TANGLIN TRUST
SCHOOL
EST. 1925

Junior School Curriculum

2021-2022

GENERATIONS of EXCELLENCE

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Year 3

English

At Tanglin we strive to prepare children for a future where words are more important than ever. Their words will allow them to navigate the world and converse with a greater number of people than ever before.

English within the Junior School looks to empower children with the language skills that release their imagination and equip them with the confidence to articulate themselves as they become lifelong learners. Our English curriculum provides a rich talk environment, high expectations, relevant topics and quality literature, all to ensure a depth of understanding and to inspire an enduring love of reading and writing. The learning objectives in English span two years to allow for an increasing depth of knowledge and understanding.

Reading Objectives

- apply their growing knowledge of root words, prefixes and suffixes.
- read further exception words, noting the unusual correspondences between spelling and sound, and where these occur in the word.

Comprehension

- listening to and discussing a wide range of fiction, poetry, plays, non-fiction and reference books or textbooks
- reading books that are structured in different ways and reading for a range of purposes
- using dictionaries to check the meaning of words that they have read
- increasing their familiarity with a wide range of books, including fairy stories, myths and legends, and retelling some of these orally
- identifying themes and conventions in a wide range of books
- preparing poems and play scripts to read aloud and to perform, showing understanding through intonation, tone, volume and action
- discussing words and phrases that capture the reader's interest and imagination
- recognising some different forms of poetry [for example, free verse, narrative poetry]

Understand what they read, in books they can read independently, by:

- checking that the text makes sense to them, discussing their understanding and explaining the meaning of words in context
- asking questions to improve their understanding of a text
- drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence
- predicting what might happen from details stated and implied
- identifying main ideas drawn from more than one paragraph and summarising these
- identifying how language, structure, and presentation contribute to meaning
- retrieve and record information from non-fiction
- participate in discussion about both books that are read to them and those they can read for themselves, taking turns and listening to what others say.

Learn the conventions of different types of writing:

- the greeting in letters

- a diary written in the first person
- use of presentational devices such as numbering and headings in instructions.

Writing Objectives

Plan
- discussing writing similar to that which they are planning to write in order to understand and learn from its structure, vocabulary and grammar
- discussing and recording ideas

Draft and write
- composing and rehearsing sentences orally (including dialogue), progressively building a varied and rich vocabulary and an increasing range of sentence structures
- organising paragraphs around a theme
- in narratives, creating settings, characters and plot
- in non-narrative material, using simple organisational devices [for example, headings and sub-headings]

Evaluate and Edit
- assessing the effectiveness of their own and others' writing and suggesting improvements
- proposing changes to grammar and vocabulary to improve consistency, including the accurate use of pronouns in sentences
- proof-read for spelling and punctuation errors
- read aloud their own writing, to a group or the whole class, using appropriate intonation and controlling the tone and volume so that the meaning is clear.

Vocabulary, Grammar and Punctuation
- extending the range of sentences with more than one clause by using a wider range of conjunctions, including when, if, because, although
- using the present perfect form of verbs in contrast to the past tense
- choosing nouns or pronouns appropriately for clarity and cohesion and to avoid repetition
- using conjunctions, adverbs and prepositions to express time and cause
- using fronted adverbials
- learning the grammar for years 3 and 4 in English Appendix 2
- using commas after fronted adverbials
- indicating possession by using the possessive apostrophe with plural nouns
- using and punctuating direct speech

Speaking & Listening Objectives

- listen and respond appropriately to adults and their peers
- begin to give structured descriptions, explanations and narratives for different purposes, including for expressing feelings
- ask relevant questions to extend their understanding and knowledge
- maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments
- speak audibly and fluently with an increasing command of Standard English
- consider and evaluate different viewpoints, attending to and building on the contributions of others
- gain, maintain and monitor the interest of the listener(s)

Humanities

- The world is an amazing place; unique, vibrant and incredibly diverse. The past histories of different cultures and places can both enthuse and inspire us. The sense of awe and wonder we can generate by investigating and delving into a well-chosen 'picnic basket' of topics helps to ensure that our children learn the key skills within Geography and History whilst having enormous fun and enjoyment.
- The Humanities subjects of both History and Geography are an integral and strategic vehicle that helps drive our bespoke curriculum throughout the Junior School. They give context to the children's learning and provide a wide range of cross curricular links to both core subjects of Maths and English, as well as to more vocational and creative areas such as Music and Art. The studies undertaken are deliberately chosen to reflect both our geographical location as well as our historical ties to the UK, bearing in mind that many of our children go on to extend or complete their education in Britain or in British based education systems.

Year 3 Humanities Topics

Term One	Term Two	Term Three
Geography : Incredible India	History: Vicious Vikings	Geography: London/Singapore Comparison

Geography

Location Knowledge Objectives

Our children will be able to:

- Locate the world's countries, with a focus on Europe and countries of particular interest to pupils
- Locate the world's countries, with focus on Southeast Asia
- Key geographical features of UK and Singapore, and understand how some of these aspects have changed over time.
- Locate the geographic zones of the world.
- Understand the significance of the geographic zones of the world.

Place Knowledge Objectives

Our children will be able to:

- Study and understand geographical similarities and differences in both human and physical aspects
- Describe how countries and regions are both interconnected and interdependent.

Human & Physical Geography Objectives

Our children will be able to:

- Describe a range of physical processes such as rivers, earthquakes and the water cycle
- Describe how humans affect and interact with the environment including land use and economic activity.

Geographical Skills & Fieldwork Objectives

Our children will be able to:

- Use maps, atlases and globes including digital media such as Google Earth / Maps
- Use the full range of points of the compass as well as four and six figure grid references

- Use fieldwork to observe, measure and record human and physical features.

History

Investigate & Interpret the Past Objectives

Our children will be able to:

- Note connections, contrasts and trends over time and develop the appropriate use of historical terms
- Address and sometimes devise historically valid questions about change, cause, similarity and difference, and significance
- Understand how our knowledge of the past is constructed from a range of sources.

Build an Overview of British & World History Objectives

Our children will be able to gain:

- Understanding of world history including that of Asia
- Understanding of British history
- Understanding of local history.

Understand Chronology Objectives

Our children will be able to:

- Look at, and construct timelines, choosing and placing relevant historical events
- Use terms to describe chronology of events such as BC / BCE / AD / CE, decades / centuries / millennium
- Understand changes both within and between time periods.

Communicate Historically Objectives

Our children will be able to:

- Organise and present historically accurate information in a variety of written / pictorial formats
- Use increasingly complex historical terms and vocabulary: era, change, decades, century, millennium, chronology, empire, civilisation
- Create and test hypotheses, using evidence to make claims
- Frame historically valid questions and opinions, putting forward claims both in recorded written work and in debates and discussions.

Mathematics

Mathematics is all around us; it is an important part of the world in which we live and to function in society we need to able to think and communicate mathematically.

At Tanglin, we believe every student should be encouraged to develop an enthusiasm and love for mathematics through experiencing a wide range of challenging activities. Our rich mathematics curriculum allows room for challenge and creative thinking. We invite our learners to make decisions, to explain their findings and to reflect. Teachers promote discussion and communication within each lesson, with an expectation that accurate mathematical vocabulary is used. We encourage originality and invention but most importantly we want children to start questioning their learning, asking questions such as "What if...?"

There are four broad areas within our mathematics curriculum:

- Number
- Measurement
- Geometry
- Statistics

Using and applying mathematics is embedded into the teaching and learning of all aspects of the curriculum. It involves pupils in solving problems, explaining their methods and results, and using their mathematics to reason logically. It provides pupils with the opportunity to deepen their knowledge and understanding of the subject.

Year 3 Teaching Overview

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Please note: *overview is subject to change without notice*

Number & Place Value

- count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
- recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- compare and order numbers up to 1000
- identify, represent and estimate numbers using different representations
- read and write numbers up to 1000 in numerals and in words
- solve number problems and practical problems involving these ideas.

Addition & Subtraction

- add and subtract numbers mentally, including:
    - a three-digit number and ones

    - a three-digit number and tens
    - a three-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Multiplication & Division
- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Fractions
- count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
- recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
- recognise and show, using diagrams, equivalent fractions with small denominators
- add and subtract fractions with the same denominator within one whole [for example, 5⁄7 + 1⁄7 = 6⁄7]
- compare and order unit fractions, and fractions with the same denominator
- solve problems that involve all of the above.

Measurement
- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
- measure the perimeter of simple 2-D shapes
- add and subtract amounts of money to give change, using both £ and p in practical contexts
- tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
- estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
- know the number of seconds in a minute and the number of days in each month, year and leap year
- compare durations of events [for example to calculate the time taken by particular events or tasks].

Geometry
- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- recognise angles as a property of shape or a description of a turn
- identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle

- identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

Statistics

- interpret and present data using bar charts, pictograms and tables
- solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.

Science

Working Scientifically: The search for evidence to answer scientific questions about the world in which we live.

As Scientists we...

