



**THIRD SPACE
LEARNING**

Sentence Stems and Vocabulary Lists

Fractions, Decimals,
Percentages and Ratio

1st to 6th Grade

Sentence Stems in a nutshell

A sentence stem provides students 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.

How to use the questions in this resource

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 students understand the sentence stem otherwise it will not embed their learning. After this, the teacher should model the sentence stem and the students 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 students 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.

1st Grade

Fractions General

A fraction is a number that represents equal parts of a whole.

Equal parts look exactly the same.

Parts and Wholes

A whole is the total number of parts.

One whole is always bigger than a part of the whole.

A part is always smaller than the whole.

More equal shares means smaller shares.

This is a whole (item) because I have all of it. OR This is a whole group of (items) because I have all of them.

- *This is a whole circle because I have all of it. OR This is a whole group of circles because I have all of them.*

This is not a whole (item) because I don't have all of it. OR This is not a whole group of (items) because I don't have all of them.

- *This is not a whole circle because I don't have all of it. OR This is not a whole group of circles because I don't have all of them.*

If (item / number) is the whole then (item / number) is part of the whole.

- *If 4 is the whole then 2 is part of the whole.*

Half

A half is one of two equal parts.

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

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

Quarter / Fourth

A quarter is one of four equal parts.

A fourth is one of four equal parts.

There are (number / items). One quarter of (whole) is (quarter).

- *There are 8 counters. One quarter of 8 is 2.*

There are (number / items). One fourth of (whole) is (fourth).

- *There are 8 counters. One fourth of 8 is 2.*

Vocabulary

Equal groups	Quarter / quarters
Equal part(s)	Fourth / fourths
Equal sharing	Whole
Fraction	
Half / halves	
Part	
Parts of a whole	

2nd Grade

Third

A third is one of three equal parts.

Partitioning a Shape

When a shape is partitioned into one equal share, one part is the whole.

When a shape is partitioned into two equal shares, the shape shows two halves.

When a shape is partitioned into three equal shares, the shape shows three thirds.

When a shape is partitioned into four equal shares, the shape shows four fourths.

Vocabulary

Equal shares

Half of ...

Third

3rd Grade

Fractions General

The numerator shows the number of equal parts of a whole.

The denominator is the total number of equal parts that make up a whole.

A unit fraction is one equal part of a whole.

The whole is (number). A part of the whole is (number).

- *The whole is 10. A part of the whole is 5.*

If (number) is the whole then (number) is part of the whole.

- *If 10 is the whole then 5 is part of the whole.*

To find one half / quarter / third of (number), you share it into (denominator) equal groups and look at (numerator) equal groups.

- *To find one half of 4, you share it into 2 equal groups and look at 1 equal group.*

The whole is (total). (Number) half / quarter / third of (total) is (answer).

- *The whole is 10. One half of 10 is 5.*

Writing fractions

The (whole) is divided into (number) equal parts, we are looking at (number) part(s). This can be written as (fraction).

- The square is divided into four equal parts, we are looking at one part.

This can be written as $\frac{1}{4}$.

Equivalent Fractions

Equivalent means equal value.

(Fraction) is equivalent to (fraction)

because they are of equal value.

(Fraction) = (fraction).

- $\frac{2}{4}$ is equivalent to $\frac{1}{2}$ because they are of equal value.
- $\frac{2}{4} = \frac{1}{2}$

Number line

The start point is (number) and the end point is (number).

The start point is 0 and the end point is 1.

There are (number) intervals on the number line. Each interval is worth (fraction).

- *There are 5 intervals on the number line. Each interval is worth $\frac{1}{10}$.*

The number line is counting up in (fraction)(s).

- *The number line is counting up in halves.*

Comparison

If the denominators are the same, the (larger / smaller) the numerator, the (larger / smaller) the fraction.

- *If the denominators are the same, the larger the numerator the larger the fraction.*

3rd Grade

If the numerators are the same, the (larger / smaller) the denominator, the (smaller / larger) the fraction.

