Chapter 5 Learning Tasks and Exercises

Learning units contain learning tasks and exercises. They serve as means through which pupils can work towards the learning targets. Learning tasks provide experiences in which pupils draw together a range of elements of their framework of knowledge and skills in the purposeful and contextualized use of mathematics. Learning exercises provide experiences in which pupils focus upon and practise on particular elements of knowledge and skills in mathematics. Learning exercises can either stand alone or can be carried out in the context of a task.

Some exemplar learning tasks and exercises are given below. It is worthwhile to note that pupils need a judicious combination of tasks and supporting exercises in order to learn successfully. An over-emphasis either on tasks or exercises alone is inappropriate.

(Please see next page)

5.1 Exemplar Learning Tasks

Exemplar 1

MEASURES Dimension

Module : Further measurement (M2)

Unit : Square centimetre, square metre, areas of squares and rectangles (M2-3)

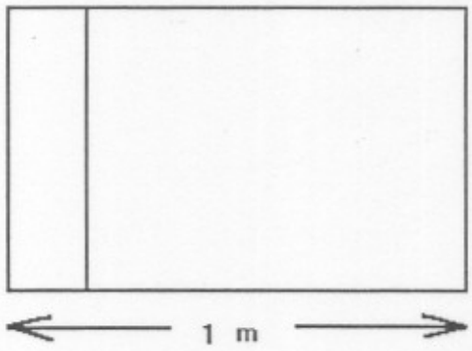
Learning objectives : To recognize and use square metre, and recognize that measurement is approximate in nature and choose the appropriate degree of accuracy for a particular purpose.

Learning task

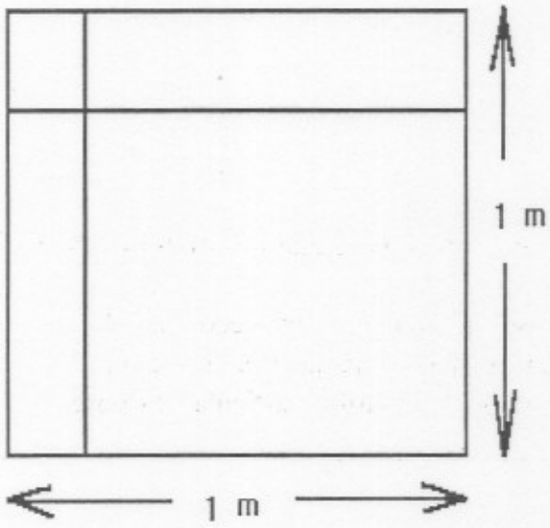
A. Do you know how large is 1 m^2 ?

Now, let us use newspaper to make a square "carpet" of area 1 m^2 .

1. Stick two sheets of newspaper together and make sure that the length of one side is equal to 1 m.



2. A square is formed when the width is also equal to 1 m :



The area of the above square is ____ m^2 .

B. To explore how large 1 m^2 is :

1. Estimate the size of the square "carpet" of area 1 m^2.

   a. How many people can stand on the "carpet" at the same time ?

   _____

   b. How many sets of students' desks and chairs can be put on the "carpet" ?

   _____

c. Can your bed be put on the "carpet" ? Why ?

_____

_____

2. Use the square "carpet" of area 1 m^2 as a tool to measure the areas of the following objects :

	Estimated area (greater than 1 m^2 or less than 1 m^2)	Measured area (about ___ m^2)
(1) Blackboard		
(2) Classroom door		
(3) Dining-table		
(4) Sleeping bed		
(5) Floor (e.g. kitchen or sitting room)		

3. Think :

Besides the method of using squares of 1 m^2 to measure area, are there any other better or more accurate ways of measuring area ?

_____

_____

_____

Exemplar 2

ALGEBRA Dimension

Module : Algebra (A1)

Unit : Algebraic symbols (A1-1)

Learning objective : To record using algebraic symbols.

Learning task :

A. Complete the following sentences:

A teacher is guiding his pupils to make sentences to interpret algebraic expressions. The beginnings of three sentences are given below. Please complete them.

Example : $8x$ persons	There are 8 rows of seats in a classroom and in each row there are x pupils. There are $8x$ pupils in the classroom.
1. $(y + 8)$ years old	My brother is y years old. _____
	_____
2. $(40 - a)$ dollars	Fanny has 40 dollars. _____
	_____

3. $\frac{n}{4}$ cm

The perimeter of a square is n cm.