- Ask relevant questions.
- Plan different types of scientific enquiries to answer questions.
- Recognise and control variables where necessary.
- Take measurement using a range of scientific equipment.
- Take measurements with increasing accuracy and precision.
- Take repeat readings when appropriate.
- Pupils record work with diagrams and label them
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar charts.
- Record data and results of increasing complexity using line graphs.
- Report and present findings from enquiries, including conclusions and causal relationships.
- Report and present findings from enquiries in oral and written forms such as displays and other presentations.
- Report and present findings from enquiries, including explanations of, and degree of, trust in results.
- Identify differences, similarities or changes related to scientific ideas and processes.
- Identify scientific evidence that has been used to support or refute ideas or arguments.
- Use test results to make predictions to set up further comparative and fair tests.

Biology Objectives

- Explore the requirements of plants for life and growth and how they vary from plant to plant.
- Identify and describe the functions of different parts of flowers plants.
- Investigate the way in which water is transported within plants.
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.
- Identify that humans and some other animals have skeletons and muscles for support, protection and movement.
- Describe the simple functions of the basic parts of the digestive system in humans.
- Identify the different types of teeth in humans and their simple functions.

Chemistry Objectives

- Describe in simple terms how fossils are formed when things that have lived are trapped within the rock.
- Recognise that soils are made from rocks and organic matter.
- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.
- Use our skills as a scientist to answer questions based around chemicals.

Physics Objectives

- Compare how things move on different surfaces.

- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.
- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.
- Recognise that they need light in order to see things and that dark is the absence of light.
- Notice that light is reflected from surfaces.
- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.
- Recognise that shadows are formed when the light from a light source is blocked by a solid object.
- Find patterns in the way that the size of shadows change.

Year 4

English

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Reading Objectives

- apply their growing knowledge of root words, prefixes and suffixes.
- read further exception words, noting the unusual correspondences between spelling and sound, and where these occur in the word.

Comprehension

- listening to and discussing a wide range of fiction, poetry, plays, non-fiction and reference books or textbooks
- reading books that are structured in different ways and reading for a range of purposes
- using dictionaries to check the meaning of words that they have read
- increasing their familiarity with a wide range of books, including fairy stories, myths and legends, and retelling some of these orally
- identifying themes and conventions in a wide range of books
- preparing poems and play scripts to read aloud and to perform, showing understanding through intonation, tone, volume and action
- discussing words and phrases that capture the reader's interest and imagination
- recognising some different forms of poetry [for example, free verse, narrative poetry]

Understand what they read, in books they can read independently, by:

- checking that the text makes sense to them, discussing their understanding and explaining the meaning of words in context .
- asking questions to improve their understanding of a text
- drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence
- predicting what might happen from details stated and implied
- identifying main ideas drawn from more than one paragraph and summarising these
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- retrieve and record information from non-fiction
- participate in discussion about both books that are read to them and those they can read for themselves, taking turns and listening to what others say.

Learn the conventions of different types of writing:

- the greeting in letters
- a diary written in the first person
- use of presentational devices such as numbering and headings in instructions.

Writing Objectives

Plan
- discussing writing similar to that which they are planning to write in order to understand and learn from its structure, vocabulary and grammar
- discussing and recording ideas.

Draft and write
- composing and rehearsing sentences orally (including dialogue), progressively building a varied and rich vocabulary and an increasing range of sentence structures
- organising paragraphs around a theme
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- in non-narrative material, using simple organisational devices [for example, headings and sub-headings].

Evaluate and Edit
- assessing the effectiveness of their own and others' writing and suggesting improvements
- proposing changes to grammar and vocabulary to improve consistency, including the accurate use of pronouns in sentences
- proof-read for spelling and punctuation errors
- read aloud their own writing, to a group or the whole class, using appropriate intonation and controlling the tone and volume so that the meaning is clear.

Vocabulary, Grammar and Punctuation
- extending the range of sentences with more than one clause by using a wider range of conjunctions, including when, if, because, although
- using the present perfect form of verbs in contrast to the past tense
- choosing nouns or pronouns appropriately for clarity and cohesion and to avoid repetition
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- using fronted adverbials
- learning the grammar for Years 3 and 4 in English Appendix 2
- using commas after fronted adverbials
- indicating possession by using the possessive apostrophe with plural nouns
- using and punctuating direct speech

Speaking & Listening Objectives

- listen and respond appropriately to adults and their peers
- begin to give structured descriptions, explanations and narratives for different purposes, including for expressing feelings
- ask relevant questions to extend their understanding and knowledge
- maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments
- speak audibly and fluently with an increasing command of Standard English

- consider and evaluate different viewpoints, attending to and building on the contributions of others
- gain, maintain and monitor the interest of the listener(s).

Humanities

- The world is an amazing place; unique, vibrant and incredibly diverse. The past histories of different cultures and places can both enthuse and inspire us. The sense of awe and wonder we can generate by investigating and delving into a well-chosen 'picnic basket' of topics helps to ensure that our children learn the key skills within Geography and History whilst having enormous fun and enjoyment.
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Year 4 Humanities Topics

Term One	Term Two	Term Three
History: Significant People	Geography: Sentosa and Pulau Ubin and Island Comparison	History: Ancient China and Migration

Geography

Location Knowledge Objectives

Our children will be able to:

- Locate the world's countries, with a focus on Europe and countries of particular interest to pupils
- Locate the world's countries, with focus on Southeast Asia
- Key geographical features of UK and Singapore, and understanding how some of these aspects have changed over time
- locate the geographic zones of the world
- Understand the significance of the geographic zones of the world.

Place Knowledge Objectives

Our children will be able to:

- Study and understand geographical similarities and differences in both human and physical aspects
- Describe how countries and regions are both interconnected and interdependent.

Human & Physical Geography Objectives

Our children will be able to:

- Describe a range of physical processes such as rivers, earthquakes and the water cycle
  Describe how humans affect and interact with the environment including land use and economic activity.

Geographical Skills & Fieldwork Objectives

Our children will be able to:

- Use maps, atlases and globes including digital media such as Google Earth / Maps
- Use the full range of points of the compass as well as four and six figure grid references
- Use fieldwork to observe, measure and record human and physical features.

History

Investigate & Interpret the Past Objectives

Our children will be able to:

- Note connections, contrasts and trends over time and develop the appropriate use of historical terms.
- Address and sometimes devise historically valid questions about change, cause, similarity and difference, and significance.
- Understand how our knowledge of the past is constructed from a range of sources.

Build an Overview of British & World History Objectives

Our children will be able to gain:

- Understanding of world history including that of Asia.
- Understanding of British history.
- Understanding of local history.

Understand Chronology Objectives

Our children will be able to:

- Look at, and construct timelines, choosing and placing relevant historical events.
- Use terms to describe chronology of events such as BC / BCE / AD / CE, decades / centuries / millennium.
- Understand changes both within and between time periods.

Communicate Historically Objectives

Our children will be able to:

- Organise and present historically accurate information in a variety of written / pictorial formats.
- Use increasingly complex historical terms and vocabulary: era, change, decades, century, millennium, chronology, empire, civilisation.
- Create and test hypotheses, using evidence to make claims.
- Frame historically valid questions and opinions, putting forward claims both in recorded written work and in debates and discussions.

Mathematics

Mathematics is all around us; it is an important part of the world in which we live and to function in society we need to able to think and communicate mathematically.

At Tanglin, we believe every student should be encouraged to develop an enthusiasm and love for mathematics through experiencing a wide range of challenging activities. Our rich mathematics curriculum allows room for challenge and creative thinking. We invite our learners to make decisions, to explain their findings and to reflect. Teachers promote discussion and communication within each lesson, with an expectation that accurate mathematical vocabulary is used. We encourage originality and invention but most importantly we want children to start questioning their learning, asking questions such as "What if...?"

There are four broad areas within our mathematics curriculum:

- Number
- Measurement
- Geometry
- Statistics

Using and applying mathematics is embedded into the teaching and learning of all aspects of the curriculum. It involves pupils in solving problems, explaining their methods and results, and using their mathematics to reason logically. It provides pupils with the opportunity to deepen their knowledge and understanding of the subject.

Year 4 Teaching Overview

	1 2	3 4	5 6	7 8	9 10	11 12 13	14
Term 1	Growth Mindset Jo Boaler unit	Number: Place Value		Number: Addition and Subtraction	Measurement: Length and Perimeter	Number: Multiplication and Division	Consolidation / Christmas Maths
Term 2	Number: Multiplication and Division	Measurement: Area	Number: Fractions		Number: Decimals		
Term 3	Number: Decimals	Measurement: Money	Measurement: Time	Statistics	Geometry: Properties of Shape	Geometry: Position and Direction	Investigations / Buffer

Please note: *overview is subject to change without notice*

Number & Place Value

- count in multiples of 6, 7, 9, 25 and 1000
- find 1000 more or less than a given number
- count backwards through zero to include negative numbers
- recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- order and compare numbers beyond 1000
- identify, represent and estimate numbers using different representations
- round any number to the nearest 10, 100 or 1000

- solve number and practical problems that involve all of the above and with increasingly large positive numbers
- read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.

Addition & Subtraction

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Multiplication & Division

- recall multiplication and division facts for multiplication tables up to 12 × 12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Fractions

- recognise and show, using diagrams, families of common equivalent fractions
- count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
- add and subtract fractions with the same denominator
- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents to ¼, ½, ¾
- find the effect of dividing a one-or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- round decimals with one decimal place to the nearest whole number
- compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places.

