



CITY OF LONDON  
FREEMEN'S SCHOOL

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**ENTRANCE  
EXAMINATION TOPIC LIST**

**For pupils currently in Year 9**

# **SCIENCE**

**(BIOLOGY, CHEMISTRY, PHYSICS)**

**Time: 1 hour**

**You should spend no more than 20 minutes on each section.**

**Answer all questions in the spaces provided.**

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## Science Department

### 14+ Entrance Examination Requirements

Candidates may be required to plot graphs and measure lengths and angles, so should bring a pen, pencil, ruler, rubber and protractor to the exam.

#### **Biology**

- Respiration and Blood Pressure
- Diet and Digestion
- Disease and Immunity
- Nervous Communication
- Drugs
- Ecology (or other Key Stage 3 Biology topics)

#### **Chemistry**

- Acids and Alkalis: acids and alkalis, indicators, pH, everyday applications
- Physical Separations and Changes: filtering, evaporation, distillation, fractional distillation, chromatography, states of matter, changes of state, effect of impurities, diffusion
- Chemical changes and corrosion: thermal decomposition, burning and oxidation, rusting, precipitates and effervescence
- Food Chemistry: cooking, baking powder, additives, packaging
- Rocks: weathering, erosion and transport, three rock types, rock cycle
- Elements, Compounds and Mixtures: atoms and symbols for elements, compounds/mixtures, interpretation of formulae, pigments and colloids
- Metals: extraction, properties of metals and non-metals, alloys and superconductors, reactions with oxygen, water and acids, competitions and displacement
- Construction Materials: rocks in building, limestone, concrete
- Atomic Structure: nuclear particles, electron configuration, isotopes, structure of the Periodic Table
- Acids, Bases and Salts: properties and uses of acids, strong and weak acids, making soluble salts

#### **Physics**

- Light and sound, including reflection and refraction
- Satellites and the Solar System
- Forces
- Speed
- Electric circuits
- Electromagnets
- Energy changes