



PROVINCE OF THE  
EASTERN CAPE  
EDUCATION

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DIRECTORATE:  
CURRICULUM FET PROGRAMMES  
LESSON PLANS  
CIVIL TECHNOLOGY  
GRADE 11  
TERM 3

## FOREWORD

The following Grade 10, 11 and 12 Lesson Plans were developed by Subject Advisors during May 2009. Teachers are requested to look at them, modify them where necessary to suit their contexts and resources. It must be remembered that Lesson Plans are working documents, and any comments to improve the lesson plans in this document will be appreciated. Teachers are urged to use this document with the following departmental policy documents: Subject Statement; LPG 2008; SAG 2008; Examination Guidelines 2009 and Provincial CASS Policy / Guidelines.

Lesson planning is the duty of each and every individual teacher but it helps when teachers sometimes plan together as a group. This interaction not only helps teachers to understand how to apply the Learning Outcomes (LOs) and Assessment Standards (ASs) but also builds up the confidence of the teachers in handling the content using new teaching strategies.

It must please be noted that in order to help teachers who teach across grades and subjects, an attempt has been made to **standardise lesson plan templates** and thus the new template might not resemble the templates used in each subject during the NCS training. However, all the essential elements of a lesson plan have been retained. This change has been made to assist teachers and lighten their administrative load.

Please note that these lesson plans are to be used only as a guide to complete the requirements of the Curriculum Statements and the work schedules and teachers are encouraged to develop their own learner activities to supplement and /or substitute some of the activities given here (depending on the school environment, number and type of learners in your class, the resources available to your learners, etc).

Do not forget to build in the tasks for the Programme of Assessment into your Lesson Plans.

Strengthen your efforts by supporting each other in clusters and share ideas. Good Luck with your endeavors to improve Teaching, Learning and Assessment.

SUBJECT: CIVIL TECHNOLOGY		GRADE: 11		LESSON PLAN 1		TERM 4		TIME: 8 HOURS				
<b>CORE CONTENT:</b> QUANTITIES Calculate the quantities of materials for a simple structure.												
LEARNING OUTCOME 1: TECHNOLOGY, SOCIETY AND THE ENVIRONMENT			LEARNING OUTCOME 2: TECHNOLOGICAL PROCESS			LEARNING OUTCOME 3: KNOWLEDGE AND UNDERSTANDING.			LEARNING OUTCOME 4: APPLICATION OF KNOWLEDGE			
11.1.1 Discuss and evaluate the interrelationship between technology, society and the environment.			11.2.1 Identify, investigate, define and analyse problems in a given real-life situation.			11.3.1 Describe the impact of the Occupational Health and Safety Act (OHS Act) on personal safety.			11.4.1 Apply relevant safety measures in accordance with the Occupational Health and Safety Act.			
11.1.2 Show consideration of human rights by discussing fair and equal employment opportunities.			11.2.2 Generate and/or design possible solutions for problems.			11.3.2 Discuss the use of materials in the built environment.			11.4.2 Identify, describe and apply the use of materials in the built environment.			
11.1.3 Describe, explain and respond to basic medical emergencies in context, taking cognisance of health issues such as HIV/Aids.			11.2.3 Make or improve products according to the selected design.			11.3.3 Explain the function, use and care of special tools and equipment.			11.4.3 Use and maintain hand and power tools and construction machinery.			
11.1.4 Compare how different cultures solve technological problems.			11.2.4 Evaluate the product against the initial design.			11.3.4 Show knowledge of advanced freehand sketching, instruments and basic CAD drawings.			11.4.4 Make basic drawings using freehand sketching, instruments and CAD.			
11.1.5 Discuss the competencies required by entrepreneurs.			11.2.5 Present assignments by means of a variety of communication media.			11.3.5 Describe applicable terminology.			11.4.5 Apply and use the correct terminology in Civil Technology.			
						11.3.6 Demonstrate an understanding of the effects of forces and moments in structural engineering by applying design principles.			11.4.6 Perform simple experiments to show the effects of forces and moments on load-bearing structures.			
						11.3.7 Discuss the different manufacturing processes or construction methods.			11.4.7 Compare the different construction methods in a project.			
						11.3.8 Analyse the maintenance of civil services.			11.4.8 Dismantle and assemble civil services.			
						11.3.9 Identify quantities of materials for a project.			X		11.4.9 Calculate quantities for a project.	X

			11.3.10 Compare the application of materials used in joining applications.		11.4.10 Use various bonding materials and methods to join materials.		
TEACHING ACTIVITIES		LEARNERS ACTIVITIES		RESOURCES		ASSESSMENT	DATE COMPLETED
Revise SI units and the layout for the calculation of quantities with learners.		Answer questions on the SI units referring to the handouts given.		House plan, specification sheet, resource materials, calculators, and worksheet.		Class work ,Task based,	
Revise the layout for the calculation of quantities with learners.				Ref: Page 227-321 of “work with civil Technology” by A.G.W. Fourie.			
Hand out house plans and specifications		Learners will calculate the quantity of bricks for a one-brick wall with interior corners.					
Lead learners to calculate the quantity of bricks for a half-brick wall from a given ground plan.		Learners will calculate the quantity of bricks for a one-and-a-half brick wall from a given ground plan.					
Lead learners to calculate the quantity of bricks for a one-and-a-half brick wall from a given ground plan.							
Homework:							
Enrichment/Expanded Opportunities:							
Educator reflection:							

