Year 11 Revision Schedule 2023-24

Subject/Course:	GCSE BIOLOGY (separate) (H and F) Exam Board: AQA
Student Name:	

		Topic	Key knowledge/skills/questions	Resources/activities/links
Week 1	**Monday 15th January 2024**	4.5.1 Homeostasis 4.5.2 The human nervous system 4.5.3 Hormonal coordination in humans 4.5.4 Plant hormones	• What homeostasis is and why it is important • The different parts of the nervous system and how they work together to co-ordinate a nervous response • Reflex actions- examples and how they are different to a normal nervous response • Synapses- how they work • Required practical- investigating reaction time • The brain- labelling structure and function of parts • The eye- labelling structure and function of parts • Correcting vision defects – long sight and short sight • Controlling body temperature (too hot or too cold) • Different glands of the endocrine system – names and labels, which hormones they secrete • Controlling blood glucose using insulin and glucagon • Kidney structure and function of parts • Kidney failure- how this can be treated • Which hormones control puberty and the menstrual cycle • How different contraceptives work • The process of IVF and how it works • The uses of the hormones thyroxine and adrenaline in the body and where they are secreted from • Different types of plant hormones, what effects they have in plants and how they can be used commercially	• BBC bitesize homeostasis and response https://www.bbc.co.uk/bitesize/topics/zy468mn • Educake- please log on and choose these topics to answer questions on

Week 2	**Monday 22nd January 2024**	4.6.1 Reproduction 4.7.1 Adaptations, interdependence and competition 4.7.2 Organisation of an ecosystem	• DNA structure and function • What are genes and chromosomes • How proteins are synthesised using the DNA code • Different types of mutations • Sexual vs asexual reproduction • The cell cycle • The processes of mitosis and meiosis – how they work, what they are used for, the differences between them • Competition in animals and plants- why and how they do this • Adaptation in animals and plants- different types of adaptations for different environments • Abiotic and biotic factors- what these are and examples of each • Food chains- how these are structured and the naming system we use for each stage (i.e. producers/consumers) • Required practical: How to sample an area using quadrats or transects to estimate biodiversity or population size (e.g. of a type of plant) • The water cycle • The carbon cycle • How material decay • CORE PRACTICAL: Investigating the rate of decay using milk, lipase and phenolphthalein	• BBC bitesize Reproduction https://www.bbc.co.uk/bitesize/topics/zpb7cj6 • BBC bitesize Ecology https://www.bbc.co.uk/bitesize/topics/zxfd3k7 • Educake- please log on and choose these topics to answer questions on
Week 3	**Monday 29th January**	4.7.3 Biodiversity and the effect of human interaction on ecosystems 4.7.4 Trophic levels in an ecosystem 4.7.5 Food production	• Biodiversity- what this means and why it is important • How humans are affecting biodiversity (land use, water pollution, air pollution) • Global warming- how and why this is happening • Deforestation- reasons for doing this and the impact it has on the environment • How we can help to maintain ecosystems and biodiversity • Trophic levels of food chains • Pyramids of biomass – what these are and how they can be drawn • How biomass is transferred along a food chain and where biomass/energy is lost from a food chain • How we can ensure there is enough food for a growing population – intensive farming	• BBC bitesize Ecology https://www.bbc.co.uk/bitesize/topics/zxfd3k7 • Educake- please log on and choose these topics to answer questions on

			• Biotechnology and how this is allowing us to mass produce mycoprotein and insulin	
Week 4	**Monday 5th February**	Summarise the above Focus on Practical Skills Focus on exam technique by practising past papers	Make sure you are confident with the content you have revised over the past 3 weeks- go over any tricky areas again • Use blank page retrieval to identify gaps and address these by making a mind map • Remind yourself of the key practical skills that might be assessed • Practise answering questions in enough detail, using key vocabulary and under timed conditions	BBC bitesize Practical Skills https://www.bbc.co.uk/bitesize/topics/zqqmmsg Link to AQA past papers https://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464/assessment-resources?f.Component%7C7=Paper+2+Biology
Week 5	**Half Term Monday 12th February**	Summarise the above Focus on Practical Skills Focus on exam technique by practising past papers	• Make sure you are confident with the content you have revised over the past 3 weeks- go over any tricky areas again • Use blank page retrieval to identify gaps and address these by making a mind map • Remind yourself of the key practical skills that might be assessed • Practise answering questions in enough detail, using key vocabulary and under timed conditions	BBC bitesize Practical Skills https://www.bbc.co.uk/bitesize/guides/z3ch97h/revision/1 Link to AQA past papers https://www.aqa.org.uk/subjects/science/gcse/biology-8461/assessment-resources
Week 6	**Monday 19th February**	4.1.1 Cell structure 4.1.2 Cell division 4.1.3 Transport in cells	• Eukaryote and prokaryote structure • Animal and plant cell structure and functions of sub cellular structures • How to use a microscope to observe cells and draw cells seen • Cell specialisation and cell differentiation • Differences between light and electron microscopes • How to use the magnification equation • How to culture microorganisms and the required practical investigating the effect of antibiotics or antiseptics on bacterial growth • Where chromosomes are found • What happens in the cell cycle and why the cell cycle happens • What a stem cell is and where stems cells are found in embryos, adults and plants • Use of stem cells for therapeutic cloning and production of cloned plants	BBC bitesize Separate science https://www.bbc.co.uk/bitesize/examspecs/zpgcbk7 Educake