Measurement

- Convert between different units of measure [for example, kilometre to metre; hour to minute]
- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- find the area of rectilinear shapes by counting squares
- estimate, compare and calculate different measures, including money in pounds and pence
- read, write and convert time between analogue and digital 12-and 24-hour clocks
- solve problems involving converting from hours to minutes; minutes to seconds; years tomonths; weeks to days.

Geometry Objectives

- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes

- identify acute and obtuse angles and compare and order angles up to two right angles by size
- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry.
- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down
- plot specified points and draw sides to complete a given polygon.

Statistics

- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

Science

Working Scientifically: The search for evidence to answer scientific questions about the world in which we live.

As Scientists we…

- Ask relevant questions.
- Plan different types of scientific enquiries to answer questions.
- Recognise and control variables where necessary.
- Take measurement using a range of scientific equipment.
- Take measurements with increasing accuracy and precision.
- Take repeat readings when appropriate.
- Pupils record work with diagrams and label them
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar charts.
- Record data and results of increasing complexity using line graphs.
- Report and present findings from enquiries, including conclusions and causal relationships.
- Report and present findings from enquiries in oral and written forms such as displays and other presentations.
- Report and present findings from enquiries, including explanations of, and degree of, trust in results.
- Identify differences, similarities or changes related to scientific ideas and processes.
- Identify scientific evidence that has been used to support or refute ideas or arguments.
- Use test results to make predictions to set up further comparative and fair tests.

Biology Objectives

- Recognise that living things can be grouped in a variety of ways
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- Recognise that environments can change and that this can sometimes pose dangers to living things.
- Construct and interpret a variety of food chains, identifying producers, predators and prey.

Chemistry Objectives

- Compare and group materials together, according to whether they are solids, liquids or gases
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).

Physics Objectives

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
- Identify how sounds are made, associating some of them with something vibrating.
- Recognise that vibrations from sounds travel through a medium to the ear.
- Recognise that sounds get fainter as the distance from the sound source increases.
- Find patterns between the pitch of a sound and features of the object that produced it.

- Find patterns between the volume of a sound and the strength of the vibrations that produced it.
- Identify common appliances that run on electricity.
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- Recognise some common conductors and insulators, and associate metals with being good conductors.
- Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.

Year 5

English

At Tanglin we strive to prepare children for a future where words are more important than ever. Their words will allow them to navigate the world and converse with a greater number of people than ever before.

English within the Junior School looks to empower children with the language skills that release their imagination and equip them with the confidence to articulate themselves as they become lifelong learners. Our English curriculum provides a rich talk environment, high expectations, relevant topics and quality literature, all to ensure a depth of understanding and to inspire an enduring love of reading and writing. The learning objectives in English span two years to allow for an increasing depth of knowledge and understanding.

Reading Objectives

- Apply their growing knowledge of root words, prefixes and suffixes

Comprehension

Maintain positive attitudes to reading and understanding of what they read by:

- continuing to read and discuss an increasingly wide range of fiction, poetry, plays, non-fiction and reference books or textbooks
- reading books that are structured in different ways and reading for a range of purposes
- increasing their familiarity with a wide range of books, including myths, legends and traditional stories, modern fiction, fiction from our literary heritage, and books from other cultures and traditions
- recommending books that they have read to their peers, giving reasons for their choices
- identifying and discussing themes and conventions in and across a wide range of writing
- making comparisons within and across books
- learning a wider range of poetry by heart
- preparing poems and plays to read aloud and to perform, showing understanding through intonation, tone and volume so that the meaning is clear to an audience

Understand what they read by:

- checking that the book makes sense to them, discussing their understanding and exploring the meaning of words in context
- asking questions to improve their understanding
- drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence
- predicting what might happen from details stated and implied
- summarising the main ideas drawn from more than one paragraph, identifying key details that support the main ideas
- identifying how language, structure and presentation contribute to meaning
- discuss and evaluate how authors use language, including figurative language, considering the impact on the reader
- distinguish between statements of fact and opinion

- retrieve, record and present information from non-fiction
- participate in discussions about books that are read to them and those they can read for themselves, building on their own and others' ideas and challenging views courteously
- explain and discuss their understanding of what they have read, including through formal presentations and debates, maintaining a focus on the topic and using notes where necessary
- provide reasoned justifications for their views.

Writing Objectives

Transcription
- use further prefixes and suffixes and understand the guidance for adding them
- spell some words with 'silent' letters [for example, knight, psalm, solemn]
- continue to distinguish between homophones and other words which are often confused
- use dictionaries to check the spelling and meaning of words
- use the first three or four letters of a word to check spelling, meaning or both of these in a dictionary
- use a thesaurus.

Composition
- identifying the audience for and purpose of the writing, selecting the appropriate form and using other similar writing as models for their own
- noting and developing initial ideas, drawing on reading and research where necessary
- in writing narratives, considering how authors have developed characters and settings in what pupils have read, listened to or seen performed

Draft and write by:
- selecting appropriate grammar and vocabulary, understanding how such choices can change and enhance meaning
- in narratives, describing settings, characters and atmosphere and integrating dialogue to convey character and advance the action
- précising longer passages
- using a wide range of devices to build cohesion within and across paragraphs
- using further organisational and presentational devices to structure text and to guide the reader [for example, headings, bullet points, underlining]

Evaluate and edit by:
- assessing the effectiveness of their own and others' writing
- proposing changes to vocabulary, grammar and punctuation to enhance effects and clarify meaning
- ensuring the consistent and correct use of tense throughout a piece of writing
- ensuring correct subject and verb agreement when using singular and plural, distinguishing between the language of speech and writing and choosing the appropriate register
- proof-read for spelling and punctuation errors
- perform their own compositions, using appropriate intonation, volume, and movement so that meaning is clear.

Vocabulary, Grammar and Punctuation
- recognising vocabulary and structures that are appropriate for formal speech and writing, including subjunctive forms
- using passive verbs to affect the presentation of information in a sentence

- using the perfect form of verbs to mark relationships of time and cause
- using expanded noun phrases to convey complicated information concisely
- using modal verbs or adverbs to indicate degrees of possibility
- using relative clauses beginning with who, which, where, when, whose, that or with an implied (i.e. omitted) relative pronoun
- using commas to clarify meaning or avoid ambiguity in writing
- using hyphens to avoid ambiguity
- using brackets, dashes or commas to indicate parenthesis
- using semi-colons, colons or dashes to mark boundaries between independent clauses
- using a colon to introduce a list
- punctuating bullet points consistently

Speaking & Listening Objectives

- listen and respond appropriately to adults and their peers
- give well-structured descriptions, explanations and narratives for different purposes, including for expressing feelings
- ask relevant questions to extend their understanding and knowledge
- maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments
- use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas
- speak audibly and fluently with an increasing command of Standard English
- participate in discussions, presentations, performances, role play, improvisations and debates
- gain, maintain and monitor the interest of the listener(s)
- consider and evaluate different viewpoints, attending to and building on the contributions of others
- select and use appropriate registers for effective communication.

English Speaking Board (ESB)

Speech to Connect

Assessment Overview

The assessment is divided into four sections:

Section 1 (40% of assessment): Personal Interest Talk, 4 minutes.

Learners should deliver a talk with knowledge and enthusiasm on an activity or topic of personal interest. For example, they may choose to talk about: a sports or drama club, preparing or cooking a favourite dish, or living in another country. They should support their talk using relevant visual/audio material.

Section 2 (20%): Speaking by Heart (not self-composition), 2 minutes.

Learners should begin by introducing their choice of poetry, spoken song lyric, prose, or drama. In doing so, they should explain the reason(s) for their choice. They should then present their memorised choice, sharing the content with the assessor and the group.

Section 3 (20%): Reading to Listeners, 2 minutes.

Learners should prepare 12-13 pages (containing dialogue) of a book, from which the assessor will choose an extract to be read aloud. They should also introduce the book, placing their chosen section within the wider context of the story.

Learners should listen and respond to questions from the assessor and group in relation to the first three activities. They should also actively contribute to the group discussion by asking questions and offering comments.

Section 4 (20%): Listening, Responding and Exchanging Views, 5 minutes.

Learning Outcomes and Assessment Criteria – Speech to Connect

Learning outcomes set out the knowledge and skills a learner will be able to demonstrate as a result of the learning process. Assessment criteria set out what is required, in terms of actions, to meet a learning outcome.

