

Specification checklist

How to use: tick one box for each of the 328 spec points as you revise. Go back to the “Not yet” rows first, and keep going until every row is “Confident”.

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

A1 Molecules (Unity and diversity)

Water Spec A1.1

Spec	What to know (the note)	Not yet	Nearly	Confident
A1.1.1	Water as the medium for life and hydrogen bonding	☐	☐	☐
A1.1.2	Water as the medium for life and hydrogen bonding	☐	☐	☐
A1.1.3	Cohesion and adhesion	☐	☐	☐
A1.1.4	Cohesion and adhesion	☐	☐	☐
A1.1.5	Solvent properties of water	☐	☐	☐
A1.1.6	Physical properties of water and aquatic animals	☐	☐	☐

Nucleic acids Spec A1.2

Spec	What to know (the note)	Not yet	Nearly	Confident
A1.2.1	DNA as the genetic material and nucleotides	☐	☐	☐
A1.2.2	DNA as the genetic material and nucleotides	☐	☐	☐
A1.2.3	DNA as the genetic material and nucleotides	☐	☐	☐
A1.2.4	DNA as the genetic material and nucleotides	☐	☐	☐
A1.2.5	RNA polymers and the DNA double helix	☐	☐	☐
A1.2.6	RNA polymers and the DNA double helix	☐	☐	☐
A1.2.7	Differences between DNA and RNA	☐	☐	☐
A1.2.8	Base pairing, information storage and the genetic code	☐	☐	☐
A1.2.9	Base pairing, information storage and the genetic code	☐	☐	☐
A1.2.10	Base pairing, information storage and the genetic code	☐	☐	☐

A2 Cells (Unity and diversity)

Cell structure Spec A2.2

Spec	What to know (the note)	Not yet	Nearly	Confident
A2.2.1	Cell theory and structures common to all cells	☐	☐	☐
A2.2.2	Microscopy skills	☐	☐	☐
A2.2.3	Developments in microscopy	☐	☐	☐
A2.2.4	Cell theory and structures common to all cells	☐	☐	☐
A2.2.5	Prokaryote and eukaryote cell structure	☐	☐	☐
A2.2.6	Prokaryote and eukaryote cell structure	☐	☐	☐
A2.2.7	Processes of life in unicellular organisms	☐	☐	☐
A2.2.8	Animal, fungal and plant cells, and atypical cells	☐	☐	☐
A2.2.9	Animal, fungal and plant cells, and atypical cells	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
A2.2.10	Micrographs, drawing and annotation	☐	☐	☐
A2.2.11	Micrographs, drawing and annotation	☐	☐	☐

A3 Organisms (Unity and diversity)

Diversity of organisms Spec A3.1

Spec	What to know (the note)	Not yet	Nearly	Confident
A3.1.1	Variation, species and binomial names	☐	☐	☐
A3.1.2	Variation, species and binomial names	☐	☐	☐
A3.1.3	Variation, species and binomial names	☐	☐	☐
A3.1.4	The biological species concept and speciation	☐	☐	☐
A3.1.5	The biological species concept and speciation	☐	☐	☐
A3.1.6	Chromosome numbers and karyograms	☐	☐	☐
A3.1.7	Chromosome numbers and karyograms	☐	☐	☐
A3.1.8	Unity and diversity of genomes	☐	☐	☐
A3.1.9	Unity and diversity of genomes	☐	☐	☐
A3.1.10	Unity and diversity of genomes	☐	☐	☐
A3.1.11	Whole genome sequencing	☐	☐	☐

A4 Ecosystems (Unity and diversity)

Evolution and speciation Spec A4.1

Spec	What to know (the note)	Not yet	Nearly	Confident
A4.1.1	Evolution as change in heritable characteristics	☐	☐	☐
A4.1.2	Evidence from sequences and selective breeding	☐	☐	☐
A4.1.3	Evidence from sequences and selective breeding	☐	☐	☐
A4.1.4	Homologous and analogous structures	☐	☐	☐
A4.1.5	Homologous and analogous structures	☐	☐	☐
A4.1.6	Speciation, reproductive isolation and differential selection	☐	☐	☐
A4.1.7	Speciation, reproductive isolation and differential selection	☐	☐	☐

