PRIMARY SEVEN NUMERACY LESSON NOTES (Theme based)

Theme	Topic / Theme & class	Teachable unit / deliverable lesson
Numeracy	**Operation on whole numbers**	**Lesson 1** **Addition of numbers and its application.** - Identify the values in the word problem. - Arrange the numbers vertically in accordance to place values. - Add starting from the ones place value. - Regroup if the sum got has more than one digit to the next place value. **Example;** 11.Add: 8736941 + 3617072 1 1 1 1 8 7 3 6 9 4 1 + 3 6 1 7 0 7 2 1 2 3 5 4 0 1 3 2. Katamba had 436787kg of maize and Kalungi had 64375kg. How many kilograms do they have altogether? 1 1 1 1 1 4 3 6 7 8 5 kg + 6 4 3 7 5 kg 5 0 1 1 6 0 kg 3. Paul's farm has 420 goats, 349 sheep 128 more chicken than sheep. How many animals are on the farm? **Number of chicken.** 1 3 4 9 + 1 2 8 4 7 7 **Number of animals.** 1 1 4 2 0 + 3 4 9 4 7 7 1 2 4 6 1246 animals.

		Activity 1. Add: 6467999 + 147875 2. John had sh. 6739000, Kabuye had sh. 5764600 and Kintu had 576900. How much money did they have altogether? 3. Find the sum of 47830 and 154670 4. Mpaata sold 4210 mangoes on Monday, 5098 on Tuesday, Four hundred four on Wednesday and 390 more mangoes on Thursday than Wednesday. How many mangoes did he sell altogether?
Numeracy	**Operation on whole numbers**	**Lesson 2** **Subtraction of numbers and its application** - Identify the quantities in the question to be subtracted. - Other words that call for subtraction are; Difference, rang, take away, decrease, remain - Arrange the numbers according to place value. **Examples (In case of borrowing it is done in tens)** Subtract: 5737340 – 1892016 4 16 3 5 ~~7~~ 1 3 7 3 ~~4~~ 1 0 - 1 8 9 2 0 1 6 3 8 4 5 3 2 4 2. A business man had sh. 4675000 and withdrew sh. 1980900. How much money did he remain within the bank? 3 15 1 4 1 Sh. 4 ~~6~~ 7 ~~5~~ 0 0 0 - 1 9 8 0 9 0 0 Sh. 2 6 9 4 1 0 0 3. Find the range of 40092 and 9991 Range = Hv – Lv 9 3 ~~10~~ 10 8 ~~4~~ 0 0 ~~9~~ 2 - 9 9 9 1 3 0 1 0 1 **Activity;** 1. Subtract 1000700 – 496463 2. Subtract 576404 from 830769. 3. Kasoba had 974372 hens. He sold off 98423 hens. How many hens remained?

		4. The number of children at Namungodi P/S was 2091 last year, if this number dropped by 204 this year, how many children are in the school now?
Numeracy	**Operation on whole numbers**	**Lesson 3** **Multiplication of numbers and its application** - Identify the values to be multiplied from the question. - Arrange the values vertically with the sign of multiplication. - Multiply the numbers beginning with digits in place value of ones. **Examples** Workout: 3747 x 45 3 7 4 7 x 4 5 1 7 7 3 5 +1 4 9 8 8 1 6 7 6 1 5 2. A school has 18 classrooms and each class has 65 pupils. How many pupils are in the school? (18 x 65) pupils 1 8 x 6 5 9 0 +1 0 8 1 1 7 0 pupils **Activity;** 1. Multiply: 4354 x 27 2. What is the product of 843 and 124? 3. During the covid-19 pandemic, each village was provided with 4645 masks. If there are 497villages, how many masks were given out? 4. Ewalu bought 942 box files for the school at sh. 5500 each. How much money did he pay for all the box files?
Numeracy	**Operation on whole numbers**	**Lesson 4** **Division of numbers and its application** - Identify the values in the question - Use long division to workout

		1. Divide: 90672 by 12 7556 12) 90672 7 x 12 = 84 66 5 x 12 = 60 67 5x12 = 60 6x12 = 72 - 72 - - 2. The inspector of schools distributed 5760 books to 18 schools. How many books did each school get? 3 2 0 18) 5 7 6 0 3x8 = 5 4 3 6 2x18 = 3 6 0 0x18 = 0 - 3 2 0 books **Activity;** 1. A coffee dealer paid sh. 578970 as commission to his 18 workers. How much money did each worker get? 2. The RDC of a certain district used sh. 38 237500 to buy bicycles. If he bought 115 bicycles, how much money did he pay for each bicycle? 3. Find the quotient of 2013 2013 and 2013. 4. A presidential aspirant gave sh. 240,500 to 13 people to share equally. How much did each get? 5. Find the quotient of 68175 and 15.
Numeracy	**Operations on whole numbers**	**Lesson 5** **Association property, commutative property and Distributive property.** **Associative property** 1. This property states that the grouping of numbers in addition and multiplication does not alter (change) the answer. **Examples;** 1. (a+b) + c = a + (b + c)

