



MAGDALEN COLLEGE SCHOOL

16+ Entrance Exams • Summary of Papers

Biology

Format

- Multiple choice

Knowledge required

- Applicants should not aim to learn topics they have not been taught; we are aware that pupils have been taught a number of different specifications but the questions are based around core content common to all courses, including (but not limited to):
 - Characteristics of living organisms
 - Cell structure
 - Biological molecules
 - Enzymes
 - Movement of molecules: diffusion, osmosis and active transport
 - Photosynthesis
 - Respiration
 - Gas exchange in plants and humans
 - Nutrition and digestion
- It is not expected that pupils will know the answer to every question. They should simply do their best.

Skills tested

- Questions may test problem solving and scientific common sense, rather than a particular topic.

NB. Use of a standard scientific calculator is recommended.

Chemistry

Format

- Multiple choice

Knowledge required

- Applicants should not aim to learn topics they have not been taught; we are aware that pupils have been taught a number of different specifications but the questions are based around core content common to all courses, including (but not limited to):
 - Atomic Structure and the Periodic Table
 - Elements, Compounds and Mixtures

- Structure and Bonding
- Acids, Bases and Salts
- Reactivity Series
- Basic Organic Chemistry
- Quantitative Chemistry (the Mole)
- It is not expected that pupils will know the answer to every question. They should simply do their best.

Skills tested

- Questions may test problem solving and scientific common sense, rather than a particular topic.

Computer Science

Format

- One programming task to be completed on paper using Python syntax (8 marks)
- One extended answer theory question, to be answered in about 200-300 words (12 marks)

Knowledge required

- Python programming: variables, I/O, conditionals, loops, arrays, subroutines
- Theory: data representation, computer systems, computer networks (up to AQA GCSE standard)

Skills tested

- Python programming
- Understanding of theoretical concepts listed above in context

Economics

Format

- Source response questions
- Essay style argument

Knowledge Required

- No specific prior knowledge required, but candidates are expected to demonstrate an interest in economic current affairs; candidates are invited to use their own knowledge.

Skills Being Tested

- Understanding and interpretation of text
- Analysis of source material
- Ability to construct a logical argument

English

Format

- Close analysis of a poem or prose extract (choice between the two)

Knowledge Required

- Understanding of aspects of language, poetic structure and form, narration

Skills Being Tested

- Reading comprehension
- Skills in close analysis
- Ability to shape a coherent personal response through a structured argument

French**Format**

- Description of a picture story in French (130-150 words)

Knowledge Required

- Standard GCSE French grammar and vocabulary (some vocabulary will be given)

Skills Being Tested

- Writing in French

Geography**Format**

- Data response/map skills
- Processes and explanation questions
- Issue evaluation

Knowledge Required

- No specific prior knowledge required, but candidates are expected to demonstrate an understanding of geographic knowledge and common processes; candidates are invited to use their own knowledge.

Skills Being Tested

- Understanding and interpretation of data, map skills
- Analysis of source materials
- Ability to construct a logical argument

German**Format**

- Grammatical exercise
- Written task in German (100-130 words) with a choice from two topic areas

Knowledge Required

- Standard GCSE German grammar and vocabulary

Skills Being Tested

- Grammar
- Writing in German

Greek

Format

- Translation
- Short answer questions on passage grammar and contents

Knowledge Required

- Standard GCSE syllabus (additional vocabulary required will be provided)

Skills Being Tested

- Translation
- Understanding of grammar

History

Format

- Essay question

Knowledge Required

- Standard GCSE syllabus

Skills Being Tested

- Application of knowledge
- Ability to write clearly
- Organisation of ideas into a coherent argument

Latin

Format

- Translation
- Short answer questions on passage grammar and contents

Knowledge Required

- Standard GCSE syllabus (additional vocabulary required will be provided)

Skills Being Tested

- Translation
- Understanding of grammar

Mandarin

Format

- Reading Comprehension (answer and instruction in English)
- Written task in Chinese characters (100-120 characters) with one option.
- Instruction in English and question in Chinese.

