

EYFS

Multiplication

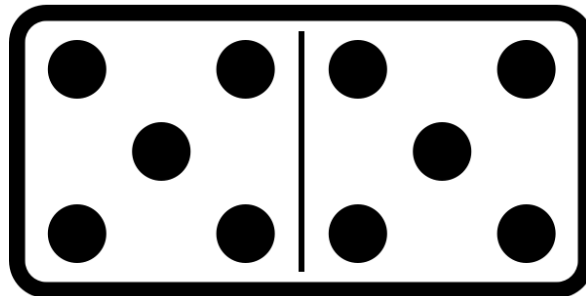
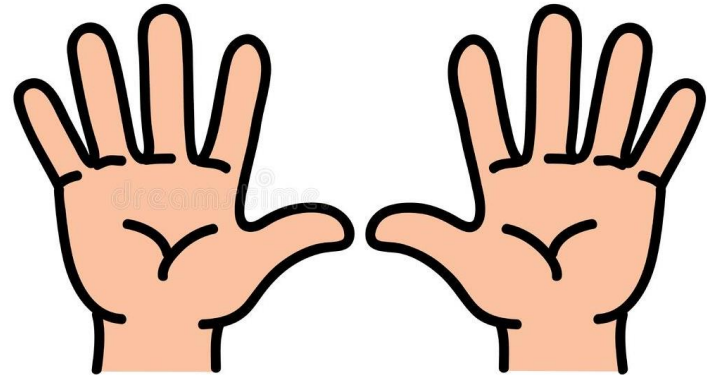
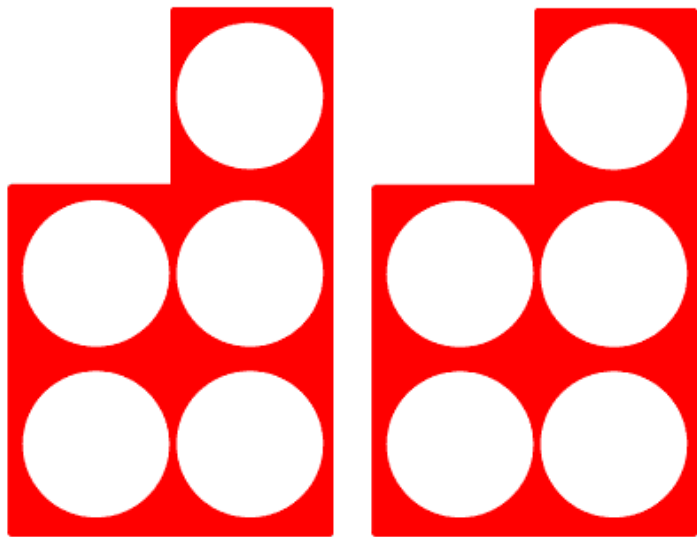
Stage



doubling.

Stage 1:

"Double 5 is 10."



