BERGVLIET HIGH SCHOOL

Grade 8 Technology Practice Tests Teacher Memoranda

Term 4 November 2026 preparation | Teacher memoranda

Use after learners attempt each test. Each test is informal: use errors to plan short corrections and targeted reteaching. Accept equivalent technically correct wording. Award the listed reasoning marks, not a bare preference. Carry a calculation error forward when later working is correct.

Coverage and Classroom Use

Test	Marks	Focus and November QP coverage
1	30	Electrical MCQ; matching; fault; qualitative voltage/current; AC, pumped storage and transformers; OR circuit and truth table. Covers Q1 electrical items, Q2, Q4, Q6, Q7.2–7.3, Q8 and Q10.
2	35	Mechanical MCQ; headgear; mechanical advantage and gear ratio; constraints; mining, indigenous technology, bias, monitoring and testable specifications. Covers Q1 mechanical items, Q3, Q5, Q7.1 and Q9.
3	30	Five theory marks and two orthographic tasks. Rehearses Q11 and adds a simpler drawing and convention checks.

Plan one lesson per test. Suggested use: Test 1 about 35 minutes plus checking; Test 2 up to 40 minutes; Test 3 a full 40-minute drawing period. If a class needs more drawing time, complete the second drawing next lesson and record accuracy separately from speed. The test totals deliberately differ from the formal paper; this is full-scope preparation, not a replica or a predicted paper.

Tests use changed values and contexts. These marks are not a formal cognitive-weighting claim. Print drawing grids at 100% actual size and check the 50 mm bar. Keep this memo separate from learner copies.

Informal Test 1 Memorandum

Total 30 marks

1.1 A - Movement. **[1]**

1.2 B - Photovoltaic cell. **[1]**

1.3 B - Both closed. **[1]**

1.4 C - Resistor. **[1]**

1.5 C - Low-voltage cells. **[1]**

2 2.1 D; 2.2 E; 2.3 B; 2.4 A; 2.5 C. One mark each. **[5]**

3.1 Short circuit. **[1]**

3.2 The very low-resistance bypass allows a large current, causing heating. **[1]**

3.3 Do not add/remove the X-Y bypass; preserve loads in the conducting paths. **[1]**

4.1 Supply voltage increases (1), so current increases through unchanged resistance (1). **[2]**

4.2 Electric current (1) that repeatedly reverses direction (1). **[2]**

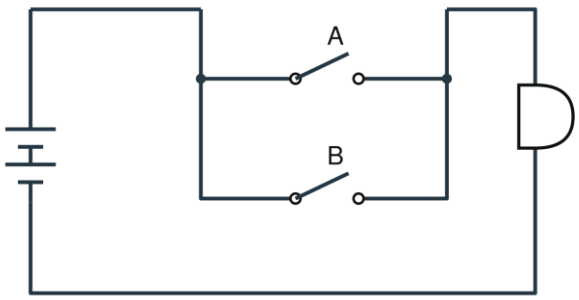
4.3 Water is pumped/stored at a higher level (1), gaining gravitational potential energy for later generation (1). Electricity itself is not stored. **[2]**

5.1 It raises transmission voltage, allowing lower current and reduced heating losses for the same transmitted power. Do not require calculations. **[1]**

5.2 It reduces high transmission/distribution voltage to a suitable lower voltage for users. **[1]**

6.1 Supply and buzzer symbols correct (1); two switch symbols with A/B labels (1); switches form parallel OR paths (2); complete path through buzzer without a supply bypass (1). Equivalent layouts accepted. **[5]**

6.2 Outputs in row order: 0, 1, 1, 1. One mark each. **[4]**



One acceptable OR-circuit model. The two switch branches are parallel, with the buzzer common to both complete paths.

Informal Test 2 Memorandum

Total 35 marks

1.1 C - Fulcrum. **[1]**

1.2 A - Opposite directions. **[1]**

1.3 C - Bevel gears. **[1]**

1.4 B - Diagonal bracing. **[1]**

1.5 D - Sheave wheel. **[1]**

2.1 A sheave wheel; B winding drum; C cage. One mark each. **[3]**

2.2 A guides/changes cable direction (1); B winds cable to lift the cage (1). **[2]**

3.1 MA = load ÷ effort (1); 300 ÷ 75 (1); MA = 4, with no unit (1). **[3]**

3.2 48 ÷ 16 (1); 3 : 1 (1). Idler does not change overall ratio magnitude. **[2]**

4.1 A limit/restriction (1) within which the designer must work, e.g. materials, size, budget or time (1). **[2]**

5.1 Irritation/coughing or worsening breathing problems (1); wind carries dust and people inhale it (1). Do not require a diagnosis. **[2]**

5.2 Control of furnace air/heat or ore-processing skill (1); bellows regulate air to burning charcoal, or equivalent relevant detail (1). **[2]**

5.3 Choice (1), two relevant data-linked reasons (1 each), including water. Surface cover: 30 rather than 45 dust index and 600 rather than 4 000 litres/day. Spraying: lower initial cost, with acknowledgement/management of greater water demand. Accept a defensible trade-off. **[3]**

