

Leonardo V. Academy



Leonardo
V. Academy

**Curriculum Leonardo V. Academy
(Grade 7, Year 8)**

Framework for the Leonardo V. Academy Curriculum

Grade 7/Year 8 (Key Stage 3)

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Disclaimer

To ensure the very best standards of learning and a quality education for our students, Leonardo V. Academy, aims to offer an up-to-date, comprehensive, unique, as well as a thoroughly modern curriculum. Combining the high level of British academic standards with a forward-thinking, international outlook, our curriculum intends to be innovative and challenging, whilst also being accessible in addition to making a challenging learning environment enjoyable for any student that is already enrolled or is thinking of joining our school.

In keeping with these high academic standards, the Leonardo V. Academy curriculum for Grade 7 has been developed from the following national government and private educational authorities:

- ❖ Her Majesty's Government Department for Education
 - <https://www.gov.uk/government/organisations/department-for-education>
- ❖ National Curriculum in England (Secondary Education)
 - <https://www.gov.uk/government/publications/national-curriculum-in-england-secondary-curriculum>
- ❖ Cambridge International Examinations (Secondary 1)
 - <http://www.cie.org.uk/programmes-and-qualifications/cambridge-secondary-1/cambridge-secondary-1/>
- ❖ Czech Republic Ministry of Education, Youth and Sports – Framework Educational Programme for Basic Education
 - <http://www.msmt.cz/areas-of-work/basic-education-1>

Subjects of Study

During Grade 7, students at Leonardo V. Academy focus on the following subjects of study.

* English	(5 hours)
* Mathematics	(5 hours)
* Science	(4 hours)
* Geography	(2 hours)
* History	(2 hours)
* Information Technology	(2 hours)
* Art and Design	(2 hours)
* Design Technology	(1 hour)
* Music	(2 hours)
* Modern Languages	(3 hours)
* Physical Education	(2 hours)

Each subject is taught in full compliance with the National Curriculum of England.

English (Course Description)

By the beginning of Grade 7, pupils should be able to read and *begin to analyze* a wider range of poetry and books written at an age-appropriate interest level with *developing accuracy*. During Grades 6 and 7, teachers should continue to emphasise pupils' enjoyment and understanding of language, especially vocabulary, to support their reading and writing.

They should be able to read and *understand most words effortlessly and begin to determine unfamiliar vocabulary using linguistic and contextual clues*. Pupils' knowledge of language, gained from stories, plays, poetry, non-fiction and textbooks, will support their increasing fluency as readers, their facility as writers, and their comprehension.

They should be reading frequently, outside as well as in school, for pleasure and information. *Pupils should be able to summarise and analyze single readings of increasing lengths accurately and in their own words*. They should be able to read mostly independently, with *clear understanding, inferring the unstated nuances within the texts based on personal observations, and then discuss their findings in a coherent written and verbal manner*.

Pupils should be able to plan, write, and revise their own writing for *extended* academic writings. They should *continue* developing resilience to write at length during Grades 6 and 7. They should be taught to write formal and academic essays as well as writing imaginatively. They should have experience writing for a variety of purposes and audiences across a range of contexts.

It is essential that pupils whose decoding skills are poor are taught through a rigorous and systematic phonics programme so that they catch up rapidly with their peers in terms of their decoding and spelling. However, as far as possible, these pupils should follow the key stage 3 programme of study in terms of listening to books and other writing that they have not come across before, hearing and learning new vocabulary and grammatical structures, and having a chance to talk about all of these.

By the end of Grade 7, pupils' reading and writing should be sufficiently fluent and effortless for them to manage the general demands of the curriculum in Grade 8, across all subjects and not just in English, but there will continue to be a need for pupils to learn subject-specific vocabulary. They should be able to reflect their understanding of the audience for and purpose of their writing by selecting appropriate vocabulary and grammar. Teachers should prepare pupils for further secondary education by ensuring that they can consciously control sentence structure in their writing and understand why sentences are constructed as they

are. Pupils should understand nuances in vocabulary choice and age-appropriate, academic vocabulary. This involves consolidation, practice and discussion of language. **English – key stages 2 and 3.**

Specific requirements for pupils to discuss what they are learning and to develop their wider skills in spoken language form part of this programme of study. In Grades 6 and 7, pupils' confidence, and mastery of language should be extended through public speaking, collaborative discussion, and debate. Pupils should begin to communicate effectively and expressively by choosing and adjusting tone and style of speech to audience and purpose.