If the numerators are the same, the larger the denominator the smaller the fraction.

(fraction) is greater than (fraction).

(fraction) > (fraction).

- $\frac{1}{2}$ is greater than $\frac{1}{4}$
- $\frac{1}{2} > \frac{1}{4}$

(fraction) is less than (fraction).

(fraction) < (fraction).

- $\frac{1}{4}$ is less than $\frac{1}{2}$
- $\frac{1}{4} < \frac{1}{2}$

Fraction of a Set of Objects

To find (fraction) of a set of objects, you divide the objects into (denominator) equal groups and count the amount in (numerator) equal part(s).

- *To find $\frac{1}{5}$ of a set of objects, you divide the objects into 5 equal groups and count the amount in 1 equal part.*

OR

- *To find $\frac{3}{4}$ of a set of objects, you divide the objects into 4 equal groups and count the amount in 3 equal parts.*

Vocabulary

Denominator
Equivalent
Numerator
Third
Three quarters
Unit fraction
Halfway
Intervals

4th Grade

Fractions General

A unit fraction is one equal part of a whole.

Wholes

In the fraction (fraction), (number) equal parts make one whole.

- In the fraction $\frac{5}{5}$, 5 equal parts make one whole.

When the numerator and denominator are equal, the fraction is equivalent to one whole.

There are 10 tenths in 1 whole.

- $0.1 \times 10 = 1$ whole

(number) (tenths / hundredths) + (number) (tenths / hundredths) = one whole.

- 4 tenths + 6 tenths = one whole
- $0.4 + 0.6 =$ one whole

Mixed number and improper fraction

A mixed number contains an integer and a proper fraction.

(Mixed number) is a mixed number because it contains the integer (integer) and the proper fraction (fraction).

- $3\frac{4}{5}$ is a mixed number because it contains the integer 3 and the proper fraction $\frac{4}{5}$.

An improper fraction is a fraction with a numerator that is greater than the denominator.

(Fraction) is an improper fraction because the numerator (numerator) is larger than the denominator (denominator).

- $\frac{9}{4}$ is an improper fraction because the numerator 9 is larger than the denominator 4.

Adding / Subtracting

When the denominators are the same, add the numerators.

When the denominators are the same, subtract the numerators.

Count in tenth(s). The number before (number) tenth(s) is (number) tenth(s). The number after (number) tenth(s) is (number) tenths(s).

- Count in tenths. The number before 2 tenths is 1 tenth. The number after 2 tenths is 3 tenths.

(number) hundredth(s) is / are the same as (number) out of one hundred equal parts.

- 46 hundredths are the same as 46 out of one hundred equal parts.

Each square is one out of (ten / one hundred) equal squares. The coloured section is (fraction). This is (decimal).

- Each square is one out of ten equal squares. The coloured section is $\frac{5}{10}$. This is 0.5

4th Grade

There are (number) ones, (number) tenths and (number) hundredths. I can write this as (decimal).

- *There are 3 ones, 2 tenths and 1 hundredth. I can write this as 3.21.*

(number) ones + (number) tenths + (number) hundredths = (decimal)

- *3 ones + 2 tenths + 1 hundredth = 3.21*

There is / are (number) whole(s) and (number) tenths in (number). The number is (number).

- *There are 3 wholes and 5 tenths in 3.5. The number is 3.5.*

(number) tenths is / are larger than (number) hundredths.

- *2 tenths are larger than 2 hundredths.*

Comparing Decimals

When comparing numbers, always start by comparing the highest value columns.

Dividing by 10 or 100

When dividing by (10 or 100), the number is being divided 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.*

*Relating to a place value chart.

Vocabulary

Unit fraction

Non-unit fraction

Decimal

Decimal point

Decimal place

Hundredths

Mixed number / improper fraction

Place holder (zero)

Tenths

5th Grade

Equivalent fractions

To find an equivalent of a given fraction, multiply the numerator and denominator by the same number.

