

# Grammar lessons



This multi-level worksheet is meant for children from classes one to six and therefore offers a mix of some basic grammar skills as also advance exercises in grammar.

## Activity 1

Choose the correct plural and circle it.

- |               |              |           |          |          |        |
|---------------|--------------|-----------|----------|----------|--------|
| 1) Strawberry |              | 2) Tooth  |          | 3) Ox    |        |
| Strawberrys   | Strawberries | Teeth     | Tooths   | Oxen     | Oxes   |
| 4) Wolf       |              | 5) Child  |          | 6) Goose |        |
| Wolves        | Wolfs        | Childs    | Children | Gooses   | Geese  |
| 7) Mouse      |              | 8) Sheep  |          | 9) Leaf  |        |
| Mouses        | Mice         | Sheep     | Sheeps   | Leafs    | Leaves |
| 10) Box       |              | 11) Knife |          | 12) Man  |        |
| Boxes         | Boxs         | Knifes    | Knives   | Men      | Mens   |

## Activity 2

Match the abstract nouns from column one with their antonyms in column 2

- | Column 1      | Column 2        |
|---------------|-----------------|
| 1. Wisdom     | Dullness _____  |
| 2. Safety     | Presence _____  |
| 3. Strength   | Abundance _____ |
| 4. Arrival    | Humility _____  |
| 5. Pain       | Cowardice _____ |
| 6. Brightness | Pleasure _____  |
| 7. Bravery    | Departure _____ |
| 8. Scarcity   | Danger _____    |
| 9. Absence    | Folly _____     |
| 10. Pride     | Weakness _____  |

## Activity 3

Look for the appropriate collective nouns in the word puzzle and use them to fill in the blanks.

1. A \_\_\_\_\_ of elephants
2. A \_\_\_\_\_ of whales
3. A \_\_\_\_\_ of monkeys
4. A \_\_\_\_\_ of hens
5. A \_\_\_\_\_ of sparrows
6. A \_\_\_\_\_ of wolves
7. A \_\_\_\_\_ of owls
8. A \_\_\_\_\_ of lions
9. A \_\_\_\_\_ of puppies
10. A \_\_\_\_\_ of hyenas
11. A \_\_\_\_\_ of camels
12. A \_\_\_\_\_ of ships
13. A \_\_\_\_\_ of kangaroos
14. A \_\_\_\_\_ of crows
15. A \_\_\_\_\_ of geese

M	O	B	C	D	G	U	V	W	F	L	E	E	T
A	H	E	R	D	B	N	A	H	J	M	N	R	S
C	D	J	K	L	M	P	I	O	B	R	O	O	D
G	L	E	H	O	S	T	G	B	C	K	L	B	D
A	I	F	G	H	C	I	E	F	C	L	A	N	D
G	T	Q	R	B	H	L	P	O	P	R	I	D	E
G	T	S	T	R	O	O	P	Q	V	M	N	F	G
L	E	T	U	X	O	U	C	A	R	A	V	A	N
E	R	U	Y	Z	L	M	N	P	P	A	C	K	Q
V	Y	A	R	S	T	M	U	R	D	E	R	Z	W
P	A	R	L	I	A	M	E	N	T	N	O	P	Q



## Activity 6

Complete the following proverbs:

1. A bad workman blames \_\_\_\_\_
2. A rolling stone gathers \_\_\_\_\_
3. Actions speak \_\_\_\_\_
4. Every dog has \_\_\_\_\_
5. Beauty is in the \_\_\_\_\_
6. Blood is thicker \_\_\_\_\_
7. Two wrongs do \_\_\_\_\_
8. Don't put all your eggs \_\_\_\_\_

## Activity 7

The words used to describe the two terms in each group are made up of the same letters. What are the words?

1. a small body of water / a game  
eg: pool / polo

2. hen / a cunning animal

\_\_\_\_\_

3. a challenge / beloved

\_\_\_\_\_

4. a fruit / to harvest

\_\_\_\_\_

5. a chair / a direction

\_\_\_\_\_

6. short sleep / a photograph

\_\_\_\_\_

7. to mail / to block

\_\_\_\_\_

8. to domesticate / a set of players

\_\_\_\_\_

## Activity 8



Fill in the blanks with the correct words:

### disqualified / unqualified

1. The swimming coach is \_\_\_\_\_ to teach diving.
2. The team was \_\_\_\_\_ because of misbehaviour.

### disability / inability

3. Despite his \_\_\_\_\_, he leads a normal life.
4. Joy was not given the job because of her \_\_\_\_\_ to use a computer.

### access / excess

5. Many villages still have no \_\_\_\_\_ to tap water.
6. There was \_\_\_\_\_ food at the party because many guests failed to turn up.

