

Specification checklist

How to use: tick one box for each of the 128 spec points as you revise. Go back to the “Not yet” rows first, and keep going until every row is “Confident”.

The numbers are Cambridge's own spec references for 0653, and each note title links to its note on clockitwithsci.com.

Supplement only for the Extended papers (2 and 4). Core students can skip it.

1 Characteristics and classification of living organisms

Characteristics and classification **Spec B1.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B1.1.1	The seven characteristics of living organisms	☐	☐	☐

Features of organisms **Spec B10.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B10.1.5	Viruses Supplement	☐	☐	☐

2 Organisation of the organism

Cell structure **Spec B2.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B2.1.1	Plant and animal cells	☐	☐	☐
B2.1.2	Bacterial cells	☐	☐	☐
B2.1.3	Plant and animal cells; Bacterial cells	☐	☐	☐
B2.1.4	Plant and animal cells; Bacterial cells	☐	☐	☐
B2.1.5	Cells, tissues, organs and organ systems	☐	☐	☐
B2.1.6	Specialised cells Supplement	☐	☐	☐

Size of specimens **Spec B2.2**

Spec	What to know (the note)	Not yet	Nearly	Confident
B2.2.1	Magnification and actual size	☐	☐	☐
B2.2.2	Magnification and actual size	☐	☐	☐
B2.2.3	Magnification and actual size	☐	☐	☐

3 Movement into and out of cells

Diffusion **Spec B3.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B3.1.1	Diffusion	☐	☐	☐
B3.1.2	Diffusion	☐	☐	☐
B3.1.3	Diffusion	☐	☐	☐
B3.1.4	Investigating the factors that affect diffusion Supplement	☐	☐	☐

Osmosis Spec B3.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B3.2.1	Water and osmosis	☐	☐	☐
B3.2.2	Water and osmosis	☐	☐	☐
B3.2.3	Investigating osmosis	☐	☐	☐
B3.2.4	Water potential Supplement	☐	☐	☐
B3.2.5	Turgor, flaccid cells and plasmolysis Supplement	☐	☐	☐

Active transport Spec B3.3

Spec	What to know (the note)	Not yet	Nearly	Confident
B3.3.1	Active transport Supplement	☐	☐	☐
B3.3.2	Active transport Supplement	☐	☐	☐

4 Biological molecules

Biological molecules Spec B4.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B4.1.1	Carbohydrates, fats and proteins	☐	☐	☐
B4.1.2	Carbohydrates, fats and proteins	☐	☐	☐
B4.1.3	Food tests	☐	☐	☐

5 Enzymes

Enzymes Spec B5.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B5.1.1	Enzymes as biological catalysts	☐	☐	☐
B5.1.2	Investigating temperature and pH	☐	☐	☐
B5.1.3	How enzymes work Supplement	☐	☐	☐
B5.1.4	How enzymes work Supplement	☐	☐	☐
B5.1.5	Temperature, pH and enzyme activity Supplement	☐	☐	☐
B5.1.6	Temperature, pH and enzyme activity Supplement	☐	☐	☐

6 Plant nutrition

Photosynthesis Spec B6.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B6.1.1	Photosynthesis and chlorophyll	☐	☐	☐
B6.1.2	Photosynthesis and chlorophyll	☐	☐	☐
B6.1.3	Photosynthesis and chlorophyll	☐	☐	☐
B6.1.4	Investigating the need for chlorophyll, light and carbon dioxide	☐	☐	☐
B6.1.5	Photosynthesis and chlorophyll	☐	☐	☐
B6.1.6	Photosynthesis and chlorophyll	☐	☐	☐
B6.1.7	Rate of photosynthesis and limiting factors; Investigating light, carbon dioxide and temperature Supplement	☐	☐	☐
B6.1.8	Gas exchange in light and dark: hydrogencarbonate indicator Supplement	☐	☐	☐

Leaf structure Spec B6.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B6.2.1	Leaf structure and adaptations	☐	☐	☐