This ***Speech to Connect*** pathway has the following learning outcomes and assessment criteria:

Learning outcomes *The learner will:*		**Assessment Criteria** *The learner can:*
1	Deliver a talk in relation to an activity or topic of personal interest, using audio and/or visual support.	1.1 Structure a talk of approximately 4 minutes. 1.2 Present a talk using notes if necessary. 1.3 State information based on own research. 1.4 Use clear or audible voice to communicate information in Standard English. 1.5 Show an awareness of the audience. 1.6 Use audio and/or visual support.
2	Speak a piece of published, creative English from memory.	2.1 Introduce the piece and provide a brief reason for choice with prompting if necessary. 2.2 Remember the piece, with prompting if necessary. 2.3 Speak the piece with concentration on metre and/or structure. 2.4 Show an awareness of the audience. 2.5 Use clear or audible voice with some vocal variety.
3	Read out a passage taken from 12-13 prepared pages of a chosen book.	3.1 Briefly introduce the context of the passage. 3.2 Read aloud with a clear or audible voice. 3.3 Read aloud fluently. 3.4 Show an awareness of the audience.
4	Listen, respond and exchange views.	4.1 Provide appropriate responses to questions. 4.2 Ask relevant questions based on someone else's work. 4.3 Offer own views in relation to own or someone else's work.

Grading Criteria – Speech to Connect

Each assessment section (e.g. the *Section 1 Talk*) contains a set of grading criteria that are mapped to the learning outcomes and assessment criteria. Each criterion has a numerical weighting that is determined by the worth of the assessment section (e.g. the *Section 1 Talk* is worth 40% of the assessment). As part of the development process, subject specialists agreed on the relative weightings of criteria and sections.

During an assessment, an ESB International assessor will review a learner's performance in all four sections. The assessor will apply the grading criterion that most accurately matches the learner's performance in that section. For instance, the assessor will examine the learner's performance in relation to each criterion (e.g. *Visual/Audio Support* in the *Section 1 Talk*) and allocate one of the following grades:

- Unsuccessful
- Pass
- Good Pass
- Merit
- Merit Plus
- Distinction.

In Section 1, there are small differences in the weighting of criteria for a particular grade. For example, the criterion for *Good Pass* in *Content* has a higher weighting than the criterion for *Good Pass* in *Audio-Visual* Support. Ranked from highest to lowest, the weightings are distributed as follows:

- *Content*
- *Structure, Style, Audience Awareness*
- *Voice and Speech*
- *Visual/Audio Support.*

As a result, a learner's performance in a higher-weighted criterion will have a greater impact in determining their overall grade for the qualification. Within Sections 2, 3 and 4, each criterion is equally weighted. For example, in Section 4, the criterion for *Responding to Questions* in *Merit* contains an equal weighting to the criterion for *Asking Questions* in Merit.

When a learner has finished the assessment, an ESB International assessor will complete a report form which will use the weightings to calculate an overall grade. Learners can attain one of the following overall grades:

- Unsuccessful
- Pass
- Good Pass
- Merit
- Merit Plus
- Distinction.

Our assessments aim to promote clear, effective and confident oral communication amongst all learners. The assessment model is compensatory. If a learner is *Unsuccessful* in a specific criterion or a number of criteria, they can receive an overall *Pass* if they achieve a higher grade in a different criterion or group of criteria

Section 1: Personal Interest Talk (4 minutes)	Pass	Good Pass	Merit	Merit Plus	Distinction
Structure	The talk shows evidence of planning, with an introduction or conclusion, and body. The talk runs under or over 4 minutes by 1 minute.	The talk shows evidence of planning, with a partially clear introduction, body and conclusion. The talk runs under or over 4 minutes by 40 seconds.	The talk shows evidence of careful planning, with a clear introduction, body and conclusion. The talk adheres to a 4-minute time limit.	The talk shows evidence of careful planning, with a clear introduction, body and conclusion. There is originality at the start and end of the talk. The talk adheres to a 4-minute time limit.	The talk shows evidence of effective planning, with a clear and detailed introduction, body and conclusion. There is originality and detail at the start and end of the talk. The talk adheres to a 4-minute time limit.
Style	The talk is entirely reliant on notes or memorised text.	The talk is mostly reliant on notes or memorised text.	The talk is mostly delivered naturally, with or without notes.	With the exception of one or two moments, the talk is delivered naturally throughout.	The talk shows a confident command of material and is delivered naturally throughout with or without notes.
Voice and Speech	There is clear or audible voice, with some hesitation or rushing. Standard English is mostly used.	There is clear and audible voice, with some hesitation or rushing. Standard English is mostly used.	There is clear and audible voice. Speech is unhurried, and there is some use of pause. Standard English is used throughout.	There is clear and audible voice. Speech is unhurried. Content is well-paced, and there is regular use of pause. Standard English is used throughout.	There is clear and audible voice, with variations in pace, pitch and volume. Content is sensitively-paced, with a regular use of pause. Standard English is confidently used throughout.

Section 1: Personal Interest Talk (4 minutes)	Pass	Good Pass	Merit	Merit Plus	Distinction
Content	The talk shows evidence of some research. Content is appropriate. One or two points are briefly stated.	The talk shows evidence of some research. Content is appropriate. Three or more points are briefly stated.	The talk shows evidence of careful and selective research. Content is appropriate and some of it is well-explained.	The talk shows evidence of careful and selective research. Content is appropriate and most of it is well-explained.	The talk shows evidence of effective research and personal interest. Content is accurate, varied and put together with personal detail.
Visual/Audio Support	There is a heavy under or over reliance on audio-visual material.	There is some under or overreliance on audio-visual material.	There is a straightforward use of audio-visual material. Some of the material is well-referenced.	There is a straightforward use of audio-visual material. Most of the material is well-referenced.	There is an effective use of audio-visual material. Most of the material is well-referenced. Reference to this material fully engages listeners and enhances understanding.
Audience Awareness	There is: (1) evidence of sharing behaviour; and/or (2) some eye contact with the assessor and/or the group at the beginning and end of the talk.	There is some eye contact with the assessor and/or the group throughout the talk.	There is regular eye contact with the assessor and some of the group throughout the talk. There is an appropriate use of body language (facial expression, gesture, etc.).	There is regular eye contact with the assessor and all of the group throughout the talk. There is an appropriate use of body language (facial expression, gesture, etc.).	There is regular and confident eye contact with the assessor and all of the group throughout the talk. There is an appropriate, lively and confident use of body language (facial expression, gesture, etc.).

Section 2: Speaking by Heart (2 minutes)	Pass	Good Pass	Merit	Merit Plus	Distinction
Introduction	There is a brief introduction and reason for choice with prompting.	There is a brief introduction and reason for choice without prompting.	There is a well-developed introduction, with a thoughtful reason for choice.	There is a well-developed introduction, with two or more thoughtful reasons for choice.	There is a well-developed introduction, with two or more thoughtful reasons for choice. Introduction is communicated in an enthusiastic manner which awakens interest.
Memory	Lines are remembered mostly accurately with more than one prompt.	Lines are remembered mostly accurately with one prompt.	Words generally secure, no prompts required, but some hesitation /clear concentration.	Words and sense are secure, with minor hesitations.	Words and sense are secure, with no hesitation.
Interpretation	Interpretation focuses on metre or structure.	Interpretation partially creates and conveys mood or atmosphere.	Interpretation successfully creates and conveys mood or atmosphere.	Interpretation successfully conveys mood and atmosphere. There are moments of spontaneity.	Interpretation successfully conveys mood and atmosphere with a sense of spontaneity.

Section 2: Speaking by Heart (2 minutes)	Pass	Good Pass	Merit	Merit Plus	Distinction
Audience Awareness	Meaning is communicated using eye-contact.	Meaning is partially communicated to the audience using eye contact (if poetry, prose, song lyrics), or staging (if drama).	Meaning is mostly communicated to the audience using eye contact (if poetry, prose, song lyrics), or staging (if drama).	Meaning is mostly communicated to the audience using eye contact (if poetry, prose, song lyrics), or staging (if drama). There is some use of facial expression and/or body language.	Meaning is communicated fully and effectively to the audience using eye contact (if poetry, prose, song lyrics), or staging (if drama). There is confident and selective use of facial expression and/or body language.
Voice and Speech	Delivered with clear or audible voice.	Delivered with a clear and audible voice.	Delivered with clear and audible voice. There is some vocal variety and use of pause.	Delivered with clear and audible voice. There is regular vocal variety, use of pause and some variation of pace.	The piece is delivered in a free and fluent way. It is sensitively paced throughout, with effective use of pause and facial expression.

Section 3: Reading to Listeners (2minutes)	Pass	Good Pass	Merit	Merit Plus	Distinction
Commentary	There is a short introduction to the reading, with title or author, which briefly touches on the context.	There is an introduction to the reading, with title and author, which provides a partially clear insight into the context of the passage.	There is a full commentary to the reading, which provides a clear insight into the context of the passage.	There is a full commentary to the reading, which engages listeners and provides a clear insight into the context of the passage.	There is a full commentary to the reading, which contains a mature analysis of the context of the passage. Interest is aroused by enthusiasm for the book.
Voice and Speech	Delivered with clear or audible voice.	Delivered with a clear and audible voice.	Delivered with clear and audible voice. There is some vocal variety and use of pause.	Delivered with clear and audible voice. There is regular vocal variety, use of pause and some variation of pace.	The piece is delivered in a free and fluent way. It is sensitively paced throughout, with effective use of pause.
Style	Text is read aloud fluently in some places.	Text is read aloud fluently in most places.	Text is read aloud fluently in an unhurried way. There is a contrast between narrative and dialogue.	Text is read aloud fluently and expressively with appropriate pace and timing. There is a contrast between narrative and dialogue. In places, characters are brought to life.	Text is read aloud fluently and expressively with sensitive pace and timing. There is a clear contrast between narrative and dialogue. Characters are brought fully to life.

