

Specification checklist

How to use: tick one box for each of the 112 spec points as you revise. Go back to the “Not yet” rows first, and keep going until every row is “Confident”.

The numbers are Edexcel's own spec references for 1SC0, and each note title links to its note on clockitwithsci.com. **Higher tier** only on the Higher tier papers. Foundation students can skip it.

Biology Paper 1 1 hour 10 minutes • 60 marks

1 Key concepts in biology

Cell structure and specialised cells Spec 1.1-1.2

Spec	What to know (the note)	Not yet	Nearly	Confident
1.1	Animal and plant cells; Bacterial cells	☐	☐	☐
1.2	Specialised cells	☐	☐	☐

Microscopy and measuring cells Spec 1.3-1.6

Spec	What to know (the note)	Not yet	Nearly	Confident
1.3	Changes in microscope technology	☐	☐	☐
1.4	Number, size and scale: estimations	☐	☐	☐
1.5	Units: milli, micro, nano and pico	☐	☐	☐
1.6	Core practical: using a microscope	☐	☐	☐

Enzyme action and activity Spec 1.7-1.11

Spec	What to know (the note)	Not yet	Nearly	Confident
1.7	How enzymes work	☐	☐	☐
1.8	Denaturing enzymes	☐	☐	☐
1.9	Temperature, substrate concentration and pH	☐	☐	☐
1.10	Core practical: the effect of pH on enzyme activity	☐	☐	☐
1.11	Rate calculations for enzyme activity	☐	☐	☐

Biological catalysts, food tests and energy in food Spec 1.12-1.14B

Spec	What to know (the note)	Not yet	Nearly	Confident
1.12	The importance of enzymes	☐	☐	☐

Transport in cells Spec 1.15-1.17

Spec	What to know (the note)	Not yet	Nearly	Confident
1.15	Diffusion; Osmosis; Active transport	☐	☐	☐
1.16	Core practical: osmosis in potatoes	☐	☐	☐
1.17	Percentage gain and loss of mass	☐	☐	☐

2 Cells and control

Mitosis and cancer Spec 2.1-2.4

Spec	What to know (the note)	Not yet	Nearly	Confident
2.1	The cell cycle and mitosis	☐	☐	☐
2.2	Why mitosis is important	☐	☐	☐
2.3	What mitosis produces	☐	☐	☐
2.4	Cancer	☐	☐	☐

Growth, differentiation and stem cells Spec 2.5-2.9

Spec	What to know (the note)	Not yet	Nearly	Confident
2.5	Growth in animals and plants	☐	☐	☐
2.6	Cell differentiation	☐	☐	☐
2.7	Percentile charts	☐	☐	☐
2.8	Stem cells and meristems	☐	☐	☐
2.9	Stem cells in medicine	☐	☐	☐

Neurones and reflexes Spec 2.13-2.14

Spec	What to know (the note)	Not yet	Nearly	Confident
2.13	Receptors and the nervous pathway; Neurone structure; Synapses; Investigating reaction times	☐	☐	☐
2.14	Reflex arcs; Investigating reaction times	☐	☐	☐

3 Genetics

Reproduction and meiosis Spec 3.1B-3.3

Spec	What to know (the note)	Not yet	Nearly	Confident
3.3	Meiosis	☐	☐	☐

DNA and the genome Spec 3.4-3.6

Spec	What to know (the note)	Not yet	Nearly	Confident
3.4	The structure of DNA	☐	☐	☐
3.5	The genome and genes	☐	☐	☐
3.6	Extracting DNA from fruit	☐	☐	☐

Inheritance Spec 3.11B-3.18B

Spec	What to know (the note)	Not yet	Nearly	Confident
3.12	Alleles and inherited differences	☐	☐	☐
3.13	Key genetic terms	☐	☐	☐
3.14	Monohybrid inheritance	☐	☐	☐
3.15	Sex determination	☐	☐	☐
3.16	Calculating and analysing outcomes	☐	☐	☐