7 Human nutrition

Diet Spec B7.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B7.1.1	A balanced diet and the main nutrients	☐	☐	☐
B7.1.2	A balanced diet and the main nutrients	☐	☐	☐

The digestive system Spec B7.2, B7.3

Spec	What to know (the note)	Not yet	Nearly	Confident
B7.2.1	Organs of the digestive system	☐	☐	☐
B7.2.2	Organs of the digestive system	☐	☐	☐
B7.3.1	Physical digestion and teeth	☐	☐	☐
B7.3.3	Physical digestion and teeth	☐	☐	☐
B7.3.7	The stomach, acid and bile	☐	☐	☐

Chemical digestion Spec B7.3

Spec	What to know (the note)	Not yet	Nearly	Confident
B7.3.2	Chemical digestion and digestive enzymes	☐	☐	☐
B7.3.4	Chemical digestion and digestive enzymes	☐	☐	☐
B7.3.5	Chemical digestion and digestive enzymes	☐	☐	☐
B7.3.6	Chemical digestion and digestive enzymes	☐	☐	☐

8 Transport in plants

Xylem and phloem Spec B8.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B8.1.1	Xylem and phloem	☐	☐	☐
B8.1.2	Xylem and phloem in roots, stems and leaves	☐	☐	☐

Water uptake Spec B8.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B8.2.1	Root hair cells and the pathway of water	☐	☐	☐
B8.2.2	Root hair cells and the pathway of water	☐	☐	☐
B8.2.3	Root hair cells and the pathway of water	☐	☐	☐

Transpiration Spec B8.3

Spec	What to know (the note)	Not yet	Nearly	Confident
B8.3.1	Transpiration	☐	☐	☐
B8.3.2	Factors affecting the rate of transpiration Supplement	☐	☐	☐

9 Transport in animals

Circulatory systems Spec B9.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B9.1.1	The circulatory system	☐	☐	☐

The heart Spec B9.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B9.2.1	Structure of the heart	☐	☐	☐
B9.2.2	Structure of the heart	☐	☐	☐
B9.2.3	Monitoring the heart and the effect of exercise	☐	☐	☐
B9.2.4	Monitoring the heart and the effect of exercise	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
B9.2.5	How the heart pumps blood Supplement	☐	☐	☐
B9.2.6	Monitoring the heart and the effect of exercise	☐	☐	☐
B9.2.7	Coronary heart disease Supplement	☐	☐	☐
B9.2.8	Coronary heart disease Supplement	☐	☐	☐

Blood vessels **Spec B9.3**

Spec	What to know (the note)	Not yet	Nearly	Confident
B9.3.1	Arteries, veins and capillaries	☐	☐	☐
B9.3.2	Arteries, veins and capillaries	☐	☐	☐

Blood **Spec B9.4**

Spec	What to know (the note)	Not yet	Nearly	Confident
B9.4.1	Components of blood	☐	☐	☐
B9.4.2	Components of blood	☐	☐	☐
B9.4.3	Components of blood	☐	☐	☐
B9.4.4	White blood cells and blood clotting Supplement	☐	☐	☐

10 Diseases and immunity

Pathogens and transmission **Spec B10.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B10.1.1	Pathogens and how they are transmitted	☐	☐	☐
B10.1.2	Pathogens and how they are transmitted	☐	☐	☐
B10.1.3	Pathogens and how they are transmitted	☐	☐	☐
B10.1.4	Body defences	☐	☐	☐
B10.1.6	Controlling the spread of disease Supplement	☐	☐	☐

Immunity **Spec B10.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B10.1.7	Antigens, antibodies and active immunity Supplement	☐	☐	☐
B10.1.8	Antigens, antibodies and active immunity Supplement	☐	☐	☐

11 Gas exchange in humans

Gas exchange in humans **Spec B11.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B11.1.1	The breathing system	☐	☐	☐
B11.1.2	Physical activity and breathing	☐	☐	☐
B11.1.3	Features of gas exchange surfaces Supplement	☐	☐	☐