Conservation of biodiversity Spec A4.2

Spec	What to know (the note)	Not yet	Nearly	Confident
A4.2.1	Biodiversity and the number of species	☐	☐	☐
A4.2.2	Biodiversity and the number of species	☐	☐	☐
A4.2.3	Anthropogenic species extinction and ecosystem loss	☐	☐	☐
A4.2.4	Anthropogenic species extinction and ecosystem loss	☐	☐	☐
A4.2.5	Evidence for and causes of the biodiversity crisis	☐	☐	☐
A4.2.6	Evidence for and causes of the biodiversity crisis	☐	☐	☐
A4.2.7	Approaches to conservation and the EDGE of Existence programme	☐	☐	☐
A4.2.8	Approaches to conservation and the EDGE of Existence programme	☐	☐	☐

B1 Molecules (Form and function)

Carbohydrates and lipids Spec B1.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B1.1.1	Carbon atoms and the diversity of carbon compounds	☐	☐	☐
B1.1.2	Condensation and hydrolysis reactions	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
B1.1.3	Condensation and hydrolysis reactions	☐	☐	☐
B1.1.4	Monosaccharides: form and function	☐	☐	☐
B1.1.5	Starch, glycogen and cellulose	☐	☐	☐
B1.1.6	Starch, glycogen and cellulose	☐	☐	☐
B1.1.7	Glycoproteins and cell-cell recognition	☐	☐	☐
B1.1.8	Lipids: hydrophobic properties, triglycerides and phospholipids	☐	☐	☐
B1.1.9	Lipids: hydrophobic properties, triglycerides and phospholipids	☐	☐	☐
B1.1.10	Fatty acids, energy storage and insulation	☐	☐	☐
B1.1.11	Fatty acids, energy storage and insulation	☐	☐	☐
B1.1.12	Phospholipid bilayers and steroids	☐	☐	☐
B1.1.13	Phospholipid bilayers and steroids	☐	☐	☐

Proteins **Spec B1.2**

Spec	What to know (the note)	Not yet	Nearly	Confident
B1.2.1	Amino acids and peptide bonds	☐	☐	☐
B1.2.2	Amino acids and peptide bonds	☐	☐	☐
B1.2.3	Dietary amino acids and the variety of peptide chains	☐	☐	☐
B1.2.4	Dietary amino acids and the variety of peptide chains	☐	☐	☐
B1.2.5	Effect of pH and temperature on protein structure	☐	☐	☐

B2 Cells (Form and function)

Membranes and membrane transport **Spec B2.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B2.1.1-B2.1.3	Lipid bilayers, barriers and simple diffusion	☐	☐	☐
B2.1.4	Membrane proteins, glycoproteins and the fluid mosaic model	☐	☐	☐
B2.1.5-B2.1.8	Osmosis, channel proteins and pump proteins	☐	☐	☐
B2.1.9	Membrane proteins, glycoproteins and the fluid mosaic model	☐	☐	☐
B2.1.10	Membrane proteins, glycoproteins and the fluid mosaic model	☐	☐	☐

Organelles and compartmentalization **Spec B2.2**

Spec	What to know (the note)	Not yet	Nearly	Confident
B2.2.1-B2.2.3	Organelles, the nucleus and compartments	☐	☐	☐

Cell specialization **Spec B2.3**

Spec	What to know (the note)	Not yet	Nearly	Confident
B2.3.1-B2.3.4	Differentiation and stem cells	☐	☐	☐
B2.3.5	Cell size and surface area-to-volume ratio	☐	☐	☐
B2.3.6	Cell size and surface area-to-volume ratio	☐	☐	☐

B3 Organisms (Form and function)

Gas exchange **Spec B3.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
B3.1.1	Gas exchange and exchange surfaces	☐	☐	☐
B3.1.2	Gas exchange and exchange surfaces	☐	☐	☐
B3.1.3	Gas exchange and exchange surfaces	☐	☐	☐
B3.1.4	Adaptations of mammalian lungs	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
B3.1.5	Ventilation and lung volumes	☐	☐	☐
B3.1.6	Ventilation and lung volumes	☐	☐	☐
B3.1.7	Gas exchange in leaves	☐	☐	☐
B3.1.8	Gas exchange in leaves	☐	☐	☐
B3.1.9	Transpiration and stomatal density	☐	☐	☐
B3.1.10	Transpiration and stomatal density	☐	☐	☐