### eminent / imminent

6. The university professor is also an \_\_\_\_\_ scientist.
7. There is an \_\_\_\_\_ danger of another earthquake striking Nepal.

## Activity 9

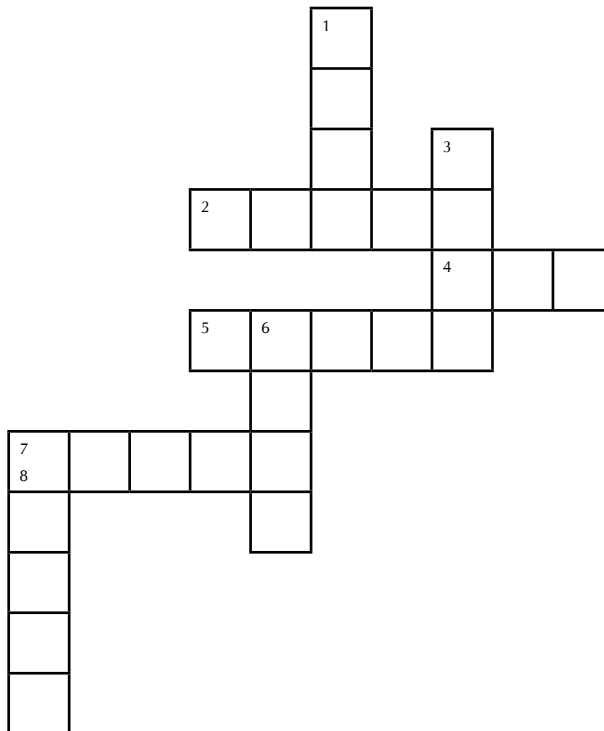
Fill in the crossword with the homophones of the words given below:  
(homophones are words that sound alike but are spelled differently and have different meanings)

across:

2. peace
4. arc
5. flower
7. maze

down:

1. hail
3. bare
6. leak
8. miner



This worksheet is developed by Anjali Sharma. She is a senior coordinator at Gitanjali Devashray, Hyderabad. She can be reached at <[reachanjali@gmail.com](mailto:reachanjali@gmail.com)>.

# The mathematical problem: a commentary

S. Sundaram

The purpose of the worksheet which I had prepared for the April 2015 issue was to test the understanding, at class 6, of several important concepts and skills which are the foundation for building more complex math concepts in middle and high school. This note for teachers is to give a brief commentary on each problem. The problems are grouped as per important curricular topics in primary school.

## Place value

Place value is a very abstract concept and students should be helped to understand it by giving many life experiences using visuals, role plays, and activity materials.

**Problem 2** – What is normally taught in schools as ‘expanded notation’ sticks only to the ‘standard’ representation where each place value contains only numerals from 0 to 9. Many ‘non-standard’ representations are possible which we use while carrying and borrowing in arithmetic operations. We also use them in real life, when paying a certain amount of money by using rupee notes of different denominations. The ‘place value system’ by its very structure, makes it easy to write different non-standard representations.

**Problem 10** – Place value system provides an easy procedure for adding multi-digit numbers, which is why it was readily adapted all over the world. The numbers are added as per their place values, and the sequence in which we add the numbers in a particular ‘place’ does not matter. This is a typical problem which can provide challenging work to students from class 3 up to class 12.

**Problem 18** – The exercise demonstrates that

- a. The same materials can be made to represent different numbers depending on the values assigned to them.
- b. The relationship between A, B, and C is more important than the individual values.

## Operations – Concepts

Schools mostly focus on “how” to do the four operations which are the skill aspect of operation. There are different life situations which lead to the same arithmetic operation and decide the “why”, “when” and “which” of operations. A moment’s introspection will reveal that understanding these life situations and relating them to an arithmetic operation is more important than the skills. Most difficulties faced by students with word problems emanate as much from not understanding these ‘life situations’ as from not understanding the language of the problem.

Addition: **Problem 22** – two sets of things can be added directly only if they do not have common members. In the problem, both brothers may be inviting the same teacher(s)! This problem provides an introduction to Set Theory.

Subtraction: **Problem 8** – There are at least four different life situations, leading to the operation of subtraction – take away, less than, compare, and how much more.

Subtraction: **Problem 3** – A common (and often misleading) trick taught in schools is that when you see the word “more” it is an addition problem. There are at least two life situations (compare and how much more) where the word ‘more’ is used in a subtraction problem.

Multiplication: **Problem 12** – There are at least two life situations (understandable at primary level) which lead to multiplication – repeated addition of equal quantities and array arrangements.



Division: **Problem 5** – There are two major life situations; “sharing” and “grouping” which lead to division. Division by fractions can be interpreted only by grouping and not by sharing! Grouping is misleadingly termed as “repeated subtraction” which is a process and not a concept.

