YEAR 8 MATHEMATICS WEEK 12 2020 (TERM 1)

Year: 8   **Date: Tuesday 21 April 2020**

STRAND: NUMBERS   **TOPIC: Rates**

LESSON OUTCOME: At the end of this lesson student(s) should be able to find equivalent rates.

Instructions: Hi dear Parents/Guardians and students - In this Lesson students are going to find equivalent rates using expression of words and do the selected questions for **Exercise 1.2**.

[*Note that all the Quizzes/Test and or Assignment will be based on the selected questions for each exercise. These lessons are designed for **one hour per Lesson**.]*

What to do: Do the following selected questions

Exercise 1.2: Q1 (a, e); Q2 (All); Q6, Q8

Solutions: Solutions will be available online via
https://www.facebook.com/centralschoolemergencyforum/posts/108720557434149

4.   Take a die and throw it 20 times. Each time, mark down what number you obtained.

At the end of 20 throws, count the number of times you got a 'six'.

What is your rate of 'six' per 20 throws?

Repeat the experiment three more times, recording your rate each time.

Finding equivalent rates ✓

Mike Bossy scored 20 goals in 4 matches. His rate of goals per match is 20 goals per 4 matches, which is equal to 5 goals per match.

A rate expressed per 1 unit is called a unit rate. For example, km per hour, is a unit rate.

Examples   Express each of the following as a unit rate.

(a)   A tape recorder plays 78 cm of tape every 2 seconds.

Answer: 78 cm of tape per 2 seconds

Therefore, the unit rate for this is:

39 cm of tape per 1 second.

(cm per 1s)

(b)   Henri cycled 100 km in 4 hours.

Answer: Henri's rate is 100 km per 4 hour.

Therefore, as a unit rate, that is:

25 km per 1 hour.

(ie 100 ÷ 4)

Exercise 1.2

1.   Write each of the following as a unit rate:

(a)   30 kilometres in 5 hours

(b)   6 400 vatu saved in 4 months

(c)   2 kilograms gained in 10 weeks

(d)   10.2 m in 6 s

(e)   540 marks in 6 tests.

2.   Here are some units for different kinds of rates. Write down which one you think has to do with:
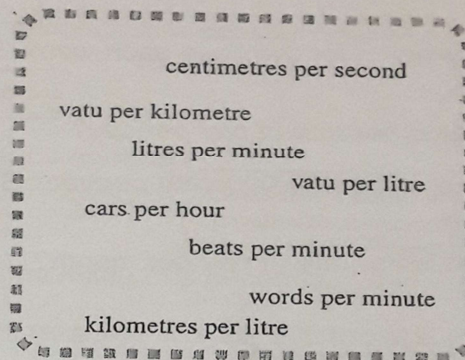
(a)   typing

(b)   the cost of wood

(c)   the price of lemonade

(d)   CDs.

. words per minute

vatu per metre

revolutions per minute
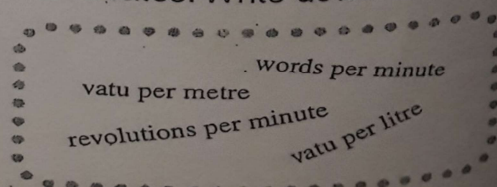
vatu per litre

3. Here are some units for rates. For each unit, discuss what it might measure.

> **Example:**
> vatu per litre -
> price of lemonade

| centimetres per second |
| vatu per kilometre |
| litres per minute |
| vatu per litre |
| cars per hour |
| beats per minute |
| words per minute |
| kilometres per litre |

Write down **two** examples for each unit.

4. For each of the following, find a unit rate:

(a) A motor makes 12 800 revolutions in 8 minutes.
Find the number of revolutions per minute.

(b) A car travelled 594 kilometres in 6 hours.
Find the number of kilometres per hour.

(c) A store sold 90 calculators in 6 days.
Find the number of calculators sold per day.

(d) The price of 12 metres of material is 5 040 vatu.
Find the price per metre.

(e) A boy bought 3 mangoes for 78 vatu.
Find the cost per mango.

5. Write down two possible units for each of these:

(a) The price of curtain material.

(b) The rate at which your heart beats.

6. David is a teacher. He gets paid 480 vatu for every hour he works. His rate of pay is 480 vatu per hour. Write down the rate of pay for these:

> I earn VT 2 000 for 5 hours work

> I earn $56 for 8 hours' work

Joseph

Marie Rose

7.   Mary works for five days each week. She gets paid 14 000 vatu per week.
     What is her rate of pay per day?

8.   Sylvie earns 660 000 vatu per year. She gets the same amount each month.
     What is her rate of pay per month?

Rate and speed

The speed of an object is the rate at which the object is covering distance per unit of time.

For example, kilometres per hour, metres per second.

An object which is travelling at the same speed is said to have constant speed.
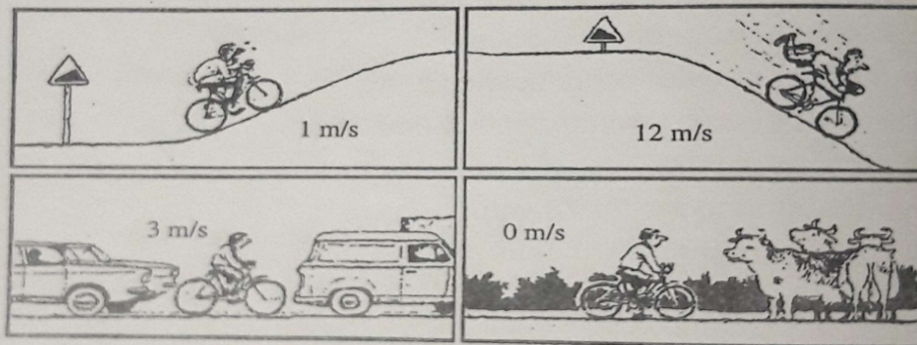
On a flat clear road it is possible to go at a constant speed, the same distance in each second.

Here are two things which normally travel at constant speed.

moving belt in a factory

sound along a telephone wire

Here are two things which normally do not.

cars along a road

birds flying