THIRD SPACE LEARNING

Specialist 1-to-1 maths interventions and curriculum resources

Sentence Stems

Multiplication and Division

Years 1-6

Sentence Stems in a Nutshell

A sentence stem provides pupils with a way to communicate their ideas with mathematical precision and clarity. A sentence stem is a very structured sentence that often expresses a key conceptual idea or generalisation. The structure of a sentence stem provides a framework to embed conceptual knowledge and build understanding.

To use sentence stems in lessons, first introduce the sentence stem and explain how and when to use it. It is very important that the pupils understand the sentence stem otherwise it will not embed their learning. After this, the teacher should model the sentence stem and the pupils chant it back. Encourage repetition of the sentence stem throughout the lesson or lessons to come.

Sentence stems can be a whole sentence, for example:

A half is one of two equal parts.

Or with missing parts to be filled, for example:

A (fraction) is (numerator) out of (denominator) parts.

Where there is a missing part, we have given an example of a completed sentence as shown below.

There are (number/ items). Half of (whole) is (half).

- *There are 8 counters. Half of 8 is 4.*

By providing the pupils with a structure to follow, they will have an accurate way to discuss the given topic. By using repetition, the concepts expressed in the sentence stems will become embedded.

Year 1 | Multiplication

1

Sentence Stems

Equal groups/ unequal groups

There are (number) groups/lots/sets of (number/ item).

- *There are 3 groups of 5 cars.*

This is not (number) groups/lots/sets of (number/ item) as they are not equal groups.

- *This is not 2 groups of 10 sweets, as they are not equal groups.*

Arrays

In this array, there is/ are (number/ item) in each row. There is/ are (number) rows of (number/ items).

- *In this array, there are 5 oranges in each row. There are 6 rows of 5 oranges.*

In this array, there is/ are (number/ item) in each column. There is/ are (number) columns of (number/ item).

- *In this array, there are 10 cookies in each column. There are 3 columns of 10 cookies.*

Double

Double (number) is (number).

- *Double 5 is 10.*

Twice as much as (number) is (number).

- *Twice as much as 5 is 10.*

Vocabulary

Lots of	Double
Sets of	Doubling
Groups of	Twice as much as…
Equal groups	Twos
Array	Fives
Row	Tens
Column	Skip counting
Patterns	

Year 1 | Division 1

Sentence Stems

Grouping

One group of (number), two groups of (number), three groups of (number)...

- *One group of 5, two groups of 5, three groups of 5,…*

Each (item) can hold (number/ item). (number/ item) will need (number/ item).

- *Each box can hold 2 cupcakes. 8 cupcakes will need 4 boxes.*

There are (number) equal groups of (number). There are (number) altogether.

- *There are 6 equal groups of 2. There are 12 altogether.*

Sharing

One for you, one for you, one for you,….

(number/ item) have been shared equally into (number) groups/ lots/sets. There are (number/ item) in each group/lot/set. **OR** each group/lot/set has (number/ item).

- *15 toy cars have been shared equally into 3 groups. There are 5 toy cars in each group.* **OR** *Each group has 5 toy cars.*

(number/ item) have not been shared equally between (number) groups/lots/sets. There are not equal groups/lots/sets of (item).

- *20 sweets have not been shared equally between 3 groups. There are not equal groups of sweets.*

Share (number) equally between (number) groups. Each group has (number).

- *Share 14 equally between 2 groups. Each group has 7.*

Vocabulary

Equal groups of
Equal lots of
Equal sets of
Grouping
Share equally
Sharing
Share
Half
Halves
Halving
Half as much/ many as…
Arrays
Row
Column
Patterns

Sentence Stems continued

Array

(number/ item) have been used to make this array. There are (number) rows of (number/ item).

- *10 oranges have been used to make this array. There are 5 rows of 2 oranges.*

(number/ item) have been used to make this array. There are (number) columns of (number/ item).

- *15 cookies have been used to make this array. There are 3 columns of 5 cookies.*

Half

Half of (number) is (number).

- *Half of 10 is 5.*

Year 2 | Multiplication

2

Sentence Stems

General multiplication

(number) groups/lots/sets of (number) is the same as (number) times/multiplied by/x (number), which equals/= (number).