Transport Spec B3.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B3.2.1	Adaptations of capillaries	☐	☐	☐
B3.2.2	Structure and adaptations of arteries and veins	☐	☐	☐
B3.2.3	Structure and adaptations of arteries and veins	☐	☐	☐
B3.2.4	Pulse rates and occlusion of the coronary arteries	☐	☐	☐
B3.2.5	Structure and adaptations of arteries and veins	☐	☐	☐
B3.2.6	Pulse rates and occlusion of the coronary arteries	☐	☐	☐
B3.2.7	Water transport in xylem	☐	☐	☐
B3.2.8	Water transport in xylem	☐	☐	☐
B3.2.9	Tissues in dicotyledonous stems and roots	☐	☐	☐
B3.2.10	Tissues in dicotyledonous stems and roots	☐	☐	☐

B4 Ecosystems (Form and function)

Adaptation to environment Spec B4.1

Spec	What to know (the note)	Not yet	Nearly	Confident
B4.1.1	Habitats and adaptations to the abiotic environment	☐	☐	☐
B4.1.2	Habitats and adaptations to the abiotic environment	☐	☐	☐
B4.1.3	Abiotic variables and range of tolerance	☐	☐	☐
B4.1.4	Abiotic variables and range of tolerance	☐	☐	☐
B4.1.5	Conditions required for coral reef formation	☐	☐	☐
B4.1.6	Terrestrial biomes	☐	☐	☐
B4.1.7	Terrestrial biomes	☐	☐	☐
B4.1.8	Adaptations to hot deserts and tropical rainforest	☐	☐	☐

Ecological niches Spec B4.2

Spec	What to know (the note)	Not yet	Nearly	Confident
B4.2.1	Ecological niche and tolerance of oxygen	☐	☐	☐
B4.2.2	Ecological niche and tolerance of oxygen	☐	☐	☐
B4.2.3	Photosynthesis and mixotrophic nutrition	☐	☐	☐
B4.2.4	Holozoic and saprotrophic nutrition, and archaea	☐	☐	☐
B4.2.5	Photosynthesis and mixotrophic nutrition	☐	☐	☐
B4.2.6	Holozoic and saprotrophic nutrition, and archaea	☐	☐	☐
B4.2.7	Holozoic and saprotrophic nutrition, and archaea	☐	☐	☐
B4.2.8	Dentition and diet in the Hominidae	☐	☐	☐
B4.2.9	Adaptations for herbivory and predation	☐	☐	☐
B4.2.10	Adaptations for herbivory and predation	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
B4.2.11	Adaptations of plant form for harvesting light	☐	☐	☐
B4.2.12	Fundamental and realized niches, and competitive exclusion	☐	☐	☐
B4.2.13	Fundamental and realized niches, and competitive exclusion	☐	☐	☐

C1 Molecules (Interaction and interdependence)

Enzymes and metabolism Spec C1.1

Spec	What to know (the note)	Not yet	Nearly	Confident
C1.1.1	Enzymes as catalysts and their role in metabolism	☐	☐	☐
C1.1.2	Enzymes as catalysts and their role in metabolism	☐	☐	☐
C1.1.3	Enzymes as catalysts and their role in metabolism	☐	☐	☐
C1.1.4	Active sites, induced fit, collisions and denaturation	☐	☐	☐
C1.1.5	Active sites, induced fit, collisions and denaturation	☐	☐	☐
C1.1.6	Active sites, induced fit, collisions and denaturation	☐	☐	☐
C1.1.7	Active sites, induced fit, collisions and denaturation	☐	☐	☐
C1.1.8	Effects of temperature, pH and substrate concentration	☐	☐	☐
C1.1.9	Effects of temperature, pH and substrate concentration	☐	☐	☐
C1.1.10	Effect of enzymes on activation energy	☐	☐	☐

Cell respiration Spec C1.2

Spec	What to know (the note)	Not yet	Nearly	Confident
C1.2.1	ATP: the molecule that distributes energy	☐	☐	☐
C1.2.2	ATP: the molecule that distributes energy	☐	☐	☐
C1.2.3	ATP: the molecule that distributes energy	☐	☐	☐
C1.2.4	Cell respiration: aerobic and anaerobic	☐	☐	☐
C1.2.5	Cell respiration: aerobic and anaerobic	☐	☐	☐
C1.2.6	Variables affecting the rate of cell respiration	☐	☐	☐

