

Maths

Data Handling

Phase 2

Year 1

IB Phase 2

Learners will understand how information can be expressed as organized and structured data and that this can occur in a range of ways. They will collect and represent data in different types of graphs, interpreting the resulting information for the purpose of answering questions. The learners will develop an understanding that some events in daily life are more likely to happen than others and they will identify and describe likelihood using appropriate vocabulary.

Conceptual Understandings IB2

Information can be expressed as organized and structured data.
Objects and events can be organized in different ways.
Some events in daily life are more likely to happen than others.

Learning outcomes

Data Handling

Collect, organize and represent data (including pictograms, tally marks and living graphs using real objects and people)

Interpret data where one object or drawing represents one value

Interpret data by comparing quantities for example, more, fewer, less than, greater than

Probability

Identify familiar events involving chance and describe them using everyday language such as 'will happen', 'won't happen' or 'might happen'

Year 2

IB Phase 2

Learners will understand how information can be expressed as organized and structured data and that this can occur in a range of ways. They will collect and represent data in different types of graphs, interpreting the resulting information for the purpose of answering questions. The learners will develop an understanding that some events in daily life are more likely to happen than others and they will identify and describe likelihood using appropriate vocabulary.

Conceptual Understandings IB2

Information can be expressed as organized and structured data.
 Objects and events can be organized in different ways.
 Some events in daily life are more likely to happen than others.

Data Handling

Collect, organize and represent data (including pictograms, bar graphs, Venn Diagrams, tally charts and living graphs using real objects and people)

Interpret data and draw conclusions where one object or symbol can represent many data values for example, one dot equals 10 votes

Probability

Identify activities and familiar events that involve chance and describe them using appropriate vocabulary for example 'likely' or 'unlikely'

Year 3

IB Phase 2

Learners will understand how information can be expressed as organized and structured data and that this can occur in a range of ways. They will collect and represent data in different types of graphs, interpreting the resulting information for the purpose of answering questions. The learners will develop an understanding that some events in daily life are more likely to happen than others and they will identify and describe likelihood using appropriate vocabulary.

Conceptual Understandings IB2

Information can be expressed as organized and structured data.
 Objects and events can be organized in different ways.
 Some events in daily life are more likely to happen than others.

Data Handling

Collect, organize and represent data (including bar graphs, pictograms, Venn diagrams and tally charts)

Interpret and draw conclusions by comparing more than one data representation

Probability

Describe likelihood of activities and events using appropriate vocabulary for example 'likely', 'unlikely', 'certain', 'impossible'

Identify and describe possible outcomes and recognise variation in results of chance experiments

Pattern and Function

Phase 2

Year 1

IB Phase 2

Learners will understand that whole numbers exhibit patterns and relationships that can be observed and described, and that the patterns can be represented using numbers and other symbols. As a result, learners will understand the inverse relationship between addition and subtraction, and the associative and commutative properties of addition. They will be able to use their understanding of pattern to represent and make sense of real-life situations and, where appropriate, to solve problems involving addition and subtraction.

Conceptual Understandings IB2

Whole numbers exhibit patterns and relationships that can be observed and described.
Patterns can be represented using numbers and others symbols.

Learning outcomes

Pattern and Function

Sort and classify familiar objects and explain the basis for these classification.

Copy, extend, create and describe patterns with objects and drawings

Recognise patterns in the number system

Investigate and describe number patterns formed by skip counting

Year 2

IB Phase 2

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able to use their understanding of pattern to represent and make sense of real-life situations and, where appropriate, to solve problems involving addition and subtraction.

Conceptual Understandings IB2

Whole numbers exhibit patterns and relationships that can be observed and described.
Patterns can be represented using numbers and other symbols.

Pattern and Function

Investigate, describe and represent patterns using numbers and other symbols

Recognise patterns in the number system and describe number patterns formed by skip counting

Identify and describe the inverse relationship between addition and subtraction

Identify and describe patterns in odd and even numbers

Year 3

IB Phase 2

Learners will understand that whole numbers exhibit patterns and relationships that can be observed and described, and that the patterns can be represented using numbers and other symbols. As a result, learners will understand the inverse relationship between addition and subtraction, and the associative and commutative properties of addition. They will be able to use their understanding of pattern to represent and make sense of real-life situations and, where appropriate, to solve problems involving addition and subtraction.

Conceptual Understandings IB2

Whole numbers exhibit patterns and relationships that can be observed and described.
Patterns can be represented using numbers and other symbols.

Pattern and Function

Investigate, describe and represent patterns with numbers and other symbols

Identify missing elements in patterns

Explore and describe number patterns in multiplication facts

Identify and describe the inverse relationship between addition and subtraction

Identify and describe patterns in odd and even numbers (including $\text{even} + \text{even} = \text{even}$)

Shape and Space

Phase 2

Year 1

IB Phase 2

Learners will continue to work with 2D and 3D shapes, developing the understanding that shapes are classified and named according to their properties. They will understand that examples of symmetry and transformations can be found in their immediate environment. Learners will interpret, create and use simple directions and specific vocabulary to describe paths, regions, positions and boundaries of their immediate environment.