English (Course Objectives)

i) Reading – Word Reading:

- Apply their growing knowledge of root words, prefixes and suffixes (morphology and etymology) as listed in English Appendix 1, both to read and to understand the meaning of new words that they meet.

ii) Reading – Comprehension:

- Maintain positive attitudes to reading and understanding of what they read by:
 - Continuing to read and discuss an increasingly wide range of contemporary and classic fiction, poetry, plays, non-fiction and reference books or textbooks
 - Reading texts that are structured in different ways and reading for a range of purposes
 - Increasing their familiarity with a wide range of books, including short stories, extended 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
 - Make detailed comparisons within and across multiple texts
 - Learn and recite a wider, more complex range of poetry keeping in mind intonation, inflection, and dialect
 - 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 textual evidence
 - Predicting what might happen from details stated and implied
 - Summarizing the main ideas drawn from more than one text, 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 in reading and in speech
 - Retrieve, record and present information from non-fiction
 - Participate in discussions about texts read independently and as a group, 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.

iii) Writing – Composition:

- Write legibly, fluently and with increasing speed and dexterity
- Plan their writing by:
 - 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 using purposeful organization tools and drawing on reading and research where necessary

- In writing narratives, considering and emulating how authors have developed characters and settings in other texts
- 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.
 - Beginning to use figurative, poetic, and rhetorical language techniques
 - Using a wide range of transitional and structural devices such as spacing, headings, and transition words and phrases to build cohesion and fluidity within and across paragraphs
 - Using further organizational and presentational devices to structure text and to guide the reader through a text
- Evaluate and edit by:
 - Assessing the effectiveness of their own and others' writing in a formal and constructive manner
 - Proposing and accepting 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.

iv) Writing – Vocabulary, Grammar and Punctuation:

- Develop their understanding and continue successful usage of the concepts set out in Key Stage 2 and grade 6. In particular, pupils

should master the following grammatical objectives by the end of grade 7:

- Recognizing vocabulary and structures that are appropriate for formal speech and writing
 - Identifying and analyzing the elements of a sentence (parts of speech, subject, object, complement etc.)
 - Continuing to diagram simple, compound, and complex sentences
 - Expand basic knowledge of morphology, particularly with regard to prefixes, affixes, and suffixes which stem from Greek and Latin
 - Identify the etymological origin of some modern English vocabulary
 - Progressing understanding of grapheme-phoneme correspondences
 - Recognizing types and purposes of phrases and clauses within a sentence
 - Recognizing the varying degrees of register within and across texts and begin purposefully implementing these variations in writing
- Use and understand the grammatical terminology in English Appendix 2 accurately and appropriately in discussing their writing and reading.

Mathematics (Course Description)

Learners justify their generalisations, arguments or solutions, consider alternative approaches and appreciate the difference between mathematical explanation and experimental evidence. They examine critically and justify their choice of mathematical presentation. In making estimates, they round to one significant figure and multiply and divide mentally. They understand the effects of multiplying and dividing by numbers between 0 and 1, and calculate proportional changes. They solve numerical problems with numbers of any size, using a calculator efficiently and appropriately. They describe in symbols the next term or n th term of a sequence with a quadratic rule. They use algebraic and graphical methods to solve simultaneous linear equations in two variables and solve simple inequalities. They use Pythagoras' theorem in two dimensions, calculate lengths, areas and volumes in plane shapes and right prisms, and enlarge shapes by a fractional scale factor. They appreciate the imprecision of measurement, and use compound measures such as speed. They specify and test hypotheses, taking account of bias. They analyse data to determine modal class and estimate the mean, median and range of sets of grouped data. They use measures of average and range to compare distributions, and draw a line of best fit on a scatter diagram by inspection. They use relative frequency as an estimate of probability and use this to compare outcomes of experiments.

Mathematics (Course Objectives)

i) Number

Recognize divisibility rules.

- Determine and explain why a number is divisible by 2, 3, 4, 5, 6, 8, 9, or 10 and why a number cannot be divided by 0.

Recognize whole numbers and their place value up to billions.

- Read and write whole numbers in figures and words up to billions.

Order and compare numbers up to billions.

- Recognize place value up to billions.
- Order and compare numbers to 1 billion using the signs $<$, $>$, $\neq$ and $=$
- Write numbers in expanded form.

Develop integer sense in addition to being able to add and subtract integers, as well as round integers.

- Locate positive and negative integers on a number line.
- Compare integers using the symbols $<$, $>$, $\neq$ and $=$.
- Know that the sum of an integer and its opposite is 0.
- Add and subtract positive and negative integers.
- Using a number line, locate positive and negative whole numbers.
- Round to the nearest ten; to the nearest hundred; to the nearest thousand; to the nearest hundred thousand.

Develop exponent sense. Understand squares and square roots. Understand powers.

- Review perfect squares and square roots to 144; recognize the square root sign, $\sqrt{\quad}$
- Using the terms squared and cubed and to the n th power, read and evaluate numerical expressions with exponents.
- Identify the powers of ten up to 10^6 .
- Identify a set and the members of a set, as indicated by $\{ \}$.
- Identify numbers under 100 as factor or composite.
- Identify prime factors of numbers to 100 and write using exponential notation for multiple primes.

Understand GCF and LCM.

- Determine the greatest common factor (GCF) of given numbers.
- Determine the least common multiple (LCM) of given numbers.

Construct number sequences.

- Construct number sequences and develop logical thinking abilities to find the next term(s).

Recognize equivalent fractions. Simplify fractions. Add, subtract, multiply and divide fractions. Round fractions.