12 Respiration

Respiration **Spec B12.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B12.1.1	Respiration and the uses of energy	☐	☐	☐
B12.1.2	Aerobic respiration	☐	☐	☐
B12.1.3	Aerobic respiration	☐	☐	☐
B12.1.4	Aerobic respiration	☐	☐	☐

15 Drugs

Drugs Spec B13.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B13.1.1	Drugs and antibiotics	☐	☐	☐
B13.1.2	Drugs and antibiotics	☐	☐	☐
B13.1.3	Drugs and antibiotics	☐	☐	☐
B13.1.4	Drugs and antibiotics	☐	☐	☐
B13.1.5	Limiting antibiotic resistance Supplement	☐	☐	☐

16 Reproduction

Sexual reproduction in plants Spec B14.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B14.1.1	Structure of an insect-pollinated flower	☐	☐	☐
B14.1.2	Structure of an insect-pollinated flower	☐	☐	☐
B14.1.3	Pollination and fertilisation	☐	☐	☐
B14.1.4	Pollination and fertilisation	☐	☐	☐
B14.1.5	Germination	☐	☐	☐
B14.1.6	Insect- and wind-pollinated flowers Supplement	☐	☐	☐

Sexual reproduction in humans Spec B14.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B14.2.1	The male and female reproductive systems	☐	☐	☐
B14.2.2	The male and female reproductive systems	☐	☐	☐
B14.2.3	Gametes and fertilisation	☐	☐	☐

Sex hormones in humans Spec B14.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B14.2.4	The menstrual cycle and pregnancy hormones	☐	☐	☐

19 Organisms and their environment

Energy flow, food chains and food webs Spec B15.1, B15.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B15.1.1	Energy flow	☐	☐	☐
B15.1.2	Energy flow	☐	☐	☐
B15.2.1	Food chains and food webs	☐	☐	☐
B15.2.2	Food chains and food webs	☐	☐	☐
B15.2.3	Food chains and food webs	☐	☐	☐
B15.2.4	Producers, consumers and decomposers	☐	☐	☐
B15.2.5	Producers, consumers and decomposers	☐	☐	☐
B15.2.6	Producers, consumers and decomposers	☐	☐	☐
B15.2.7	Producers, consumers and decomposers	☐	☐	☐
B15.2.8	Producers, consumers and decomposers	☐	☐	☐
B15.2.9	Producers, consumers and decomposers	☐	☐	☐
B15.2.10	Food chains and food webs	☐	☐	☐

Nutrient cycles Spec B15.3

Spec	What to know (the note)	Not yet	Nearly	Confident
B15.3.1	The carbon cycle	☐	☐	☐

Populations Spec B16.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B16.1.1	Populations, communities and ecosystems	☐	☐	☐

20 Human influences on ecosystems

Habitat destruction Spec B16.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B16.1.2	Biodiversity and habitat destruction	☐	☐	☐
B16.1.3	Biodiversity and habitat destruction	☐	☐	☐
B16.1.4	Deforestation	☐	☐	☐
B16.1.5	Deforestation	☐	☐	☐

Conservation Spec B16.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B16.2.1	Endangered species and how to conserve them	☐	☐	☐
B16.2.2	Endangered species and how to conserve them	☐	☐	☐

22 Experimental skills

Practical skills Spec S1, S2, S3, S4, S5, S6

Spec	What to know (the note)	Not yet	Nearly	Confident
S1	Planning an investigation: variables, controls, range and repeats	☐	☐	☐
S2	Recording results: tables, units and the solidus	☐	☐	☐
S3	Drawing graphs and charts the Cambridge way	☐	☐	☐
S4	Biological drawings and measuring specimens	☐	☐	☐
S5	Evaluating experiments: errors, anomalies and improvements; Errors, uncertainty and the language of measurement	☐	☐	☐
S6	Indicators and tests: limewater, hydrogencarbonate, universal indicator and litmus	☐	☐	☐