Photosynthesis Spec C1.3

Spec	What to know (the note)	Not yet	Nearly	Confident
C1.3.1	Photosynthesis: energy, carbon dioxide, water and oxygen	☐	☐	☐
C1.3.2	Photosynthesis: energy, carbon dioxide, water and oxygen	☐	☐	☐
C1.3.3	Photosynthesis: energy, carbon dioxide, water and oxygen	☐	☐	☐
C1.3.4	Separating photosynthetic pigments by chromatography	☐	☐	☐
C1.3.5	Absorption of light, absorption spectra and action spectra	☐	☐	☐
C1.3.6	Absorption of light, absorption spectra and action spectra	☐	☐	☐
C1.3.7	Investigating limiting factors on photosynthesis	☐	☐	☐
C1.3.8	Carbon dioxide enrichment experiments	☐	☐	☐

C2 Cells (Interaction and interdependence)

Neural signalling Spec C2.2

Spec	What to know (the note)	Not yet	Nearly	Confident
C2.2.1	Neurons and the resting potential	☐	☐	☐
C2.2.2	Neurons and the resting potential	☐	☐	☐
C2.2.3	Nerve impulses as action potentials	☐	☐	☐
C2.2.4	Speed of nerve impulses	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
C2.2.5	Synapses and excitatory postsynaptic potentials	☐	☐	☐
C2.2.6	Synapses and excitatory postsynaptic potentials	☐	☐	☐
C2.2.7	Synapses and excitatory postsynaptic potentials	☐	☐	☐
C2.2.11	Speed of nerve impulses	☐	☐	☐

C3 Organisms (Interaction and interdependence)

Integration of body systems **Spec C3.1**

Spec	What to know (the note)	Not yet	Nearly	Confident
C3.1.1	System integration and the hierarchy of subsystems	☐	☐	☐
C3.1.2	System integration and the hierarchy of subsystems	☐	☐	☐
C3.1.3	System integration and the hierarchy of subsystems	☐	☐	☐
C3.1.4	The brain, spinal cord, neurons and nerves	☐	☐	☐
C3.1.5	The brain, spinal cord, neurons and nerves	☐	☐	☐
C3.1.6	The brain, spinal cord, neurons and nerves	☐	☐	☐
C3.1.7	The brain, spinal cord, neurons and nerves	☐	☐	☐
C3.1.8	The brain, spinal cord, neurons and nerves	☐	☐	☐
C3.1.9	Pain reflex arcs and the cerebellum	☐	☐	☐
C3.1.10	Pain reflex arcs and the cerebellum	☐	☐	☐
C3.1.11	Melatonin, epinephrine and control by the hypothalamus and pituitary	☐	☐	☐
C3.1.12	Melatonin, epinephrine and control by the hypothalamus and pituitary	☐	☐	☐
C3.1.13	Melatonin, epinephrine and control by the hypothalamus and pituitary	☐	☐	☐
C3.1.14	Feedback control of heart rate and ventilation rate	☐	☐	☐
C3.1.15	Feedback control of heart rate and ventilation rate	☐	☐	☐
C3.1.16	Control of peristalsis by the CNS and enteric nervous system	☐	☐	☐

Defence against disease **Spec C3.2**

Spec	What to know (the note)	Not yet	Nearly	Confident
C3.2.1	Pathogens as the cause of infectious diseases	☐	☐	☐
C3.2.2	Skin, mucous membranes and blood clotting	☐	☐	☐
C3.2.3	Skin, mucous membranes and blood clotting	☐	☐	☐
C3.2.4	Innate and adaptive immunity, and phagocytes	☐	☐	☐
C3.2.5	Innate and adaptive immunity, and phagocytes	☐	☐	☐
C3.2.6	Lymphocytes, antigens and antibody production	☐	☐	☐
C3.2.7	Lymphocytes, antigens and antibody production	☐	☐	☐
C3.2.8	Lymphocytes, antigens and antibody production	☐	☐	☐
C3.2.9	Lymphocytes, antigens and antibody production	☐	☐	☐
C3.2.10	Immunity, vaccines and herd immunity	☐	☐	☐
C3.2.11	HIV transmission and AIDS	☐	☐	☐
C3.2.12	HIV transmission and AIDS	☐	☐	☐
C3.2.13	Antibiotics and antibiotic resistance	☐	☐	☐
C3.2.14	Antibiotics and antibiotic resistance	☐	☐	☐
C3.2.15	Zoonoses and evaluating COVID-19 data	☐	☐	☐
C3.2.16	Immunity, vaccines and herd immunity	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
C3.2.17	Immunity, vaccines and herd immunity	☐	☐	☐
C3.2.18	Zoonoses and evaluating COVID-19 data	☐	☐	☐

