

# Diagnostic Check marking key: Mental Arithmetic Introductory Book

Use the **activity prompts** to help pupils overcome problems with particular question types. Other activities may be developed from these prompts.

## Adding and subtracting to 10

1 6

2 3p

3 3

**Activity prompt:** Suggest to pupils that they use a mental number line. Say, for  $3 + 5$ : *Put the larger number in your head on the number line. Now count on three: so 5 and 6, 7, 8. 3 add 5 equals 8.* For subtraction pupils can count up from the smaller to the larger number. So, for  $5 - 3$ : *Begin on 3. Now count on up to 5. That is 3 and 4, 5. So 5 subtract 3 is 2.* To begin with pupils may find it helpful to use their fingers to keep track of how many they count.

## Doubles

4 0

5 12

6 4

**Activity prompt:** Ask pupils to make towers of cubes to show doubles. For example, for double 5 they make two towers of five cubes then combine them to make the double. When they are confident with this, ask them to count on mentally from one number to the second. For example, double 5 is: *5 and 6, 7, 8, 9, 10. So double 5 is 10.*

## Near doubles

7 11

8 1p

9 10

**Activity prompt:** Ask pupils to look carefully at the two numbers and decide which is the nearest double fact that they could use. So for  $5 + 6$  they look for double 5 add 1. For  $8 + 6$  they look for double 6 add 2, and so on. They can use mental number lines to count on if they do not yet know the double facts.

## Multiplication and division by 2

10 6p

11 5p

12 14

13 8

**Activity prompt:** Count together in twos, starting from zero to 20, then back again to zero. When pupils are confident with this, ask them to count in twos to find 4 multiplied by 2, 5 multiplied by 2, and so on. Then ask them to use counting back in twos to find 14 shared among 2. They use their fingers to keep track of how many twos they count. Repeat for more multiplication and division examples for 2.