

Ministry of Education

NATIONAL BIOLOGY PACING GUIDE

Standard Version – 3 Years

GRADE 10 BIOLOGY

TERM I: CHRISTMAS TERM: SEPTEMBER – DECEMBER 2020

(Approx. 13 weeks)

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| WEEK | TOPIC/FOCUS |
| 1 Sept  21 - 25 | **Introduction to Biology** ( Branches of Biology, Characteristics of living Things, Binomial System) |
| 2 & 3  Sept 28 –  Oct 9th | **Ecology**  Terminologies Abiotic and Biotic factors, food chains, food webs, non- cyclic flow of energy. Ecological Field Study |
| 4 & 5  Oct 12 - 23 | **Mangrove Ecosystem** Location, Profile, biotic and abiotic factors, field studies, feeding relationships, Importance, Threats & Conservation |
| 6 & 7  Oct 26 – Nov6 | **Coral Reef Ecosystem**: The distribution, detailed study of the structure of a coral polyp, reef formation, zooxanthellae, symbiosis, flora and fauna, adaptations, Importance Threats and conservation |
| 8&9  Nov 9th -20th | **Rocky Shore Ecosystem:** Location Profile, biotic and abiotic factors, flora and fauna, adaptations zonation, Importance, threats and conservation |
| 10  Nov 23 – 27 | **Sandy Seashore**: Location, Profile, biotic and abiotic factors, flora and fauna adaptations zonation, importance, threats and conservation |
| 11  Nov 30 – Dec 4th | **Forest Ecosystem:** Location, profile, biotic and abiotic factors, flora and fauna adaptations, field studies, feeding relationships, importance, threats and conservation |
| 12  Dec 7th – 11th | **Cells:** The detailed structure of a plant and animal cell. The difference in the structure between typical animal and plant cells. Difference between cell wall and cell membrane. Levels of organization |



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GRADE 11 BIOLOGY

TERM I: CHRISTMAS TERM: SEPTEMBER – DECEMBER 2020

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| WEEK | TOPIC |
| 1 Sept  21 - 25 | **POLLUTION**  Define terms Pollution and Pollutants, ozone layer, global warming, climate change, the greenhouse effect, deforestation  **Air pollution** ( cfc’s, examples effects on the ozone layer, consequences of air pollution  **Land pollution** ( Definition, examples, methods of controlling main land pollutants, anti land pollution approaches)  **Water pollution** ( Definition, examples of pollutants, effects on marine organisms, eutrophication) |
| 2 & 3  Sept 28 –  Oct 9th |
| 4 & 5  Oct 12 - 23 | **Agriculture & Food Preservation methods**  Local Subsistence Farming in the Bahamas, Commercial agriculture, Modern agriculture and innovative technologies, Technology in food production, Food preservation methods. Threats to agriculture, deforestation effects and Hydroponics |
| 6 & 7  Oct 26 – Nov6 | **Fishing:** Marine organism of economic importance to the Bahamas types of fishing, fishing seasons, fishing grounds, aquaculture/Mariculture, Sustainable and Destructive fishing practices. |
| 8&9  Nov 9th -20th | **RESPIRATION:** Definition, Word and Chemical Equations, uses of energy. **Aerobic** and **Anaerobic** respiration. Compare aerobic and anaerobic respiration. **ATP and ADP**. Internal features of mitochondrion and its adaptation for respiration. Structure of the **respiratory system**. Difference in the composition between inspired and expired air. **Testing for CO2**. **Gas Exchange** and **Breathing**  The effects of physical activity on the rate and depth of breathing. Effects of cigarette smoking on the lungs. |
| 10  Nov 23 – 27 |
| 11  Nov 30 – Dec 4th |
| 12  Dec 7th – 11th | **Photosynthesis:** Definition and process. Adaptations of the leaf, Raw Materials, limiting factors of photosynthesis |



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GRADE 12 BIOLOGY

TERM I: CHRISTMAS TERM: SEPTEMBER – DECEMBER 2020

(Approx. 13 weeks)

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| WEEK | TOPIC |
| 1 Sept  21 - 25 | **Tropism and Tactic Movements Plant Hormones**. Types of tropism photo geo and hydro. The role of auxins. Define taxis and give named examples of tactic responses in invertebrates |
| 2. Sept 28th – Oct 2nd | **Endocrine system** ( Endocrine vs. Exocrine glands, major endocrine glands and their hormones, role of thyroid stimulating hormone, importance of pancreas and adrenal glands |
| 3  Oct 5th –  Oct 9th | **Nervous System: CNS and PNS**. Structure and function of the brain. Neurons, types structure and functions. Reflex arc and Reflex action. Compare simple and reflex and conditioned reflex actions. |
| 4 & 5  Oct 12 - 23 | **Receptors: Eye and Ear**  Eye (Eye parts and their functions, pupil reflex, process of seeing, lenses, common visual disorders  The Ear( Ear parts and their functions, process of hearing, the role of the ear in balance) |
| 6 Oct 26th – Oct 30th | **Effector Organs**: structure of a synovial joint. The action of antagonistic muscles in the movement of the elbow joint and knee joint. Name flexor and extensor muscles. Role of cartilage, ligaments, tendons and synovial fluid. |
| 7  Nov 2nd – Nov 6th | **Asexual Reproduction**; Natural vegetative propagation: runners stolons, bulbs, rhizomes. Artificial vegetative propagation layering, cuttings and grafting  Structure and mode of reproduction of bacteria (binary fission); yeast (budding) and mould (sporulation) |
| 8&9  Nov 9th -20th | **Sexual Reproduction** in plants  Identify flowers as reproductive structures. Differences between insect and wind pollinated flowers and cross and self pollination. Identify agents of pollination. Fertilization process, fruit and seed development; seed dispersal. Germination in a named dicot and monocot seed. |
| 10  Nov 23 – 27 |
| 11  Nov 30 – Dec 4th | Human Impacts on the Environment & National parks |
| 12  Dec 7th – 11th | Human Impacts on the grouper lobster conch bonefish and land crab |