- Determine the least common denominator (LCD) of fractions with unlike denominators.
- Recognize equivalent fractions (for example, $\frac{1}{2} = \frac{3}{6}$).
- Put fractions in lowest terms.
- Compare fractions with like and unlike denominators, using the signs $<$, $>$, $\neq$ and $=$.

- Identify the reciprocal of a given fraction; know that the product of a given number and its reciprocal = 1.
- Add and subtract mixed numbers and fractions with like and unlike denominators.
- Multiply and divide fractions.
- Add and subtract fractions with like and unlike denominators.
- Add and subtract mixed numbers and fractions; multiply mixed numbers and fractions.
- Round fractions to the nearest whole number.
- Write fractions as decimals (e.g., $\frac{1}{4} = 0.25$; $1275 = 0.68$; $\frac{1}{3} = 0.3333 \dots$ or 0.33, rounded to the nearest hundredth).

Recognize decimals. Round decimals. Add, subtract, multiply and divide decimals.

- Read, write, and order decimals to the nearest ten-thousandth.
- Write decimals in expanded form.
- Read and write decimals on a number line.
- Round decimals (and decimal quotients) to the nearest tenth; to the nearest hundredth; to the nearest thousandth.
- Estimate decimal sums, differences, and products by rounding.
- Add and subtract decimals through ten-thousandths.
- Multiply decimals: by 10, 100, and 1,000; by another decimal.
- Divide decimals by whole numbers and decimals.

Recognize ratios. Understand rate and ratio.

- Determine and express simple ratios.

- Use ratio to create a simple scale drawing.
- Ratio and rate: solve problems on speed as a ratio, using the formula $S = d/t$ (or $D = r \times t$).

Recognize percentages. Express equivalences between fractions, decimals and percents.

- Recognize the percent sign (%) and understand percent as “per hundred.”
- Express equivalences between fractions, decimals, and percents, and know common equivalences:
 - $1/10 = 10\%$, $1/4 = 25\%$, $1/2 = 50\%$, $3/4 = 75\%$
- Find the given percent of a number.

Understand number operations and calculations. Understand commutative, associative and distributive properties. Estimate the result. Solve problems.

- Addition and Subtraction
 - Commutative and associative properties: know the names and understand the properties.
- Multiplication
 - Commutative, associative, and distributive properties: know the names and understand the properties.
 - Multiply two factors of up to four digits each.
 - Write numbers in expanded form using multiplication.
 - Estimate a product.
 - Use mental computation strategies for multiplication, such as breaking a problem into partial products, for example: $3 \times 27 = (3 \times 20) + (3 \times 7) = 60 + 21 = 81$.

- Solve word problems involving multiplication.

➤ Division

- Understand multiplication and division as inverse operations.
- Know what it means for one number to be “divisible” by another number.
- Know that you cannot divide by 0; that any number divided by 1 = that number.
- Estimate the quotient.
- Know how to move the decimal point when dividing by 10, 100, or 1,000.
- Divide dividends up to four digits by one-digit, two-digit, and three-digit divisors.
- Solve division problems with remainders; round a repeating decimal quotient.
- Check division by multiplying (and adding remainder).

➤ Solving Problems and Equations

- Solve word problems with multiple steps.
- Solve problems with more than one operation.
- Construct problems and solve them.

ii) Measurement

Understand measurement. Use direct and indirect measurement to solve problems. Recognize units of measurement.

➤ Length, mass, capacity and temperature

- Estimate, measure and record lengths, masses, capacities and temperatures using standard units (km, m, cm, mm, kg, g, l, ml, °C) to a suitable degree of accuracy.
- Convert between different units of measure using decimals to three places, e.g. 2.475 kg = 2475 g, or vice versa.
- Read and interpret scales on a range of measuring instruments.
- Understand and use equivalencies between metric and common imperial units still in everyday use.
- Use the formula, and the standard units cm³ and m³, to calculate the volume of cubes and cuboids.

➤ Time

- Read a timetable using 24-hour clock notation and calculate time intervals.
- Solve problems on elapsed time; regroup when multiplying and dividing amounts of time.

➤ Money

- Use all four operations, fractions and percentages to solve problems involving money.

➤ Perimeter And Area

- Measure and calculate the perimeter of regular and irregular polygons.
- Use the formula, and a variety of standard units (mm²; cm²; m²; km²), to calculate the area of rectangles and related compound shapes.
- Use the formulae to calculate the area of triangles and parallelograms.

- Use the formulae to calculate the surface area of cubes and cuboids.

iii) Algebra

Develop pre-algebra sense. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. Understand that rewriting an expression in different forms. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve Problems by reasoning about the quantities.

- Know that letters play different roles in equations, formulae and functions; know the meanings of formula and function.
- Know that algebraic operations, including brackets, follow the same order as arithmetic operations; use index notation for small positive integer powers.
- Construct linear expressions.
- Simplify or transform linear expressions with integer coefficients; collect like terms; multiply a single term over a bracket.
- Derive and use simple formulae, e.g. to convert degrees Celsius ($^{\circ}\text{C}$) to degrees Fahrenheit ($^{\circ}\text{F}$).
- Solve problem involving average speed.
- Use compound measures to make comparisons in real-life contexts, e.g. travel graphs and value for money.
- Substitute positive and negative integers into formulae, linear expressions and expressions involving small powers, e.g. $3x + 4$ or $2x^3$, including examples that lead to an equation to solve.
- Construct and solve linear equations with integer coefficients (unknown on either or both sides, without or with brackets).

