Y13 Biology Learning Journey Map
Developing the scientific skills to be an informed citizen

OCR Oxford Cambridge and RSA

YEAR 13

Year 13 Survival Top Tips

Tip 1	Learn and revise vocabulary weekly, use glossaries given and - Quizlet/Lovebiology/KB
Tip 2	Use ' Youtube- e.g. Miss Estruch, MrExham, Tailored Tutors to help review key skills and concepts
Tip 3	Use lovebiology /Kerboodle resources/past OCR questions
Tip 4	Use the Pixl Resources on Firefly & therapy questions
Tip 5	Read online science news, watch science documentaries

6.2.1 Cloning and biotechnology
- ☐ natural & artificial clones in plants & animals
- ☐ microbes in biotechnology
- ☐ aseptic technique
- ☐ standard growth curves
- ☐ immobilized enzymes

6.1.3 Manipulating genomes
- ☐ DNA sequencing & profiling
- ☐ polymerase chain reaction (PCR) and application in DNA analysis
- ☐ electrophoresis & uses
- ☐ genetic engineering uses & ethical considerations
- ☐ gene therapy uses & ethical considerations

B6 Genetics, evolution & ecosystems

B6.1.1 Cellular control
- ☐ mutations
- ☐ gene expression
- ☐ body plans
- ☐ mitosis and apoptosis

6.1.2 Patterns of inheritance
- ☐ environmental and genetic factors in variation
- ☐ sexual reproduction
- ☐ genetic diagrams to show patterns of inheritance
- ☐ the use of phenotypic ratios to identify linkage (autosomal and sex linkage) and Epistasis
- ☐ using chi-squared (χ2)

6.1.2 Patterns of inheritance cont.d
- ☐ genetic basis of continuous and discontinuous variation
- ☐ factors that affect the evolution of a species
- ☐ use of the Hardy–Weinberg principle to calculate allele frequencies in populations
- ☐ role of isolating mechanisms in evolution of new species
- ☐ principles of artificial selection, uses & ethical considerations

B5.2.2.Respiration
- ☐ Process & site of glycolysis, link reaction, Kreb's cycle & Oxidative phosphorylation
- ☐ Coenzymes
- ☐ Chemiosmotic theory
- ☐ Respiratory substrates & RQ
- ☐ Anaerobic respiration
- ☐ respirometers

5.2.1 Photosynthesis
- ☐ Interrelationship between photosynthesis & respiration
- ☐ TLC & photosynthetic pigments
- ☐ Light dependent reaction
- ☐ Light independent reaction
- ☐ Limiting factors

B5.1.5 Animal & plant responses
- ☐ Tropisms
- ☐ Plant hormones roles & commercial uses
- ☐ Investigating growth in plants
- ☐ Organization of the nervous system
- ☐ Brain structure & function
- ☐ Reflex actions
- ☐ Co-ordination of nervous & endocrine systems
- ☐ Control of heart rate
- ☐ Muscular structure & contraction

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B5.1.3 Neuronal communication
- ☐ sensory receptors
- ☐ neurones
- ☐ impulses
- ☐ synapses

B5.1.4 Hormonal communication
- ☐ endocrine system
- ☐ adrenal glands
- ☐ pancreas histology
- ☐ blood glucose regulation
- ☐ comparison of type 1 & type 2 diabetes

B5 Communication, homeostasis & energy:

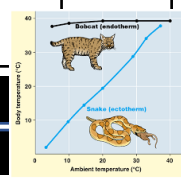### Y12 Review of prior knowledge:
6.3.1 Ecosystems
6.3.2 Populations and sustainability

5.1.2 Excretion as an example of homeostatic control
- ☐ excretion and its importance in maintaining metabolism and homeostasis
- ☐ structure and functions of the mammalian liver
- ☐ structure, mechanisms of action and functions of the mammalian kidney
- ☐ control of the water potential of the blood
- ☐ the effects of kidney failure and its potential treatments

5.1.1 Communication and homeostasis-review
- ☐ the need for communication
- ☐ cell signalling
- ☐ the principles of homeostasis
- ☐ the physiological and behavioural responses involved in ectotherms and endotherms.

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CURRICULUM OVERVIEW

Module 1:Development of key scientific skills: planning valid experiments, carrying out practicals safely, displaying & processing data, as well as analysing & evaluating results

Possible careers
Research scientist Biologist Doctor Nurse Forensic scientist Ecologist Farmer Athlete Nutritionist Sports scientist Personal trainer Biochemical engineer Civil Engineer Paramedic CSI Police officer and many more!!

CURRICULUM OVERVIEW