Section 3: Reading to Listeners (2 minutes)	Pass	Good Pass	Merit	Merit Plus	Distinction
Audience Awareness	There is some eye contact with the assessor and/or the group at the beginning and end.	There is some eye contact with the assessor and/or the group throughout the reading.	There is regular eye contact with the assessor, and some of the group. There is some facial expression.	There is regular eye contact with the assessor and all of the group throughout the reading. There is a consistent use of facial expression to enhance meaning.	There is regular and confident eye contact with the assessor and all of the group. There is a consistent and confident use of facial expression to enhance meaning.

Section 4: Listening, Responding and Exchanging Views (5 minutes)	Pass	Good Pass	Merit	Merit Plus	Distinction
Responding to Questions	There is evidence of satisfactory listening, with appropriate and brief responses to all questions.	There is evidence of satisfactory listening, with appropriate and partially developed responses to one or more question(s).	There is evidence of careful listening in most places, with appropriate and full responses to one or more question(s).	There is evidence of careful listening throughout, with appropriate and full responses to all questions.	There is evidence of effective listening throughout, with appropriate, full and confident responses to all questions.
Asking Questions	Asks one or two relevant, but closed questions with prompting.	Asks one or two relevant, but closed questions without prompting.	Asks one or two relevant and open questions without prompting, which seek additional information about the topic.	Asks three or more relevant and open questions without prompting, which seek additional information about the topic.	Asks one or two relevant and open questions without prompting, which are thought-provoking and challenge thinking.
Contributing to the Discussion	Makes one or two brief contributions, and takes part when prompted.	Makes one or two brief contributions, without prompting.	Makes one or two detailed contributions and engages positively with the group, without prompting.	Makes three or more detailed contributions and engages positively with the group, without prompting.	Makes one or two unprompted, detailed and original contributions to support the group, which develop understanding.

Humanities

- The world is an amazing place; unique, vibrant and incredibly diverse. The past histories of different cultures and places can both enthuse and inspire us. The sense of awe and wonder we can generate by investigating and delving into a well-chosen 'picnic basket' of topics helps to ensure that our children learn the key skills within Geography and History whilst having enormous fun and enjoyment.
- The Humanities subjects of both History and Geography are an integral and strategic vehicle that helps drive our bespoke curriculum throughout the Junior School. They give context to the children's learning and provide a wide range of cross curricular links to both core subjects of Maths and English, as well as to more vocational and creative areas such as Music and Art. The studies undertaken are deliberately chosen to reflect both our geographical location as well as our historical ties to the UK, bearing in mind that many of our children go on to extend or complete their education in Britain or in British based education systems.

Year 5 Humanities Topics

Term One	Term Two	Term Three
Geography: Pristine Planet	Geography: Space, mapping the beyond / Volcanoes	History: Ancient Greece

Geography

Location Knowledge Objectives

Our children will be able to:

- Locate the world's countries, with a focus on Europe and countries of particular interest to pupils.
- Locate the world's countries, with focus on Southeast Asia
- Key geographical features of UK and Singapore, and understand how some of these aspects have changed over time.
- Locate the geographic zones of the world.
- Understand the significance of the geographic zones of the world.

Place Knowledge Objectives

Our children will be able to:

- Study and understand geographical similarities and differences in both human and physical aspects
- Describe how countries and regions are both interconnected and interdependent.

Human & Physical Geography Objectives

Our children will be able to:

- Describe a range of physical processes such as rivers, earthquakes and the water cycle
- Describe how humans affect and interact with the environment including land use and economic activity.

Geographical Skills & Fieldwork Objectives

Our children will be able to:

- Use maps, atlases and globes including digital media such as Google Earth / Maps

- Use the full range of points of the compass as well as four and six figure grid references
- Use fieldwork to observe, measure and record human and physical features.

History

Investigate & Interpret the Past Objectives

Our children will be able to:

- Note connections, contrasts and trends over time and develop the appropriate use of historical terms.
- Address and sometimes devise historically valid questions about change, cause, similarity and difference, and significance
- Understand how our knowledge of the past is constructed from a range of sources.

Build an Overview of British & World History Objectives

Our children will be able to gain:

- Understanding of world history including that of Asia
- Understanding of British history
- Understanding of local history.

Understand Chronology Objectives

Our children will be able to:

- Look at, and construct timelines, choosing and placing relevant historical events
- Use terms to describe chronology of events such as BC / BCE / AD / CE, decades / centuries / millennium
- Understand changes both within and between time periods.

Communicate Historically Objectives

Our children will be able to:

- Organise and present historically accurate information in a variety of written / pictorial formats
- Use increasingly complex historical terms and vocabulary: era, change, decades, century, millennium, chronology, empire, civilisation
- Create and test hypotheses, using evidence to make claims.
- Frame historically valid questions and opinions, putting forward claims both in recorded written work and in debates and discussions.

Mathematics

Mathematics is all around us; it is an important part of the world in which we live and to function in society we need to able to think and communicate mathematically.

At Tanglin, we believe every student should be encouraged to develop an enthusiasm and love for mathematics through experiencing a wide range of challenging activities. Our rich mathematics curriculum allows room for challenge and creative thinking. We invite our learners to make decisions, to explain their findings and to reflect. Teachers promote discussion and communication within each lesson, with an expectation that accurate mathematical vocabulary is used. We encourage originality and invention but most importantly we want children to start questioning their learning, asking questions such as "What if...?"

There are four broad areas within our mathematics curriculum:

- Number
- Measurement
- Geometry
- Statistics

Using and applying mathematics is embedded into the teaching and learning of all aspects of the curriculum. It involves pupils in solving problems, explaining their methods and results, and using their mathematics to reason logically. It provides pupils with the opportunity to deepen their knowledge and understanding of the subject.

Year 5 Teaching Overview

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Please note: *overview is subject to change without notice*

Number & Place Value

- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
- interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero
- round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
- solve number problems and practical problems that involve all of the above
- read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

Addition & Subtraction

- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- add and subtract numbers mentally with increasingly large numbers
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Multiplication & Division

- identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers
- know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19
- multiply numbers up to 4 digits by a one-or two-digit number using a formal written method, including long multiplication for two-digit numbers
- multiply and divide numbers mentally, drawing upon known facts
- divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000
- recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)
- solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

Fractions, Decimals & Percentages

- compare and order fractions whose denominators are all multiples of the same number
- identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example,2⁄5+4⁄5=6⁄5= 1 1⁄5]
- add and subtract fractions with the same denominator and denominators that are multiples of the same number
- multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- read and write decimal numbers as fractions [for example, 0.71 =71⁄100]
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- round decimals with two decimal places to the nearest whole number and to one decimal place
- read, write, order and compare numbers with up to three decimal places
- solve problems involving number up to three decimal places
- recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal
- solve problems which require knowing percentage and decimal equivalents of 1⁄2, 1⁄4, 1⁄5, 2⁄5and those fractions with a denominator of a multiple of 10 or 25.

Measurement

- convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes
- estimate volume [for example, using 1 cm3blocks to build cuboids (including cubes)] and capacity [for example, using water]
- solve problems involving converting between units of time
- use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

Geometry

- identify 3-D shapes, including cubes and other cuboids, from 2-D representations
- know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- draw given angles, and measure them in degrees (°)
- identify:
  - angles at a point and one whole turn (total 360°)
  - angles at a point on a straight line and ½ a turn (total 180°)
  - other multiples of 90°
- use the properties of rectangles to deduce related facts and find missing lengths and angles
- distinguish between regular and irregular polygons based on reasoning about equal sides and angles
- identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

Statistics

- solve comparison, sum and difference problems using information presented in a line graph
- complete, read and interpret information in tables, including timetables.

Science

Working Scientifically: The search for evidence to answer scientific questions about the world in which we live.

As Scientists we...

- Ask relevant questions.
- Plan different types of scientific enquiries to answer questions.
- Recognise and control variables where necessary.
- Take measurement using a range of scientific equipment.
- Take measurements with increasing accuracy and precision.
- Take repeat readings when appropriate.
- Pupils record work with diagrams and label them
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar charts.
- Record data and results of increasing complexity using line graphs.
- Report and present findings from enquiries, including conclusions and causal relationships.
- Report and present findings from enquiries in oral and written forms such as displays and other presentations.
- Report and present findings from enquiries, including explanations of, and degree of, trust in results.
- Identify differences, similarities or changes related to scientific ideas and processes.
- Identify scientific evidence that has been used to support or refute ideas or arguments.
- Use test results to make predictions to set up further comparative and fair tests.

Biology Objectives

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- Describe the life process of reproduction in some plants and animals
- Use our skills as a scientist to explore and answer our own questions based on biology
- Explore the roles of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
- Give reasons for classifying plants and animals based on specific characteristics
- Identify that humans and some animals have skeletons and muscles for support, protection and movement
- Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood
- Recognise the importance of diet, exercise and lifestyle on the way the human body functions.