C4 Ecosystems (Interaction and interdependence)

Populations and communities Spec C4.1

Spec	What to know (the note)	Not yet	Nearly	Confident
C4.1.1	Populations and random sampling	☐	☐	☐
C4.1.2	Populations and random sampling	☐	☐	☐
C4.1.3	Populations and random sampling	☐	☐	☐
C4.1.4	Capture-mark-release-recapture and the Lincoln index	☐	☐	☐
C4.1.5	Carrying capacity and density-dependent factors	☐	☐	☐
C4.1.6	Carrying capacity and density-dependent factors	☐	☐	☐
C4.1.7	Population growth curves	☐	☐	☐
C4.1.8	Population growth curves	☐	☐	☐
C4.1.9	Intraspecific and interspecific relationships	☐	☐	☐
C4.1.10	Intraspecific and interspecific relationships	☐	☐	☐
C4.1.11	Intraspecific and interspecific relationships	☐	☐	☐
C4.1.12	Mutualism	☐	☐	☐
C4.1.13	Invasive species and testing for competition	☐	☐	☐
C4.1.14	Invasive species and testing for competition	☐	☐	☐
C4.1.15	Invasive species and testing for competition	☐	☐	☐
C4.1.16	Predator-prey relationships and control of populations	☐	☐	☐
C4.1.17	Predator-prey relationships and control of populations	☐	☐	☐
C4.1.18	Allelopathy and secretion of antibiotics	☐	☐	☐

Transfers of energy and matter Spec C4.2

Spec	What to know (the note)	Not yet	Nearly	Confident
C4.2.1	Ecosystems as open systems and the source of energy	☐	☐	☐
C4.2.2	Ecosystems as open systems and the source of energy	☐	☐	☐
C4.2.3	Food chains, food webs and decomposers	☐	☐	☐
C4.2.4	Food chains, food webs and decomposers	☐	☐	☐
C4.2.5	Food chains, food webs and decomposers	☐	☐	☐
C4.2.6	Autotrophs and heterotrophs	☐	☐	☐
C4.2.7	Autotrophs and heterotrophs	☐	☐	☐
C4.2.8	Autotrophs and heterotrophs	☐	☐	☐
C4.2.9	Autotrophs and heterotrophs	☐	☐	☐
C4.2.10	Trophic levels and energy pyramids	☐	☐	☐
C4.2.11	Trophic levels and energy pyramids	☐	☐	☐
C4.2.12	Energy losses between trophic levels	☐	☐	☐
C4.2.13	Energy losses between trophic levels	☐	☐	☐
C4.2.14	Energy losses between trophic levels	☐	☐	☐
C4.2.15	Primary and secondary production	☐	☐	☐
C4.2.16	Primary and secondary production	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
C4.2.17	The carbon cycle, carbon sinks and combustion	☐	☐	☐
C4.2.18	The carbon cycle, carbon sinks and combustion	☐	☐	☐
C4.2.19	The carbon cycle, carbon sinks and combustion	☐	☐	☐
C4.2.20	The Keeling Curve	☐	☐	☐
C4.2.21	Interdependence of autotrophs and heterotrophs and recycling of elements	☐	☐	☐
C4.2.22	Interdependence of autotrophs and heterotrophs and recycling of elements	☐	☐	☐

D1 Molecules (Continuity and change)

DNA replication Spec D1.1

Spec	What to know (the note)	Not yet	Nearly	Confident
D1.1.1	Exact copies by semi-conservative replication	☐	☐	☐
D1.1.2	Exact copies by semi-conservative replication	☐	☐	☐
D1.1.3	Roles of helicase and DNA polymerase	☐	☐	☐
D1.1.4	PCR and gel electrophoresis	☐	☐	☐
D1.1.5	Applications of PCR and gel electrophoresis	☐	☐	☐

