



THEME		ENGINEERING GRAPHICS AND DESIGN				
SCHOOL:		DATE		Day	Month	Year

CYCLE / WEEK	1	2	3	4	5	6	7	8	9	10	TERM				1	2	3	4
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THEME	VISUALISATION / COGNITIVE / PERCEPTUAL																
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INTEGRATION WITH OTHER SUBJECTS

Business Studies	Manufacturing	✓	Human Science	Mathematics
Commerce Studies	Engineering	✓	Social Science	Computers
Management Studies	Technology	✓	Arts and Culture	Physical Sciences
Service Studies	Languages		Agricultural Sciences	Life Sciences

CONTEXT		CRITICAL OUTCOMES (CO's)		DEVELOPMENTAL OUTCOMES (DO's)	
Civil	✓	1. Problem solving		1. Learn more effectively	
		2. Teamwork		2. Responsible citizens	
Mechanical	✓	3. Self-management		3. Culturally & aesthetically sensitive	
		4. Research and critical analysis		4. Explore education & career opportunities	
Electrical	✓	5. Effective communication		5. Entrepreneurship	
		6. Science and technology			
		7. The world as a set of related systems			
		Skills	Knowledge	Values including Attitudes	

NCS PRINCIPLES	ASSESSMENT					
	LTSM (resources used in teaching & learning)		TEACHING & LEARNING STRATEGIES (Learning Activities)		ASSESSMENT ACTIVITIES (Assessment Activities / Tasks)	
				TOOLS	METHODS	
Social Transformation	Observation	✓	Show & Demonstrate	✓	Rating Scales	Self Assessment
Outcomes-based Education	Environment		Explain the Technology	✓	Observation Sheets	Peer Assessment
Higher knowledge & Skill	Models	✓	Explain the Terminology	✓	Checklists	Group Assessment
Integration & Applied competence	CAD – Software	✓	Producing free hand drawings		Task Lists	✓ Teacher Assessm.
Progression	Audio Visual	✓	Self made Models		Memo/Mask	✓ External Assessm.
Articulation & Portability	Worksheets	✓	Design		Rubrics / Grids	✓
Human rights, Inclusivity, Environmental & Social justice	Drawing Instruments	✓	Class discussion		EVIDENCE COLLECTION	
Valuing Indigenous Knowledge Systems	Transparencies / OHP	✓	Group discussion		Observation	
	Chalkboard / Posters	✓	Group work		Test - based	✓
Credibility, Quality & Efficiency	Other (specify)		Individual work	✓	Task based	✓

CONTENT: LEARNING OUTCOMES(LO's) AND ASSESSMENT STANDARDS(AS's)

LO1		LO2		LO3		LO4	
11.1.1 Relationship environment	11.2.1 Identify Problems	11.3.1 Code of Practice		11.4.1 Interpretation Drawing			
11.1.2 Human Right Issues	11.2.1 Research	11.3.2 Projects multi/pict.		11.4.2 Drawing Principles			
11.1.3 HIV/AIDS	11.2.3 Final Solution	11.3.3 CAD Drawings		11.4.3 Multi & single view			
11.1.4 Communication	11.2.4 Present solution	11.3.4 Basic design		11.4.4 Pictorial Drawings			
11.1.5 Entrepreneurship	11.2.5 Evaluation	11.3.5 Drawing Techniques		11.4.5 Sectioning multiview			
11.1.6 Electronic impact on Comm.		11.3.6 Sectional Views		11.4.6 Design Process			
		11.3.7 Graphic Comm.		11.4.7 CAD			
		11.3.8 Loci		11.4.8 Loci			

Lesson / Period Breakdown per Topic

Prior Knowledge: Grade 10 and 11 EGD.

Teacher Activities	Learner Activities	Evidence	Time	Date Comp.
Topic: SANS	Visualisation, cognitive and perceptual exercises.			
Topic: Civil / Electrical / Mechanical	Analyse drawings and answer questions based on civil, electrical and mechanical drawings	Test-based Task-based	8	
Topic: Single	Analyse drawings and answer questions based on civil, electrical and mechanical drawings			
Topic: Multi-view	Analyse drawings and answer questions based on civil, electrical and mechanical drawings			
Topic: Pictorial	Analyse drawings and answer questions based on civil, electrical and mechanical drawings			
Topic: PAT	Finalisation and submission of PAT done from term 1 to 3 on a continuous basis.	Presentation portfolio for performance evaluation.	8	

<u>Intervention Strategy</u>		<u>DATE TOPIC / THEME COMPLETED</u>
Enrichment:		
Remedial:		



QUESTION 2: LOCK (FIELD)

A farmer needs to replace some of the old auger probes with new ones. He knows from past experience that to dig the holes for the probes is a time consuming job. He decides to design a tool that can help him speed up the job of digging the holes. He supplies the design of a tool to make a hole that will help him drill holes into the ground.

Given:

The inner shaft of the tool and the starting point for an auger.

Specifications:

The lead (CONE full turn) is 480 mm.