**SIGNATURES:**

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TEACHER

\_\_\_\_\_

DATE

\_\_\_\_\_

HOD / SMT

\_\_\_\_\_

DATE

## INVESTIGATION TASKS

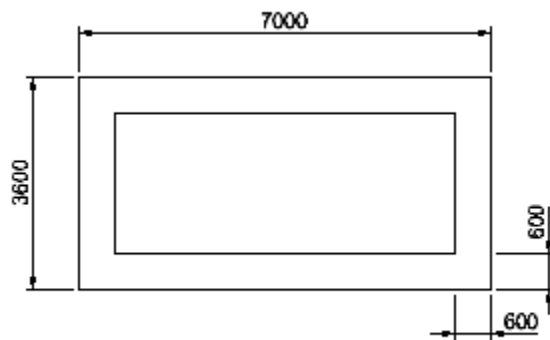
### ACTIVITY 1

From the data given in the sketch below, calculate the following:

- Determine the centre line measurement of the foundation.
- The volume of concrete required for laying the foundation.
- The volume of sand required.
- The volume of the stone required.
- The volume of the cement stone required.

#### Given:

- The foundation is 600 mm wide and 230 mm thick
- The mix of the foundation is 1:3:4



*Fig. 1*

### ACTIVITY 2

Figure 2 below shows a plan of a building.

**Calculate the following:**

2.1 Number of bricks for the super structure.

Use the provided answer sheet to answer the question thereof.

Use the following specifications:

50 bricks per square meter for half brick wall

Super structure is 2.8 m high.

Door opening is 2 000 mm x 800mm

Windows are 2 000 mm x 1 500 mm.

Beam filling is three bricks (courses) high.

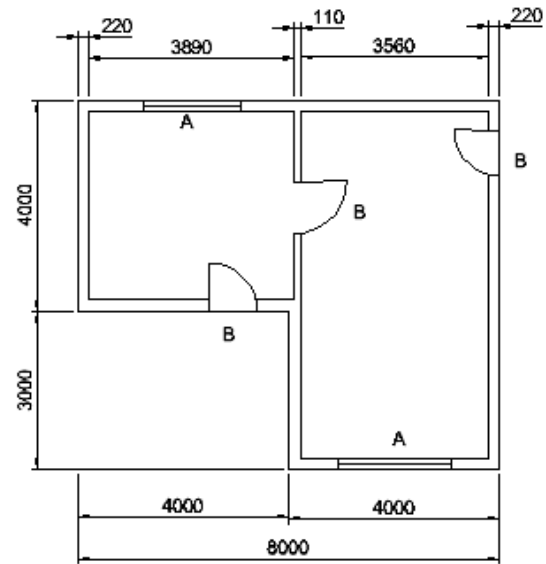


Fig. 2

### ACTIVITY 3

Figure 3 shows the floor plan of a building of which the outer measurements are given.

The sub-structure is a one brick wall and is 375 mm high.

The floor is 75 mm thick and penetrates the sub-structure for 110 mm.

The super structure is a one brick wall and is 2 700 mm high.

The door openings A is                    2 000 mm x 800 mm

Window B is                                2 000 mm x 1500 mm

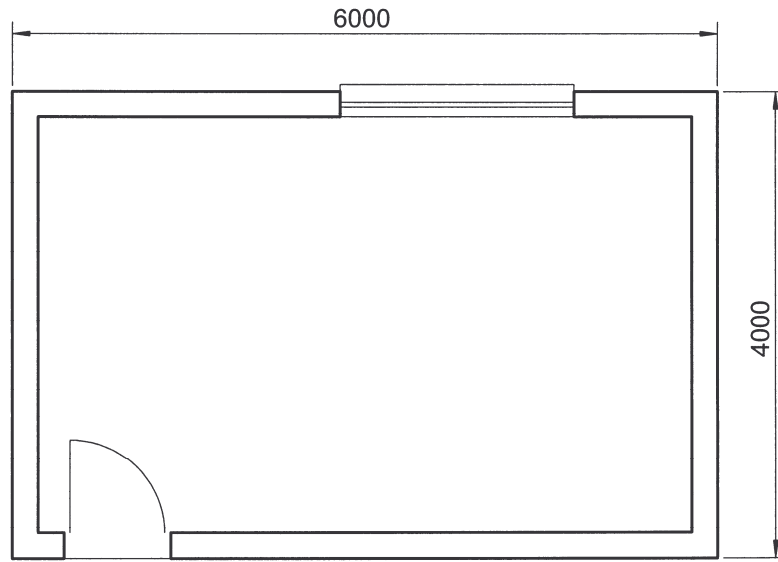
Window C is                                1 200 mm x 600 mm.



4. You are a quantity surveyor, and it is your duty to calculate the quantities of the materials required for the building illustrated in the plan below. Study the plan, read the specifications and answer the question that follow on the attached ANSWER SHEET:

Use the following specifications:

- The walls is 220 mm thick and built in stretcher bond
- The height of the superstructure is 2 600 mm
- The thickness of the plaster is 12 mm
- The door openings are 2 100 mm high and 900 mm wide
- The window openings are 1 200 mm high and 2 000 mm wide
- 50 bricks are required to build a 1 m<sup>2</sup> half-brick wall (110 mm)



Determine the number of bricks for the superstructure (ignore the beam filling).