		2. (4 x 5)x 6 = 4 x (5 x 6) 2. (10 + 17) + 8 = 10 + (17 + 8) **Commutative property.** This property states that the order in which numbers are added or multiplied does not change the answer. 4 x 3 = 3 x 4 b x c = c x b 6 + 2 = 2 + 6 **Distributive property** -Recognize the common factor (number) used. - Pullout the common number (factor) and operate using the sign between brackets. - Simplify the answer to obtain the product or quotient. - When common operation sign in brackets is division, then one of the common figures becomes the divisor. **Examples;** 1. Work out; (15 x 64) + (36 x 15) using the distributive property. (15x64) + (36 x 15) 15(64 + 36) 15 (100) 15 x 100 1500 2. Use the distributive law to workout; (175 ÷ 13) – (84 ÷ 13) (175 – 84) ÷ 13 91 ÷ 13 7
Numeracy	**Operations on whole numbers**	**Lesson 6** **Expanding whole numbers using indices.** -Identify the place values of digits. -Relate the digits in the different place values to the power numbers. Multiply each digit by its power number. **Examples;** Expand 43752 using indices. **4 3 7 5 2** **10^4 10^3 10^2 10^1 10^0**

		$(4 \times 10^4) + (3 \times 10^0) + (7 \times 10^2) + (5 \times 10^1) + (2 \times 10^0)$ 2. Write 265401 in expanded form using powers of ten. 2 | 6 | 5 | 4 | 0 | 1 10^5 | 10^4 | 10^3 | 10^2 | 10^1 | 10^0 $(2x10^5) + (6x10^4) + (5x10^3) + (4x10^2) + (6x10^1) + (1x10^0)$ **Activity;** Expand the following using indices. a) 94056 b) 70043 c) 137492 d) 5074 . Express the following in expanded form using powers of ten. a) 891376 b) 200,0001
Numeracy	**Operation on whole numbers**	**Lesson 7** **Writing expanded numbers in short.** - Simplify the powers and get values of different digits. - Add the value to obtain a single number. **Examples;** 1. Write the number whose expanded form is; $(4 x10^4) + (8x10^2) + (9 x 10^o)$ (4x10000) + (8 x 100) + (9 x 10) 40000 + 800 + 9 40000 800 + 9 40809 2. Find the number that has been expanded to give; $(3x10^4) + (6x10^2) + (9x10^0)$ 3 x10x10x10x10 + 6 x 10x10 + 9 x 1 3 x 10,000 + 6 x 100 + 9 30,000 + 600 + 9 30,000 600 9 30,609

		Activity; Write the numbers below in short. a) $(4x10^4) + (3x10^3) + (7x10^1)$ b) $(3x10^3) + (9 \times 10^\circ)$ c) $(7x10^5) + (2x10^4) + (6 \times 10^2) + (8 \times 10^\circ)$ 2. Write the numbers whose expanded form is given below. a) $(1 \times 10^5) + (9 \times 10^3)$ b) $(6 \times 10^6) + (3 \times 10^0)$
Numeracy	**Operations on whole numbers**	**Lesson 8** **Scientific notation (Standard form)** -This is the shortest way of writing large numbers. - When writing a whole number in scientific notation; i) Divide the number by 10 until one counting number (1 – 9) is left on the left. ii) Count the number of times 10 has divided the number and the number of times divided is the index. iii) If the decimal point is to move to the right, we multiply and the index becomes a negative **Example;** 1. Write 4377 in scientific notation; 4 3 7 7! ÷ 10 4 3 7! 7 ÷ 10 4 3!.7 7 ÷ 10 $4 .3\ 7\ 7 \times 10^3$ 2. Express 0.000493 in scientific notation 0!0 0 0 4 9 3 x 10 0 0!0 0 4 9 3 x 10 0 0 0!0 4 9 3 x 10 0 0 0 0 !4 9 3 x 10 $4 .9\ 3 \times 10^{-4}$