- *5 groups of 4 is the same as 5 times 4, which equals 20.*

(number) is a multiple of (number) because it is in the (number) times table.

- *8 is a multiple of 2 because it is in the 2 times table.*

(number) cannot be in the (number) times table because…

- *21 cannot be in the 10 times table because….*

Multiplication is commutative – you can swap the numbers in the calculation/ equation.

Repeated Addition (array)

There are (number) groups of (number/ item). (number) + (number) = (number). There are (number/ item) altogether.

- *There are 3 groups of 5 stars. 5 + 5 + 5 = 15. There are 15 stars altogether.*

There are (number) lots of (number/ item). There are (total/ item) altogether.

- *There are 9 lots of 5 apples. There are 45 apples altogether.*

(number a) x (number b) = (number b) x (number a).

- *3 × 10 = 10 × 3*

In this array, there are (number/ item) in each row. There are (number) rows of (number/ item). So (number) x (number) = (total)

- *In this array, there are 5 oranges in each row. There are 6 rows of 5 oranges. So 5 × 6 = 30*

[Link to fact family: 30 ÷ 5 = 6 and 30 ÷ 6 = 5]

Vocabulary

Times
Multiplication
Multiply
Multiplied by
Multiple of
×
=
Repeated addition
Ten/five times as much/many as…
Once, twice, three times… ten times
Multiplication facts
Multiplication table
Commutative Law
Commutativity
Calculation
Equation
Bar model

Sentence Stems continued

In this array, there are (number/ item) in each column. There are (number) columns of (number/ item). So (number) x (number) = (total)

- *In this array, there are 10 cookies in each column. There are 3 columns of 10 cookies. So 10 × 3 = 30*

[Link to fact family: 30 ÷ 3 = 10 and 30 ÷ 10 = 3]

Year 2 | Division

2

Sentence Stems

Grouping

(number a) can be put into groups of (number b). This is the same as (number a) being divided into groups of (number b), which equals (number c). This can be written as (number a) ÷ (number b) = (number c)

- *20 can be put into groups of 4. This is the same as 20 divided into groups of 4, which equals 5. This can be written as 20 ÷ 4 = 5*

(number a) divided by (number b) equals (number c).

- *20 divided by 4 equals 5.*

Sharing

(number a) can be shared equally between (number b) groups/lots/etc. This is the same as (number a) shared into (number b) groups/lots/set, which equals (number c). This can be written as (number a) ÷ (number b) = (number c)

- *20 can be shared equally between 4 groups. This is the same as 20 shared into 4 groups, which equals 5. This can be written as 20 ÷ 4 = 5*

(number a) can be shared equally into (number b) groups/lots/sets because (number a) can be shared equally into (number b) groups because (number a) is a multiple of (number b).

- *20 can be shared equally into 2 groups because 20 is a multiple of 2.*

(number a) cannot be shared into (number b) groups/lots/sets because there is/are (number c) left over.

- *21 cannot be sharedequally into 2 groups because there is 1 left over.*

Division is **not** commutative – you cannot swap the numbers around in the calculation/equation.

Vocabulary

Division	Group in pairs, threes… tens
Divide	Multiple
Divided by	Division facts
Divided into	Commutative Law
Repeated subtraction	Commutativity
Left over	Calculation
One each, two each, three each… ten each	Equation
	÷
	=

Year 3 | Multiplication

3

Sentence Stems

General multiplication

I know that (number a) times (number b) equals (number c) because (number b) times (number a) equals (number c).

- *I know that 3 times 6 equals 18 because 6 times 3 equals 18.*

The product of (number a) and (number b) is (number c).

- *The product of 7 and 4 is 28.*

If (number a) x (number b) = (number c), then (number c) ÷ (number a/b) = (number b/a)

- *If 3 × 8 = 24, then 24 ÷ 8 = 3* **OR** *24 ÷ 3 = 8*

Multiply by 4 and 8

To calculate 4 lots of (number), I can double (number) and double the answer.

- *To calculate 4 lots of 6, I can double 6 and double the answer.*

(multiplier) x 4 = (product)

- *6 × 4 = 24*

To multiply by 8, I can double and double again.

Using known facts

If (number a) x (number b) = (number c), then (number a) tens x (number b) = (number c) tens.