- Generate terms of a linear sequence using term-to-term and position-to-term rules; find term-to-term and position-to-term rules of sequences, including spatial patterns.
- Use a linear expression to describe the n th term of a simple arithmetic sequence, justifying its form by referring to the activity or practical context from which it was generated.
- Express simple functions algebraically and represent them in mappings.

iv) Geometry

Describe the characteristics of 3D and 2D shapes, analyze the relationships among them and develop geometry and spatial sense.

Draw (freehand, with ruler and protractor and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

- Identify and draw points, segments, rays, lines.
- Identify and draw lines: horizontal; vertical; perpendicular; parallel; intersecting.
- Use a straight edge and compasses to: construct the perpendicular from a point to a line and the perpendicular from a point on a line inscribe squares, equilateral triangles, and regular hexagons and octagons by constructing equal divisions of a circle.
- Use a ruler and compasses to construct:
 - Circles and arcs.
 - A triangle, given three sides SSS.
 - A triangle, given a right angle, hypotenuse and one side RHS.
- Use a straight edge and compasses to construct:

- The midpoint and perpendicular bisector of a line segment.
 - The bisector of an angle.
- Measure the degrees in angles, and know that
 - The bisector of an angle.
 - right angle = 90°
 - acute angle: less than 90°
 - obtuse angle: greater than 90°
 - straight angle = 180°
- Identify and construct different kinds of triangles: equilateral, right, and isosceles.
- Know what it means for triangles to be congruent.
- Identify polygons:
 - The bisector of an angle.
 - Triangle, quadrilateral, pentagon, hexagon, and octagon parallelogram, trapezoid, rhombus, rectangle, and square.
- Know that regular polygons have sides of equal length and angles of equal measure.
- Identify and draw diagonals of polygons.
- Circles:
 - Know the definition of a circle and the names of its parts; know and use formulae for the circumference and area of a circle.
- Identify arc, chord, radius (plural: radii), and diameter (radius = $\frac{1}{2}$ diameter).

- Using a compass, draw circles with a given diameter or radius.
- Find the circumference of a circle using the formulas $C = \pi d$, and $C = 2 \pi r$, using 3.14 as the value of pi.
- Solve problems involving the circumference and area of circles, including by using the π key of a calculator.
- Area:
 - Review the formula for the area of a rectangle (Area = length x width) and solve problems involving finding area in a variety of square units (such as mi^2 ; yd^2 ; ft^2 ; in^2 ; km^2 ; m^2 ; cm^2 ; mm^2).
 - Find the area of triangles, using the formula $A = \frac{1}{2}(b \times h)$.
 - Find the area of a parallelogram using the formula $A = b \times h$.
 - Find the area of an irregular figure (such as a trapezoid) by dividing into regular figures for which you know how to find the area.
 - Compute volume of rectangular prisms in cubic units (cm^3 , in^3), using the formula $V = l \times w \times h$.
 - Find the surface area of a rectangular prism. Use simple nets of solids to work out their surface areas.
 - Identify and apply translations, reflections and rotations.
 - Identify and apply tessellations (dilations)

v) Data

Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

- Understand probability as a measure of the likelihood that an event will happen; using simple models, express probability of a given event as a fraction, as a percent, and as a decimal between 0 and 1.
- Understand and use the probability scale from 0 to 1.
- Collect and organize data in graphic form (bar, line, and circle graphs). Draw, and interpret: frequency diagrams for discrete and continuous data – pie charts– simple line graphs for time series – stem-and-leaf diagrams.
- Solve problems requiring interpretation and application of graphically displayed data.

Collect data and find averages. Graph the data. Understand that statistics can be used to gain information.

- Informally assess the degree of visual overlap of two numerical Data distributions with similar variabilities, measuring the difference between the centres by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.
- Find the average (mean) of a given set of numbers.
- Plot points on a coordinate plane, using ordered pairs of positive and negative whole numbers.
- Graph simple functions.

Science (Course Description)

The principal focus of science teaching in Grade 7 and throughout Key Stage 3 is to develop a deeper understanding of a range of scientific ideas in the subject disciplines of **Biology**, **Chemistry** and **Physics**. Pupils should begin to see the connections between these subject areas and become aware of some of the big ideas underpinning scientific knowledge and understanding. Examples of these big ideas are the links between structure and function in living organisms, the particulate model as the key to understanding the properties and interactions of matter in all its forms, and the resources and means of transfer of energy as key determinants of all of these interactions. They should be encouraged to relate scientific explanations to phenomena in the world around them and start to use modelling and abstract ideas to develop and evaluate explanations.

