**WEEK 2**

|  |  |  |
| --- | --- | --- |
| **UNIT 1\_2: SUB CELLULAR STRUCTURES AND THEIR FUNCTIONS** | **Where? How long?** | ***Explanations***  ***/Questions*** |
| ***Introduction***  All cells share four common components:   1. A plasma membrane, an outer covering that separates the cell’s interior from its surrounding environment; 2. Cytoplasm, consisting of a jelly-like cytosol within the cell in which other cellular components are found; 3. DNA, the genetic material of the cell; 4. Ribosomes, which synthesize proteins. | 10 minutes | Subcellular structures are literally subcomponents of a cell or structures within a cell which where they are combined together constitute an entire cell. |
| As you prepare yourselves to become medical professionals, it is important that you familiarize yourselves to identify, describe and recognizes the architecture and the dynamics of cells and how disease processes impact cell organelles (little organs). |
| ***Expectations***  The students will identify, describe, and recognize the structures and functions of cell organelles and will be able to compare and contrast animal and plants cells. |
| **Learning outcomes** |
| By the end of this section, you will be able to:   * List the structural components of the cell in prokaryotes and eukaryotes * Indicate the functions of the various cellular organelles including the nucleus, cell membrane, cell wall, mitochondria, chloroplasts, ribosomes, Golgi body, central vacuole, rough endoplasmic reticulum, smooth endoplasmic reticulum, lysosome, and peroxisome. |

|  |  |  |  |
| --- | --- | --- | --- |
| **ACTIVITY AHEAD OF LESSON: SUB CELLULAR STRUCTURES AND THEIR FUNCTIONS** | | 30 minutes | Use different color for different organelles. |
| **Purpose:** | This is an introduction to the different sub cellular structures of a cell. |
| **Over to you:** | **This** [**short video**](https://www.khanacademy.org/science/high-school-biology/hs-cells/hs-basic-cell-structures/v/introduction-to-the-cell) **will give you an overview of the cell**  Then do the associated multiple questions suggested in the activity.  ***Be certain to note anything that you don’t understand.*** |
| **Activity:** | After, as you watch the tutorial about Prokaryotes and Eukaryotes:   * Draw pictures of prokaryotes and eukaryotes with their components * Bring your pictures to class so that you can participate in the conversation about sub cellular structures and their functions. |

|  |  |  |  |
| --- | --- | --- | --- |
| **IN CLASS ACTIVITY: SUB CELLULAR STRUCTURES AND THEIR FUNCTIONS** | | **60 minutes for search,** | **Ask the students what are the structures of the cell?**  **Distribute animal cell worksheets through email classroom group**  **Have the students use the** [animation](https://www.cellsalive.com/cells/cell_model_js.htm) to **fill out the worksheets**  Move around the class to ask students if they do have any questions. |
| **Purpose:** | To explore internal structure of prokaryotes and eukaryotes |
| **Over to you:** | Check your email , to see if you received the **animal cell worksheets**  Watch [the animation](https://www.cellsalive.com/cells/cell_model_js.htm) |
| **Activity** | 1. Sit according to your group members 2. Fill out [prokaryotes](Annexes/Prokaryotes%20Cell%20%20structure%20Worksheet.doc) **and** [eukaryotes](Annexes/Eukaryotes_Cell%20%20structure%20Worksheet.doc) **in the cell worksheets** |

|  |  |  |  |
| --- | --- | --- | --- |
| **LABORATORY PRACTICALS :Microscopic measurements** | | 120 minutes | Before this laboratory exercise takes place, make sure the materials specifies in the SOPs are available and the laboratory is prepared.  In Groups of 2 per table  students will use one light microscope .  Ask students  a) What is the function of a microscope  At the end of manipulation, each group must write down a short report. |
| **Purpose:** | To develop a working knowledge of the Microscope and its use. |
| **Over to you:** | This practical will focus on how to develop a working knowledge of the Microscope and its use.  Students should identify the different parts of the Microscope.  List and follow recommended procedures in using and caring for the Microscope. |
| **Activity** | List and follow recommended procedures in using and caring for the Microscope |

|  |  |  |  |
| --- | --- | --- | --- |
| **ASSESSMENT UNIT1.a** | | 10 minutes | These tests are being delivered electronically (on the LMS) |
| **Purpose:** | Take this assessment to check student understanding of the materials presented in this unit |
| **Over to you:** | **There is no minimum required score to pass this assessment, and your score on this assessment will not affect your overall module grade.**  **This assessment is designed to prepare you for the Final Exam that will determine your module grade.**  **Upon submission of your assessment you will be provided with the correct answers and/or other feedback meant to help in your understanding of the topics being assessed.**  **You may attempt this assessment as many times as needed, whenever you would like.** |
| **Activity:** | Multiple choices on the LMS |

**Anticipated time required for Unit 1\_2 activities :**

Theory : 2h all activities + 2h self-learning

Practical : 2h