

Gardening at home Students' work samples

Link to the assessment resource, *Gardening at home* (NM1332).

Student strategies give a better indication than their answer of where the student is in relation to National Standards. These examples are generally listed from the most sophisticated to the least sophisticated. The mean ability of students using each strategy largely follows the stages of the number framework. Click on the link [Analysis of student responses for NM1332](#) for data of the breakdown of how successful students were at obtaining a correct answer to each question.

Fully multiplicative partitioning

(a) 6×5

$$6 \times 5 = \square$$

$$5 \times 5 + 5 = 25 + 5 = 30$$

Answer: 30

Partitioning using basic facts with single compensation

(b) 4×8

$$4 \times 4 = 16$$

$$16 \times 2 = 32$$

Answer: 32

Partitioning using basic facts with single compensation with doubling

(c) 3×12

$$3 \times 12 =$$

$$10 \times 3 = 30$$

$$2 \times 3 = 6$$

$$30 + 6 = 36$$

Answer: 36

Place value partitioning

Partitioning – purely additive

(c) 3×12

$10 + 10 + 10 = 30$
 $2 + 2 + 2 = 6$
 add 30 and the answer is 30
 Answer: 30

Doubling and halving – fully multiplicative

(b) 4×8

half of 4 = 2 and
 $2 \times 8 = 16$ and $2 \times 16 =$
 32
 Answer: 32

Doubling with multiplicative and additive strategies

(b) 4×8

$4 \times 8 = 32$
 $2 \times 8 + 2 \times 8 = 16 + 16 = 32$
 Answer: 32

Multiplicative and additive doubling

(a) 6×5

$5 + 5 + 5$ double it is 30
 Answer: 30

Additive (repeated addition) followed by multiplicative doubling

(b) 4×8

$8 + 8 = 16 + 16 = 32$
 Answer: 32

Purely additive doubling

Repeated addition

(b) 4×8

$8+8+8+8=32$

Answer: 32

Skip counting (evidence of tallying)

(a) 6×5

5 10 15 20 25 30 35 40 45 50
 1 2 3 4 5 6 7 8 9 10
 or
 $5+5=30$

Answer: 30

Skip counting (no evidence of tallying)

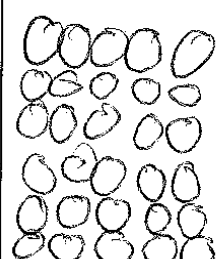
(a) 6×5

6 lots of 5 can go like this
 5 10 15 20 25 30 the answer would
 be 30

Answer: 30

Array diagrams

(a) 6×5



Answer: 30

Grouping diagrams

(a) 6×5

Answer: 30

Stating the answer

(a) 6×5

$6 \times 5 = 30$

Answer: 30

Gives multiplication equation

(a) 6×5

~~$6 \times 5 = 30$~~
 $5 \times 6 = 30$
 $30 \div 5 = 6$
 $30 \div 6 = 5$

Answer: 30

Gives the entire family of facts (with reverse division and commutativity)

(b) 4×8

So there is 4 children but they planted 8 each how many all up 8 groups of 4

~~Times~~ = 128 Answer: 128

Gives a word version of the problem, and states the multiplication with a diagram. The same student did this with parts a) and c), but constructed a correct answer for both of them.