- *If 8 × 7 = 56, then 8 tens × 7 = 56 tens = 560 and 8 × 7 tens = 56 tens = 560*

If (number a) x (number b) = (number c), then (number c) ÷ (number a/b) = (number b/a)

- *If 40 × 2 = 80, then 80 ÷ 2 = 40* **OR** *80 ÷ 40 = 2*

Vocabulary

Threes
Fours
Eights
Product
Factor
Short multiplication
Associative Law
Associativity
Scaling (integers)
Correspondence

Sentence Stems continued

Scaling

There are (number) times as many (item) as (item).

- *There are 3 times as many red tops as blue tops.*

Correspondence

E.g. How many outfits combinations could be made?

(number a/ item a) and (number b/ item b) means (number a) x (number b). So there are (product) different combinations.

- *4 shirts and 3 shorts means 4 × 3. So there are 12 different combinations.*

Year 3 | Division

3

Sentence Stems

Using known facts

I know that (number a) ÷ (number b) = (number c) because (number c) × (number b) = (number a)

- *I know that 24 ÷ 3 = 8 because 8 × 3 = 24*

(number a) ÷ (number b) = ?, this means ? x (number b) = (number a)

- *72 ÷ 8 = ?, this means ? × 8 = 72*

If (number a) x (number b) = (number c), then (number c) tens ÷ (number b) = (number a) tens, so (number c x 10) ÷ (number b) = (number a x 10).

- *If 8 × 7 = 56, then 56 tens ÷ 7 = 8 tens, so 560 ÷ 7 = 80.*

If (number a) ÷ (number b) = (number c), then (number a) tens ÷ (number b) = (number c) tens, so (number a x 10) ÷ (number b) = (number c x 10)

- *If 40 ÷ 4 = 10, then 40 tens ÷ 4 = 10 tens, so 400 ÷ 4 = 100*

Divide by 4 and 8

To divide a number by 4, I can half the number and half the answer.
To find a quarter of something is the same as dividing by 4.
To divide something by 8, I can halve, halve and halve again.

Remainder

(number a) is not in the (number b) times tables; when you divide (number a) by (number b) there is a remainder of (number c).

- *32 is not in the 3 times tables; when you divide 32 by 3 there is a remainder of 2.*

Vocabulary

Threes	Short division
Fours	Scaling (integer)
Eights	Quarter
Product	Third
Remainder	Eighth

Year 4 | Multiplication

4

Sentence Stems

Inverse

The inverse of 'multiply' is 'divide'.

The distributive law

(number a) groups of (number b) is the same as (number c) groups of (number b) plus (number d) groups of (number b).

- *12 groups of 6 is the same as 10 groups of 6 plus 2 groups of 6*

The distributive law: (number) x (number) = (number) x (number) –/ + (number) x (number)

- *The distributive law:* $9 \times 8 = 10 \times 8 - 1 \times 8$
- $11 \times 8 = 10 \times 8 + 1 \times 8$

Multiplying by 0

Multiplying anything by 0 gives an answer of 0 as this is the same as no lots of anything.

Multiplying by 1

Multiplying anything by 1 gives the same number as this is the same as one lot of anything.

Multiplying by 10, 100

When multiplying by 10, the digits move one place to the left.

When multiplying by 100, the digits move two places to the left.

When multiplying by (10/ 100), the number is (10/ 100) times bigger.

Multiply by 6

To multiply by 6, I can multiply by 3 and double the answer.

Vocabulary

Inverse
Distributive law
Multiplying by 0 and 1
Multiplying by 10, 100

Year 4 | Division

4

Sentence Stems

General division

The dividend is the number you are dividing.

The divisor is the number you are dividing by.

The quotient is the answer to a division fact. (42 ÷ 6 = 7, so the quotient is 7).

Factor/Factor pairs and multiples

(number a) ÷ (number b) = (number c), so (number b) and (number c) are factors of (number a).

- *42 ÷ 8 = 6, so 8 and 6 are factors of 42.*

The product of (number a) and (number b) is (number c), so (number b) and (number c) are a factor pair of (number a)

- *The product of 6 and 8 is 42, so 6 and 8 are a factor pair of 42*

(number a) is a multiple of both (number b) and (number c).