_____

After completing the sentences, the students are guided to make up questions from algebraic expressions. Using the hints given, ask questions whose answers are the algebraic expressions listed below :

Example : $7y$ dollars

My sister saves y dollars a day. How much does she save in a week ?

4. $(12 + p)$ pages

May read 12 pages of a story book yesterday.

_____

_____

5. $(20 - n)$ eggs

My mother bought 20 eggs in the market.

_____

_____

★B. Create your own writing :

Paul made up a short paragraph to describe the equation given below :

$20x = 160$

Mr. Cheung spends \$ x per day on travelling. In 20 days he spends \$160 on travelling.

Following Paul's example, write down your own paragraph to describe each of the following four equations.

1. $36 - x = 20$

2. $\frac{x}{5} = 7$

3. $x + 5 = 11$

4. $6x = 48$

Remark : The question with ★ symbol is designed for more able students.

Exemplar 3

DATA HANDLING Dimension

Module : Statistical charts (D2)

Unit : Pictograms of greater frequency counts (D2-1)

Learning objectives :
- To collect and group data of greater frequency counts
- To present and interpret pictograms using one-to-ten representation

Learning task

Do you know the sale of soft drinks at recess time in the tuck shop of your school ?

Use the recess time in a certain week to collect data from the tuck shop. Use a pictogram to present the data using one-to-ten representation and then write a simple report on the survey.

A. Complete the following :

Date

from _____ to _____

Sale of soft drinks

Day	Tally (~~||||~~ represents 5 bottles)	Daily sub-total	Rounded to the nearest ten
Mon			
Tue			
Wed			
Thu			
Fri			
Sat			

B. Cut the symbols provided in the appendix and paste them onto the following chart :

Sale of soft drinks in the tuck shop of my school during recess time in a week

(represents 10 bottles)

Monday Tuesday Wednesday Thursday Friday Saturday

C. Reporting

1. This is a _____ .

2. From the activity, I know that :

   on _____ , the sale of soft drinks was the greatest;

   on _____ , the sale of soft drinks was the least;

   the sale of the soft drinks was about _____ bottles in the tuck shop in a week.

3. The aim of the activity is :

   _____

★4. If I were the owner of the tuck shop, I would suggest the following to increase the sale :

   _____

★5a. The advantage of using pictograms is

   _____

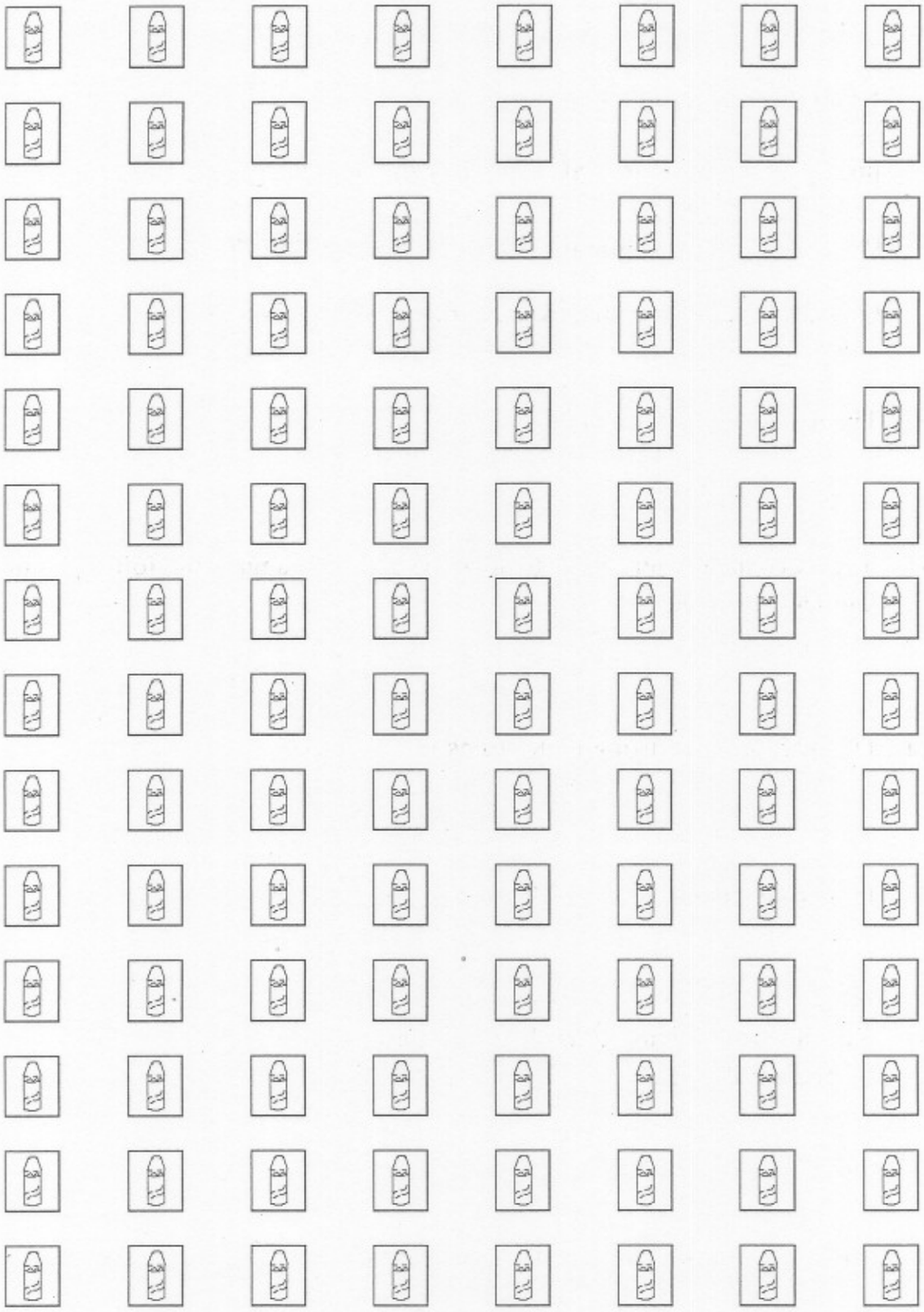
b. The disadvantage of using pictograms is