Add and Subtract Fractions

To add and subtract fractions with different denominators, find the lowest common multiple of the denominators and use this to determine an equivalent fraction for each fraction. Then, add / subtract the numerators.

General Decimals

Zero is a place holder. Zero has no value.

Comparing Decimals

To compare fractions, find a common denominator or common numerator.

Rounding Decimals

This can be adapted for rounding to other decimal places.

When rounding to the nearest whole, if the tenths digit is four or less, round to the previous whole number. If the tenths digit is five or more, round to the next whole number.

(number) is closer to (number) than (number). (number) rounds to (number) when rounded to the nearest whole.

- *1.7 is closer to 2 than 1. 1.7 rounds to 2 when rounded to the nearest whole number.*

Fractions to Decimals

The fraction (fraction) is the same as (decimal).

The fraction $\frac{15}{1000}$ is the same as 0.015.

Hundredths and Thousandths (Decimals)

(number) thousandth(s) is / are the same as (number) out of one thousand equal parts.

- *321 thousandths are the same as 321 out of one thousand equal parts.*

(number) hundredths is / are larger than (number) thousandths.

- *2 hundredths are larger than 2 thousandths.*

Adding / Subtracting (Decimals)

Add or subtract digits with the same place value.

Always start with the lowest place value.

When adding / subtracting decimals using the formal written method, align the decimal points.

Use zero as a place holder if decimals are not the same length.

5th Grade

Multiplying Decimals by 10 / 100 / 1,000

When multiplying by (10 / 100 / 1,000), the number is (10 / 100 / 1,000) times bigger.

When multiplying by (10 / 100 / 1,000), we move the digits (one / two / three) places to the left respectively.*

When dividing by (10 / 100 / 1,000), the number is (10 / 100 / 1,000) times smaller.

When dividing by (10 / 100 / 1,000), we move the digits (one / two / three) places to the right respectively.*

*Relating to a place value chart.

Vocabulary

Improper fraction

Greatest common divisor

Least common multiple

Mixed number

Thousandths

6th Grade

Finding Common Multiples (Fractions)

For (fraction) and (fraction),
(denominator) and (denominator) have a least common multiple of (number). The fractions can both have a denominator of (least common multiple).

(For $\frac{1}{2}$ and $\frac{1}{5}$) 2 and 5 have a least common multiple of 10. The fractions can both have a denominator of 10.

Simplify Fractions

To simplify a fraction, divide the numerator and denominator by their greatest common multiple.

Division and fractions

The fraction (fraction) can be shown as (number) $\div$ (number).

- $\frac{1}{2}$ can be shown as $1 \div 2$

(number) $\div$ (number) is the same as the fraction (fraction).

- $1 \div 2$ is the same fraction as $\frac{1}{2}$.

Percentages

Percentage or percent means how many parts per hundred.

Cent means hundred.

There are (number) parts per hundred shaded. This is (number) %.

- *There are 73 parts per hundred shaded. This is 73%.*

(percentage) is equivalent to (fraction).

To find (percentage) of an amount, divide by (denominator).

- *50% is equivalent to $\frac{1}{2}$. To find 50% of an amount, divide by 2.*

To find 50%, I can halve 100%.

(percentage) is equivalent to (fraction).

25% is equivalent to $\frac{1}{4}$.

Ratio and proportions

Ratios shows the relationship between two amounts.

For every (number / item) there are (number / item).

- *For every 3 red cubes there are 2 yellow cubes.*

The notation of a ratio relates to the order of the parts.

The ratio of (item) to (item) is (number) : (number).

- *The ratio of red counters to blue counters is 1 : 2.*

(Item) is (number) times as big as (item).

- *Shape A is 2 times as big as shape B.*

Vocabulary

Enlarged	Proportion
Enlargement	Ratio
For every	Scale factor
Per cent	Simplify
Percentage	

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