LHISD - *Makerspace 7/8*

Year-at-a-Glance

***Sequencing/ projects may change due to materials and equipment.**

Unit Number	Six Weeks	Title of Unit	Teaching Focus	Student Outcomes
1	1	**Hands-On Engineering: Building Tomorrow's Innovators**	• Introducing middle school students to the design process through engaging building situations • Empower students to become confident and innovative thinkers	• Demonstrate an understanding of the design process • Apply critical thinking skills to identify problems, generate creative solutions, and evaluate the effectiveness of their designs
2	1-2	**Guardians of Our Planet: Exploring Conservation Science**	• Introducing students to conservation of the environment, animals, and marine life. • Empower students to become advocates in saving our planet	• Students will develop a comprehensive understanding of key concepts in conservation science, including biodiversity, habitat preservation, sustainability, and the interdependence of human and natural systems. • Students will engage in hands-on inquiry-based activities and collaborative projects to apply scientific methods and critical thinking skills to real-world conservation challenges, demonstrating their ability to analyze environmental issues, propose evidence-based solutions, and communicate their findings effectively.
3	2	**Physics Explorers: Unraveling the Mysteries of the Universe**	• Introducing students to different types of energy and motion • Empower students to be creative and use physics in everyday life	• Students will develop a comprehensive understanding of key physics concepts, including mechanics and modern physics, through hands-on exploration and inquiry-based learning activities. • Students will demonstrate their proficiency in scientific inquiry by designing and conducting experiments, accurately interpreting data, evaluating the validity of scientific claims, and communicating their findings effectively through written reports, oral presentations, and collaborative discussions.
4	3	**Chemical Creators: Exploring the Wonders of Chemistry**	• We will explore the fundamental principles and real-world applications of chemistry through hands-on laboratory experiments and creative projects. • Students will gain a deep understanding of chemical reactions, the properties of matter, and the scientific processes that drive these changes.	• Demonstrate an understanding of key concepts related to chemical reactions, including reactants, products, and chemical equations. • Conduct and document a variety of chemical experiments, accurately observing and analyzing the changes that occur. • Explain the chemical principles underlying everyday phenomena, such as the

			• Our goal is to foster curiosity, critical thinking, and scientific literacy, empowering students to connect classroom learning with the world around them.	decomposition of organic matter and the formation of polymers. • Apply their knowledge of the periodic table to investigate and present information about specific elements and their properties. • Develop critical thinking and problem-solving skills through experimental design and analysis. • Communicate their findings effectively through written reports, presentations, and creative projects that showcase their understanding of chemical reactions and the properties of matter.
5	3	**Atmospheric Explorers: Understanding Weather and Climate**	• Engage students in interactive learning by incorporating hands-on experiments and activities that explore the elements and phenomena of weather. This will help students directly observe and understand the principles of meteorology and weather patterns. • Emphasize the real-world applications of weather science by teaching students how to interpret weather data and make informed predictions. Develop their critical thinking skills by analyzing weather patterns and understanding the impacts of severe weather events.	• Students will be able to identify and explain the different elements of weather, including temperature, humidity, wind speed, and atmospheric pressure, and describe how these elements interact to form various weather patterns. • Students will be able to analyze weather data, use forecasting tools to predict future weather conditions, and understand the importance of weather preparedness and safety in the face of severe weather events.
6	4	**Medical Marvels: Exploring Human Health**	• Facilitate student understanding of vital signs by providing hands-on activities and real-world examples, enabling students to accurately measure and interpret these indicators of human health. • Guide students through the complexities of viruses, bacteria, and foodborne pathogens, fostering critical thinking and research skills as they investigate common illnesses and their impacts on human health.	• Students will develop the ability to measure and analyze vital signs, gaining insight into their importance in monitoring and maintaining human health. • Students will engage in research to understand the characteristics and effects of viruses, bacteria, and foodborne pathogens, culminating in a comprehensive study of a common illness and its implications for public health.
7	4-5	**Makey Makey Exploration**	• Facilitate students' exploration of basic circuitry and interactive design using Makey Makey, providing guidance and support as they experiment with creating innovative projects. • Encourage creative problem-solving and critical thinking by challenging students to develop unique applications of Makey Makey technology that demonstrate their understanding of electrical conductivity and input/output systems.	• Develop an understanding of how Makey Makey works by creating circuits and using everyday objects to interact with computer programs, enhancing their knowledge of electrical conductivity. • Engage in hands-on projects that apply Makey Makey technology to solve real-world problems or create interactive experiences, fostering creativity and practical application of STEM concepts.
8	5	**Mechanical Marvels: Discovering Simple**	• Teachers will facilitate hands-on activities and experiments that allow students to explore the mechanics and principles	• Students will engage in hands-on experiments to understand how simple machines like levers, pulleys, and inclined planes work, and how

		Machines	behind simple machines, ensuring that each student can identify and explain the function of each type of simple machine. • Teachers will guide students through the engineering design process as they conceptualize, build, and refine their Rube Goldberg machines, providing support and feedback to help students effectively document their work and solve any design challenges that arise.	these machines can be combined to create more complex systems. • Students will collaborate in teams to design, build, and present a Rube Goldberg machine that solves a specific problem, using at least three different types of simple machines and documenting their process in an Engineering Design Process Notebook.
9	5-6	**Service Heroes: Making a Difference Through Action**	• Teachers will guide students through the process of identifying and researching a significant global problem, emphasizing critical thinking and the use of reliable sources. • Teachers will support students in the design, creation, and presentation of their prototype solutions, ensuring that they understand the engineering design process and the importance of clear communication and documentation.	• Students will investigate and research a global problem, applying critical thinking skills to understand its complexities and impact. • Students will collaborate to design and build a prototype solution, develop a comprehensive presentation, and create a company brand to effectively communicate their innovative ideas.
10	6	**Career Quest: Exploring Pathways to Success**	• Teachers will facilitate student exploration of various STEM careers, providing resources and guidance to help students understand the educational paths, skills, and job responsibilities associated with each career. • Teachers will encourage students to reflect on their own interests and strengths, guiding them to research and present on STEM careers that align with their personal goals and aspirations.	• Students will research a variety of STEM careers, gathering information about the required education, skills, job outlook, and daily responsibilities associated with each career. • Students will present their findings on a selected STEM career, creating an engaging and informative presentation that highlights why the career interests them and how it fits with their future aspirations.