Conceptual Understandings IB2

Shapes are classified and named according to their properties.
Some shapes are made up of parts that repeat in some way.
Specific vocabulary can be used to describe an object's position in space.

Learning outcomes

2D and 3D Shape

Sort, describe and name familiar two-dimensional shapes and three-dimensional objects in the environment using appropriate vocabulary

Location

Describe position and direction in a practical context for example, inside, outside, above, below, next to, behind, in front of, up, down

Year 2

IB Phase 2

Learners will continue to work with 2D and 3D shapes, developing the understanding that shapes are classified and named according to their properties. They will understand that examples of symmetry and transformations can be found in their immediate environment. Learners will interpret, create and use simple directions and specific vocabulary to describe paths, regions, positions and boundaries of their immediate environment.

Conceptual Understandings IB2

Shapes are classified and named according to their properties.
Some shapes are made up of parts that repeat in some way.
Specific vocabulary can be used to describe an object's position in space.

2D and 3D Shape

Sort, describe, construct and label familiar two-dimensional shapes and three-dimensional objects in the environment using appropriate vocabulary

Transformation and symmetry

Identify and record examples of symmetry in the environment

Location

Describe position and direction using mathematical vocabulary for example, left, right, forwards, backwards

Year 3

IB Phase 2

Learners will continue to work with 2D and 3D shapes, developing the understanding that shapes are classified and named according to their properties. They will understand that examples of symmetry and transformations can be found in their immediate environment. Learners will interpret, create and use simple directions and specific vocabulary to describe paths, regions, positions and boundaries of their immediate environment.

Conceptual Understandings IB2

Shapes are classified and named according to their properties.
Some shapes are made up of parts that repeat in some way.
Specific vocabulary can be used to describe an object's position in space.

2D and 3D Shape

Sort, describe, compare and label regular and irregular two-dimensional shapes and three-dimensional objects using appropriate vocabulary

Construct three-dimensional objects and recognize them in different orientations

Transformation and symmetry

Create and describe symmetrical patterns, pictures and shapes

Identify and draw lines of reflective symmetry in patterns, pictures and shapes

Location

Describe direction and position using mathematical language for example describing rotations: whole turn; half turn; quarter turn; clockwise and anti-clockwise

Create and interpret simple grid references to show position and pathways (e.g. A4)

Measurement

Phase 2

Year 1

IB Phase 2

Learners will understand that standard units allow us to have a common language to measure and describe objects and events, and that while estimation is a strategy that can be applied for approximate measurements, particular tools allow us to measure and describe attributes of objects and events with more accuracy. Learners will develop these understandings in relation to measurement involving length, mass, capacity, money, temperature and time.

Conceptual Understandings IB2

Standard units allow us to have a common language to identify, compare, order and sequence objects and events. We use tools to measure the attributes of objects and events. Estimation allows us to measure with different levels of accuracy.

Learning outcomes

Measurement of shape and space

Compare, describe and measure the length, mass and capacity of objects using nonstandard units

Measurement of time

Read and write the time to the hour

Name and order the days of the week

Compare and order the duration of events using the every day language of time

Connect days of the week to familiar events and actions

Year 2

IB Phase 2

Learners will understand that standard units allow us to have a common language to measure and describe objects and events, and that while estimation is a strategy that can be applied for approximate measurements, particular tools allow us to measure and describe attributes of objects and events with more accuracy. Learners will develop these understandings in relation to measurement involving length, mass, capacity, money, temperature and time.

Conceptual Understandings IB2

Standard units allow us to have a common language to identify, compare, order and sequence objects and events. We use tools to measure the attributes of objects and events. Estimation allows us to measure with different levels of accuracy.

Measurement of shape and space

Estimate, compare and measure the length with standard units

Estimate, compare and measure mass, capacity and volume of objects using nonstandard units

Measurement of time

Read and write the time to the hour and half hour

Name and order the months of the year and seasons

Describe duration using months, weeks, days, hours and minutes

Identify and record dates of events on a calendar

Year 3

IB Phase 2

Learners will understand that standard units allow us to have a common language to measure and describe objects and events, and that while estimation is a strategy that can be applied for approximate measurements, particular tools allow us to measure and describe attributes of objects and events with more accuracy. Learners will develop these understandings in relation to measurement involving length, mass, capacity, money, temperature and time.

Conceptual Understandings IB2

Standard units allow us to have a common language to identify, compare, order and sequence objects and events. We use tools to measure the attributes of objects and events. Estimation allows us to measure with different levels of accuracy.