   _____

★6. Besides using pictograms, I can also use _____ to present the data.

Remark : The questions with ★ symbol are designed for more able students.

(Appendix)



5.2 Exemplar learning exercises

Exemplar 1

NUMBER Dimension

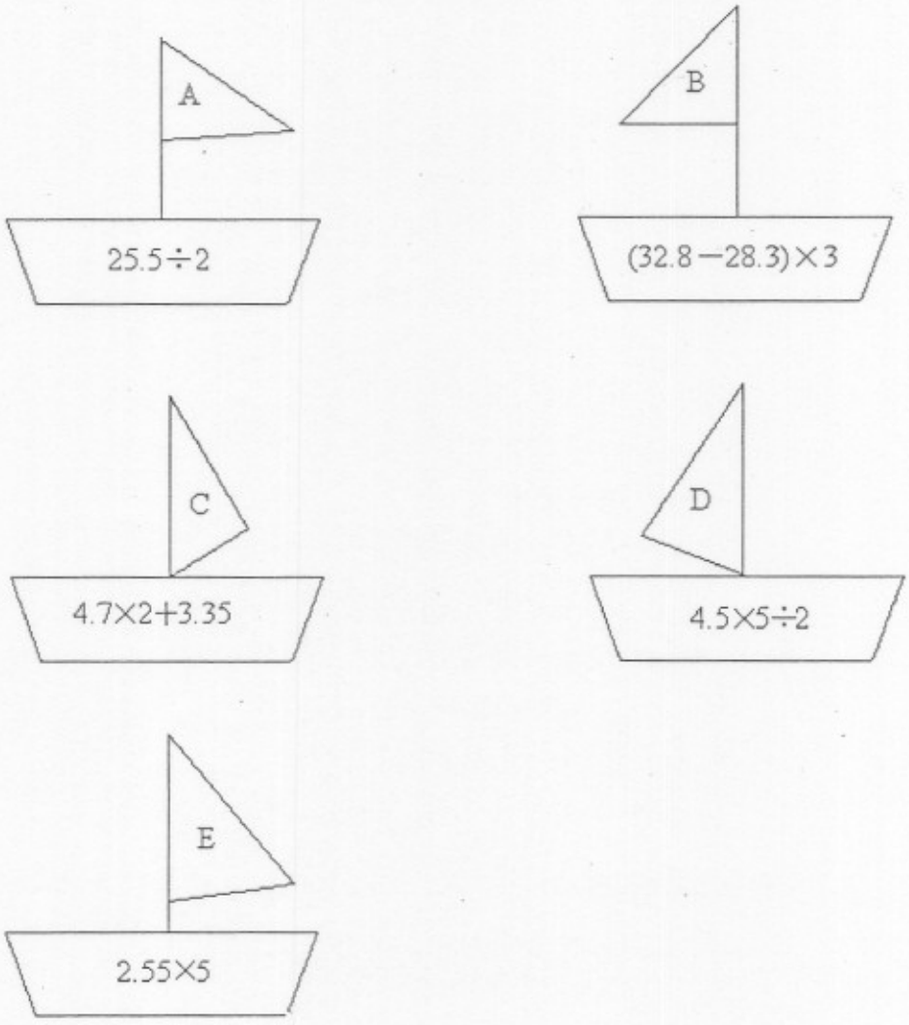
Module : Operations of fractions, decimals and percentages (N8)