Knowledge Required

- Standard GCSE Mandarin grammar and vocabulary (Simplified Chinese characters)

Skills Being Tested

- Reading comprehension skills in Chinese (Simplified Chinese characters)
- Writing in Chinese (Simplified Chinese characters)

Mathematics

Format

- Multiple choice

Knowledge Required

- Numbers: fractions, decimals, percentages; negative numbers and order of operations; ratios; standard form; proportion; simplifying and manipulating surds (excluding rationalising the denominator); simplifying and evaluating numerical expressions involving integer, fractional, and negative powers
- Algebra: index notation involving integer, fractional, negative, and zero powers; the laws of indices; expanding and factorising into a single bracket; solving linear equations; expanding double brackets; factorising quadratic inequalities; algebraic fractions; changing the subject; substituting numbers into a formula and evaluating the result
- Graphs: straight line graphs; intercepts on the x and y axes; calculating the gradient of a straight line; find the equation of a straight line parallel to a given line and passing through a given point; sketching straight line graphs from their equation
- Shapes: angle properties of parallel lines, triangles, and polygons; areas of triangles, rectangles, and parallelograms; perimeter and area of (sectors of) circles; Pythagoras's theorem in two dimensions; sine, cosine, and tangent of acute angles; circle theorems (excluding alternate segment and intersecting chord theorems)

Skills Being Tested

- Application of mathematical principles

NB. Calculators, formulae sheets, rulers, and compasses are not allowed.

Music

Format

- Short answer questions based on a musical score
- Essay style question musical appreciation and musical experience

Knowledge Required

- Grade 5 theory

Skills Being Tested

- Music theory
- Analysis skills
- Writing skills

Philosophy

Format

- Precis of a prose extract
- Essay question

Knowledge Required

- No knowledge of philosophical problems, texts or thinkers is required. But the skills being assessed – see detail below – are best sharpened by practice.

Skills Being Tested

- Reading comprehension
- Ability to write clearly
- Ability to weigh reasons
- Organisation of ideas into a coherent argument

Physics

Format

- Multiple choice

Knowledge required

- Applicants should not aim to learn topics they have not been taught; we are aware that pupils have been taught a number of different specifications but the questions are based around core content common to all courses, including (but not limited to):
 - Basic quantities of Physics such as mass, force, pressure, and density
 - Describing motion using equations and graphs
 - Energy, work and power
 - Thermal Physics including heat transfer and the kinetic theory of gases
 - Waves and optics
 - Electrical quantities and electric circuits
 - Basic phenomena of magnetism.
- It is not expected that pupils will know the answer to every question. They should simply do their best.

Skills tested

- The intended focus is on understanding and applying concepts, rather than factual recall – but there is no formula sheet, so the relationships must be known.
- Questions will require symbolic and graphical reasoning, calculation, and physical intuition including sensible estimates of physical quantities.
- Questions may test problem solving and scientific common sense, rather than a particular topic.

NB. Use of a standard scientific calculator is recommended.

Politics

Format

- Comprehension questions on a short passage
- Source response question
- Essay style argument

Knowledge Required

- No specific prior knowledge is required; candidates are invited to use their own knowledge.

Skills Being Tested

- Understanding and interpretation of text
- Analysis of source material
- Ability to construct a logical argument

Spanish

Format

- Written task in Spanish (200 words maximum)
- Grammatical exercise

Knowledge Required

- GCSE Spanish grammar and vocabulary

Skills Being Tested

- Written expression
- Grammatical accuracy

Theology

Format

- Precis of a prose extract
- Essay question

Knowledge Required

- No prior knowledge is required but an interest in Theological debate will be useful.

Skills Being Tested

- Reading comprehension
- Ability to write clearly
- Ability to weigh reasons
- Organisation of ideas into a coherent argument