Multiplication Basic Facts Check-Up Teacher Guide

Item	Correct Answer / Expected Response	Concept / Objective	Alternate responses and possible reasoning / errors	Learning Through Doing lessons
1	2 (or two)	**Set model** Ability to see a group as a unit (unitising) There are 3 stars in each group. There are 2 groups of three stars.	3 – focus is on the number in each group 6 – focus is on the total number of stars not the groups	**Multiplication** – Set model (Joining Equal groups)
2	2nd option (3 groups of 4 triangles)	Interpret a multiplicative expression as a number OF groups and a number IN EACH group	Option 1 – additive thinking (3 + 4) Option 3 – multiplicative but reversed. This picture shows 4 threes rather than 3 fours. Correct total. Incorrect format.	**Multiplication** – Set Model (Joining Equal Groups)
3	5 (or five)	**Length model** Multiplication as equal jumps – Number OF jumps and size or number IN EACH jump	4 – multiplicative thinking but looking at number OF groups instead of size of the jump 6 – additive thinking – counting the number of marks between not spaces	**Multiplication** – Length Model (Number lines)
4	18 (3x6)	**Area Model** Multiplication as a number OF rows and number IN EACH row	8 – count of the number shown in diagram 10 – number need to complete the fill 15 – see 2 fives needed to fill and thought 3 fives or added to top row	**Multiplication -** Area Model (Arrays)
5	1st option (2 hearts 2x1) 3rd option (2 rows of 3 diamonds 2x3)	**Double** as 2 of the same item or quantity. Double as any multiplicative situation where the number OF groups is 2.	Partially correct - Choose one correct only – thought they only needed 1 Or didn't recognise the other Option 2 (3 threes) focus on same number OF groups and IN EACH. Saw equal groups but wrong number IN EACH group Option 4 – (5 stars – 1 five) could be looking at symmetry	**Multiplication –** Basic Facts 2x (Doubles Strategy)
6	Any array that represents 3 rows of 9	**Area Model** Connecting Multiplication to Area. Seeing Multiplication as a number OF rows and a number IN EACH row	Additive thinking – shade 3 spaces and 9 spaces Any array that is not 3x9. Shows multiplicative thinking but wrong factors An array of 9x3 can't fit in the space provided so can't reverse the expression	**Multiplication -** Area Model (Arrays)

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7	1st option (6+6) – repeated addition 4th option (6x2 – commutativity)	Multiplication as repeated addition. Multiplication as a commutative operation	Option 2 – focus on 12 as the answer to 2x6 and retain the 2x format Option 3 – focus on two numbers the same but multiplication (square not double) Option 5 – thinking additive representation is the same as multiplicative	**Multiplication –** Set Model (Joining Equal Groups) **Multiplication** – A commutative operation
8	2nd Option (Half of 10x8) 4th option (8x5) 5th option (8+8+8+8+8 shows repeated addition as 5 eights)	5x strategy as half of 10x Multiplication as a commutative operation (turn arounds)	Option 1 (5+8) – thinking addition the same as multiplication Option 3 (5+5+5+5+5) – repeated addition but the wrong number IN EACH group. 5 fives instead of 5 eights.	**Multiplication** – Basic Fact 5x (Half of 10x) **Multiplication** – A Commutative Operation
9	3rd Option – (3+3+3+3) – repeated addition 4th Option (Double Double 3) 5th Option (3x4) - commutativity	4x strategy as Double Double Multiplication as a commutative operation	Option 1 - (4+3) – double 3 thinking addition the same as multiplication Option 2 – double (2x not 4x)	**Multiplication** – Basic Fact 4x 8x (Extended Doubles) **Multiplication** – A Commutative Operation
10	1st option (5x6 + 2x6) 4th option (8x6 – 1x6) 5th option (Double 3x7)	7x strategy as 5x+2x or 8x–1x Commutative principle to swap a multiplication so a different strategy can be used - see 7x6 as 6x7 and use Double 3x	2nd option – double is a multiplication strategy but not for 7x 3rd option – additive thinking only 5 sevens represented not 6 sevens	**Multiplication** – Basic Fact 7x (5x+2x or 8x–1x) **Multiplication** 6x (Double 3x or 5x+1x) **Multiplication** – A commutative operation

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11	Recall multiplication facts	Automaticity – knowing facts 'off-by-heart'.	Looking for a pattern in the facts that are not known 'off by heart'. Marking multiple facts with X will indicate the particular groups of facts a student is not familiar with e.g. 6x 7x 8x 9x are commonly left out. Lessons can target strategies for these facts. After lessons have been taught the number of facts completed improves as does student confidence	**Multiplication** - Basic Facts 2x **Multiplication** - Basic Facts 3x **Multiplication** - Basic Facts 1x 0x **Multiplication** - Basic Facts 10x **Multiplication** - Basic Facts 5x **Multiplication** - Basic Facts 4x, 8x **Multiplication** - Basic Facts 9x **Multiplication** - Basic Facts 6x **Multiplication** - Basic Facts 7x **Multiplication** - Basic Facts Strategy Review

Notes:
Look for concepts across questions – e.g. consistent incorrect answers:

- **Choosing additive representations for multiplication** – check response Question 2 (Option 1:3+4), Question 7 (Option 5: 2+6), Question 8 (Option 1: 5+8) and Question 9 Option 1: 4+3)
- **Multiplication Area model**. Compare responses between Question 1 and Question 6.
- **Multiplication as repeated addition** – check responses to Question 1, Question 2 (Choose Option 2 – correct or Option 3: incorrect but thinking repeated addition), Question 8 (Option 3 or 5), Question 9 (Options 3) and Question 10 (Option 3)