**Life Sciences 11**

Standards & Competencies Reflection



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|  |  | **Core Competencies** | | |
| C | T | PS |
| **Level** | **Unit 1 – Intro to the Cells** |
| **C** | I can recognize, draw and explain the function of the 4 major biological molecules |  |  |  |
| **C** | I can draw and state the function of the 3 cells and their organelles |  |  |  |
| **C** | I can describe the process of mitosis |  |  |  |
| **C** | I can describe the process of meiosis |  |  |  |
| **A** | I can explain how a protein is made in a cell |  |  |  |
| **A** | I can compare and contrast: the 4 biological molecules; mitosis/meiosis and diffusion/osmosis |  |  |  |
| **Level** | **Unit 2 – Evolution and Taxonomy** |
| **C** | I can describe the structure of DNA and explain its role in evolution |  |  |  |
| **C** | I can name and describe the men of evolution and their role in forming the theory of evolution |  |  |  |
| **C** | I can describe the role of the following in evolution: mutations, genetic  drift, gene flow, non-random mating, and natural selection |  |  |  |
| **C** | I can compare and contrast the gradual change model and the punctuated  equilibrium model of evolution |  |  |  |
| **C** | I can compare and contrast and give examples of convergent evolution, divergent evolution and speciation |  |  |  |
| **C** | I can explain how the following are used to  classify organisms: evolutionary relationships, biochemical relationships, homologous structures, embryological relationships |  |  |  |
| **C** | I can describe the characteristics of each domain and kingdom |  |  |  |
| **C** | I can explain how an organism is named and classified |  |  |  |
| **A** | I can describe an organisms evolutionary relationship to another organism based on its classification |  |  |  |
| **Level** | **Unit 3 – Microbiology** |
| **C** | Describe viral structure and types |  |  |  |
| **C** | Compare and contrast the lytic and lysogenic cycle |  |  |  |
| **C** | Describe human responses to viral infections |  |  |  |
| **C** | Describe prokaryotic structure |  |  |  |
| **C** | Describe bacteria form and arrangement |  |  |  |
| **C** | Explain the process and results of Gram staining |  |  |  |
| **A** | Explain bacterial reproduction |  |  |  |
| **A** | Describe 4 modes of bacterial nutrition |  |  |  |
| **A** | Explain how bacterial resistance occurs and how it relates to evolution |  |  |  |

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|  |  | **Core Competencies** | | |
| C | T | PS |
| **Level** | **Unit 4 – Kingdom Plantae** |
| **C** | Explain the alternation of generations life cycle |  |  |  |
| **C** | Bryophyta characteristics and life cycle |  |  |  |
| **C** | Pteridophyta characteristics and life cycle |  |  |  |
| **C** | Gymnospermae characteristics and life cycle |  |  |  |
| **C** | Angiosperms characteristics and life cycle |  |  |  |
| **C** | Levels of organizations in a typical plant |  |  |  |
| **A** | Compare and contrast Bryophytes and Pteridophytes |  |  |  |
| **A** | Compare and contrast Gymnosperms with pteridophytes and bryophytes |  |  |  |
| **A** | Compare and contrast angiosperms with gymnosperms, pteridophytes and bryophytes |  |  |  |
| **Level** | **Unit 5 – Kingdom Animalia: Lower Invertebrates** |
| **C** | Describe and provide examples of the classification criteria used to organize each Phyla (symmetry, germ layers, body plan, segmentation & evolution) |  |  |  |
| **C** | I can explain the defining characteristics of Phylum Porifera |  |  |  |
| **C** | I can describe how a sponge feeds and reproduces |  |  |  |
| **C** | I can explain the defining characteristics of Phylum Cnidaria AND explain how its more advanced than Phylum Porifera |  |  |  |
| **C** | I can describe how cnidarians feed, reproduce and respond to their environment |  |  |  |
| **C** | I can explain the defining characteristics of Phylum Platyhelminthes AND explain how its more advanced than Phylum Cnidaria |  |  |  |
| **C** | I can describe how the body systems of a typical Platyhelminthes functions |  |  |  |
| **C** | I can explain the defining characteristics of Phylum Nematoda AND explain how its more advanced than Phylum Platyhelminthes |  |  |  |
| **C** | I can explain how the body systems of a typical Nematode functions |  |  |  |
| **C** | I can carry out a full external and internal investigation of an organism |  |  |  |
| **A** | I can explain adaptations to a parasitic lifestyle using specific examples |  |  |  |
| **A** | I can complete an investigation of live specimens in an ethical and safe manner |  |  |  |
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| **Level** | **Unit 6 – Kingdom Animalia: Higher Invertebrates** |
| **C** | I can explain the defining characteristics of Phylum Annelida AND explain how its more advanced than Phylum Nematoda |  |  |  |
| **C** | I can describe how an earthworm digestive, respiratory, circulatory and reproductive systems function |  |  |  |
| **C** | I can explain the defining characteristics of Phylum Mollusca AND explain how its more advanced than Phylum Nematoda |  |  |  |
| **C** | I can describe how the body systems of a squid functions |  |  |  |
| **C** | I can explain the defining characteristics of Phylum Arthropoda AND explain how its more advanced than Phylum Annelida and Mollusca |  |  |  |
| **C** | I can describe how the body systems of a typical Arthropod functions |  |  |  |
| **C** | I can explain the defining characteristics of Phylum Echinodermata AND explain how its more advanced than Phylum Arthropoda |  |  |  |
| **C** | I can explain how the body systems of a starfish functions |  |  |  |
| **A** | I can compare and contrast protostomes and deuterostomes |  |  |  |
| **A** | I can carry out a full external and internal investigation of an organism |  |  |  |
| **Level** | **Unit 7 – Kingdom Animalia: Chordates** |
| **C** | I can explain the defining characteristics of Phylum Chordata AND explain how it's more advanced than Phylum Echinodermata (but how are they also the same?) |  |  |  |
| **C** | I can describe how the 3 subphyla (AKA the Lower Chordates) increase in complexity and how their digestive, respiratory, circulatory and reproductive systems function |  |  |  |
| **C** | I can explain the defining characteristics of subphylum Vertebrata AND explain how they are more advanced than the other 3 subphyla |  |  |  |
| **C** | I can explain the defining characteristics of Classes Agnatha, Chondrichthyes and Osteichthyes AND explain how they are more advanced than the Lower Chordates |  |  |  |
| **C** | I can describe how the body systems of a perch function |  |  |  |
| **C** | I can explain the defining characteristics of Class Amphibia AND explain how its more advanced than the 3 classes of fish |  |  |  |
| **C** | I can describe how the body systems of a typical frog function |  |  |  |
| **C** | I can explain the defining characteristics of Class Reptilia AND explain how its more advanced than Class Amphibia |  |  |  |
| **C** | I can explain the defining characteristics of Class Aves AND explain how its more advanced than Class Reptilia |  |  |  |
| **C** | I can explain the defining characteristics of Class Mammalia AND explain how/why we believe it’s the most advanced Class. |  |  |  |
| **A** | I can describe how the body systems of a typical rat function |  |  |  |
| **A** | I can explain how animals have evolved over time from sponges to humans |  |  |  |