UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
NOVEMBER / DECEMBER
SUPPLEMENTARY EXAMINATION 2014

PROGRAMME: B Ed (FET AND SENIOR PHASE)
MODULE: METHODOLOGY & PRACTICUM: MATHEMATICS
CODE: MFSPMB2
TIME: 2 hours
MARKS: 100
EXAMINER: Dr ED Spangenberg
MODERATOR: Prof GJ Jacobs
(This paper consists of 10 pages)

INSTRUCTIONS

Read the following instructions carefully before answering the questions:

1. This question paper consists of three questions.
2. Answer ALL the questions.
3. Number your answers correctly according to the numbering system used in this question paper.
4. Question 1 should be completed on the template provided in Appendix B.
5. Write legibly and present your work neatly.
6. Read the questions carefully before answering them.
7. Questions may be answered in English or Afrikaans.
8. Please submit your question paper, answer sheet and Appendix B.

QUESTION 1

Use the following scenario for the completion of the lesson plan (Appendix B). Make use of the CAPS document information (Appendix A).

CLASS	GRADE	TOPIC	LESSON FOCUS
Mathematics	8	Collect, organize and summarize data	Summarize data using measures of dispersion, including: -- range -- extremes

Use the lesson plan template (Appendix B) and complete the following:

1.1 State the three lesson phases. (3)

1.2 Mention at least three aspects that need to be taken into consideration in the situation analysis. (3)

1.3 What prior knowledge should learners have and how will you elicit it? (3)

1.4 State an outcome for each of the three domains. (3)

1.5 What will your attention focus activity be and how will you conduct it? (3)

1.6 State at least three important Mathematics ideas you are going to teach. (3)

1.7 Why is it important for students to know each of these big ideas? (3)

1.8 What else do you know about each of these big ideas that you do not intend learners to know yet? (3)

1.9 Complete the teacher activities in detail and give particular reasons for using these to engage with the ideas. (4)

1.10 Complete the learner activities in detail. Include problems with solutions. (4)

1.11 Explain what resources you are going to use and how you are going to utilize these. (4)

1.12 Explain what assessment forms you would use in the lesson to ascertain learners' understanding around these ideas. Also, be specific on what questions you are going to ask to elicit these ideas. (6)

1.13 Mention what assessment tools you would use in the lesson. Also, give possible answers you will be expecting. (6)

1.14 State the assessment method you would use to enhance the learning process and give a reason why you would use this particular method. (2)

(50)

QUESTION 2

2.1 Distinguish between baseline, informal, diagnostic, formal and systemic assessment in Mathematics and give one example of each. (15)

2.2 The Mathematics marks out of 40 for an assignment of Grade 9E at UJ Winning School written on 12 September 2014 are as follows:

Tsepo	MOHLALA	T	17
Moses	MDIETSHE	MQ	24
Toka	THAMAE	TR	28
Kimberly	THORNE	KL	35
Michael	MGIBA	MI	26
Nkosinathi	MABASO	N	31
Lister	MAFFA	TL	27
Julia	ZONDO	J	23
Marichen	KLAVER	M	33
Idonette	VENTER	L	35
Mxolisi	MDIETSHE	M	26
Fetullah	KARABEYESER	F	25
Lauren	VILJOEN	IM	27
Ziphilile	MDONDOLO	ZG	32

2.3.1 Design a mark sheet. (15)

2.3.2 Draw up a question distribution grid according to level descriptors to indicate the symbol distribution of the above marks. (5)

(35)

QUESTION 3

3.1	Define Mathematics anxiety.	(8)
3.2	Discuss guidelines for teachers on reducing Mathematics anxiety.	(7)
		(15)

TOTAL: 100

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APPENDIX A

CONTENT	GRADE 7	GRADE 8	GRADE 9
5.1 **Collect, organize and summarize data**	**Organize and summarize data** • Organize (including grouping where appropriate) and record data using - tally marks - tables - stem-and-leaf displays • Group data into intervals • Summarize and distinguishing between ungrouped numerical data by determining: - mean - median - mode • Identify the largest and smallest scores in a data set and determine the difference between them in order to determine the spread of the data (range)	**Organize and summarize data** • Organize (including grouping where appropriate) and record data using - tally marks - tables - stem-and-leaf displays • Group data into intervals • Summarize data using measures of central tendency, including: - mean - median - mode • Summarize data using measures of dispersion, including: - range - extremes	**Organize and summarize data** • Organize numerical data in different ways in order to summarize by determining: - measures of central tendency - measures of dispersion, including extremes and outliers • Organize data according to more than one criteria

CONTENT AREA	TOPICS	CONCEPTS AND SKILLS	SOME CLARIFICATION NOTES OR TEACHING GUIDELINES	DURATION (in hours)
Data handling	**5.1 Collect, organize and summarize data**	**Collect data** • Pose questions relating to social, economic, and environmental issues • Select appropriate sources for the collection of data (including peers, family, newspapers, books, magazines) • Distinguish between samples and populations, and suggest appropriate samples for investigation • Design and use simple questionnaires to answer questions with multiple choice responses **Organize and summarize data** • Organize (including grouping where appropriate) and record data using - tally marks - tables - stem-and-leaf displays • Group data into intervals • Summarize data using measures of central tendency, including: - mean - median - mode • Summarize data using measures of dispersion, including: - range - extremes	**What is different to Grade 7?** The following are new in Grade 8 • extremes • broken line graphs • dispersion of data • error and bias in data **Data sets and contexts** Learners should be exposed to a variety of contexts that deal with social and environmental issues, and should work with given data sets, represented in a variety of ways, that include big number ranges, percentages and decimal fractions. Learners should then practise organizing and summarizing this data, analysing and interpreting the data, and writing a report about the data. **Complete a data cycle** Learners should complete at least one data cycle for the year, starting with posing their own questions, selecting the sources and method for collecting, recording, organizing, representing, analysing, summarizing, interpreting and reporting the data. Challenge learners to think about what kinds of questions and data need to be collected to be represented on a histogram, a pie chart, a bar graph, or a line graph.	Total time for collecting and organizing data: 4 hours.

APPENDIX B			
Name and Surname: _____ **Student number:** _____			
Lesson planning			
Subject: **Mathematics**			Grade:
Topic:			
The _____ **phase**			
1. Situation analyses			
2. Baseline/prior knowledge	What prior knowledge should learners have?	How are you going to elicit the prior knowledge?	
3. Lesson outcomes (What for?)	**Minds-on lesson outcomes** At the end of the lesson learners will be able to	**Hands-on lesson outcomes** At the end of the lesson learners will be able to	**Hearts-on lesson outcomes** At the end of the lesson learners will be able to

The _____ phase			
1. **Introduction** (Attention focus)	What activity?	How?	
2. Content (CoReS)			
IMPORTANT MATHEMATICS IDEAS/CONCEPTS			
	Big Idea 1 _____	**Big Idea 2** _____	**Big Idea 3** _____
(a) Why is it important for students to know these?			
(b) What else do you know about these ideas (that you do not intend learners to know yet)?			
(c) Teacher activities and particular reasons for using these to engage with these ideas.			

(d) Learner activities (problems with solutions)	

4. Resources (LTSM) (media)	What?	How?	
The _____ phase			
1. Assessment	Assessment form (what?) What questions are you going to ask to elicit it?	Assessment tool (how?) What possible answers are you expecting?	Assessment method (who?) Reason for method:

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