Variation, mutations and the Human Genome Project Spec 3.19-3.23

Spec	What to know (the note)	Not yet	Nearly	Confident
3.19	Features controlled by multiple genes	☐	☐	☐
3.20	Causes of variation	☐	☐	☐
3.21	The Human Genome Project	☐	☐	☐
3.22	Mutations and genetic variation	☐	☐	☐
3.23	Mutations and genetic variation	☐	☐	☐

4 Natural selection and genetic modification

Darwin, natural selection and antibiotic resistance Spec 4.1B–4.3

Spec	What to know (the note)	Not yet	Nearly	Confident
4.2	Evolution by natural selection	☐	☐	☐
4.3	Resistant organisms and antibiotic resistance	☐	☐	☐

Evidence for evolution and classification Spec 4.4–4.7

Spec	What to know (the note)	Not yet	Nearly	Confident
4.4	Fossil evidence for human evolution	☐	☐	☐
4.5	Stone tools	☐	☐	☐
4.7	Five kingdoms and three domains	☐	☐	☐

Selective breeding and tissue culture Spec 4.8–4.9B

Spec	What to know (the note)	Not yet	Nearly	Confident
4.8	Selective breeding	☐	☐	☐

Genetic engineering Spec 4.10–4.12B

Spec	What to know (the note)	Not yet	Nearly	Confident
4.10	What is genetic engineering?	☐	☐	☐
4.11	The main stages of genetic engineering Higher tier	☐	☐	☐

Agriculture and evaluating biotechnology Spec 4.13B–4.14

Spec	What to know (the note)	Not yet	Nearly	Confident
4.14	Evaluating genetic engineering and selective breeding	☐	☐	☐

5 Health, disease and the development of medicines

Health and disease Spec 5.1–5.3

Spec	What to know (the note)	Not yet	Nearly	Confident
5.1	What is health?	☐	☐	☐
5.2	Communicable and non-communicable diseases	☐	☐	☐
5.3	How one disease can lead to another	☐	☐	☐

Pathogens and infections Spec 5.4–5.8

Spec	What to know (the note)	Not yet	Nearly	Confident
5.4	What is a pathogen?	☐	☐	☐
5.5	Common infections	☐	☐	☐
5.6	How pathogens spread and how to control them	☐	☐	☐
5.8	Sexually transmitted infections	☐	☐	☐

Human defences and immunity Spec 5.12–5.15B

Spec	What to know (the note)	Not yet	Nearly	Confident
5.12	Physical barriers and chemical defences	☐	☐	☐
5.13	The specific immune system	☐	☐	☐
5.14	Immunisation	☐	☐	☐

Antibiotics, culturing microorganisms and new medicines Spec 5.16–5.22B

Spec	What to know (the note)	Not yet	Nearly	Confident
5.16	Antibiotics	☐	☐	☐
5.20	Developing new medicines	☐	☐	☐

Non-communicable diseases Spec 5.23-5.25

Spec	What to know (the note)	Not yet	Nearly	Confident
5.23	Causes of non-communicable diseases	☐	☐	☐
5.24	Lifestyle factors and non-communicable diseases	☐	☐	☐
5.25	Treating cardiovascular disease	☐	☐	☐

Biology Paper 2 1 hour 10 minutes • 60 marks

6 Plant structures and their functions

Photosynthesis and limiting factors Spec 6.1-6.6

Spec	What to know (the note)	Not yet	Nearly	Confident
6.1	Photosynthetic organisms as producers	☐	☐	☐
6.2	The photosynthesis reaction	☐	☐	☐
6.3	Limiting factors	☐	☐	☐
6.4	Interactions between limiting factors Higher tier	☐	☐	☐
6.5	Core practical: light intensity and photosynthesis	☐	☐	☐
6.6	Light intensity, distance and the inverse square law Higher tier	☐	☐	☐

Transport in plants Spec 6.7-6.10

Spec	What to know (the note)	Not yet	Nearly	Confident
6.7	Root hair cells	☐	☐	☐
6.8	Xylem and phloem	☐	☐	☐
6.9	Transpiration and stomata	☐	☐	☐
6.10	Translocation	☐	☐	☐