- *42 is a multiple of both 8 and 6*

Inverse

I know that (number a) ÷ (number b) = (number c) because (number b/c) x (number c/b) = (number a).

- *I know that 48 ÷ 6 = 8 because 8 × 6 = 48*

Dividing by 10, 100

When dividing by (10 or 100), the number is being split into (10 or 100) equal parts. The number is (10 or 100) times smaller.

When dividing by 10, we move the digits one place to the right.

When dividing by 100, we move the digits two places to the right.

There are (number) tens in (number).

- *There are 10 tens in 100.*

Divide by 1

Dividing anything by 1 gives the same number as this is just one group of anything.

Vocabulary

Inverse
Dividend
Divisor
Quotient
Divisible by
Dividing by 10, 100
Factor
Factor pair

Year 5 | Multiplication

5

Sentence Stems

Common multiples

Common multiples of given numbers are numbers that are in the times tables of both numbers. Common multiples of (number a) and (number b) are ....

- *Common multiples of 2 and 5 are 10, 20, 30...*

Composite numbers

All numbers with more than two factors are composite numbers.

Prime numbers

A prime number only has two factors, 1 and itself.

Multiplying by 1,000

When multiplying by 1,000, the digits move three places to the left.

When multiplying by 1,000, the number is 1,000 times bigger.

Square number

A square number is made when you multiply a number by itself.

(number) x (number) = (product), so (product) is a square number.

- *4 × 4 = 16, so 16 is a square number.*

Cube number

A cube number is made when you multiply a number by itself twice.

(number) x (number) x (number) = (product), so (product) is a cube number.

- *2 × 2 × 2 = 8, so 8 is a cube number.*

Vocabulary

Common multiples
Composite numbers
Multiplying by 10, 100 and 1000
Square
Squared
Cube
Cubed

Year 5 | Division

5

Sentence Stems

Divisible by

(number a) is a multiple of (number b). This means that (number a) is divisible by (number b).

- *108 is a multiple of 9. This means that 108 is divisible by 9.*

(number a) is divisible by (number b) because (number b) x (number c) = (number a)

- *108 is divisible by 9 because 9 × 12 = 108*

Common factors

The factors of (number a) are…
The factors of (number b) are…
The common factors of (number a) and (number b) are…

- *The factors of 15 are 1, 3, 5, 15.*
- *The factors of 21 are 1, 3, 7 and 21.*
- *The common factors of 15 and 21 are 1 and 3.*

Composite numbers

A composite number is not prime, it has more than two factors.

Dividing by 1,000

When dividing by 1,000, the digits move three places to the right.

When dividing by 1,000, the number is 1,000 times smaller.

Vocabulary

Common factors
Prime
Prime factors
Composite numbers
Dividing by 10, 100 and 1,000

Year 6 | Multiplication

6

Sentence Stems

Lowest common multiple

The smallest common multiple of any given numbers is called the lowest common multiple (LCM).

The LCM of (number) and (number) is (LCM).

- *The LCM of 3 and 6 is 6.*

Indices (powers)

Indices show how many times to multiply a number by itself.

For (number) squared, write (number)^2. This is the same as (number) x (number).

- *For 5 squared, write 5^2. This is the same as 5 x 5.*

For (number) cubed, it is the same as (number) x (number) x (number). This can be read as (number) to the power of 3.

- *For 5 cubed, it is the same as 5 x 5 x 5. This can be read as 5 to the power of 3.*

Bracket

A bracket is used to tell us which part of an equation to do first according to BIDMAS.

BIDMAS

BIDMAS tells us the order in which to complete a calculation. We do **B**rackets, **I**ndices, **D**ivision & **M**ultiplication, **A**ddition and **S**ubtraction.

Vocabulary

Indices (powers)
Lowest common multiple
Brackets
Order of operations (BIDMAS)

Year 6 | Division

6

Sentence Stems

Highest common factor

The highest common factor (HCF) is the largest common factor of given numbers.

The common factors of (number) and (number) are ... – the HCF is (number).

- *The common factors of 16 and 20 are 1, 2 and 4 – the HCF is 4.*

Bracket and BIDMAS are applicable to division also.

Vocabulary

Highest common factor
Brackets
Order of operations (BIDMAS)