Pupils should understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review. Pupils should decide on the appropriate type of scientific enquiry to undertake to answer their own questions and develop a deeper understanding of factors to be taken into account when collecting, recording and processing data. They should evaluate their results and identify further questions arising from them.

‘Working scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Teachers should feel free to choose examples that serve a variety of purposes, from showing how scientific ideas have developed historically to reflecting modern developments in science.

Pupils should develop their use of scientific vocabulary, including the use of scientific nomenclature and units and mathematical representations.

Science (Course Objectives)

Biology

i) Plants

- Explore how plants need carbon dioxide, water and light for photosynthesis in order to make biomass and oxygen
- Describe the absorption and transport of water and mineral salts in flowering plants

ii) Human Body

- Identify the constituents of a balanced diet and the functions of various nutrients
- Understand the effects of nutritional deficiencies
- Recognize the organs of the alimentary canal and know their functions
- Understand the function of enzymes as biological catalysts in breaking down food to simple chemicals
- Recognize and model the basic components of the circulatory system and know their functions
- Understand the relationship between diet and fitness
- Discuss how conception, growth, development, behavior and health can be affected by diet, drugs and disease
- Recognize the basic components of the respiratory system and know their functions
- Define and describe aerobic respiration, and use the word equation
- Explain gaseous exchange
- Describe the effects of smoking

- Discuss the physical and emotional changes that take place during adolescence
- Describe the human reproductive system, including the menstrual cycle, fertilisation and foetal development

Chemistry

i) Material Properties

- Show how the particle theory of matter can be used to explain the properties of solids, liquids and gases, including changes of state, gas pressure and diffusion
- Describe and explain the differences between metals and non-metals
- Give chemical symbols for the first twenty elements of the Periodic Table
- Understand that elements are made of atoms
- Explain the idea of compounds
- Name some common compounds including oxides, hydroxides, chlorides, sulfates and carbonates
- Distinguish between elements, compounds and mixtures

➤ Material Changes

- Use a word equation to describe a common reaction
- Describe chemical reactions which are not useful, e.g. rusting

Physics

i) Forces and Motion

- Calculate average speeds
- Interpret simple distance/time graphs

ii) Sound

- Explain the properties of sound in terms of movement of air particles
- Recognize the link between loudness and amplitude, pitch and frequency, using an oscilloscope

➤ Light

- Use light travelling in a straight line to explain the formation of shadows and other phenomena
- Describe how non-luminous objects are seen
- Describe reflection at a plane surface and use the law of reflection
- Investigate refraction at the boundary between air and glass or air and water
- Explain the dispersion of white light
- Explain color addition and subtraction, and the absorption and reflection of colored light

➤ Magnetism

- Describe the properties of magnets. Recognize and reproduce the magnetic field pattern of a bar magnet
- Construct and use an electromagnet

Geography (Course Description)

During Grade 7, the key academic areas of study are: students will learn how to competently use Geographic Information Systems (GIS); Population; Urbanisation; Coasts; Weather and Climate; Global Warming; the Asian Continent; and a depth study of Southwest China.

Pupils should consolidate and extend their knowledge of the world's major countries and their physical and human features. They should understand how geographical processes interact to create distinctive human and physical landscapes that change over time. In doing so, they should become aware of increasingly complex geographical systems in the world around them. They should develop greater competence in using geographical knowledge, approaches and concepts [such as models and theories] and geographical skills in analysing and interpreting different data sources. In this way pupils will continue to enrich their locational knowledge and spatial and environmental understanding.

The Grade 7 curriculum for geography aims to ensure that all pupils develop contextual knowledge of the location of globally significant places – both terrestrial and marine – including their defining physical and human characteristics and how these provide a geographical context for understanding the actions of processes. Additionally, pupils should learn to understand the processes that give rise to key physical and human geographical features of the world, how these are interdependent and how they bring about spatial variation and change over time.

Geography (Course Objectives)

i) Geographic Information Systems (GIS)

- Applications and uses for GIS
- GIS in fighting crime
- Analysing GIS data
- Other uses of GIS

ii) Population

- Human population increase
- UK population
- Population around the world
- Human impact on the planet
- The future of the planet

iii) Urbanisation

- How towns and cities grow
- Manchester: a case study
- Urbanisation around the world
- Moving to urban areas
- Poverty in urban centres
- Future development of cities

iv) Coasts

- Waves and tides

- Landforms
- Coasts and human beings
- Holidays and coastal tourism
- Newquay
- Effects of the sea on coastlines
- Protecting from the Sea

v) Weather and Climate

- What causes the weather
- Measuring weather
- Precipitation
- Air pressure
- Air masses
- Winter storms and depressions
- Weather to climate
- Factors that influence climate
- World climate zones

vi) Asia

- Location of Asia
- Countries of Asia
- Culture and economy of Asia
- Physical features of Asia
- Asia's population
- Asian's Biomes

vii) Southwest China

- History of China
- Rise of China
- China's southwest region
- Chongqing
- Chinese biodiversity
- Tibet
- Rivers and Dams in China

History (Course Description)

During Grade 7, the key academic areas of historical enquiry are: England in the Middle Ages; Tudor Monarchy; Queen Elizabeth I; Historical Fiction; British Empire; and The Stuarts.