			• What happens in diffusion and which factors affect the rate of diffusion • How to calculate SA:V • Explain how animal and plants are adapted for exchanging materials • What is osmosis and what happened in the required practical investigating the effect of changing salt solution on the mass of plant tissue (potato chips) What is active transport	
Week 7	**Monday 26th February**	4.2.1 Principles or organisation 4.2.2 animal tissues, organs and organ systems 4.2.3 Plant tissues, organs and organ systems	• What is the organisation in living organisms • Digestive system- what are the organs and their functions • Enzyme structure and function – including the lock and key theory • Digestive enzymes- amylase, proteas and lipase- where are these produced and what do they do • Role of bile • How temperature and pH affect enzyme activity • Required practical Food tests • Required practical effect of pH on the rate of reaction of amylase enzyme on digestion of starch • Heart structure and types of blood vessels • What is in the tissue blood • Coronary heart diseases- what it is and how valves and transplants can be treatments • Factors that can cause/ contribute to ill health • Use disease data to draw conclusions • Cancer cells and the difference between benign tumours and malignant tumours. • Plant tissues- epidermal, palisade and spongy mesophyll, xylem and phloem • Leaf structure • Adaptations of root hair cells, xylem and phloem • Transpiration-how it is measured (potometer) and which factors affect it • Role of leaves, stem, root • Translocation and where this happens in a plant	BBC bitesize Cells https://www.bbc.co.uk/bitesize/guides/z84jtv4/revision/1 Educake- please log on and choose these topics to answer questions on
Week 8	**Monday 4th March**	4.3.1 Communicable disease 4.3.2 Monoclonal antibodies (H) Plant diseases	• Spread of diseases • Pathogen definition • How do bacteria and viruses make us poorly • Symptoms and treatments/prevention of spread for viral diseases – measles, HIV, TMV	BBC bitesize Organisation https://www.bbc.co.uk/bitesize/topics/zwtcng8 Educake- please log on and choose these topics to answer questions on

			• Symptoms and treatments/prevention of spread for bacterial diseases – *Salmonella*, Gonorrhoea, • Symptoms and treatments/prevention of spread for fungal diseases – Rose black spot • Symptoms and treatments/prevention of spread for protist diseases – Malaria • Non specific defence systems in the human body • Role of while blood cells defending against pathogens • Vaccination – what happens in the body • Antibiotics- what these medicines do and issues with their overuse • What do painkillers do? • Origin of drugs digitalis and aspirin and how Penicillin was discovered • Stages needed when testing a drug and why these steps are important • Monoclonal antibodies- how these are produced, uses and concerns with their use • Detection of plant disease and causes of disease (pathogen, insects, deficiency) • Plant defences- physical, chemical, mechanical	
Week 9	**Monday 11th March**	4.4.1 Photosynthesis 4.4.2 Respiration	• Photosynthesis equation and photosynthesis is an endothermic reaction • Effects of temperature, light intensity, carbon dioxide concentration and amount of chlorophyll on the rate of photosynthesis • Understanding these factors (above) interact and one may be a limiting factor • H: how to use the inverse square law to calculate light intensity • H: how to maximise rate of photosynthesis and maintain a profit (greenhouses) • Required practical: investigating the effect of light intensity on the rate of photosynthesis • Uses of glucose (produced in photosynthesis) • Respiration is an exothermic reaction • Equations for aerobic respiration and anaerobic respiration (muscles and yeast/plants) • Why do organisms need energy • Effect of exercise on the body and issues with ongoing anaerobic respiration occurring- muscle fatigue, lactic acid production and oxygen debt • What is metabolism (definition and examples)	BBC bitesize Infection and response https://www.bbc.co.uk/bitesize/topics/z9236yc Educake- please log on and choose these topics to answer questions on