Chemistry Objectives

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets
- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- Demonstrate that dissolving, mixing and changes of state are reversible changes
- Explain that some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Physics Objectives

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect
- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- Describe the movement of the Moon relative to Earth
- Use the idea of the Earth's rotation to explain day and night.

Year 6

English

At Tanglin we strive to prepare children for a future where words are more important than ever. Their words will allow them to navigate the world and converse with a greater number of people than ever before.

English within the Junior School looks to empower children with the language skills that release their imagination and equip them with the confidence to articulate themselves as they become lifelong learners. Our English curriculum provides a rich talk environment, high expectations, relevant topics and quality literature, all to ensure a depth of understanding and to inspire an enduring love of reading and writing. The learning objectives in English span two years to allow for an increasing depth of knowledge and understanding.

Reading Objectives

- Apply their growing knowledge of root words, prefixes and suffixes

Comprehension

Maintain positive attitudes to reading and understanding of what they read by:

- continuing to read and discuss an increasingly wide range of fiction, poetry, plays, non-fiction and reference books or textbooks
- reading books that are structured in different ways and reading for a range of purposes
- increasing their familiarity with a wide range of books, including myths, legends and traditional stories, modern fiction, fiction from our literary heritage, and books from other cultures and traditions
- recommending books that they have read to their peers, giving reasons for their choices
- identifying and discussing themes and conventions in and across a wide range of writing
- making comparisons within and across books
- learning a wider range of poetry by heart
- preparing poems and plays to read aloud and to perform, showing understanding through intonation, tone and volume so that the meaning is clear to an audience

Understand what they read by:

- checking that the book makes sense to them, discussing their understanding and exploring the meaning of words in context
- asking questions to improve their understanding
- drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence
- predicting what might happen from details stated and implied
- summarising the main ideas drawn from more than one paragraph, identifying key details that support the main ideas
- identifying how language, structure and presentation contribute to meaning
- discuss and evaluate how authors use language, including figurative language, considering the impact on the reader
- distinguish between statements of fact and opinion

- retrieve, record and present information from non-fiction
- participate in discussions about books that are read to them and those they can read for themselves, building on their own and others' ideas and challenging views courteously
- explain and discuss their understanding of what they have read, including through formal presentations and debates, maintaining a focus on the topic and using notes where necessary
- provide reasoned justifications for their views.

Writing Objectives

Transcription
- use further prefixes and suffixes and understand the guidance for adding them
- spell some words with 'silent' letters [for example, knight, psalm, solemn]
- continue to distinguish between homophones and other words which are often confused
- use dictionaries to check the spelling and meaning of words
- use the first three or four letters of a word to check spelling, meaning or both of these in a dictionary
- use a thesaurus.

Composition
- identifying the audience for and purpose of the writing, selecting the appropriate form and using other similar writing as models for their own
- noting and developing initial ideas, drawing on reading and research where necessary
- in writing narratives, considering how authors have developed characters and settings in what pupils have read, listened to or seen performed

Draft and write by:
- selecting appropriate grammar and vocabulary, understanding how such choices can change and enhance meaning
- in narratives, describing settings, characters and atmosphere and integrating dialogue to convey character and advance the action
- précising longer passages
- using a wide range of devices to build cohesion within and across paragraphs
- using further organisational and presentational devices to structure text and to guide the reader [for example, headings, bullet points, underlining]

Evaluate and edit by:
- assessing the effectiveness of their own and others' writing
- proposing changes to vocabulary, grammar and punctuation to enhance effects and clarify meaning
- ensuring the consistent and correct use of tense throughout a piece of writing
- ensuring correct subject and verb agreement when using singular and plural, distinguishing between the language of speech and writing and choosing the appropriate register
- proof-read for spelling and punctuation errors
- perform their own compositions, using appropriate intonation, volume, and movement so that meaning is clear.

Vocabulary, Grammar and Punctuation
- recognising vocabulary and structures that are appropriate for formal speech and writing, including subjunctive forms
- using passive verbs to affect the presentation of information in a sentence

- using the perfect form of verbs to mark relationships of time and cause
- using expanded noun phrases to convey complicated information concisely
- using modal verbs or adverbs to indicate degrees of possibility
- using relative clauses beginning with who, which, where, when, whose, that or with an implied (i.e. omitted) relative pronoun
- using commas to clarify meaning or avoid ambiguity in writing
- using hyphens to avoid ambiguity
- using brackets, dashes or commas to indicate parenthesis
- using semi-colons, colons or dashes to mark boundaries between independent clauses
- using a colon to introduce a list
- punctuating bullet points consistently

Speaking & Listening Objectives

- listen and respond appropriately to adults and their peers
- give well-structured descriptions, explanations and narratives for different purposes, including for expressing feelings
- ask relevant questions to extend their understanding and knowledge
- maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments
- use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas
- speak audibly and fluently with an increasing command of Standard English
- participate in discussions, presentations, performances, role play, improvisations and debates
- gain, maintain and monitor the interest of the listener(s)
- consider and evaluate different viewpoints, attending to and building on the contributions of others
- select and use appropriate registers for effective communication.

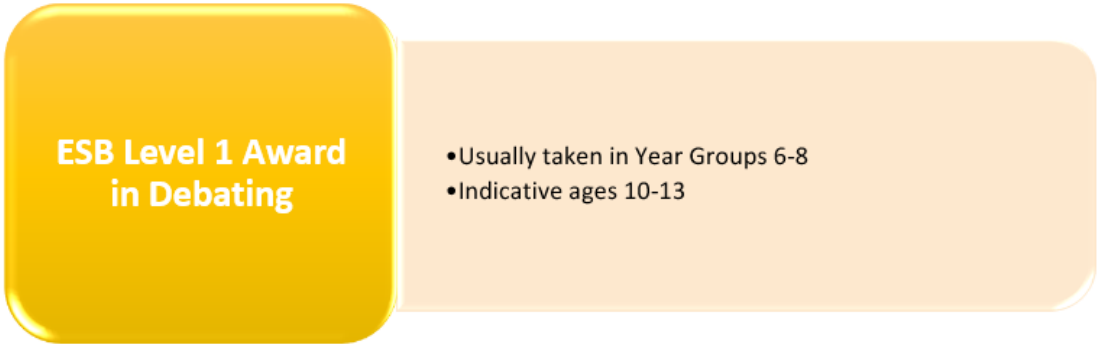
English Speaking Board (ESB)

Level 1 Award in Debating

Level 1 Award in Debating	
Assessment method	External Assessment
Grading	Pass, Merit, Distinction
Accreditation information	Ofqual Start Date: 1st October 2015 Code: 601/7971/5
Total individual time	4 minutes
Credit value	6
Guided learning hours (GLH)	15
Total Qualification Time (TQT)	60
Age range	10-13
Target group	Indicative age groups are Years 6-8, but this is not prescriptive; the assessment may be taken by younger or older candidates. Level 1 Awards in Debating are suitable for key stage 3 of the National Curriculum. Outcomes for Level 1 Awards in Debating are mapped to National Curriculum requirements for Speaking and Listening where possible and appropriate.

Level 1 Award in Debating Syllabus Content Summary				
Total Time: 40 Minutes (including 4 minutes per individual candidate) 2 teams 8 candidates 4 in favour 4 against.	**Section 1: Content** Debate a motion (own choice – see guidance for suitable examples), demonstrating evidence of research and understanding.	**Section 2: Style** Show effective communication skills (both verbal and non-verbal).	**Section 3: Structure** Structure work efficiently, using effective introductions and conclusions, linking and summarising.	**Section 4: Listening & Responding** Demonstrate listening skills and teamwork, using rebuttal, counter argument and points of information where appropriate.

Qualification Progression



ESB Level 2 Award in Debating

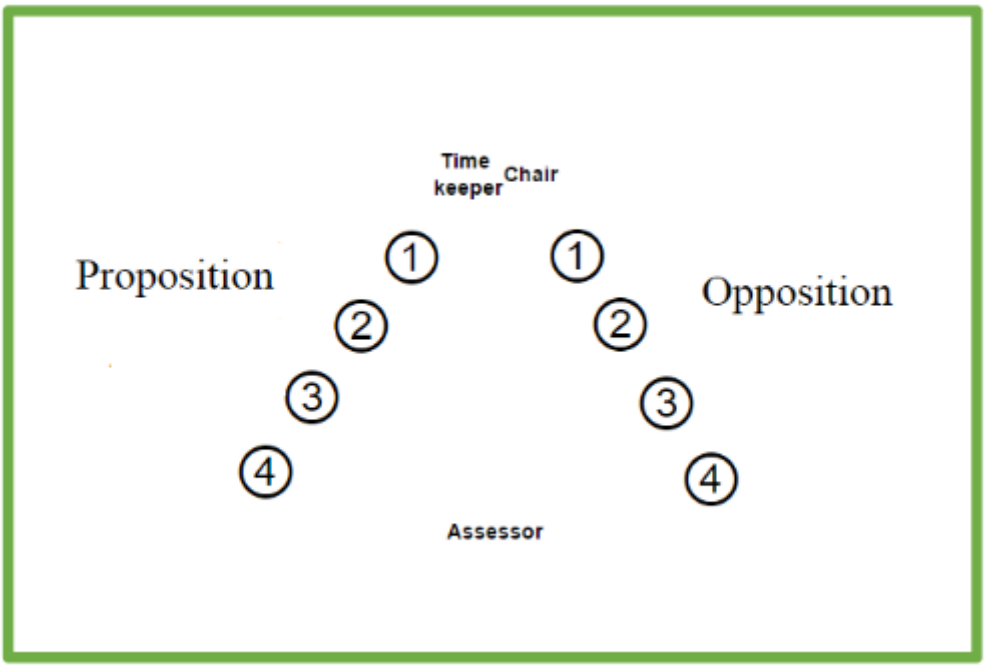
- Usually taken in Year Groups 9-11
- Indicative ages 14-16

