



**MATHEMATICS CHALLENGE FOR YOUNG  
AUSTRALIANS  
PRIMARY: YEARS 5, 6 and 7  
WARM UP PROBLEM 03**

**Misplaced in Space**

In a shift-code, the letters of the alphabet are replaced by the numbers 1 to 26 starting at some letter. An example is:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>	<i>J</i>	<i>K</i>	<i>L</i>	<i>M</i>
25	26	1	2	3	4	5	6	7	8	9	10	11
<i>N</i>	<i>O</i>	<i>P</i>	<i>Q</i>	<i>R</i>	<i>S</i>	<i>T</i>	<i>U</i>	<i>V</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>
12	13	14	15	16	17	18	19	20	21	22	23	24

1. Using a shift-code in which  $K = 15$ , what is the sum of the numbers which represent the letters in the word *SKY*?
2. In a different shift-code, the sum of the numbers representing the letters *P* and *Q* is 21. What word is represented by 13 10 21 23 25?

**MCYA Primary 3 Page 2**

3. In another shift-code, the sum of the numbers representing  $A$ ,  $B$  and  $C$  is 42. What is the sum of the numbers which represent the letters of the word  $MARS$  using this code?
4. There are two shift-codes in which the sum of the numbers representing the letters of the word  $HOLE$  is 48.

What is the sum of the numbers representing the letters of the word  $BLACK$  in each of these codes?