlhabololo ya Metshameko

**NORTH WEST PROVINCE**

# **NORTH WEST PROVINCIAL ASSESSMENT**

**GRADE 9**

**TECHNOLOGY  
2017 NOVEMBER  
MEMORANDUM**

**MARKS: 120**

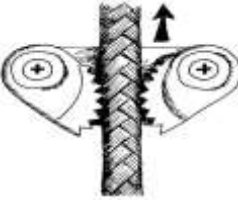
**This memorandum consists of 6 pages.**

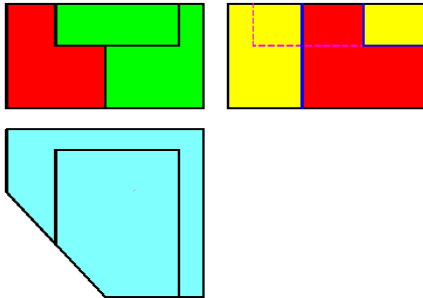
Question 1		
1.1		
1.1.1	A ✓	1
1.1.2	B ✓	1
1.1.3	C ✓	1
1.1.4	D ✓	1
1.1.5	D ✓	1
1.1.6	C ✓	1
1.1.7	A ✓	1
1.1.8	B ✓	1
1.1.9	D ✓	1
1.1.10	D ✓	1
		<b>10</b>
1.2		
1.2.1	True ✓	1
1.2.2	True ✓	1
1.2.3	False ✓	1
1.2.4	True ✓	1
1.2.5	False ✓	1
		<b>5</b>
Question 2		
2.1		
2.1.1	The problem is that a little rut has turned into a dangerous donga and it is difficult and dangerous for young children and old people to cross it because they may drown. ✓✓	2
2.1.2	Design and make a model for a low cost bridge for pedestrians at a point where the donga is 6m wide. (or any other relevant answer). ✓✓	2
2.1.3	Drowning, or any other relevant answer ✓	1
2.1.4	The natural environment may be damaged through construction of a bridge. ✓	1
2.1.5	Cables, wires, poles, concrete, steel bars, etc (or any relevant answer). ✓✓	2
2.1.6	Building a bridge and building a boat ✓✓	2
2.1.7	Using a rope to cross or using a boat ✓	1
2.1.8	Rubric	4
	Criteria	Mark
	The initial idea/rough sketch resembles a safe and suitable bridge.	4
	The initial idea/rough sketch resembles a bridge which is not clear.	2-3

	The initial idea/rough sketch is poor, confusing and/or untidy with errors evident.	0-1	
			<b>15</b>
<b>Question 3</b>			
3.1			
3.1.1	Strength ✓		1
3.2.2	Hardness ✓		1
3.2.3	Ductility ✓		1
3.2.4	Malleability ✓		1
3.2.5	Stiffness ✓		1
			<b>5</b>
<b>Question 4</b>			
4			
4.1	D ✓		1
4.2	C ✓		1
4.3	F ✓		1
4.4	B ✓		1
4.5	G ✓		1
			<b>5</b>
<b>Question 5</b>			
5.1	The diagram shows two people struggling to help a wheelchair bound person to move up the stairs with a wheelchair. ✓✓		2
5.2	A ramp ✓✓		1

5.3	See annexure on page 6 Rubric		4												
	<table border="1"> <thead> <tr> <th>Criteria</th> <th>Total mark</th> <th>Mark allocated</th> </tr> </thead> <tbody> <tr> <td>The ramp should be wide enough for a wheelchair</td> <td>2</td> <td></td> </tr> <tr> <td>NB: if a learner has added a hand rail, allocate a mark</td> <td>1</td> <td></td> </tr> <tr> <td>Neatness of the drawing</td> <td>1</td> <td></td> </tr> </tbody> </table>	Criteria	Total mark	Mark allocated	The ramp should be wide enough for a wheelchair	2		NB: if a learner has added a hand rail, allocate a mark	1		Neatness of the drawing	1			
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			<b>7</b>												
<b>Question 6</b>															
6.1	<b>Suspension bridge</b> <b>Advantage:</b> it is used by people only and it is cheap. ✓ <b>Disadvantage:</b> not very strong and can sway; gaps between the planks are dangerous. ✓ <b>Arch bridge</b> <b>Advantage:</b> strong; stable and won't sway; last long ✓ <b>Disadvantage:</b> too expensive; too high ✓ <b>A beam and column bridge</b> <b>Advantage:</b> stable and won't sway; strong; can last long if many pillars are used <b>Disadvantage:</b> pillars can be damaged by flood water.		1 1 1 1 1 1												

## Memorandum

6.2	Storm/wind Rain blowing on the roof	1 1								
6.3	Poor quality of material Natural disasters	1 1								
6.4	The strength of the material The ways in which the members are arranged The joining methods used	1 1 1								
		<b>13</b>								
<b>Question 7</b>										
7.1										
7.1.1	Pawl and ratchet: winch ✓	1								
7.1.2	Cleat: on a boat to hold a rope from sails in place; blinds ✓	1								
7.1.3	One-way valve: tube in a bicycle tyre ✓	1								
7.2	 <table border="1" data-bbox="319 952 1324 1120"> <thead> <tr> <th>Criteria</th> <th>Mark</th> </tr> </thead> <tbody> <tr> <td>The cam cleat should be correctly drawn</td> <td>2</td> </tr> <tr> <td>Use an arrow to show the direction of movement</td> <td>1</td> </tr> <tr> <td>The sketch must be neatly drawn</td> <td>1</td> </tr> </tbody> </table>	Criteria	Mark	The cam cleat should be correctly drawn	2	Use an arrow to show the direction of movement	1	The sketch must be neatly drawn	1	4
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Input	Process	Output								
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7.4	Three revolutions: $45 \div 15 = 3$ ✓✓	2								
7.5	The pressure on the hand will be smaller with the pneumatic system, because part of the work done to press the plunger is spent on compressing the air, and is therefore not available at the output end.	3								
7.6	Worm gear ✓	1								
7.7	To get the large reduction in output speed and increase in output force.	2								
		<b>21</b>								
<b>Question 8</b>										
8.1	$\text{Current (I)} = \frac{\text{Voltage (V)}}{\text{Resistance (R)}} \checkmark$ $2 = \frac{6}{\text{Resistance (R)}} \checkmark$ $R = 3 \checkmark$	<b>3</b>								

8.2		
8.2.1	A Battery ✓	1
	B Resistor ✓	1
	C Capacitor ✓	1
	D Diode ✓	1
	E Light Emitting Diode (LED) ✓	1
	F Switch ✓	1
8.3	The current flowing through the circuit is directly proportional to the applied voltage ✓ and inversely proportional to the resistance of the circuit. ✓	2
		<b>11</b>
<b>Question 9</b>		
9.1	Painting	1
	Galvanising	1
	Electroplating	1
9.2	Silo	1
9.3.1	Paper	1
	Plastic	1
	Metal	1
9.3.2	Glass	2
9.4	Keep the environment clean ✓ Make profit ✓	2
9.5	Air pollution that may result in climate change Some materials contain explosives. ✓✓	2
9.6	Because plastics have different characteristics and mixing them together would alter these characteristics. ✓✓	2
9.7	Because plastic is light in weight and comfortable. ✓✓	2
9.8	Plastic, because it can bend easily than wood. ✓✓	2
		<b>19</b>
<b>Question 10</b>		
10.		<b>10</b>
<b>GRAND TOTAL: 120</b>		

ANNEXURE

QUESTION 5.3