		Activity; Express the following in standard form. 1. 369400 2. 1497.36 3. 0.0003679 4. 1240.06 5. 0.000374
Numeracy	**Operations on whole numbers**	**Lesson 9** **Changing from standard form to ordinary form** - Express the decimal into a fraction - Simplify the power number. - If the index is a negative, turn it into a positive by using the reciprocal of the base. **Examples** 1. Express 9.73×10^5 in ordinary form $\frac{973}{100} \times 100000$ $\frac{973}{100} \times 100\cancel{00}\cancel{00}$ $1\cancel{00}\cancel{00}$ 973×1000 973000 2. Write the number whose standard form is 4.39×10^{-3} $\frac{439}{100} \times \frac{1}{10^3}$ | $\frac{439}{100} \times \frac{1}{1000}$ | $\frac{439}{100000}$ | 0.00439 **Activity** Express the following in ordinary form. a) 9.35×10^{-2} b) 1.704×10^5 2. Find the number whose standard form is given. a) 4.06×10^{-1} b) 3.96×10^6 c) 4.358×10^2.
Numeracy	**Operation on whole numbers**	**Lesson 10** **Writing prime factors of whole numbers.** - We find prime factors by prime factorizing using the ladder method or factor tree. - We use the prime numbers i.e 2 , 3 , 5 , 7 , etc to prime factorise - We express the factors in;

		a) Subscript form (set notation) b) power form c) Multiplication (production form) **Example;** 1. Write the prime factors of 24. 2 | 24 2 | 12 2 | 6 3 | 3 | 1 24 = 2 x 2 x 2 x 3 (product form) OR $F_{24} = \{2_1 , 2_2 , 2_3 , 3_1\}$ (subscript / set notation) $24 = 2^3 \times 3^1$ 2. Write 36 as a product of its prime factors. 2 | 36 2 | 18 3 | 9 3 | 3 | 1 36 = 2 x 2 x 3 x 3 **Activity** 1. Express 108 as a product of its prime factors. 2. Prime factorise 72 and give your answer in set notation 3. Prime factorise 256 and give you answer in power form. 4. Prime factorise 54 and state your answer in subscript form.
		Lesson 11
		<u>Application of prime factorization</u>. - Identify the prime factors. - Multiply them to get the prime factorized number if needed. **Examples;** 1. Given that $X = \{2_1 , 2_2 , 3_1 , 7_1\}$. Find the value of x. X = 2 x 2 x 3 x 7 X = 4 x 21 X = 84

2. If F42 = $\{2_1, y, 7\}$. Find the value of y.

- To find the missing prime factor, we divide the given number by the product of the prime factors given.

$$\frac{\overset{3}{\cancel{21}}}{\cancel{42}} = \frac{\overset{1}{\cancel{2}} \times y \times \overset{1}{\cancel{7}}}{\underset{1}{\cancel{2}} \times \underset{1}{\cancel{7}}}$$

$$3 = y$$
$$y = 3$$

Finding LCM and GCF given the prime factors.

-To find G.C.F, identify the common factors and find product.

-To find L C M, identify all the common factors and multiply them once by the other factors.(find the product of the factors that form the union set)

Examples

1. Given that $F_{24} = \{2_1, 2_2, 2_3, 3_1\}$, $F_P = \{2_1, 2_2, 3_1, 3_2\}$

a) Find the value of P.

P = 2 x 2 x 3 x 3
P = 4 x 9
P = 36

b) Find the LCM of 24 and P.

$F_{24} \cup F_P = \{2_1, 2_2, 2_3, 3_1, 3_2\}$
L.C.M = 2 x 2 x 2 x 3 x 3
L.C.M = 8 x 9
L.C.M = 72

2. Given that $48 = 2^4 \times 3^1$ and $K = 2^2 \times 3^2$. Use the prime factors to find the LCM of 48 and K.

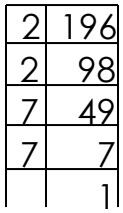
(2) x (2) x 2 x 2 x (3)

(2) x (2) x (3) x 3

2 x 2 x 2 x 2 x 3 x 3

8 x 2 x 9
16 x 9
144

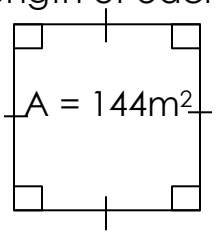
The factors with the rings are common factors that are to be multiplied once.