ESB Level 3 Award in Debating

- Usually taken in Year Groups 11 & 12
- Indicative ages 16-18

Assessment Guidance

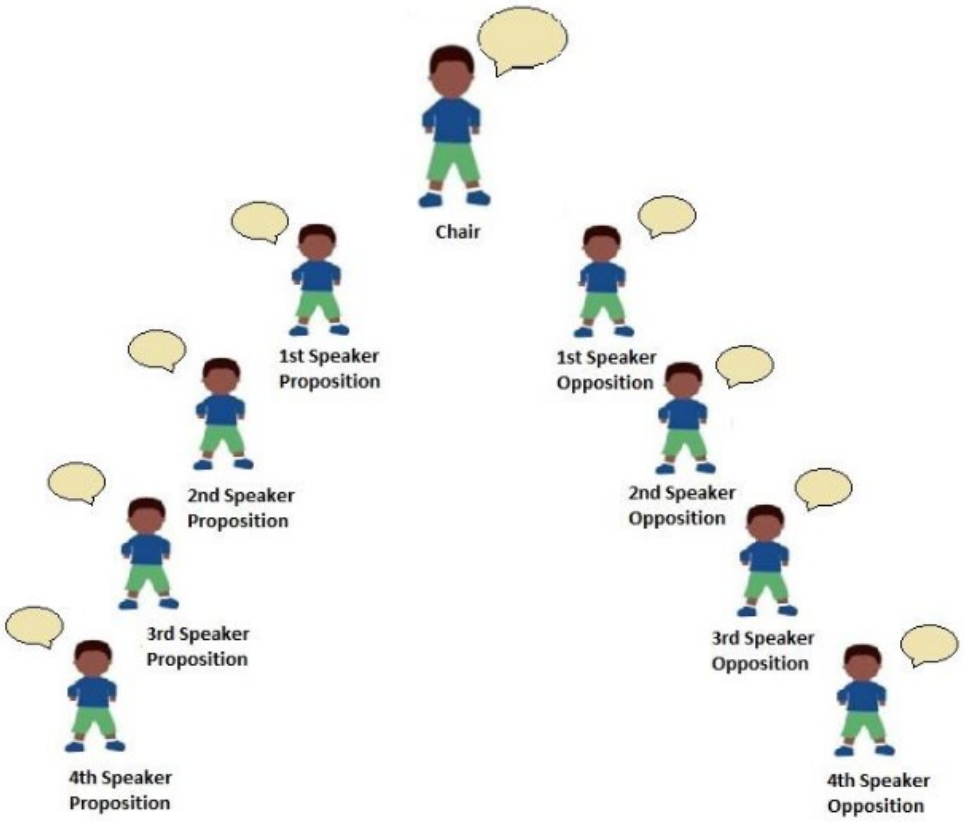
The qualification is externally assessed and quality assured by ESB. The assessment is based on each individual candidate meeting the learning outcomes and assessment criteria. The assessment process and outcome is independent but the tutor is encouraged to sit in as part of the audience.



Chair's Duties

Please note that the organiser / nominated other is required to chair the debate. This role may be taken by the Time Keeper, or may be a different person.

- Chair welcomes all
- Chair introduces Motion
- Chair calls upon the Proposer of the Motion
- Chair calls upon the Opposer of the Motion
- Chair calls on the Second Speaker for the Motion
- Chair call upon the Second Speaker against the Motion
- Chair calls on the Third Speaker for the Motion
- Chair calls on Third Speaker against the Motion
- Chair calls on Fourth Speaker for the Motion
- Chair calls on Fourth Speaker against the Motion



Timings

Please note that the organiser / nominated other is required to keep time. This role may be taken by the chair, or may be a different person.

- Time Keeper signals when first thirty seconds of each speech (protected time) are over (one rap on the desk)
- Time Keeper signals when last 30 seconds of each (protected time) begins (one rap)
- Time Keeper signals when speaker has used their allotted time (2 raps)
- Time Keeper signals when speaker has gone 15 seconds over time (continuous rap)
- There will be 1 minute time to confer between speakers – Time Keeper signals when this is up

Speakers' Duties

	PROPOSITION	OPPOSITION	
1	• Defines motion (explains key words) • Signposts arguments • Presents arguments • Brief summary	• Rebuttal • Signposts arguments • Presents arguments • Brief summary	1
2	• Rebuttal • Signposts arguments • Presents arguments • Brief summary	• Rebuttal • Signposts arguments • Presents arguments • Brief summary	2
3	• Rebuttal • Signposts arguments • Presents arguments • Brief summary	• Rebuttal • Signposts arguments • Presents arguments • Brief summary	3
4	• Rebuttal • Signposts arguments • Presents arguments • Biased summary of arguments, explaining why proposition has won	• Rebuttal • Signposts arguments • Presents arguments • Biased summary of arguments, explaining why opposition has won	4

Learning Outcomes

	Learning Outcomes *The learner will:*	**Assessment Criteria** *The learner can:*
1	Work as part of a team to explore a motion/counter motion	1.1 Demonstrate some understanding of the motion
2	Build an argument and structure a speech	2.1 Make a case for or against the motion
3	Demonstrate evidence of research	3.1 Include mostly convincing information 3.2 Identify a premise/assumption 3.3 Give an example
4	Deliver the speech to time, using notes effectively	4.1 Communicate ideas 4.2 Speak for the allocated time
5	Reply (rebut) and respond (point of information) to arguments from the other team (according to role)	5.1 Respond to arguments from the other team (according to role) 5.2 Offer a point of information 5.3 Accept points of information
6	Signpost and link work	6.1 State content 6.2 Link points together
7	Use verbal and non-verbal communication	7.1 Use facial expression or eye contact 7.2 Speak clearly and audibly with some vocal variety 7.3 Use appropriate vocabulary
8	Listen carefully and positively	8.1 Listen attentively and engage with the process 8.2 Show a positive attitude and courtesy throughout

Level 1 Debating Grading Criteria

We have designed our assessment and examinations to motivate and engage learners at all ages and levels. During the assessment/examination process the assessor will mark against a set of criteria known as learning outcomes and assessment criteria: see table below. The overall grade will be allocated on the learner's ability to meet the criteria.

Section 1 Content	Pass	Merit	Distinction
Understanding of Motion	Motion is partly understood.	Motion is generally understood.	Motion is completely understood.
Explanation	Information given is partially convincing.	Information given is mostly convincing.	Information given is completely convincing.
Building an Argument	States case; makes clear what is being referred to and own view.	Backs up view with reasons and/or evidence.	Explains reasons and evidence as well as listing them.
Complexity of Argument	Identifies at least one premise or assumption or a concluding statement.	Identifies at least one premise and a concluding statement.	Identifies two or more premises and concluding statement.
Use of Example	Gives one example.	Gives two or more brief examples.	Gives two or more detailed examples.
Communication	Shows audience awareness.	Engages with some, but not all, of the group.	Shares content enthusiastically and competently with the whole group.

Section 2 Style	Pass	Merit	Distinction
Confidence / Fluency	Communicates ideas but with some hesitancy/uncertainty or with over-reliance on notes/memorisation.	Communicates confidently. Mostly natural sounding, using brief notes if necessary.	Communicates confidently, spontaneously and with commitment to the case, with or without notes.
Non-Verbal Communication	Uses facial expression or eye contact to communicate non-verbally at least once.	Uses facial expression and eye contact to communicate non-verbally most of the time.	Uses facial expression and eye contact to communicate non-verbally throughout the assessment.
Voice	Clear and audible, limited use of modulation.	Clear, audible and unhurried. Varies tone amount and pace.	Uses some variety of tone amount and pace, as well as some variation of pitch or tone quality.
Use of Language	Language is mostly informal, with a narrow range of appropriate vocabulary.	Some use of formal language, uses varied vocabulary.	Mostly uses Standard English and uses varied vocabulary, including some technical terminology.

Section 3 Structure	Pass	Merit	Distinction
Introduction & Conclusion	Clear introduction.	Thoughtful introduction.	Original / imaginative introduction confidently delivered.
Summarising	Clear summary or conclusion.	Thoughtful summary and conclusion.	Clear, concise summary with original / imaginative concluding comment.
Signposting & Structure (including brief signposting of his/her team's arguments for first speaker)	Content stated without additional signposting.	States content clearly, and includes some signposting.	Content is confidently detailed. Clearly signifies when moving on to new points.
Linking	Makes an attempt to link points together.	Confidently and competently illustrates why some points are linked to the motion.	Confidently and competently illustrates why all points are linked to the motion.
Timing	Is considerably over (more than 30 seconds) or slightly under allotted time (by up to 30 seconds).	Slightly over allotted time (within a margin of 30 seconds).	Speaks for the full time allowed (within 15 seconds).

