ISEB
Independent Schools Examinations Board

GUIDANCE FOR SUMMER CE/CASE 2022

SCIENCE

V2.0

SCIENCE

13+ CE ESSENTIAL INFORMATION

There is no change to the published dates for the Science examinations.

Each of the Science papers covers the full breadth of the specification, but the following topic areas merit particular consideration:

LEVEL 1

B1. Structure and function of living organisms
2. Nutrition and digestion (a. b.)
5. Reproduction in plants (a.)

B2. Material cycles and energy
1. Photosynthesis (a. b. c.)

C2. Atoms, elements and compounds (a. b. c. d.)
C4. Chemical reactions (b. e. f. g.)

P1: Energy
1. Energy resources (a. c.)
P2: Motion and forces
1. Describing motion (g. h.)
4. Density (a.)
P4: Electricity and electromagnetism
1. Circuits (b.)
3. Electromagnets (a. b.)

Experimental skills.

1. Use simple equations and carry out appropriate calculations.

2. Present observations and data, using appropriate methods, including tables and graphs; carry out and represent mathematical and simple statistical analysis.

3. Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.

4. Present reasoned explanations, including explaining data in relation to predictions and hypotheses.

LEVEL 2

BIOLOGY

B1. Structure and function of living organisms
1. Cells and organisation (a. b.)
2. Nutrition and digestion (a. b.)
5. Reproduction in plants (a.)
6. Health (a.)

B2. Material cycles and energy
1. Photosynthesis (a. c. d.)
2. Cellular respiration (a.)

B3. Interactions and interdependences
1. Relationships in an ecosystem (a. b. c.)

B4. Genetics and evolution
1. Variation, classification and inheritance (a. b. c.)

Working Scientifically.

Analysis, evaluation and problem-solving

1. Present observations and data, using appropriate methods, including tables and graphs; carry out and represent mathematical and simple statistical analysis.

2. Present reasoned explanations, including explaining data in relation to predictions and hypotheses.

3. Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.

CHEMISTRY

C1. The particulate nature of matter
a. different states of matter – solid, liquid, gas
c. changes of state

C2. Atoms, elements and compounds
b. chemical symbols and formulae
c. differences between atoms, elements and compounds

C3. Pure and impure substances; physical changes
e. mixtures
g. simple techniques for separating mixtures

CONT'D

C4. Chemical reactions
a. conservation of mass
b. combustion reactions
c. production of carbon dioxide by human activity
e. f. oxidation, reactivity series and displacement reactions
g. use of carbon in extracting metals
h. i. reactions of acids and pH scale

Experimental skills.

Analysis, evaluation and problem-solving.

1. Use appropriate techniques, apparatus and materials during laboratory work, paying attention to health and safety.

2. Make predictions using scientific knowledge and understanding.

3. Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.

4. Apply mathematical concepts and calculate results.

PHYSICS

P1: Energy
1. Energy resources (a.)
2. Changes in systems (b.)
P2: Motion and forces
1. Describing motion (b. e. f.)
3. Force and pressure (a. b.)
4. Density (a.)
P3: Waves
1. Sound waves (a. b.)
2. Hearing (c.)
3. Light waves (c. f.)
P4: Electricity and electromagnetism
1. Circuits (a. b.)
3. Electromagnets (b.)
P5: Space Physics (a. c.)

CONT'D

Experimental skills

1. Plan investigations to make observations and to test hypotheses, including identifying variables as independent, dependent or control, and measure and consider other factors which need to be taken into account when collecting evidence.

2. Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.

3. Evaluate data critically, showing awareness of potential sources of random variations and systematic errors, and suggest improvements.

LEVELS OF ENTRY

Some candidates might benefit from a reduced examination load, and, if appropriate and in consultation with the senior school, could be entered for Level 1 instead of the suite of Level 2 papers.

CASE

Given the intentions of scholarship examinations and the skills-focused nature of the questions, we recommend that scholars cover the full range of topics and skills specified within the published syllabus for Science.

At ISEB, we welcome feedback about our support for schools, teachers and pupils, so please do not hesitate to contact us at enquiries@iseb.co.uk with your views.