		Activity; 1. Given that $F_{72} = \{2_1,2_2,2_3,3_1,y\}$ and $F_K = \{2_1,2_2,3_1,3_2,3_3\}$ a) Find the value of y. b) Find the value of K. c) Find the LCM of 72 and K. d) Find the GCF of 72 and K. 2. Given that; $F_{18} = 2 \times 3^2$ and $F_{24} = 2^3 \times 3^1$ a) Find the LCM of 18 and 24 using the above factors. b) Work out the GCF of 18 and 24 using the above factors.
Numeracy	**Operation on whole numbers**	**Lesson 12** **Squares and square roots** - We obtain the square of a number by multiplying it by itself. - We find the square roots by prime factorizing the given number using prime numbers. **Examples;** 1.Find the square root of 196 $\sqrt{196}$ =  $\sqrt{196} = \sqrt{(2 \times 2) \times (7 \times 7)}$ $\sqrt{196} = 2 \times 7$ $\sqrt{196} = 14$ 2. Find the square of 16. 16 x 16 1 6 x 1 6 9 6 + 1 6 2 5 6 **Activity;** Find the square root of the following numbers a) 144 b) 2025 c) 729 d) 256 2. Find the squares of the following. a) 9 b) 36 c) 19
Numeracy	**Operations on whole numbers**	**Lesson 13** **Application of square roots** - Identify the area given

- Find the length of the side by finding the square root by prime factorization.

Examples;

1. The area of a square garden is 144m^2. Calculate the length of each side.



Area = s x s

$\sqrt{144m^2} = \sqrt{s^2}$

2	144m^2
2	72m^2
2	36m^2
2	18m^2
3	9m^2
3	3m^2
~~m~~	1m^2
m	1m
	1

$\sqrt{(2x\cancel{2}) \times (2x\cancel{2}) \times (3x\cancel{3}) \times (m \times \cancel{m})} = s$

2 x 2 x 3 x m = s

12m = s

The side is 12metres

2. The area of a square book is 64cm2. Find the length of its side.

S2 = A

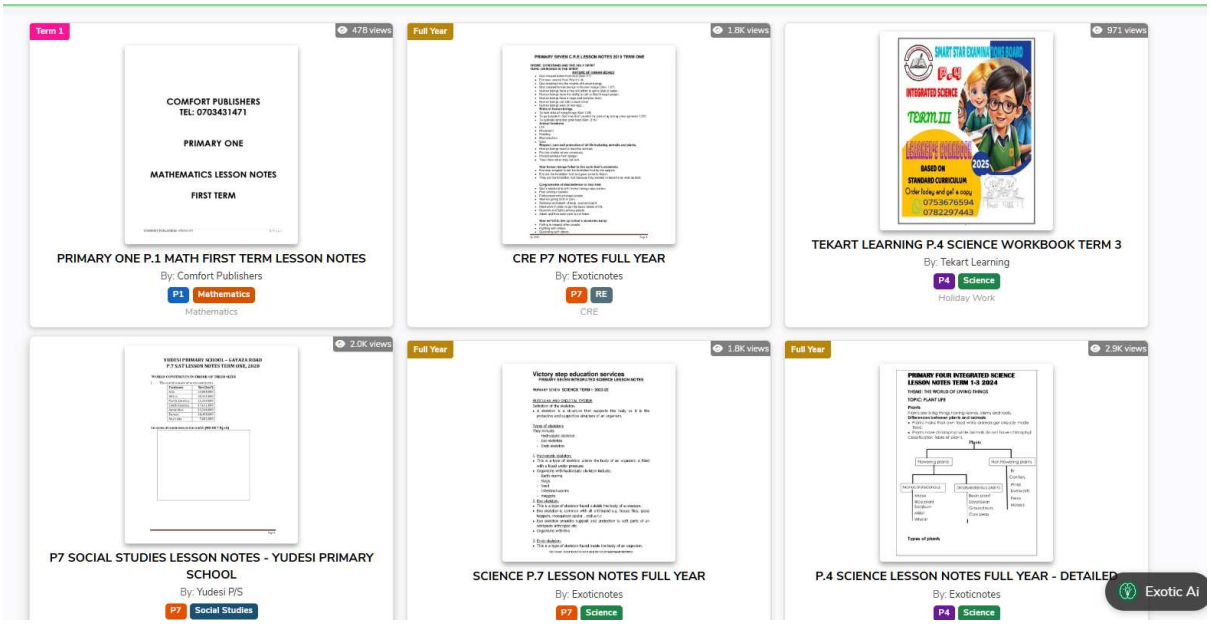
$\sqrt{s \times s} = \sqrt{64cm^2}$

S =

2	64cm^2
2	32cm^2
2	16cm^2
2	8cm^2
2	4cm^2
2	2cm^2
~~cm~~	1cm^2
cm	cm
	1

		$S = \sqrt{(\cancel{2} \times 2) \times (\cancel{2} \times 2) \times (\cancel{2} \times 2) \times (\cancel{cm} \times cm)}$ S = 2 x 2 x 2 x cm S = 8cm **Activity;** 1. The area of a square is 625cm^2. Find its perimeter. 2. A cube has a total surface area of 486cm^2. Find the length of each side. 3. Work out the length of a square whose area is 2.25m^2. 4. Given that $P^2 = 625$. Find the value of P.

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