KSI

Multiplication

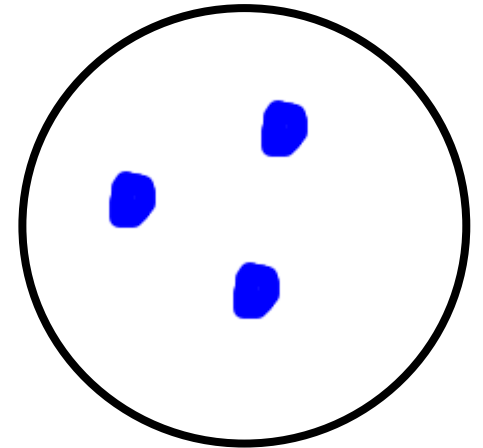
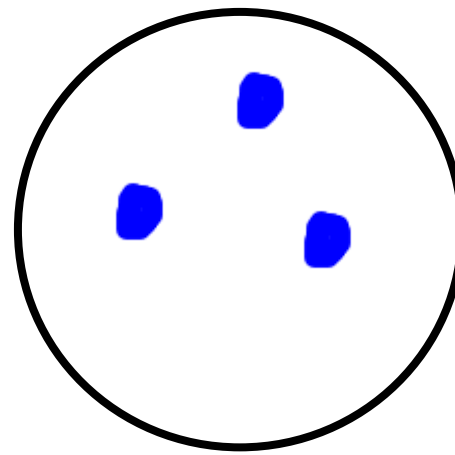
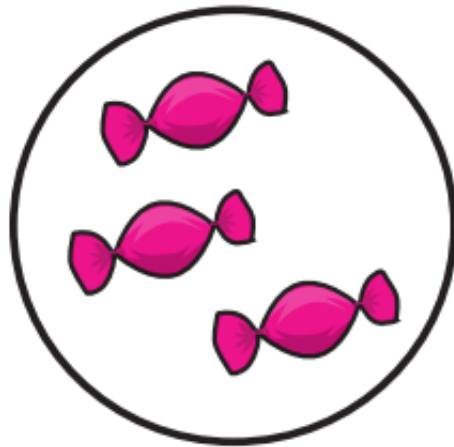
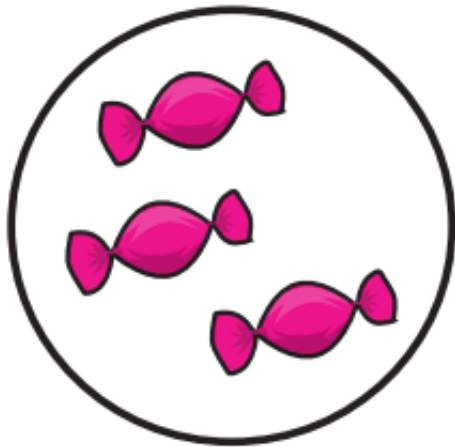
Stages



Stage 2:

making equal
groups.

2 groups of 3

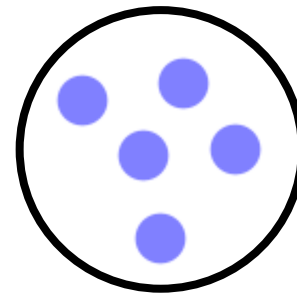
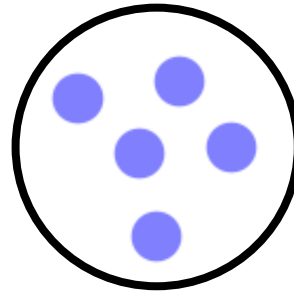
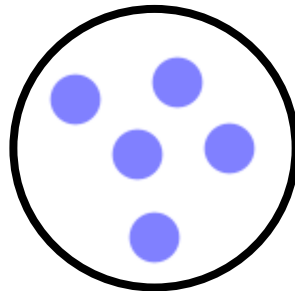
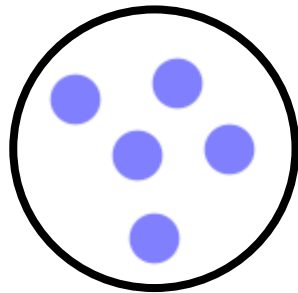
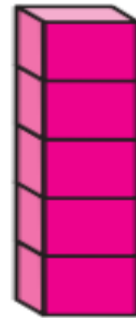
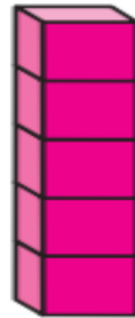
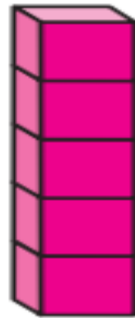
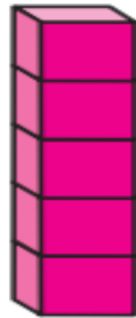


Stage 3:

add equal groups
(repeated addition).

There are 4 groups of 5.