Week 10	**Monday 18th March**	4.5.1 Homeostasis 4.5.2 The human nervous system 4.5.3 Hormonal coordination in humans 4.5.4 Plant hormones	• What homeostasis is and why it is important • The different parts of the nervous system and how they work together to co-ordinate a nervous response • Reflex actions- examples and how they are different to a normal nervous response • Synapses- how they work • Required practical - investigating reaction time • The brain- labelling structure and function of parts • The eye- labelling structure and function of parts • Correcting vision defects – long sight and short sight • Controlling body temperature (too hot or too cold) • Different glands of the endocrine system – names and labels, which hormones they secrete • Controlling blood glucose using insulin and glucagon • Kidney structure and function of parts • Kidney failure- how this can be treated • Which hormones control puberty and the menstrual cycle • How different contraceptives work • The process of IVF and how it works • The uses of the hormones thyroxine and adrenaline in the body and where they are secreted from • Different types of plant hormones, what effects they have in plants and how they can be used commercially	BBC bitesize Bioenergetics https://www.bbc.co.uk/bitesize/topics/zgws7p3 Educake- please log on and choose these topics to answer questions on
Week 11	**Monday 25th March**	4.7.1 Adaptations, interdependence and competition 4.7.2 Organisation of an ecosystem 4.7.3 Biodiversity and the effect of human interaction on ecosystems 4.7.4 Trophic levels in an ecosystem 4.7.5 Food production	• Competition in animals and plants- why and how they do this • Adaptation in animals and plants- different types of adaptations for different environments • Abiotic and biotic factors- what these are and examples of each • Food chains- how these are structured and the naming system we use for each stage (i.e. producers/consumers) • CORE PRACTICAL: How to sample an area using quadrats or transects to estimate biodiversity or population size (e.g. of a type of plant) • The water cycle • The carbon cycle • How material decay • Required practical : Investigating the rate of decay using milk, lipase and phenolphthalein • Biodiversity- what this means and why it is important	• BBC bitesize homeostasis and reseponse https://www.bbc.co.uk/bitesize/topics/zy468mn Educake- please log on and choose these topics to answer questions on

			• How humans are affecting biodiversity (land use, water pollution, air pollution) • Global warming- how and why this is happening • Deforestation- reasons for doing this and the impact it has on the environment • How we can help to maintain ecosystems and biodiversity • Trophic levels of food chains • Pyramids of biomass – what these are and how they can be drawn • How biomass is transferred along a food chain and where biomass/energy is lost from a food chain • How we can ensure there is enough food for a growing population – intensive farming • Biotechnology and how this is allowing us to mass produce mycoprotein and insulin •	
Week 12	**Easter Monday 1st April**	4.6.1 Reproduction 4.6.2 Variation and evolution 4.6.3 Development of understanding on genetics and evolution 4.6.4 Classification of living organisms 4.1.1 Cell structure 4.1.2 Cell division 4.1.3 Transport in cells	• The process of meiosis • Differences between sexual and asexual reproduction • Advantages and disadvantages of sexual and asexual reproduction (H) • Structure of DNA and define genome • Importance of understanding the human genome • Protein synthesis (H) • Mutations (H) what happens to a protein when a mutation occurs in the DNA • Alleles, dominant, recessive, homozygous, heterozygous, genotype and phenotype • Predicting the probability of inheriting a characteristic -using a Punnett square (H constructing a Punnett square) • Work of Mendel • Inheritance of Polydactyly and Cystic fibrosis • Determination of sex • What causes differences in individuals in a population • The process of evolution • The theory of evolution – Charles Darwin, Lamarck, Wallace • Evidence for evolution (fossils, genes, resistant bacteria) • Speciation • Extinction • The process of selective breeding	• BBC bitesize Ecology https://www.bbc.co.uk/bitesize/topics/zxfd3k7 Educake- please log on and choose these topics to answer questions on