Protein synthesis Spec D1.2

Spec	What to know (the note)	Not yet	Nearly	Confident
D1.2.1	Transcription and gene expression	☐	☐	☐
D1.2.2	Transcription and gene expression	☐	☐	☐
D1.2.3	Transcription and gene expression	☐	☐	☐
D1.2.4	Transcription and gene expression	☐	☐	☐
D1.2.5	Translation at the ribosome	☐	☐	☐
D1.2.6	Translation at the ribosome	☐	☐	☐
D1.2.7	Translation at the ribosome	☐	☐	☐
D1.2.8	The genetic code	☐	☐	☐
D1.2.9	The genetic code	☐	☐	☐
D1.2.10	Translation at the ribosome	☐	☐	☐
D1.2.11	Mutations that change protein structure	☐	☐	☐

Mutation and gene editing Spec D1.3

Spec	What to know (the note)	Not yet	Nearly	Confident
D1.3.1	Substitutions, insertions and deletions	☐	☐	☐
D1.3.2	Substitutions, insertions and deletions	☐	☐	☐
D1.3.3	Substitutions, insertions and deletions	☐	☐	☐
D1.3.4	Causes of mutation and randomness	☐	☐	☐
D1.3.5	Causes of mutation and randomness	☐	☐	☐
D1.3.6	Germ and somatic cells, and mutation as a source of variation	☐	☐	☐
D1.3.7	Germ and somatic cells, and mutation as a source of variation	☐	☐	☐

D2 Cells (Continuity and change)

Cell and nuclear division Spec D2.1

Spec	What to know (the note)	Not yet	Nearly	Confident
D2.1.1	Cell division and cytokinesis	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
D2.1.2	Cell division and cytokinesis	☐	☐	☐
D2.1.3	Cell division and cytokinesis	☐	☐	☐
D2.1.4	Mitosis, meiosis and chromosome movement	☐	☐	☐
D2.1.5	Mitosis, meiosis and chromosome movement	☐	☐	☐
D2.1.6	Mitosis, meiosis and chromosome movement	☐	☐	☐
D2.1.7	Phases of mitosis	☐	☐	☐
D2.1.8	Phases of mitosis	☐	☐	☐
D2.1.9	Meiosis, non-disjunction and variation	☐	☐	☐
D2.1.10	Meiosis, non-disjunction and variation	☐	☐	☐
D2.1.11	Meiosis, non-disjunction and variation	☐	☐	☐

Water potential Spec D2.3

Spec	What to know (the note)	Not yet	Nearly	Confident
D2.3.1	Solvation and osmosis	☐	☐	☐
D2.3.2	Solvation and osmosis	☐	☐	☐
D2.3.3	Solvation and osmosis	☐	☐	☐
D2.3.4	Osmosis in plant tissue: the practical	☐	☐	☐
D2.3.5	Water movement in cells with and without walls	☐	☐	☐
D2.3.6	Water movement in cells with and without walls	☐	☐	☐
D2.3.7	Water movement in cells with and without walls	☐	☐	☐

D3 Organisms (Continuity and change)

Reproduction Spec D3.1

Spec	What to know (the note)	Not yet	Nearly	Confident
D3.1.1	Sexual and asexual reproduction	☐	☐	☐
D3.1.2	Sexual and asexual reproduction	☐	☐	☐
D3.1.3	Male and female sexes and human reproductive systems	☐	☐	☐
D3.1.4	Male and female sexes and human reproductive systems	☐	☐	☐
D3.1.5	Ovarian and uterine cycles and their hormones	☐	☐	☐
D3.1.6	Fertilization in humans and hormones in IVF	☐	☐	☐
D3.1.7	Fertilization in humans and hormones in IVF	☐	☐	☐
D3.1.8	Sexual reproduction in flowering plants and insect-pollinated flowers	☐	☐	☐
D3.1.9	Sexual reproduction in flowering plants and insect-pollinated flowers	☐	☐	☐
D3.1.10	Cross-pollination and self-incompatibility	☐	☐	☐
D3.1.11	Cross-pollination and self-incompatibility	☐	☐	☐
D3.1.12	Seed dispersal and germination	☐	☐	☐

