

# UNIT 13 Semaphore

# Teacher Resource Material

**Key Stage:** 2

**Target:** Years 5/6

**Teaching Notes**

This is a good introductory code to be used with KS2 pupils; it also brings into focus the concept of efficient design – that is, the design (which gives 28 possible patterns) is just sufficient to meet the purposes of this code.

The flags used are conventionally, each coloured red and yellow. In reality, for the purposes of this Unit, the colourings are irrelevant – plain-coloured flags would be just as effective! This would make an interesting observation/discussion point for the class.

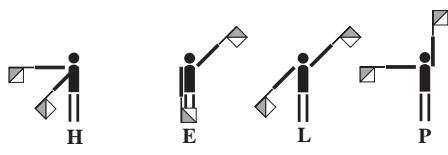
**Solutions and Notes**

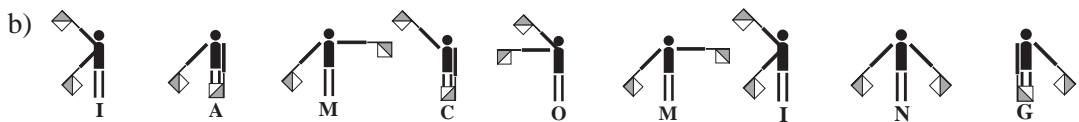
- Activity 1*
- a) 7 positions
  - b) 6 positions
  - c)  $7 + 6 + 5 + 4 + 3 + 2 + 1 = 28$  positions

- Activity 2*
- a)  $5 + 4 + 3 + 2 + 1 = 15$  positions
  - b)  $15 + 14 + 13 + 12 + 11 + 10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 120$  positions

In the 8-position system it is easy to identify and distinguish each position (for 16 it would be more problematic); the 8-position system also gives a sufficient number of patterns to code each letter of the alphabet (for six, this is not true).

*Exercise 1*

a) 

b) 

*Activity 3* One of the flags 'switches on' the number sign and then flags K, A, B, C, D, E, F, G, H and I become numbers 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9; J switches back to letters.

- OS 13.4*
- A) Hello
  - B) We are hungry