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| |  | | --- | | https://peer.tamu.edu/curriculum_modules/Water_Quality/images/teach.jpg |  |  |  | | --- | --- | | **TEKS for Middle School Science and High School Biology** | **How the TEKS are Integrated into the Lesson** | | **6.1A, 7.1A, 8.1A, B.1A** Demonstrate safe practices during laboratory and field investigations as outlined in Texas Education Agency approved safety standards | During the **Activities,** students will be required to use safe practices. | | **6.1B, 7.1B, 8.1B, B.1B** Practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials | During the **Activities,** students will practice appropriate use and conservation of resources. | | **6.2A, 7.2A, 8.2A, B.2E** Plan and implement comparative and descriptive investigations by making observations, asking well defined questions, and using appropriate equipment and technology | During the **Activities,** students will implement comparative and descriptive investigations. | | **6.2C, 7.2C, 8.2C, B.2F** Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers | During the **Activities,** students will collect and record data. | | **6.2E, 7.2E, 8.2E, B.2G** Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends | During the **Activities,** students will analyze data. | | **6.3A, 7.3A, 8.3A** Analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student. | In the **How We Find Out** section of this unit**,**students will learn scientific explanations including the hypotheses, quoted along with examples. They will be asked to analyze and evaluate those explanations by the use of questions embedded in the unit. | | **6.3D, 7.3D, 8.3D, B.3D, B.3F** Relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content | Throughout the unit and in the **Story Time** section, the history of science and contributions of scientists as related to the content is presented. | | **6.4A,B, 7.4A,B, 8.4A,B, B.2F** The student knows how to use a variety of tools. The student will use preventative safety equipment. | Throughout the **Activities,** students will use laboratory tools and safety equipment as needed. | | **7.12 D** Differentiate between structure and function in plant and animal cells organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole | In the **Why it Matters**, **How We Know**, and **What We Know** sections, the nucleus of the cell is mentioned and shown as the place where the genes are located. The Golgi body, ribosome, and endoplasmic reticulum are mentioned for their part in protein synthesis. | | **7.14 A** define heredity as the passage of genetic instructions from one generation to the next generation | Heredity is discussed and defined in the **Why it Matters** section and the **How We Know** section. This entire lesson discusses heredity from basic to complex. | | **7.14C** recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus | In the **How We Know** section, the process of discovering what genes are is discussed. Genes and their role in protein synthesis are mentioned throughout the lesson. | | **B.6A** identify components of DNA, identify how information for specifying the traits of an organism is carried in the DNA, ~~and examine scientific explanations for the origin of DNA~~ | DNA structure and function is taught in the **How We Know** and the **What We Know** portions of this lesson. |  | | **B.6B** recognize that components that make up the genetic code are common to all organisms | The **What We Know** section discusses a comparison of human genetic components with the genetic components of other living organisms. | | **B.6C** explain the purpose and process of transcription and  translation using models of DNA and RNA | The **What We Know** section details the process of transcription and translation. The **Activities** include modeling of these processes. | | **B.6D** recognize that gene expression is a regulated process | Throughout the unit, the regulation of genes is brought up in relation to which genes are expressed in offspring. | | **B.9A** Compare the functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids; | This unit goes into to detail in the **What We Know** and **How We Know** sections about the processes of transcription and translation and how DNA and RNA are structured and how they code for protein in the cell. |  |  |  | | --- | --- | | **Next Generation Science Standards**  **Disciplinary Core Ideas** | **How the NGSS are Integrated** **into the Lesson** | | **MS-LSI.A Structure and Function**  **MS-LS1-2** Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. | In the **How We Know** and **What We Know** sections, the nucleus is defined and illustrated. Its function is described in detail. | |