Inheritance Spec D3.2

Spec	What to know (the note)	Not yet	Nearly	Confident
D3.2.1	Haploid gametes, diploid zygotes and genetic crosses in plants	☐	☐	☐
D3.2.2	Haploid gametes, diploid zygotes and genetic crosses in plants	☐	☐	☐
D3.2.3	Genotype, phenotype, dominance and phenotypic plasticity	☐	☐	☐
D3.2.4	Genotype, phenotype, dominance and phenotypic plasticity	☐	☐	☐
D3.2.5	Genotype, phenotype, dominance and phenotypic plasticity	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
D3.2.6	Genotype, phenotype, dominance and phenotypic plasticity	☐	☐	☐
D3.2.7	Phenylketonuria, SNPs, multiple alleles and ABO blood groups	☐	☐	☐
D3.2.8	Phenylketonuria, SNPs, multiple alleles and ABO blood groups	☐	☐	☐
D3.2.9	Phenylketonuria, SNPs, multiple alleles and ABO blood groups	☐	☐	☐
D3.2.10	Incomplete dominance and codominance	☐	☐	☐
D3.2.11	Sex determination, sex linkage and haemophilia	☐	☐	☐
D3.2.12	Sex determination, sex linkage and haemophilia	☐	☐	☐
D3.2.13	Pedigree charts	☐	☐	☐
D3.2.14	Continuous variation and box-and-whisker plots	☐	☐	☐
D3.2.15	Continuous variation and box-and-whisker plots	☐	☐	☐

Homeostasis Spec D3.3

Spec	What to know (the note)	Not yet	Nearly	Confident
D3.3.1	Homeostasis and negative feedback	☐	☐	☐
D3.3.2	Homeostasis and negative feedback	☐	☐	☐
D3.3.3	Regulation of blood glucose	☐	☐	☐
D3.3.4	Type 1 and type 2 diabetes	☐	☐	☐
D3.3.5	Thermoregulation	☐	☐	☐
D3.3.6	Thermoregulation	☐	☐	☐

D4 Ecosystems (Continuity and change)

Natural selection Spec D4.1

Spec	What to know (the note)	Not yet	Nearly	Confident
D4.1.1	Natural selection as the mechanism of evolution	☐	☐	☐
D4.1.2	Mutation and sexual reproduction as sources of variation	☐	☐	☐
D4.1.3	Overproduction, competition and selection pressures	☐	☐	☐
D4.1.4	Overproduction, competition and selection pressures	☐	☐	☐
D4.1.5	Overproduction, competition and selection pressures	☐	☐	☐
D4.1.6	Natural selection as the mechanism of evolution	☐	☐	☐
D4.1.7	Sexual selection and Endler's guppies	☐	☐	☐
D4.1.8	Sexual selection and Endler's guppies	☐	☐	☐

Stability and change Spec D4.2

Spec	What to know (the note)	Not yet	Nearly	Confident
D4.2.1	Stability of natural ecosystems	☐	☐	☐
D4.2.2	Stability of natural ecosystems	☐	☐	☐
D4.2.3	Amazon deforestation as a possible tipping point	☐	☐	☐
D4.2.4	Mesocosms and keystone species	☐	☐	☐
D4.2.5	Mesocosms and keystone species	☐	☐	☐
D4.2.6	Sustainable harvesting and agriculture	☐	☐	☐
D4.2.7	Sustainable harvesting and agriculture	☐	☐	☐
D4.2.8	Eutrophication	☐	☐	☐
D4.2.9	Biomagnification of pollutants	☐	☐	☐
D4.2.10	Microplastic and macroplastic pollution of the oceans	☐	☐	☐

Spec	What to know (the note)	Not yet	Nearly	Confident
D4.2.11	Rewilding	☐	☐	☐

Climate change Spec D4.3

Spec	What to know (the note)	Not yet	Nearly	Confident
D4.3.1	Anthropogenic causes and positive feedback	☐	☐	☐
D4.3.2	Anthropogenic causes and positive feedback	☐	☐	☐
D4.3.3	Boreal forest tipping point and polar habitat change	☐	☐	☐
D4.3.4	Boreal forest tipping point and polar habitat change	☐	☐	☐
D4.3.5	Nutrient upwelling and threats to coral reefs	☐	☐	☐
D4.3.6	Poleward and upslope range shifts	☐	☐	☐
D4.3.7	Nutrient upwelling and threats to coral reefs	☐	☐	☐
D4.3.8	Afforestation, forest regeneration and peatland restoration	☐	☐	☐