UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER May 2013:   BED II PRIMARY

COURSE NUMBER: PEC 276

COURSE NAME: CURRICULUM STUDIES: Mathematics

TIME ALLOWED: 3   HOURS

INSTRUCTIONS: 1.   THIS PAPER HAS SIX QUESTIONS. QUESTION 1 IS COMPULSORY.

2.   ANSWER QUESTION 1 AND ANY **THREE** OTHER QUESTIONS.

3.   YOU WILL ANSWER A TOTAL OF **FOUR** QUESTIONS. EACH QUESTION IS WORTH 25 MARKS.

4.   DOCUMENTS REFERRED TO IN SOME OF THE QUESTIONS ARE ATTACHED. IF YOU DO NOT FIND THEM, ASK FOR THEM.

5.   ANY PIECE OF WRITTTEN WORK WHICH IS NOT FOR MARKING PURPOSES MUST BE <u>CROSSED OUT</u> CLEARLY.

THIS PAPER MUST NOT BE OPENED UNTIL PERMISSION IS GIVEN BY THE INVIGILATOR

Answer **question 1** and any **three** other questions from this paper.

Question 1   This question is compulsory.

a. Write short notes on each of the following:

     i.   Commutative property of addition
     ii.   The inclusion theory
     iii.   Conserving number
     iv.   Reversibility of thought   (12)

b. Using seriation, show how a stage 1, stage 2 and stage 3 children behave.   (9)

c. Give an example of errors children make when dealing with place value.   (4)

Total	**25 Marks**

Question 2

a. Describe your understanding of the mathematics laboratory approach, the organisation of the room, learner activities and use of materials.   (15)

b. Develop an assignment card to help children develop the concept of number. (10)

Total	**25 Marks**

Question 3

a. Compare and contrast the Behaviourist and Developmentalist views of learning. (15)

b. Outline Gagne' task analysis approach to teaching. Use any mathematics concept to illustrate your points.   (10)

Total	**25 Marks**

Question 4

a. Use the activity in appendix A to: (12)

     i.   Write **three** (3) objectives and 3 key points for a lesson involving this activity.
     ii.   Write **three** (3) probing questions you would use encourage problem solving.

b. Outline the purpose and process of assessment in teaching. (13)

Total **25 Marks**

Question 5

a. Write a lesson plan for an investigation lesson on the concept of time.

(15)

b. Describe the value of planning lessons in preparation for teaching. (10)

Total **25 Marks**

Question 6

a) Mathematics is taught to primary school children yet it is perceived to be difficult. Justify the teaching of mathematics showing its value to the learner. (15)

b) In Swaziland, Mathematics is given a lot of space in the school timetable compared to other subjects. What does that indicate about how mathematics is viewed in the country? \justify your answer. (10)

Total **25 Marks**

LESSON 2   *Expanded form of numbers*

Instructional objective

Given numbers with up to four digits, the pupil should be able to write them in expanded form.

Materials

Bundles of sticks; Dienes blocks; four-spike abacus; counters.

Vocabulary

thousands, hundreds, tens, ones, place value

Lesson structure

1. Write numbers with four digits on the board and ask the pupils to name the place value for each digit.
   For example: 1 364 shows 1 thousand, 3 hundreds, 6 tens and 4 ones.

2. Display the spike abacus shown below. Discuss the number shown on the spike abacus to introduce the expanded form.
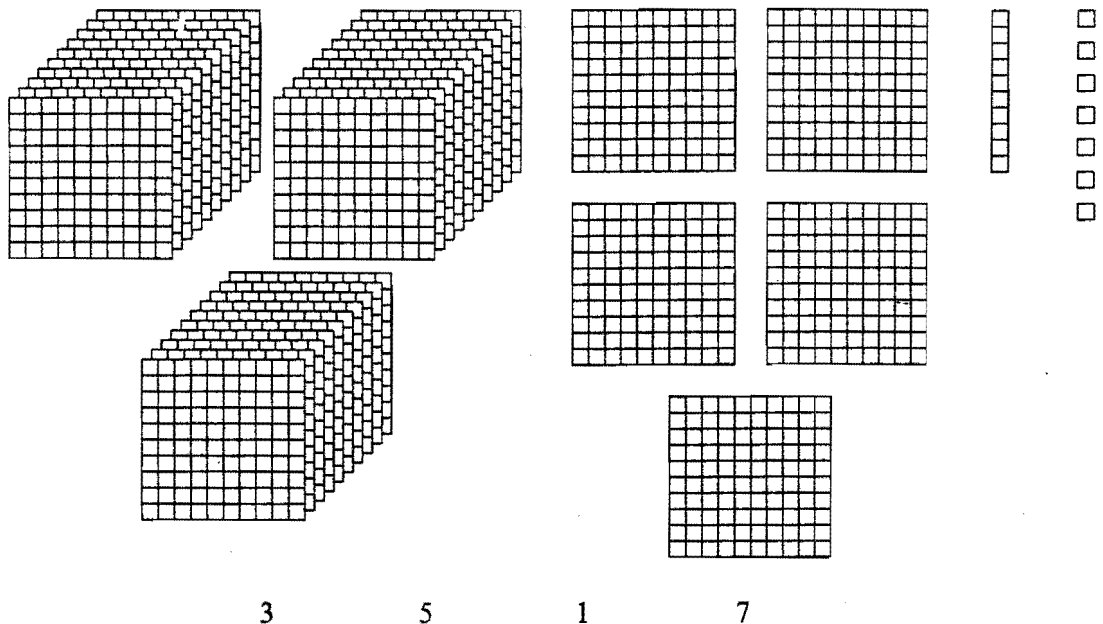

| Th | H | T | O |
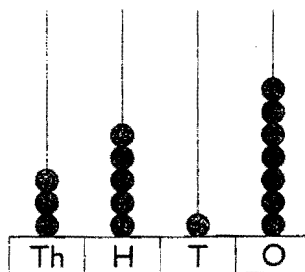
Ask the pupils the following questions:
- What number is shown on this spike abacus? (3 517)
- How many thousands are shown? (three thousands = 3 000)
- How many hundreds are shown? (five hundreds = 500)
- How many tens are shown? (one ten = 10)
- How many ones are shown? (seven ones = 7)

So the number 3 517 is the same as:
3 thousands + 5 hundreds + 1 ten + 7 ones.

3. Show the same number (3 517) using Dienes blocks.

| 3 | 5 | 1 | 7 |

As you discuss the number, write the pupils' responses on the chalkboard, like this:

	Th	H	T	O
How many thousands?	3	0	0	0
How many hundreds?		5	0	0
How many tens?			1	0
How many ones?	+			7
	3	5	1	7

In expanded form, the number 3 517 is written as 3 000 + 500 + 10 + 7.

4. Ask the pupils in their groups to write the following numbers in expanded form. If they wish, they may use the spike abacus or Dienes blocks to help them.

2 046 =   2 thousands + 0 hundreds + 4 tens + 6 ones
           2 × 1 000 + 0 × 100 + 4 × 10 + 6 × 1
           2 000 + 0 + 40 + 6

Explain to the pupils that since there are no hundreds, 0 is written as a "place holder".

(i) 5 042   (ii) 2 476   (iii) 8 735   (iv) 1 308