5.4.1 Gender bias; excludes applicants on the basis of being women. **[1]**

5.4.2 Qualified women lose access to training/work opportunities; equivalent effect. **[1]**

5.4.3 Use relevant skills/qualifications and the same criteria for all applicants, irrespective of gender. **[1]**

5.5 A relevant health concern (1), employment/community effect such as loss of 90 jobs (1), and a recommendation weighing these, e.g. monitored controls with restrictions if harm persists (1). Closure is also creditworthy if justified. Do not award for a bare preference. **[3]**

5.6.1 No, with reason: effectiveness/conditions can change; ongoing measurements are needed. Bare No is insufficient. **[1]**

5.6.2 Same measuring location, sampling period/duration, instrument or comparable weather/wind. Accept a valid controlled comparison. **[1]**

5.7 Plausible specified load with unit (1), duration/test condition (1), observable pass criterion such as no permanent bending, collapse or unstable movement (1). Example: support 500 g for 30 seconds without permanent deformation. Any sensible values accepted. **[3]**

Informal Test 3 Memorandum

Total 30 marks

1.1 A visible outlines/edges (1); B hidden edges/details (1). **[2]**

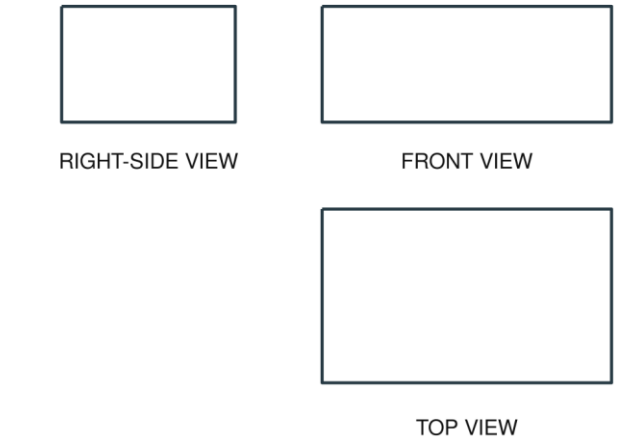
1.2 Centres or axes of symmetry; thin chain line. **[1]**

1.3 Drawn length 50 mm (1); dimension remains actual size 100 mm (1). **[2]**

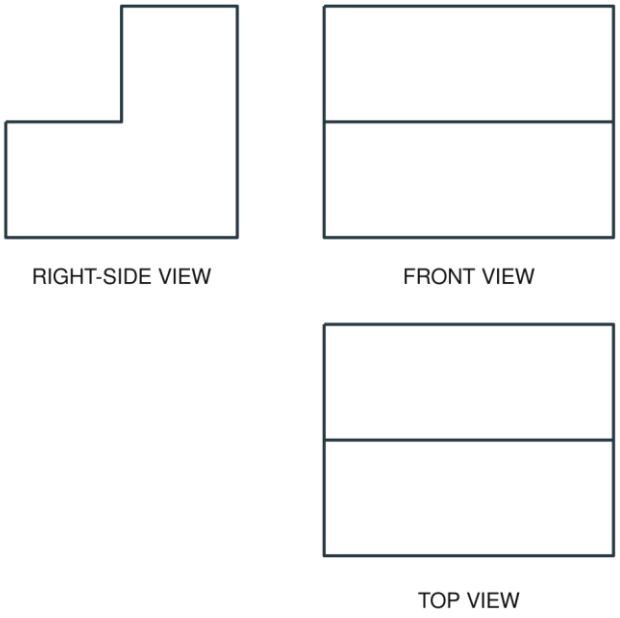
2 Front rectangle 50 × 20 mm (3: shape 1, width 1, height 1); top rectangle 50 × 30 mm (3: shape 1, width 1, depth 1); top below front and aligned (1); three correct actual dimension values placed unambiguously (2: all three 2, two 1, fewer 0); correct line conventions and both labels (1). **[10]**

3 Use the model and analytic rubric in the memo. Front 3, top 3, right-side 3, first-angle arrangement/alignment 2, four dimensions 2, line conventions/labels 2. Credit features independently. **[15]**

Test 3 Model Views



Question 2: only FRONT and TOP views were required. The side view is shown for teacher reference and earns no additional marks.



Question 3: 3 marks per view for correct outer geometry, size/proportion and relevant step/recess edges. Arrangement/alignment: top below front (1), right-side left of front with corresponding edges aligned (1). Dimensions: 0.5 each for four correct actual dimensions with clear feature association (2). Correct line conventions (1), all view labels (1). Allow ±1 mm for ruler work. If scale or placement is wrong, withhold only the relevant criterion; retain credit for correct geometry.

Stepped block: front outer rectangle 50 × 40 with a full-width horizontal edge at height 20; top outer rectangle 50 × 40 with the step boundary 20 mm from the front; right-side L-profile, lower front and higher rear. Do not omit the rear upper portion in the front view.