Unit : Multiplication and division of decimals (N8-5)

Learning objective : To perform simple mixed operations of decimals up to two decimal places

Learning exercise

Colour the boats with answers equal to 12.75 :



Exemplar 2

MEASURES Dimension

Module : Further measurement (M2)

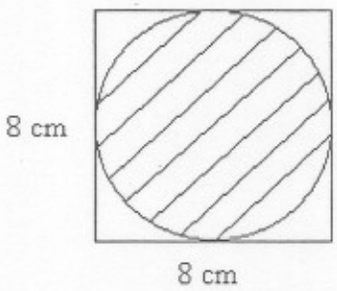
Unit : Circumferences of circles (M2-5)

Learning objective : To apply the formula for circumference to calculate the perimeter of figures involving circular arcs

Learning exercise

Find the perimeter of the shaded part of the following figures :
(Take $\pi = 3.14$)

1.



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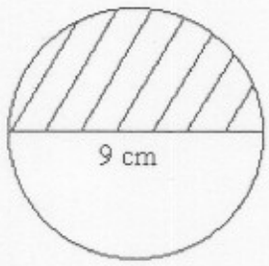
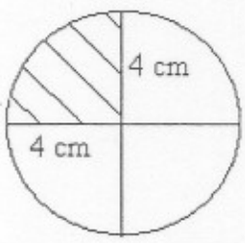


3.



Exemplar 3

ALGEBRA Dimension

Module : Algebra (A-1)

Unit : Solving simple equations (A1-3)

Learning objective : To solve simple equations (limiting to those requiring at most two steps in the solution)

Learning exercise :

Solve the following equations :

1. $2x + 1 = 9$

2. $4a - 12 = 48$

3. $\frac{3y}{4} = 6$

Exemplar 4

DATA HANDLING Dimension

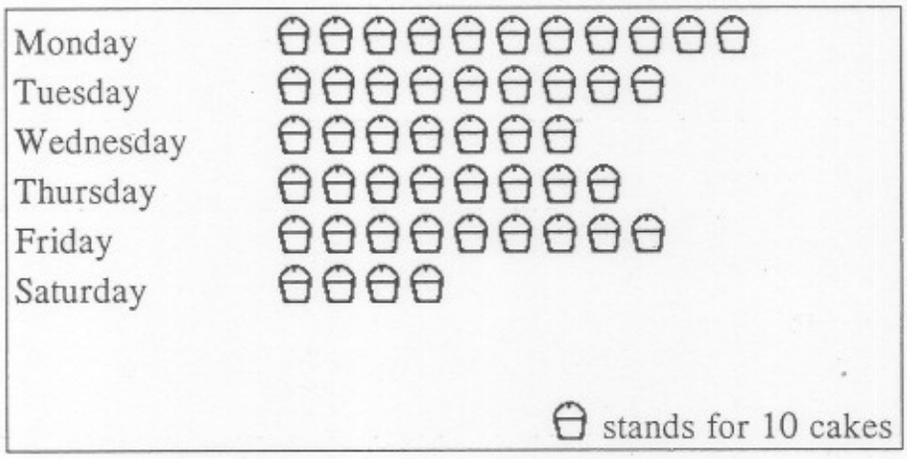
Module : Statistical charts (D2)

Unit : Pictograms of greater frequency counts (D2-1)

Learning objective :To understand and read pictograms

Learning exercise

The following is the pictogram of the sale of cakes in the tuck shop of Hong Kong Primary School last week.



1. On which day was the sale of cakes the least? _____

2. On which two days were the sales of cakes the same? _____

3. On which day was the sale of cakes double the sale of cakes on Saturday? _____