			• The process of genetic engineering • The process of cloning: tissue culture, cuttings, embryo transplants and adult cell cloning • Classification of living organisms and evolutionary trees	
Week 13	**Easter Monday 8th April**	4.4.1 Photosynthesis 4.4.2 Respiration 4.2.1 Principles or organisation 4.2.2 animal tissues, organs and organ systems 4.2.3 Plant tissues, organs and organ systems	• Photosynthesis equation and photosynthesis is an endothermic reaction • Effects of temperature, light intensity, carbon dioxide concentration and amount of chlorophyll on the rate of photosynthesis • Understanding these factors (above) interact and one may be a limiting factor • H: how to use the inverse square law to calculate light intensity • H: how to maximise rate of photosynthesis and maintain a profit (greenhouses) • Required practical: investigating the effect of light intensity on the rate of photosynthesis • Uses of glucose (produced in photosynthesis) • Respiration is an exothermic reaction • Equations for aerobic respiration and anaerobic respiration (muscles and yeast/plants) • Why do organisms need energy • Effect of exercise on the body and issues with ongoing anaerobic respiration occurring- muscle fatigue, lactic acid production and oxygen debt What is metabolism (definition and examples) • What is the organisation in living organisms • Digestive system- what are the organs and their functions • Enzyme structure and function – including the lock and key theory • Digestive enzymes- amylase, proteas and lipase- where are these produced and what do they do • Role of bile • How temperature and pH affect enzyme activity • Required practical Food tests • Required practical effect of pH on the rate of reaction of amylase enzyme on digestion of starch • Heart structure and types of blood vessels • What is in the tissue blood • Coronary heart diseases- what it is and how valves and transplants can be treatments • Factors that can cause/ contribute to ill health • Use disease data to draw conclusions • Cancer cells and the difference between benign tumours and malignant tumours. • Plant tissues- epidermal, palisade and spongy mesophyll, xylem and phloem • Leaf structure • Adaptations of root hair cells, xylem and phloem • Transpiration-how it is measured (potometer) and which factors affect it • Role of leaves, stem, root	• BBC bitesize Inheritance, variation and evolution https://www.bbc.co.uk/bitesize/topics/zpb7cj6 Educake- please log on and choose these topics to answer questions on

			• Translocation and where this happens in a plant	
Week 14	**Monday 15th April**	4.3.1 Communicable disease 4.3.2 Monoclonal antibodies (H) Plant diseases	• Spread of diseases • Pathogen definition • How do bacteria and viruses make us poorly • Symptoms and treatments/prevention of spread for viral diseases – measles, HIV, TMV • Symptoms and treatments/prevention of spread for bacterial diseases – *Salmonella*, Gonorrhoea, • Symptoms and treatments/prevention of spread for fungal diseases – Rose black spot • Symptoms and treatments/prevention of spread for protist diseases – Malaria • Non specific defence systems in the human body • Role of while blood cells defending against pathogens • Vaccination – what happens in the body • Antibiotics- what these medicines do and issues with their overuse • What do painkillers do? • Origin of drugs digitalis and aspirin and how Penicillin was discovered • Stages needed when testing a drug and why these steps are important • Monoclonal antibodies- how these are produced, uses and concerns with their use • Detection of plant disease and causes of disease (pathogen, insects, deficiency) • Plant defences- physical, chemical, mechanical	BBC bitesize Bioenergetics https://www.bbc.co.uk/bitesize/topics/zgws7p3 BBC bitesize Organisation https://www.bbc.co.uk/bitesize/topics/zwtcng8 Educake- please log on and choose these topics to answer questions on
Week 15	**Monday 22nd April**	Paper 1 revision	Paper 1 personal revision (4.1 cells, 4.2 Organisation, 4.3 Infection and response and 4.4 Bioenergetics) Complete blank page retrieval of your revision sheets for these chapters Identify which gaps you still have Use revision guides, bbc bitesize and educake to address these issues	BBC bitesize Infection and response https://www.bbc.co.uk/bitesize/topics/z9236yc Educake- please log on and choose these topics to answer questions on
Week 16	**Monday 29th April**	Paper 1 revision	Paper 1 personal revision (4.1 cells, 4.2 Organisation, 4.3 Infection and response and 4.4 Bioenergetics) Complete blank page retrieval of your revision sheets for these chapters Identify which gaps you still have	BBC bitesize Infection and response https://www.bbc.co.uk/bitesize/topics/z9236yc Educake- please log on and choose these topics to answer questions on