The inner diameter of the auger is 360 mm.

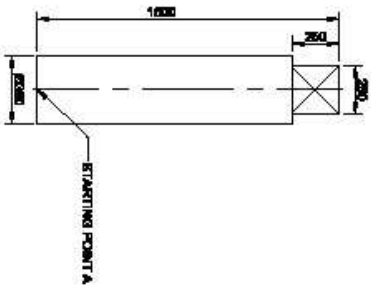
The outer diameter of the auger is 600 mm.

Instructions:

- Draw the given sketch to scale 1:10.
- Draw TWO full turns of a right-hand auger starting at position (A) indicated in the front of the view.
- Show ALL necessary construction.
- NO hidden detail is required.

[20]

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A

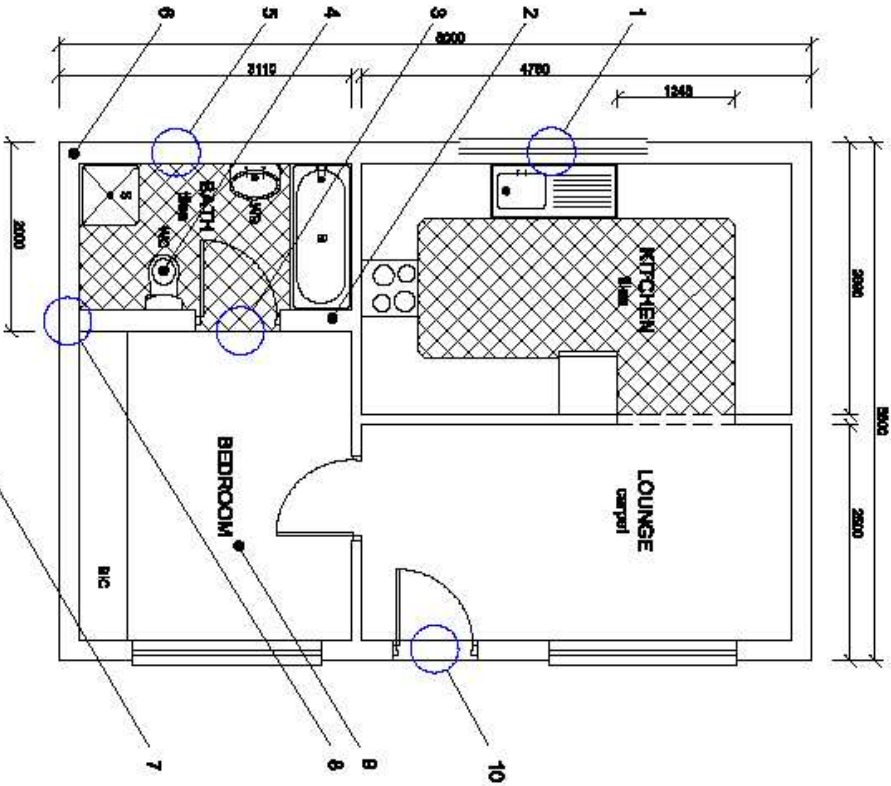


SHAFT DETAIL AND STARTING POINT

ASSESSMENT CRITERIA

GIVEN	= 6
CENTRE LINE	= 1
CONSTRUCTION	= 4
HELIX	= 10
TOTAL	= 20

EXAMINATION NUMBER	
EXAMINATION NUMBER	3



PLAN
SCALE 1:10000

QUESTION 1: ANALYTICAL (CMT)

Given:
The floor plan of a dwelling containing a number of drawing or design errors, as well as a list of possible answers.

Instructions:

- Identify the nature of the TEN errors indicated with either a circle or a leader on the floor plan.
- Complete the table by selecting the description that best describes the error from the POSSIBLE ANSWERS and insert only the letter into the space provided on the table.

Note:

Each description can only be used ONCE

- Complete the schedule of areas.
- 1. Determine the total floor area of the dwelling.
- 2. Determine the internal wall perimeter of the kitchen if the exterior walls are 220 mm thick.
- 3. Determine the total square metres of carpet needed to cover the lounge floor.

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POSSIBLE ANSWERS

- A. Incorrect scale
- B. Too many lines in the window
- C. Should be an internal wall
- D. Top view
- E. Incorrect door detail
- F. Wall too narrow
- G. No floor finish
- H. Door too narrow
- I. Room not the correct size
- J. W.C. incorrectly located on internal wall
- K. W.C. incorrectly located behind the door
- L. Line must be removed
- M. Should be an external wall
- N. Incomplete window detail
- O. Incorrect wall detail
- P. Line too thick
- Q. All walls should be hatched
- R. Tiles at incorrect angle
- S. No window

ANSWERS

1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1

SCHEDULE OF AREAS

1	TOTAL FLOOR AREA	1
2	TOTAL INSIDE PERIMETER OF KITCHEN	1
3	TOTAL CARPET AREA OF THE LOUNGE	1

EVALUATION NUMBER

EXAMINATION NUMBER

2