By discussing the three word problems above, the students should perceive that a complete reliance on cues will prevent them from getting all three problems correct. A better approach would be to consider the context in which the cue word appears. That is a consideration of the basic structure of the problem.

If word-problem assignments contain word problems of each type, they should prevent students from relying totally on cues contained within the problem.

"Face" Values

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Here is a set of activities for students in Grades 6 to 8. Try them out. How good are your students at finding patterns? Answers and hints appear at the end of the activities.

A. Complete the last four

1  = 1 + 0 = 1

2  = 2 + 1 = 3

3  = 3 + 2 + 1 = 6

4  = 4 + 3 + 2 + 1 = 10

5  = 5 + 4 + 3 + 2 + 1 = 15

6  = 6 + 5 + 4 + 3 + 2 + 1 = 21

7  =

8  =

9  =

10  =

B. Complete the chart (use the above information)

1☹	2☹	3☹	4☹	5☹	6☹	7☹	8☹	9☹	10☹	11☹	12☹	→	100 ☹	1000 ☹	n☹
1	3	6	10	15	21							→			

C. "Sign" Values (study group A, and then try group B)

GROUP A

STOP = 2 ☹ 1

MEN WORKING = 4 ☹

STEEP HILL = 3 ☹ 3

DETOUR = 3 ☹

SLIPPERY WHEN WET = 5 ☹

YIELD = 2 ☹ 2

DEER CROSSING = 4 ☹ 2

BUS STOP = 3 ☹ 1

LANDSLIDE = 4 ☹ 3

ENTRANCE = 3 ☹ 2

GROUP B

DEADEND =

MERGE =

NO PARKING =

ONE WAY =

FALLING ROCKS =

EXIT =

PLAYGROUND =

LOOSE GRAVEL =

NO U TURN =

D. Think of other road signs that equal:

3 ☹ 4 ☹ 5 ☹

E. Counting in "face" values

Count up to 20 (or 5 ☹ 5) in "face" values.

F. Basic skills (give answers in "face" values)

$2\,☺ + 3\,☺ =$ $\quad$ $5\,☺ - 4\,☺ =$ $\quad$ $1\,☺ \times 2\,☺ =$

$3\,☺ + 4\,☺ =$ $\quad$ $4\,☺ - 3\,☺ =$ $\quad$ $2\,☺ \times 3\,☺ =$

$3\,☺2 + 2\,☺2 =$ $\quad$ $6\,☺2 - 3\,☺3 =$ $\quad$ $2\,☺2 \times 3\,☺ =$

G. Ratios and comparisons

Write $\dfrac{3\,☺}{4\,☺}$ in simplest terms.

Which is larger $\dfrac{6\,☺}{5\,☺}$ or $\dfrac{5\,☺}{4\,☺}$, and by how much?

H. "Math" values match (place numbers 1 to 12 in the blanks)

$2\,☺\,2$	_____	sum
$3\,☺$	_____	circumference
$4\,☺\,2$	_____	difference
$4\,☺\,4$	_____	prime
$2\,☺$	_____	product
$3\,☺\,1$	_____	quotient
$3\,☺\,3$	_____	area
$4\,☺\,1$	_____	mathematics
$2\,☺\,1$	_____	multiplication
$4\,☺$	_____	factor
$4\,☺\,3$	_____	denominators
$3\,☺\,2$	_____	functions

COMMENTS AND ANSWERS

My Grade 7s and 8s found this activity both interesting and challenging. Read 5 ☺ as "five face"; read 4 ☺ 3 as "four face three."

A. This is a good sequence activity
Answers (in order): 28, 36, 45, 55

B. The last three parts of this chart are a real challenge and good for discussion.
Answers (on the chart):

28	36	45	55	66	78	→	5050	500500	$\frac{n(n+1)}{2}$

C. Any related words or groups of words may be used.
(e.g. "Food" values such as "pizza = 2 ☺ 2.")

Students may need the following hints:
The number of words is irrelevant.
The total number of letters is relevant.
STOP = 2 ☺ 1 actually means STOP = 2 ☺ + 1.

The answers are derived simply by counting the total number of letters and representing that number by a "face" value.
(e.g. STOP = 2 ☺ 1 means STOP has four letters: 2 ☺ = 3 + 1 or 4)

Answers (for Group B):

3 ☺ 1
2 ☺ 2
3 ☺ 3
3 ☺
4 ☺ 2
2 ☺ 1
4 ☺
4 ☺ 1
3 ☺ 1

D. Students simply try to think of other road signs that have a total of 6, 10, or 15 letters. My students came up with these:

3 ☺ bridge, school, one way, no exit, police

4 ☺ fire escape, school zone, picnic site, no left turn

5 ☺ railway crossing, reserved parking, men working ahead

E. Represent the numbers 1 to 20 in "face" values.

Answers:

1 ☺
1 ☺ 1
2 ☺
2 ☺ 1
2 ☺ 2

3 ☺
3 ☺ 1
3 ☺ 2
3 ☺ 3

4 ☺
4 ☺ 1
4 ☺ 2
4 ☺ 3
4 ☺ 4

5 ☺
5 ☺ 1
5 ☺ 2
5 ☺ 3
5 ☺ 4
5 ☺ 5

F. Answers:

3 ☺ 3
5 ☺ 1
4 ☺ 3
3 ☺ 2
2 ☺ 1
4 ☺ 4
2 ☺
5 ☺ 3
7 ☺ 2

G. Answers:

3/5

$\frac{5\ ☺}{4\ ☺}$ by 1/10

H. Answers:

5, 11, 10, 1, 6, 12, 9, 8, 4, 2, 3, 7