			Use revision guides, bbc bitesize and educake to address these issues	
Week 17	**Monday 6th May**	10th May PAPER 1 exam BIOLOGY	Paper 1 personal revision (4.1 cells, 4.2 Organisation, 4.3 Infection and response and 4.4 Bioenergetics) Complete blank page retrieval of your revision sheets for these chapters Identify which gaps you still have Use revision guides, bbc bitesize and educake to address these issues	BBC bitesize Infection and response https://www.bbc.co.uk/bitesize/topics/z9236yc Educake- please log on and choose these topics to answer questions on
Week 18	**Monday 13th May**	4.6.1 Reproduction 4.6.2 Variation and evolution 4.6.3 Development of understanding on genetics and evolution 4.6.4 Classification of living organisms	• The process of meiosis • Differences between sexual and asexual reproduction • Advantages and disadvantages of sexual and asexual reproduction (H) • Structure of DNA and define genome • Importance of understanding the human genome • Protein synthesis (H) • Mutations (H) what happens to a protein when a mutation occurs in the DNA • Alleles, dominant, recessive, homozygous, heterozygous, genotype and phenotype • Predicting the probability of inheriting a characteristic -using a Punnett square (H constructing a Punnett square) • Work of Mendel • Inheritance of Polydactyly and Cystic fibrosis • Determination of sex • What causes differences in individuals in a population • The process of evolution • The theory of evolution – Charles Darwin, Lamarck, Wallace • Evidence for evolution (fossils, genes, resistant bacteria) • Speciation • Extinction • The process of selective breeding • The process of genetic engineering • The process of cloning: tissue culture, cuttings, embryo transplants and adult cell cloning • Classification of living organisms and evolutionary trees	• BBC bitesize Inheritance, variation and evolution https://www.bbc.co.uk/bitesize/topics/zpb7cj6 Educake- please log on and choose these topics to answer questions on

Week 19	**Monday 20th May**	4.5.1 Homeostasis 4.5.2 The human nervous system 4.5.3 Hormonal coordination in humans 4.5.4 Plant hormones	• What homeostasis is and why it is important • The different parts of the nervous system and how they work together to co-ordinate a nervous response • Reflex actions- examples and how they are different to a normal nervous response • Synapses- how they work • Required practical - investigating reaction time • The brain- labelling structure and function of parts • The eye- labelling structure and function of parts • Correcting vision defects – long sight and short sight • Controlling body temperature (too hot or too cold) • Different glands of the endocrine system – names and labels, which hormones they secrete • Controlling blood glucose using insulin and glucagon • Kidney structure and function of parts • Kidney failure- how this can be treated • Which hormones control puberty and the menstrual cycle • How different contraceptives work • The process of IVF and how it works • The uses of the hormones thyroxine and adrenaline in the body and where they are secreted from • Different types of plant hormones, what effects they have in plants and how they can be used commercially	
Week 20	**Half Term Monday 27th May**	4.7.1 Adaptations, interdependence and competition 4.7.2 Organisation of an ecosystem 4.7.3 Biodiversity and the effect of human interaction on ecosystems 4.7.4 Trophic levels in an ecosystem 4.7.5 Food production	• Competition in animals and plants- why and how they do this • Adaptation in animals and plants- different types of adaptations for different environments • Abiotic and biotic factors- what these are and examples of each • Food chains- how these are structured and the naming system we use for each stage (i.e. producers/consumers) • CORE PRACTICAL: How to sample an area using quadrats or transects to estimate biodiversity or population size (e.g. of a type of plant) • The water cycle • The carbon cycle • How material decay • Required practical : Investigating the rate of decay using milk, lipase and phenolphthalein • Biodiversity- what this means and why it is important	

			• How humans are affecting biodiversity (land use, water pollution, air pollution) • Global warming- how and why this is happening • Deforestation- reasons for doing this and the impact it has on the environment • How we can help to maintain ecosystems and biodiversity • Trophic levels of food chains • Pyramids of biomass – what these are and how they can be drawn • How biomass is transferred along a food chain and where biomass/energy is lost from a food chain • How we can ensure there is enough food for a growing population – intensive farming • Biotechnology and how this is allowing us to mass produce mycoprotein and insulin	
Week 21	**Monday 3rd June**	7th June PAPER 2 exam BIOLOGY Paper 2 revision	Paper 2 personal revision (4.5 Homeostasis, 4.6 Inheritance, variation and evolution, 4.7 Ecology) Complete blank page retrieval of your revision sheets for these chapters Identify which gaps you still have Use revision guides, bbc bitesize and educake to address these issues	
Week 22	**Monday 10th June**	x	x	x