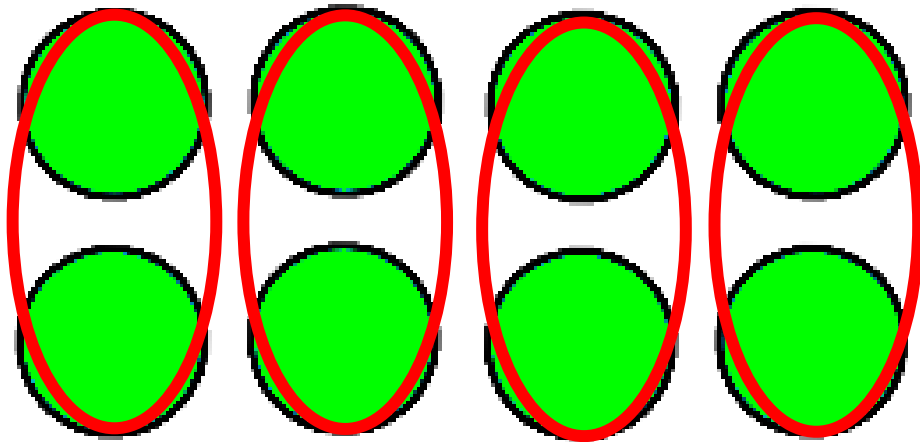
$$5 + 5 + 5 + 5 = 20$$



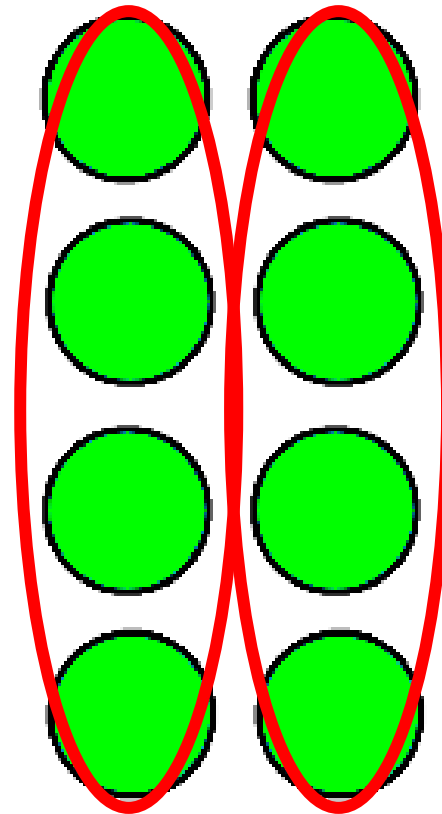
Stage 4:

make arrays.