Leaves, water uptake and extreme environments Spec 6.11B-6.14B

Spec	What to know (the note)	Not yet	Nearly	Confident
6.12	Factors affecting water uptake	☐	☐	☐
6.13	Rate calculations for transpiration	☐	☐	☐

7 Animal coordination, control and homeostasis

Hormones and the endocrine system Spec 7.1-7.3

Spec	What to know (the note)	Not yet	Nearly	Confident
7.1	The endocrine system	☐	☐	☐
7.2	Adrenalin and fight or flight Higher tier	☐	☐	☐
7.3	Thyroxine and negative feedback Higher tier	☐	☐	☐

The menstrual cycle and fertility control Spec 7.4-7.8

Spec	What to know (the note)	Not yet	Nearly	Confident
7.4	The menstrual cycle	☐	☐	☐
7.5	How four hormones control the cycle Higher tier	☐	☐	☐
7.6	Hormonal contraception	☐	☐	☐
7.7	Evaluating hormonal and barrier methods	☐	☐	☐
7.8	Assisted reproductive technology Higher tier	☐	☐	☐

Homeostasis and temperature control Spec 7.9-7.12B

Spec	What to know (the note)	Not yet	Nearly	Confident
7.9	Maintaining a constant internal environment	☐	☐	☐

Blood glucose and diabetes Spec 7.13-7.17

Spec	What to know (the note)	Not yet	Nearly	Confident
7.13	Insulin and blood glucose	☐	☐	☐
7.14	Glucagon Higher tier	☐	☐	☐
7.15	Type 1 diabetes	☐	☐	☐
7.16	Type 2 diabetes	☐	☐	☐
7.17	Body mass, BMI and type 2 diabetes	☐	☐	☐

8 Exchange and transport in animals**Transport and exchange surfaces** Spec 8.1-8.3

Spec	What to know (the note)	Not yet	Nearly	Confident
8.1	The need to transport substances	☐	☐	☐
8.2	Exchange surfaces, transport systems and surface area : volume ratio	☐	☐	☐
8.3	Alveoli and gas exchange	☐	☐	☐

Blood and blood vessels Spec 8.6-8.7

Spec	What to know (the note)	Not yet	Nearly	Confident
8.6	The structure and function of blood	☐	☐	☐
8.7	The structure and function of blood vessels	☐	☐	☐

The heart and circulation Spec 8.8, 8.12

Spec	What to know (the note)	Not yet	Nearly	Confident
8.8	The heart and circulatory system	☐	☐	☐
8.12	Heart rate, stroke volume and cardiac output	☐	☐	☐

Respiration Spec 8.9-8.11

Spec	What to know (the note)	Not yet	Nearly	Confident
8.9	Cellular respiration	☐	☐	☐
8.10	Comparing aerobic and anaerobic respiration	☐	☐	☐
8.11	Core practical: the rate of respiration in living organisms	☐	☐	☐

9 Ecosystems and material cycles**Communities and interdependence** Spec 9.1-9.4

Spec	What to know (the note)	Not yet	Nearly	Confident
9.1	Levels of organisation	☐	☐	☐
9.2	Abiotic and biotic factors	☐	☐	☐
9.3	Interdependence	☐	☐	☐
9.4	Parasitism and mutualism	☐	☐	☐

Fieldwork and sampling Spec 9.5-9.6

Spec	What to know (the note)	Not yet	Nearly	Confident
9.5	Core practical: quadrats and belt transects	☐	☐	☐
9.6	Estimating the number of organisms	☐	☐	☐

Human impacts, biodiversity and food security Spec 9.9-9.11B

Spec	What to know (the note)	Not yet	Nearly	Confident
9.9	Fish farming; Non-indigenous species; Eutrophication	☐	☐	☐
9.10	Benefits of maintaining biodiversity	☐	☐	☐

Material cycles Spec 9.12–9.15

Spec	What to know (the note)	Not yet	Nearly	Confident
9.12	Cycling of materials	☐	☐	☐
9.13	The carbon cycle	☐	☐	☐
9.14	The water cycle and potable water	☐	☐	☐
9.15	The nitrogen cycle	☐	☐	☐