Section 4 Listening and Responding	Pass	Merit	Distinction
Listening Skills	Listens mostly supportively, but misses key points.	Listens attentively and is mostly engaged.	Listens attentively and is thoroughly engaged throughout the process.
Replying (Rebuttal) and Responding (points of information)	Attempts to respond to arguments put forward by the other side (If applicable – see Speakers' Duties), but with points that have already been made and offers a minimum of two points of information.	Makes some attempt to give fresh responses to arguments from the other team (If applicable – see Speakers' Duties), and regularly offers points of information.	Regularly gives new responses to arguments put forward by the other side (If applicable – see Speakers' Duties), and confidently and regularly offers points of information that are well thought-out and concise.
Counter Arguments	Accepts some points of information but responses are weak or at the expense of timing.	Thoughtful, concise responses to points of information.	Effective and insightful responses to points of information, with good attention to timing.
Teamwork	Quietly receptive member of the team. Is respectful and courteous to the opposing team.	Engages with own team most of the time. Is respectful and courteous to the opposing team.	Liaises with team throughout, offers own ideas. Is respectful and courteous to the opposing team throughout.

Humanities

- The world is an amazing place; unique, vibrant and incredibly diverse. The past histories of different cultures and places can both enthuse and inspire us. The sense of awe and wonder we can generate by investigating and delving into a well-chosen 'picnic basket' of topics helps to ensure that our children learn the key skills within Geography and History whilst having enormous fun and enjoyment.
- The Humanities subjects of both History and Geography are an integral and strategic vehicle that helps drive our bespoke curriculum throughout the Junior School. They give context to the children's learning and provide a wide range of cross curricular links to both core subjects of Maths and English, as well as to more vocational and creative areas such as Music and Art. The studies undertaken are deliberately chosen to reflect both our geographical location as well as our historical ties to the UK, bearing in mind that many of our children go on to extend or complete their education in Britain or in British based education systems.

Year 4 Humanities Topics

Term One	Term Two	Term Three
Geography: The Grand Tour	History: World War Two	Geography: Rainforests

Geography

Location Knowledge Objectives

Our children will be able to:

- Locate the world's countries, with a focus on Europe and countries of particular interest to pupils
- Locate the world's countries, with focus on Southeast Asia
- Key geographical features of UK and Singapore, and understanding how some of these aspects have changed over time
- Locate the geographic zones of the world
- Understand the significance of the geographic zones of the world.

Place Knowledge Objectives

Our children will be able to:

- Study and understand geographical similarities and differences in both human and physical aspects
- Describe how countries and regions are both interconnected and interdependent.

Human & Physical Geography Objectives

Our children will be able to:

- Describe a range of physical processes such as rivers, earthquakes and the water cycle
- Describe how humans affect and interact with the environment including land use and economic activity.

Geographical Skills & Fieldwork Objectives

Our children will be able to:

- Use maps, atlases and globes including digital media such as Google Earth / Maps
- Use the full range of points of the compass as well as four and six figure grid references
- Use fieldwork to observe, measure and record human and physical features.

History

Investigate & Interpret the Past Objectives

Our children will be able to:

- Note connections, contrasts and trends over time and develop the appropriate use of historical terms
- Address and sometimes devise historically valid questions about change, cause, similarity and difference, and significance
- Understand how our knowledge of the past is constructed from a range of sources.

Build an Overview of British & World History Objectives

Our children will be able to gain:

- Understanding of world history including that of Asia
- Understanding of British history
- Understanding of local history.

Understand Chronology Objectives

Our children will be able to:

- Look at, and construct timelines, choosing and placing relevant historical events
- Use terms to describe chronology of events such as BC / BCE / AD / CE, decades / centuries / millennium
- Understand changes both within and between time periods.

Communicate Historically Objectives

Our children will be able to:

- Organise and present historically accurate information in a variety of written / pictorial formats
- Use increasingly complex historical terms and vocabulary: era, change, decades, century, millennium, chronology, empire, civilisation
- Create and test hypotheses, using evidence to make claims
- Frame historically valid questions and opinions, putting forward claims both in recorded written work and in debates and discussions.

Mathematics

Mathematics is all around us; it is an important part of the world in which we live and to function in society we need to able to think and communicate mathematically.

At Tanglin, we believe every student should be encouraged to develop an enthusiasm and love for mathematics through experiencing a wide range of challenging activities. Our rich mathematics curriculum allows room for challenge and creative thinking. We invite our learners to make decisions, to explain their findings and to reflect. Teachers promote discussion and communication within each lesson, with an expectation that accurate mathematical vocabulary is used. We encourage originality and invention but most importantly we want children to start questioning their learning, asking questions such as "What if...?"

There are four broad areas within our mathematics curriculum:

- Number
- Measurement
- Geometry
- Statistics

Using and applying mathematics is embedded into the teaching and learning of all aspects of the curriculum. It involves pupils in solving problems, explaining their methods and results, and using their mathematics to reason logically. It provides pupils with the opportunity to deepen their knowledge and understanding of the subject.

Year 6 Teaching Overview

	1 2	3 4	5 6 7	8 9 10 11 12	13	14
Term 1	Growth Mindset Jo Boaler unit	Number: Place Value	Number: Addition, Subtraction, Multiplication and Division	Number: Fractions	Geometry: Position and Direction	Consolidation/ Christmas Maths
Term 2	Number: Decimals	Number: Percentages	Number: Algebra / Measurement: Converting Units	Measurement: Perimeter, Area and Volume / Number: Ratio		
Term 3	Geometry: Properties of Shape	Problem Solving/ Consolidation	Statistics	Investigations/ Transition Maths/ Sarawak Buffer		

Please note: *overview is subject to change without notice*

Place Value

- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- round any whole number to a required degree of accuracy
- use negative numbers in context, and calculate intervals across zero
- solve number problems and practical problems that involve all of the above.

Addition, Subtraction, Multiplication & Division

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context

- divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Fractions, Decimals & Percentages

- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions >1
- add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, ¼ × ½ = 1⁄8]
- divide proper fractions by whole numbers [for example, 1⁄3 ÷ 2 = 1⁄6]
- associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3⁄8]
- identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
- multiply one-digit numbers with up to two decimal places by whole numbers
- use written division methods in cases where the answer has up to two decimal places.
- solve problems which require answers to be rounded to specified degrees of accuracy
- recall and use equivalences between simple fractions, decimals and percentages including in different contexts.

Ratio & Proportion

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and use percentages for comparison
- solve problems involving similar shapes where the scale factor is known or can be found
- solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Algebra

- use simple formulae
- generate and describe linear number sequences
- express missing number problems algebraically
- find pairs of numbers that satisfy number sentences involving two unknowns
- enumerate possibilities of combinations of two variables.

Measurement

- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

- use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- convert between miles and kilometres
- recognise that shapes with the same areas can have different perimeters and vice versa
- recognise when it is possible to use the formulae for area and volume of shapes
- calculate the area of parallelograms and triangles
- calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3and km3].

Geometry
- draw 2-D shapes using given dimensions and angles
- recognise, describe and build simple 3-D shapes including making nets
- compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
- illustrate and name parts of circle, including radius, diameter and circumference and know that the diameter is twice the radius
- recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
- describe positions on the full coordinate grid (all four quadrants)
- draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Statistics
- interpret and construct pie charts and line graphs and use these to solve problems
- calculate and interpret the mean as an average.

Science

Working Scientifically: The search for evidence to answer scientific questions about the world in which we live.

As Scientists we…

- Ask relevant questions.
- Plan different types of scientific enquiries to answer questions.
- Recognise and control variables where necessary.
- Take measurement using a range of scientific equipment.
- Take measurements with increasing accuracy and precision.
- Take repeat readings when appropriate.
- Pupils record work with diagrams and label them
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar charts.
- Record data and results of increasing complexity using line graphs.
- Report and present findings from enquiries, including conclusions and causal relationships.
- Report and present findings from enquiries in oral and written forms such as displays and other presentations.
- Report and present findings from enquiries, including explanations of, and degree of, trust in results.
- Identify differences, similarities or changes related to scientific ideas and processes.
- Identify scientific evidence that has been used to support or refute ideas or arguments.
- Use test results to make predictions to set up further comparative and fair tests.

Biology Objectives

- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
- Describe the ways in which nutrients and water are transported within animals, including humans.
- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.
- Give reasons for classifying plants and animals based on specific characteristics.
- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
- Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to.

Chemistry Objectives

- Understand chemical reactions as the rearrangement of atoms.
- Explain the changes of state in terms of the particle model.
- Use a series of investigations to explore the properties of the different states of matter.
- Discuss different states of matter in terms of the particle model.

Physics Objectives

- Recognise that light appears to travel in straight lines.
- Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.
- Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit.
- Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
- Use recognised symbols when representing a simple circuit in a diagram.