$$4 \times 2 = 8$$



$$2 \times 4 = 8$$



LKS2 Multiplication

Stages

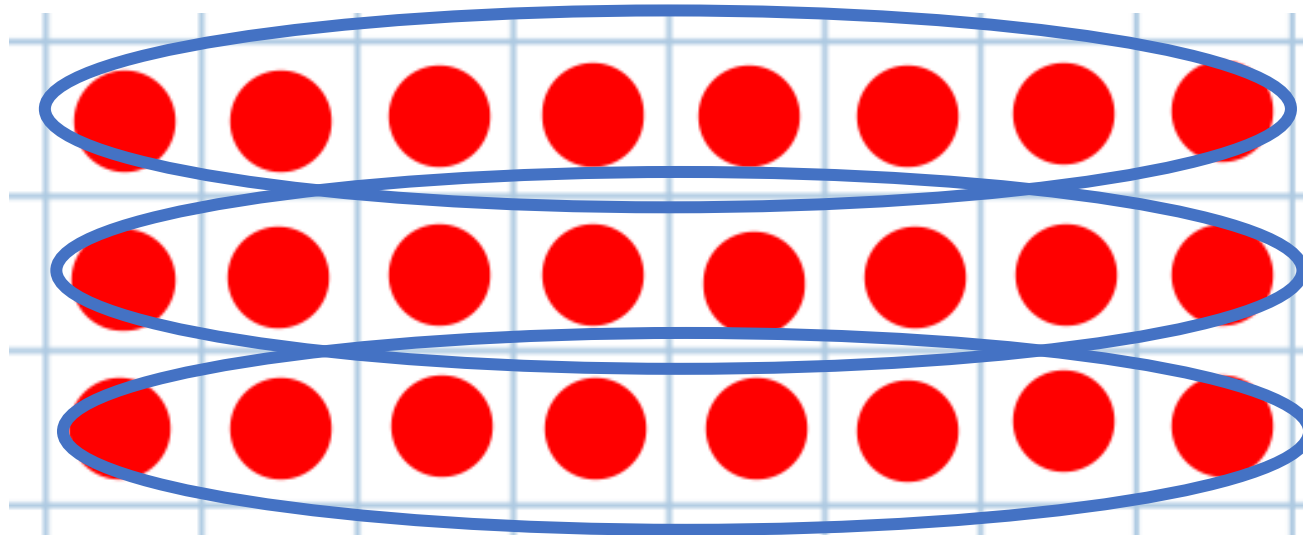


multiply using arrays.

Stage 5:

$$8 + 8 + 8 = 24$$

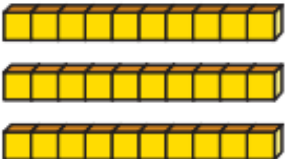
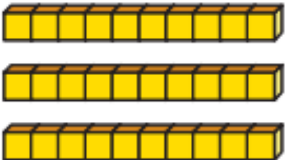
$$3 \text{ groups of } 8 = 24$$

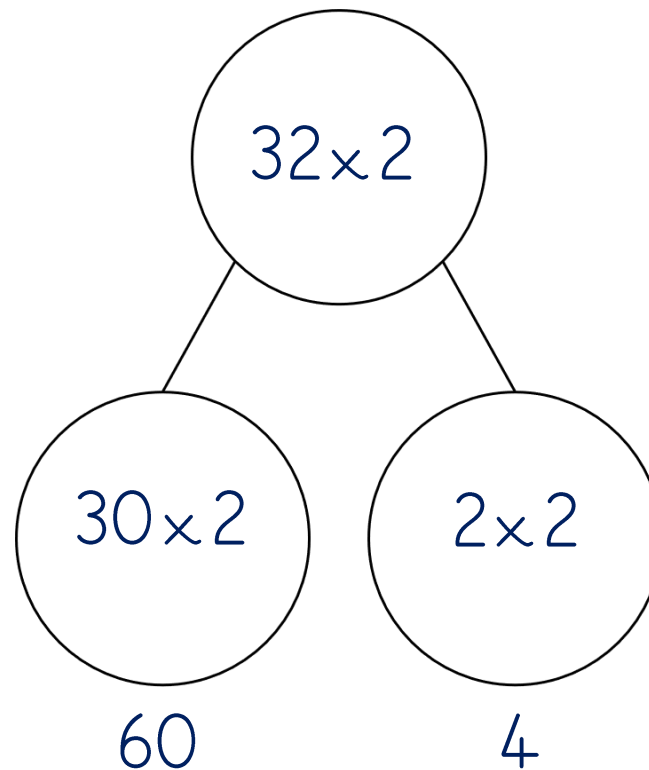


Stage 6:

multiply using partitioning
(no exchange).

$$32 \times 2 = 64$$

Tens	Ones
	
	