Pupils should extend and deepen their chronologically secure knowledge and understanding of British, local and world history, so that it provides a well-informed context for wider learning. Pupils should identify significant events, make connections, draw contrasts, and analyse trends within periods and over long arcs of time. They should use historical terms and concepts in increasingly sophisticated ways. They should pursue historically valid enquiries including some they have framed themselves, and create relevant, structured and evidentially supported accounts in response. They should understand how different types of historical sources are used rigorously to make historical claims and discern how and why contrasting arguments and interpretations of the past have been constructed. In planning to ensure the progression described above through teaching the British, local and world history outlined below, teachers should combine overview and depth studies to help pupils understand both the long arc of development and the complexity of specific aspects of the content.

History (Course Objectives)

i) England in the Middle Ages

- Explanation of the Middle Ages
- Battle of Hastings 1066
- Norman Conquest of England

ii) Tudor Monarchy

- Britain before 1509
- Tudor Life
- Henry VIII
- Reformation
- Edward VI
- Mary I

iii) Elizabeth I

- Biography of Elizabeth I
- Mary Queen of Scots
- Spanish Armada

iv) Historical Fiction

- Using history to write fiction
- Medieval torture devices

v) British Empire

- Age of Exploration
- Origins of the British Empire

vi) The Stuarts

- The Stuart House (Kings of Scotland)
- Stuart Kings and Queens
- Gunpowder Plot
- Witches
- Discovery of America
- English Civil War

Information Technology (Course Description)

The Grade 7 curriculum works to ensure that all pupils: can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation; can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems; can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems; and are responsible, competent, confident and creative users of information and communication technology.

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Information Technology (Course Objectives)

In Grade 7 ICT, the students are expected to:

1. Use a variety of information technology tools, applications, and production processes
2. Apply problem-solving skills to meet an information need
3. Practice using a variety of information technology tools
4. Demonstrate a willingness to manage resources and information
5. Demonstrate an awareness of the protocols and ethics involved in the use of information technology

Skills developed

Learners should learn to:

1. Use hardware and develop knowledge of ICT
 - use ICT hardware and software autonomously
 - consider the purposes for which information is to be processed and communicated
 - use their knowledge and understanding of ICT to design information systems, and to evaluate and suggest improvements to existing systems
 - investigate problems by modelling, measuring and controlling, and by constructing ICT procedures
 - consider the limitations of ICT tools and information sources, and of the results they provide, and compare their effectiveness and efficiency with other methods of working
 - discuss some of the social, economic, ethical and moral issues raised by ICT
2. Communicate and handle information using ICT
 - use a range of ICT hardware and software efficiently to create good quality presentations for particular audiences, integrating information from several sources select appropriate ICT hardware and software to fulfil a specific purpose

- be systematic and critical in their use of appropriate search methods to obtain accurate and relevant information from a range of sources
- collect and edit quantitative and qualitative information for a particular purpose, and enter the data into a data-handling package for processing and analysis
- interpret, analyse and display information, checking its accuracy and questioning its plausibility

3. Control, monitor and model using ICT

- plan, develop, test and modify sets of instructions and procedures to control events
- use a system that responds to data from sensors, and explain how it makes use of feedback
- use ICT hardware and software to measure and record physical variables
- explore a given model with a number of variables and create models of their own, in order to detect patterns and relationships
- modify the rules and data of a model, and predict the effects of such changes
- evaluate a computer model by comparing its behaviour with data gathered from a range of sources.

1. DOCUMENTS FOR A PURPOSE (Microsoft Office Word)

- Create and format text which is suitable for a particular purpose
- Adjust properties to allow graphics, or other objects, to fit well within the document
- Insert table into document
- Use advanced formatting features
- Use page-formatting options
- Adjust page formatting for a specific audience

Prior knowledge	New words	
• Complements and extends 'Exploring Documents'	• line spacing • margins – left, right, top and bottom • text wrap • justify text • align left/right/centre	• resize/scale • crop • table • page setup • header/footer • bullets • tab • aspect ratio

	• lists	
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2. MULTIMEDIA FOR A PURPOSE (Microsoft Office Power Point)

- Create a plan for a presentation
- Recognise and select appropriate source materials
- Incorporate transition and animation
- Incorporate timings, audio and ‘build’ effects
- Demonstrate a clear sense of audience and purpose

Prior knowledge	New words	
• Complements and extends ‘Exploring Multimedia’	• transition • slide view • outline view	• automated presentation • animation

3. SPREADSHEETS FOR A PURPOSE (Microsoft Excel)

- Design a spreadsheet with a specific purpose
- Create the spreadsheet
- Test the spreadsheet
- Modify the spreadsheet to make it suitable for its purpose
- Evaluate the spreadsheet

Prior knowledge	New words	
• Complements and extends ‘Starting Graphs’ and Exploring Spreadsheets’	• design brief • model • test	• system design • evaluate • scenario