Measurement of shape and space

Estimate, compare and measure objects using standard units of measurement: length, mass, volume and capacity

Estimate, compare and measure area of objects nonstandard units

Identify and describe relationships between units of measure (eg: 10mm is the same as 1cm)

Measurement of time

Read and write the time to the quarter-hour and 5 minute intervals (past, to)

Estimate and compare lengths of time: second, minute, hour, day, week, months and years

Connect times to events in a day

Angle

Identify angles as measures of turn and compare angle sizes in everyday situations

Number

Phase 2

Year 1

IB Phase 2

Learners will develop their understanding of the base 10 place value system and will model, read, write, estimate, compare and order numbers to hundreds or beyond. They will have automatic recall of addition and subtraction facts and be able to model addition and subtraction of whole numbers using the appropriate mathematical language to describe their mental and written strategies. Learners will have an understanding of fractions as representations of whole-part relationships and will be able to model fractions and use fraction names in real-life situations.

Conceptual Understandings IB2

The base 10 place value system is used to represent numbers and number relationships.

Fractions are ways of representing whole- part relationships.

The operations of addition, subtraction, multiplication and division are related to each other and are used to process information to solve problems.

Number operations can be modelled in a variety of ways.

Learning outcomes

Place Value

Count by naming numbers in sequences, initially to and from 10.

Apply place value to partition and rename two-digit numbers

Skip count in tens starting from zero

Recognise, model, read, and order numbers to at least 10

Use the language of mathematics to compare quantities, for example, more, less.

Estimate and subitise groups of up to ten objects

Four Operations

Recall addition facts for single-digit numbers and related subtraction facts

Solve simple addition and subtraction problems using concrete material

Solve simple addition and subtraction problems using part/whole strategies

Fractions

Share collections into equal parts

Divide objects into equal parts

Year 2

IB Phase 2

Learners will develop their understanding of the base 10 place value system and will model, read, write, estimate, compare and order numbers to hundreds or beyond. They will have automatic recall of addition and subtraction facts and be able to model addition and subtraction of whole numbers using the appropriate mathematical language to describe their mental and written strategies. Learners will have an understanding of fractions as representations of whole-part relationships and will be able to model fractions and use fraction names in real-life situations.

Conceptual Understandings IB2

The base 10 place value system is used to represent numbers and number relationships.

Fractions are ways of representing whole- part relationships.

The operations of addition, subtraction, multiplication and division are related to each other and are used to process information to solve problems.

Number operations can be modelled in a variety of ways.

Place Value

Count by naming numbers in sequences, to and back from 1000, moving from any starting point

Apply place value to partition and rename three-digit numbers

Skip count by twos, fives and tens starting from zero

Recognise, model, read, write and order three-digit numbers

Round numbers to the nearest 10

Estimate up to 20 objects

Four Operations

Recall addition facts for numbers at least to at least 20.

Model addition and subtraction of whole numbers

Represent and solve addition problems (including real life and word) involving 2 digit numbers, using appropriate strategies

Represent and solve subtraction problems (including real life and word) involving 2 digit numbers, using appropriate strategies

Model multiplication and division using groups and/or arrays

Recognise and represent division as grouping into equal sets and solve simple problems using these representations

Use estimation to check reasonableness of answers to calculations

Fractions

Find equal parts of shapes and collections

Use the language of fractions, for example, half, whole, equal

Year 3

IB Phase 2

Learners will develop their understanding of the base 10 place value system and will model, read, write, estimate, compare and order numbers to hundreds or beyond. They will have automatic recall of addition and subtraction facts and be able to model addition and subtraction of whole numbers using the appropriate mathematical language to describe their mental and written strategies. Learners will have an understanding of fractions as representations of whole-part relationships and will be able to model fractions and use fraction names in real-life situations.

IB Phase 3

Learners will develop the understanding that fractions and decimals are ways of representing whole-part relationships and will demonstrate this understanding by modelling equivalent fractions and decimal fractions to hundredths or beyond. They will be able to model, read, write, compare and order fractions, and use them in real-life situations. Learners will have automatic recall of addition, subtraction, multiplication and division facts. They will select, use and describe a range of strategies to solve problems involving addition, subtraction, multiplication and division, using estimation strategies to check the reasonableness of their answers.

Place Value

Apply place value to partition and rename four-digit numbers

Skip count by twos, fives, tens and hundreds starting from a number other than zero

Recognise, model, represent and order four-digit numbers

Round numbers to the nearest 10 or 100

Four Operations

Recall addition facts of multiples of ten to at least 100 and related subtraction facts

Model addition and subtraction of whole numbers

Solve addition problems (including real life and word) using appropriate written and mental strategies

Solve subtraction problems (including real life and word) using appropriate written and mental strategies

Model multiplication and division using groups and/or arrays

Recall multiplication and division facts to at least two, five, three and ten times tables.

Solve multiplication problems (including real life and word) using appropriate written and mental strategies

Solve division problems (including real life and word) using written and mental strategies for division without remainders

Use estimation and rounding to check the reasonableness of answers to calculations

Fractions

Model, represent, compare and order fractions in a practical context

Use the language of fractions, for example, numerator, denominator

Find fractions of shapes and quantities

Model equivalent fractions

Add and subtract fractions with the same denominator using concrete material and pictorial representations