**Kids’ Tech University Presents:**

**Cells**

**Introduction:**

Welcome, Instructors and Parents, to The Virtual Kids’ Tech University’s *Cells* Module! The goal of The Virtual Kids’ Tech University is to improve science literacy in primary education to ensure a strong STEM workforce of tomorrow. KTU targets elementary and middle school students at a critical point in their education where they may be intimidated by science and introduces them to a variety of fields through interactive modules and lessons online. This module, *Cells*, is designed to connect students, instructors, and the scientific method into a cohesive lesson that is both fun and interactive for students. While using KTU’s *Cells* module, students are taken through a virtual cell where they are given explanations, real-life images, and interactive activities to solidify their understanding of each objective in the module. This module can be applied in a formal setting or in an informal setting, allowing flexibility for both instructors and students.

**Incorporated 2012-2013 Virginia Standards of Learning**

This module incorporates the following Standards of Learning for 4th-7th Grade under the Virginia Standards of Learning; **Matter, Living Systems, and Cells.**

|  |  |  |
| --- | --- | --- |
| 5th Grade | 6th Grade | 7th Grade |
| * **5.4 c.** Atoms and elements * **5.4 d.** Molecules and compounds * **5.5 a.** Basic cell structures and functions | * **6.4 a.** Atoms consist of particles, including electrons, protons, and neutrons * **6.4 b.** Atoms of a particular element are alike but are different from atoms of other elements * **6.4 d.** Two or more atoms interact to form new substances, which are held together by electrical forces (bonds) | * **LS.2 a.** Cell structure and organelles * **LS.2 c.** Development of cell theory * **LS.2 d.** Cell division * **LS.3 a.** Cells, tissues, organs, and systems * **LS.3 b.** Patterns of cellular   organization and their  relationship to life processes in  living things |

**Included Lesson Materials:**

Included in this document are all of the tools you will need to complete this lesson with your class. The following materials are incorporated within this lesson:

* **Online Module Link** – The link for the online module provides access to the online version of the module, which includes the lesson, interactive activities, review games and more!
* **Online Jeopardy Game**: At the conclusion of the online module there is an interactive jeopardy game that asks students questions based on the content of the module. There is a “Quick” version (aimed at 4th-5th Graders) and a “Full” version (aimed at 6th-7th Graders).
* **Supplemental Instructor’s Notes** – In the Supplemental Materials section of this document there are Instructor’s Notes that provide additional information and key points for each page of the module. (These notes are also included in the PowerPoint document).
* **PowerPoint Lesson** – Provides identical information as the online module in the form of slides, to allow for a lecture-based lesson. The document also includes instructor’s notes in the notes section on PowerPoint.
* **Follow-Along Worksheet** – Guides students through the online module by giving step-by-step instructions and fill-in-the-blank sentences that coordinate directly with the information in the lesson.
* **Applied Learning Worksheet (Standard and Advanced Versions)** – Provides questions that help students review the information from the module and apply what they have learned. There are two different difficulty levels for the worksheets; standard and advanced.
* **Applied Learning Questions** – The questions asked in the online jeopardy game are also included in this document in the form of Applied Learning Questions. These can be used for testing students or reviewing.

**Instructions:**

This module can be employed in two different settings: via computer or as a lecture. This module is primarily designed for online use because of the interactive activities; however, this lesson plan also provides identical information to the online module in a PowerPoint document to be given as a lecture. When using the lesson in a lecture format, you will need to have the capability to project the PowerPoint document provided for this module on to a projector screen for the student(s), accompanying your verbal lecture. If the Lesson will be used via computer, make sure to run the program on a compatible web browser (Chrome, Safari, Firefox, and Internet Explorer 10+ are all compatible). If there is a default setting for the browser on the computer(s) you will be using, be sure to have the scripts unblocked before running the module.

At the conclusion of the online module, there will be a Jeopardy game, featuring a “quick” and “full” version. The quick version features fewer and simpler questions, whereas the full version incorporates more questions, all of which are slightly more difficult. It is highly encouraged that when your students play this, they pay attention to the link that will appear on the boxes of questions they answer incorrectly. These links will take them to the page that explains the question they just missed, allowing them a final opportunity to learn the material before moving on to the rest of the game.