$$3 \text{ tens} \times 2 = 6 \text{ tens}$$

$$2 \text{ ones} \times 2 = 4 \text{ ones}$$

$$60 + 4 = 64$$

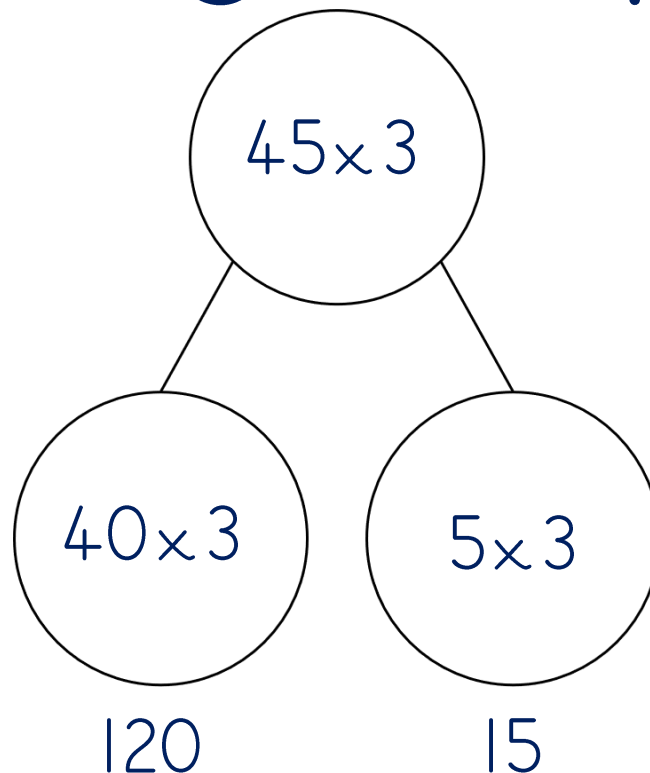


Stage 7:

multiply using
partitioning (exchange).

$$45 \times 3 = 135$$

Tens	Ones
10 10 10 10	1 1 1 1 1
10 10 10 10	1 1 1 1 1
10 10 10 10	1 1 1 1 1



$$4 \text{ tens} \times 3 = 12 \text{ tens}$$

$$5 \text{ ones} \times 3 = 15 \text{ ones}$$

$$120 + 15 = 135$$



Stage 8:

multiply using the
expanded form.

$$24 \times 3 = 72$$

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1
10 10	1 1 1 1

10

	H	T	O
		2	4
x			3
		1	2
		6	0
		7	2

(4 × 3)
(20 × 3)



short multiplication.

Stage 9:

$$215 \times 3 = 645$$

H	T	O
100 100	10	1 1 1 1 1
100 100	10	1 1 1 1 1
100 100	10	1 1 1 1 1

10

	H	T	O
	2	1	5
x			3
	6	4	5
		1	



UKS2 Multiplication

Stages



Stage 10:

short multiplication with
larger numbers.

$$1,152 \times 3 = 3,456$$

Th	H	T	O
1,000	100	10 10 10 10 10	1 1
1,000	100	10 10 10 10 10	1 1
1,000	100	10 10 10 10 10	1 1

10

	1	1	5	2
x				3
	3	4	5	6
		1		



Stage 11:

multiply using the area
model.

$$44 \times 32 = 1,408$$

		40				4			
	×	10	10	10	10	1	1	1	1
30	10	100	100	100	100	10	10	10	10
	10	100	100	100	100	10	10	10	10
	10	100	100	100	100	10	10	10	10
2	1	10	10	10	10	1	1	1	1
	1	10	10	10	10	1	1	1	1

×	40	4
30	1,200	120
2	80	8

$$44 \times 32 = 1,200 + 80 + 120 + 8 = 1,408$$



long multiplication.

Stage 12:

$$653 \times 32 = 20,896$$

		6	5	3		
	x		3	2		
		1	3	0	6	(2 x 653)
+		1	9	5	9	0 (30 x 653)
		2	0	8	9	6
		2	0	8	9	6



multiplying decimals.

Stage 13:

$$3.42 \times 3 = 10.26$$

O			•	Tth				Hth	
1	1	1	•	0.1	0.1	0.1	0.1	0.01	0.01
1	1	1	•	0.1	0.1	0.1	0.1	0.01	0.01
1	1	1	•	0.1	0.1	0.1	0.1	0.01	0.01

Below the table, a red box encloses the three '1's in the 'O' column and the four '0.1's in the 'Tth' column of the first row. Arrows point from this box to a yellow circle labeled '10' and a red circle labeled '1'.

		3	•	4	2
×					3
	1	0	•	2	6
		1			



Multiplication Vocabulary

repeated addition

array

times



product

groups of

multiply

lots of

multiplied by



Conceptual Vocabulary

- Multiplication

5 ^{multiplied by} × 3 ^{equals} = 15

factor ↗ ↘ factor ↘ product