### Operations – Skills

Subtraction: **Problem 1** – This is just a subtraction problem but with a lot of zeros which can confuse a student whose understanding of place value is weak. One trick is to split 100000 into two numbers which do not have any zeros; do the subtraction and then add back the removed number.

Division: **Problem 4** – Mastery of long division with a zero in the quotient is a guarantee of mastery of all the other three operations.

### Fractions

Fractions like place value, are a difficult concept for primary school all over the world, because they are quite different from whole numbers in their structure. They are best understood at the introductory stage with real life and visual examples.

Representation: **Problem 9** – Fractions are best understood visually with area, line or discrete representations. In area representation, the parts need to be equal only in area and not necessarily be similar in shape.

Equivalence: **Problem 7** – Here again a pictorial representation, of dividing the same whole into different parts and taking appropriate parts, would make the concept easier to understand.

Addition: **Problem 14** – Though the skill of adding fractions is mastered, the reason why the procedure (finding the LCM etc, etc) is used is never understood. Fractions can be compared or added, only if they are of the same whole.

Fractions and Ratios: **Problem 11** – Though ratios look like fractions, conceptually they are different. This problem enables students to understand the difference by interpreting a familiar real life situation.

### Geometry

Constructions and measurements in geometry in primary school waste a lot of time, hide the concepts and relationships and prevent development of logical thinking.

Adding angles: **Problem 15** – Set squares from the geometry box are an easy and quick way to understand the concept of adding and subtracting angles.

Sum of angles of a triangle: **Problem 6** – This is normally done by actual measurement with a protractor and the sum rarely totals up to 180. Paper folding enables understanding of both addition of angles and that of the straight angle. It also demonstrates that it is true for any triangle and that it happens only for a flat triangle, i.e., in Plane Geometry; an effective way to introduce other geometries.

Triangles and Quadrilaterals: **Problem 17** – Demonstrates the relations between triangles and quadrilaterals; leading to some unexpected shapes. This also is a problem which can pose challenges right from the lower classes to the higher ones.

Plane Geometry: **Problem 20** – Seen from the number of intersections, there are only four ways (0, 1, 2 and 3) in which three lines can be arranged on a flat surface. Demonstrates why the first topics in plane geometry are lines, angles, transversals, and triangles.

### Mensuration

Area: **Problem 19** – Area is a difficult concept to explain, usually taught only in terms of regular geometrical figures and formulae. This problem enables understanding of the relation between areas of triangles and rectangles and the meaning of a (measurement) unit of area.

### Integers – Directed Numbers

**Problem 13** – Integers are difficult concepts since they are the first instance of numbers without a simple real life interpretation. The problem introduces a life situation where the direction is as important as the magnitude.

### Logical Thinking

One of the most important objectives of learning math is to develop logical thinking and abstraction. Converting Math concepts to information and memorizing them will not develop these.

**Problem 21** – Uses the idea and properties of a magic square to develop logical thinking. It also introduces the student to an important aspect of recreational math and fun with math. Many eminent mathematicians, including Srinivasa Ramanujan, have worked on magic squares. There are 880 different 4X4 magic squares! The example given is called ‘diabolic’ as it contains the maximum number of patterns in the square which total up to the magic total.

**Problem 23** – Uses the same numbers with different operations which can lead to different numbers. With suitable examples students can see the necessity of the BODMAS rules. It is also an open-ended and fun activity where everyone can be a winner. For example, there are at least 20 ways of getting 1 as the answer!

**Problem 26** – Though primary students would attempt this by trial and error, there are more logical approaches. The surprise element is how the same six numbers combine in different ways to yield magic triangles with different magic sums. Higher class students can try to develop a logical approach to the solution.

### Spatial Thinking

**Problem 16** – There are many puzzles built around pentaminos. This problem challenges the spatial thinking ability of students and brings out the difference between area and perimeter. Another interesting problem is to figure out the number of possible distinct pentaminos.

### Beauty in Math

Mathematics is also defined as a language to describe patterns and relations that we see around us. Patterns also lead to symmetry and beauty and development of logic! There have been instances of mathematicians rejecting some solutions as possibly incorrect because they were not beautiful.

Kaprekar’s Constant: **Problem 24** – Here is an example for a surprising result from number theory from a math lover from India. There is yet no proof why the procedure should result in the number 6174.

Number patterns: **Problem 25** – An instance of writing down unknown results just by extending the identified patterns.

The problems under ‘logical thinking’ and ‘beauty in math’ also provide opportunities for students to hone their skills in the four operations in interesting ways looking forward to the surprises. They provide interesting drills for practicing skills.