4. DATABASES FOR A PURPOSE (Microsoft Office Access)

- Identify a purpose for a database
- Design, create and develop a database for a specific purpose

- Utilise different field types
- Test database
- Demonstrate an awareness of data security
- Transfer data between applications

Prior knowledge	New words	
• data entry • simple database structure • search criteria • complements and extends 'Exploring Databases'	• flat file database • distributed database • field type/format • browse mode/ layout mode • form	• query • report • verification • validation • import/export data

Art & Design (Course Description)

Grade 7 marks a big leap in both the depth of teaching and expectations of pupils. During Grade 7, the topics of study are: Elements of Art and Principles of Design; Art History; Movement; Printing Techniques; Van Gogh; Edgar Degas; and Art Appreciation.

Art, craft and design embody some of the highest forms of human creativity. A high-quality art and design education should engage, inspire and challenge pupils, equipping them with the knowledge and skills to experiment, invent and create their own works of art, craft and design. As pupils progress, they should be able to think critically and develop a more rigorous understanding of art and design. They should also know how art and design both reflect and shape our history, and contribute to the culture, creativity and wealth of our nation.

Grade 7 should also aim to encourage and develop students in the following areas: produce creative work, exploring their ideas and recording their experiences; become proficient in drawing, painting, sculpture and other art, craft and design techniques; evaluate and analyse creative works using the language of art, craft and design; and to know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms.

Art & Design (Course Objectives)

i) Elements of Art and Principles of Design

- Unity
- Balance
- Proportion
- Contrast
- Variety
- Emphasis
- Movement
- Repetition

ii) Art History

- Timelines
- Movements: realism, impressionism, post-impressionism, pop-art

iii) Printing Techniques

- Print making
- Photography – creative photos
- Mosaic techniques
- Book binding
- Collage technique
- Aquarelle – water colour techniques
- Indian Inks
- Lino cuts

iv) Van Gough

- Biography
- Art Works
- Student research and presentation

v) Edgar Degas

- Biography
- Art Works

vi) Art Appreciation

- Art work discussion

Design Technology (Course Description)

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

The for design and technology aims to ensure that all pupils: develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world; build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users' and critique, evaluate and test their ideas and products and the work of others.

Design Technology (Course Objectives)

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion]. When designing and making, pupils should be taught to:

i) Design

- Use research and exploration, such as the study of different cultures, to identify and understand user needs
- Identify and solve their own design problems and understand how to reformulate problems given to them
- Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
- Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses
- Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools

ii) Make

- Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
- Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties

iii) Evaluate

- Analyse the work of past and present professionals and others to develop and broaden their understanding
 - Investigate new and emerging technologies
 - Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups
 - Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists
- Design and technology – key stage 3

iv) Technical knowledge

- Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- Understand how more advanced mechanical systems used in their products enable changes in movement and force
- Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
- Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].

Music (Course Description)

Students will perform, listen to, review and evaluate music across a range of historical periods, genres, styles and traditions, including the works of the great composers and musicians.

Students will learn to sing, to create and compose music, have opportunity to learn a musical instrument.

Students will work more in detail with the rhythm and sound, play different percussion instruments, they will prepare for a performance an arrangement of chosen music, they will learn how to work in a group, arrange a music and how the music is created, produced and communicated, including through the inter-related dimensions.

Music (Course Objectives)

i) Developing Knowledge

a) Elements

Through participation become familiar with basic elements of music (rhythm, melody, harmony, form, timbre, etc.).

- Rhythm - steady beat, accents, downbeat, play a steady beat, rhythm patterns, and syncopation patterns.
- Melody – ascending, descending, skips, steps
- Harmony – chords, homophony, polyphony
- Dynamics – p, mp, mf, f, crescendo, decrescendo

b) Notation

Review the notation:

- Whole, dotted half note, half, quarter note, eighth notes, sixteenth notes, dotted rhythm
- Whole, half, quarter rest
- Staff, treble clef (G clef), bass clef (understand that different instruments use different clef (why))
- Names of the notes
- Sharps and flats
- Time signatures 4/4 time, 2/4 time, $\frac{3}{4}$ time
- Legato, staccato

c) History of the Music

- Classical Period in Music (orchestra, chamber music, forms of instrumental and vocal music, J.Haydn, W.A.Mozart, L.van Beethoven)
- Romantic Music (expression of emotions, new instruments, romantic orchestra, ballet, F.Chopin, B.Smetana, A.Dvořák, P.I.Tchaikovsky)
- 20th century (S.Prokofjev, I.Stravinsky, L.Janáček, B.Martinů)
- 20th century – innovations in musical forms and styles (folk music, popular music, world music)

ii) Preparation of the Performance

- Developing knowledge, skills and understanding through the integration of performing, composing and listening.
- Participating, collaborating and working with others as musicians, adapting to different musical roles and respecting the values and benefits others bring to musical learning.
- Performing with control of instrument-specific techniques and musical expression.
- Exploring and developing musical ideas when performing.
- Students will have the chance to organize themselves and show personal responsibility, initiative, creativity and enterprise with a commitment to learning and self-improvement.

Modern Language (Course Description)

In Grade 7, students will study the following example topics: Welcome and Greetings; Meeting and Greeting; Collage; Friends and Friendship; Free Time; Daily Events; and Holidays and Vacation.

At Leonardo V. Academy, our students have the option of studying a choice of modern languages. For Czech citizens, Grade 7 students will follow a curriculum that closely follows the Czech national curriculum, whereas non-native Czech speakers will follow a curriculum that is based on methodologies that closely follow a standard European framework.

Additionally, our students have the option of studying French, following a curriculum that adheres strictly to the standards of the National Curriculum of England.

Learning a foreign language is a liberation from insularity and provides an opening to other cultures. A high-quality languages education should foster pupils' curiosity and deepen their understanding of the world. The teaching should enable pupils to express their ideas and thoughts in another language and to understand and respond to its speakers, both in speech and in writing. It should also provide opportunities for them to communicate for practical purposes, learn new ways of thinking and read great literature in the original language. Language teaching should provide the foundation for learning further languages, equipping pupils to study and work in other countries.

The curriculum for languages aims to ensure that all pupils: understand and respond to spoken and written language from a variety of authentic sources; speak with increasing confidence, fluency and spontaneity, finding ways of communicating what they want to say, including through discussion and asking questions, and continually improving the accuracy of their pronunciation and intonation; can write at varying length, for different purposes and audiences, using the variety of grammatical structures that they have learnt; and discover and develop an appreciation of a range of writing in the language studied.

Modern Language (Course Objectives)

Teaching may be of any modern foreign language and should build on the foundations of language learning laid at key stage 2, whether pupils continue with the same language or take up a new one. Teaching should focus on developing the breadth and depth of pupils' competence in listening, speaking, reading and writing, based on a sound foundation of core grammar and vocabulary. It should enable pupils to understand and communicate personal and factual information that goes beyond their immediate needs and interests, developing and justifying points of view in speech and writing, with increased spontaneity, independence and accuracy. It should provide suitable preparation for further study.

i) Specific Content and Topics

- Welcome and Greetings
- Meeting and Greeting
- Collage
- Friends and Friendship
- Free Time
- Daily Events
- Holidays and Vacation

ii) Grammar and vocabulary

- Identify and use tenses or other structures which convey the present, past, and future as appropriate to the language being studied
- Use and manipulate a variety of key grammatical structures and patterns, including voices and moods, as appropriate
- Develop and use a wide-ranging and deepening vocabulary that goes beyond their immediate needs and interests, allowing them to give and justify opinions and take part in discussion about wider issues
- Use accurate grammar, spelling and punctuation.

iii) Linguistic competence

- Listen to a variety of forms of spoken language to obtain information and respond appropriately
- Transcribe words and short sentences that they hear with increasing accuracy
- Initiate and develop conversations, coping with unfamiliar language and unexpected responses, making use of important social conventions such as formal modes of address
- Express and develop ideas clearly and with increasing accuracy, both orally and in writing
- Speak coherently and confidently, with increasingly accurate pronunciation and intonation
- Read and show comprehension of original and adapted materials from a range of different sources, understanding the purpose, important ideas and details, and provide an accurate English translation of short, suitable material
- Read literary texts in the language [such as stories, songs, poems and letters], to stimulate ideas, develop creative expression and expand understanding of the language and culture

Physical Education (Course Description)

A high-quality physical education curriculum inspires all pupils to succeed and excel in competitive sport and other physically-demanding activities. It should provide opportunities for pupils to become physically confident in a way which supports their health and fitness. Opportunities to compete in sport and other activities build character and help to embed values such as fairness and respect.

During Grade 7, pupils will be encouraged to: develop competence to excel in a broad range of physical activities; are physically active for sustained periods of time; engage in competitive sports and activities; and to lead healthy, active lives.

Physical Education (Course Objectives)

Pupils should build on and embed the physical development and skills learned in key stages 1 and 2, become more competent, confident and expert in their techniques, and apply them across different sports and physical activities. They should understand what makes a performance effective and how to apply these principles to their own and others' work. They should develop the confidence and interest to get involved in exercise, sports and activities out of school and in later life, and understand and apply the long-term health benefits of physical activity.

Pupils should be taught to:

- use a range of tactics and strategies to overcome opponents in direct competition through team and individual games [for example, badminton, basketball, cricket, football, hockey, netball, rounders, rugby and tennis]
- develop their technique and improve their performance in other competitive sports [for example, athletics and gymnastics]
- perform dances using advanced dance techniques within a range of dance styles and form
- take part in outdoor and adventurous activities which present intellectual and physical challenges and be encouraged to work in a team, building on trust and developing skills to solve problems, either individually or as a group
- analyse their performances compared to previous ones and demonstrate improvement to achieve their personal best
- take part in competitive sports and activities outside school through community links or sports clubs.

References

English:

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Mathematics:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239058/SECONDARY_national_curriculum_-_Mathematics.pdf

Science:

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