HOUSTON MUSEUM
of NATURAL SCIENCE

Texas Essential Knowledge and Skills

WIESS ENERGY HALL

UPDATED OCTOBER 2024

Thank you for choosing the Houston Museum of Natural Science for your class field trip. We are delighted to have the opportunity to enrich your students' learning experience. To simplify planning your trip, we have provided the Texas Essential Knowledge and Skills (TEKS) for the Wiess Energy Hall by grade level. This resource is designed to help you align your trip with your curriculum, ensuring your visit is educational and enjoyable.

We look forward to welcoming you and your students for an unforgettable journey through the wonders of discovery.

For help with high school TEKS, please email curriculum@hmns.org.

Kindergarten

Science1.A

The student is expected to ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

The hall features detailed models of geological formations, drilling rigs, and energy extraction processes. These models give students a tangible understanding of complex concepts, allowing them to observe and question how different components interact.

Science 4.A

The student is expected to explain how science or an innovation can help others.

Students can learn about energy generation, transformation, and practical applications of scientific concepts. The exhibit explores the history of energy usage and innovations, highlighting technological progression and societal impacts. It also showcases modern energy solutions, including renewable sources like wind and solar power, addressing global challenges such as climate change and energy sustainability.

Science 4.B

The student is expected to identify scientists and engineers such as Isaac Newton, Mae Jemison, and Ynes Mexia and explore what different scientists and engineers do.

The hall showcases real-world engineering applications, including sustainable energy systems and extraction methods. Multimedia presentations provide visual and auditory learning experiences and offer insights into engineering careers within the energy sector.

Science 5.E

The student is expected to identify forms of energy and properties of matter.

The exhibit showcases how different forms of energy are harnessed and utilized in everyday life, from powering homes with solar energy to the workings of wind turbines.

Science 10.A

The student is expected to describe and classify rocks by the observable properties of size, shape, color, and texture.

The exhibit allows students to observe and compare different rock samples. They can feel the texture and examine the size and shape of rocks up close. Displays are accompanied by text panels that describe various properties, which the teacher or chaperone can interpret for the students.

1st Grade

Science 1.A

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Science 4.A

The student is expected to explain how science or an innovation can help others.

The exhibit explores the history of energy usage and innovations, highlighting technological progression and societal impacts. It also showcases modern energy solutions, including renewable sources like wind and solar power, addressing global challenges such as climate change and energy sustainability.

Science 4.B

The student is expected to identify scientists and engineers such as Katherine Johnson, Sally Ride, and Ernest Just and explore what different scientists and engineers do.

The hall showcases real-world engineering applications, including sustainable energy systems and extraction methods. Multimedia presentations provide visual and auditory learning experiences and offer insights into engineering careers within the energy sector.

Science 5.E

The student is expected to identify forms of energy and properties of matter.

The exhibit showcases how different forms of energy are harnessed and utilized in everyday life, from powering homes with solar energy to the workings of wind turbines.

Science 6.A

The student is expected to classify objects by observable physical properties, including, shape, color, and texture, and attributes such as larger and smaller and heavier and lighter.

The exhibit features different types of rocks, and students can compare and contrast their colors, shapes, and textures. Scale models and simulations help students understand the concepts of size and weight, including a hands-on interactive demonstrating the viscosity of different crude oils.

2nd Grade

Science1.A

The student is expected to ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

The hall features detailed models of geological formations, drilling rigs, and energy extraction processes. These models give students a tangible understanding of complex concepts, allowing them to observe and question how different components interact.

Science 4.A

The student is expected to explain how science or an innovation can help others.

The exhibit explores the history of energy usage and innovations, highlighting technological progression and societal impacts. It also showcases modern energy solutions, including renewable sources like wind and solar power, addressing global challenges such as climate change and energy sustainability.

Science 4.B

The student is expected to identify scientists and engineers such as Alexander Graham Bell, Marie Daly, Mario Molina, and Jane Goodall and explore what different scientists and engineers do.

The hall showcases real-world engineering applications, including sustainable energy systems and extraction methods. Multimedia presentations provide visual and auditory learning experiences and offer insights into engineering careers within the energy sector.

Science 5.E

The student is expected to identify forms of energy and properties of matter.

The exhibit showcases how different forms of energy are harnessed and utilized in everyday life, from powering homes with solar energy to the workings of wind turbines.

Science 11.A

The student is expected to distinguish between natural and manmade resources.

Videos, animations, and multimedia tools illustrate how natural resources like oil are extracted and processed into manmade products that we use every day.

3rd Grade

Science 1.A

The student is expected to ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

Realistic Models: The hall features detailed models of geological formations, drilling rigs, and energy extraction processes. These models give students a tangible understanding of complex concepts, allowing them to observe and question how different components interact.

Science 4.A

The student is expected to explain how scientific discoveries and innovative solutions to problems impact science and society.

The exhibit explores the history of energy usage and innovations, highlighting technological progression and societal impacts. It also showcases modern energy solutions, including renewable sources like wind and solar power, addressing global challenges such as climate change and energy sustainability.

Science 4.B

The student is expected to research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.

Seeing the work of scientists and engineers can inspire students to pursue careers in STEM fields. Exhibits often highlight the contributions of diverse professionals, motivating students to consider how they might use their skills to make a positive impact in the world.

Science 5.E

The student is expected to investigate the flow of energy and cycling of matter through systems.

The hall features installations that allow students to engage with energy production, transformation, and consumption concepts. These exhibits include components demonstrating how energy flows through different systems, such as circuits and electrical grids.

Science 8.A

The student is expected to identify everyday examples of energy, including light, sound, thermal, and mechanical.

Students can interact with displays that show how electricity is generated and used to power homes and businesses. This includes everything from the oil and gas industry to renewable energy sources like wind and solar power.

Science 11.A

The student is expected to explore and explain how humans use natural resources such as in construction, in agriculture, in transportation, and to make products.

The hall provides information on the various stages of petroleum production, from geological formation to extraction and refinement. A display in the exhibit highlights the transformation of crude oil into many products, such as plastics, pharmaceuticals, and fuels we use daily.

Science 11.B

The student is expected to explain why the conservation of natural resources is important.

By exploring topics like renewable energy sources and sustainable practices, students gain insight into how alternative energy sources can mitigate environmental damage and ensure a more sustainable future.

4th Grade

Science 1.A

The student is expected to ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

The hall features models of geological formations, drilling rigs, and energy extraction processes. These models give students a tangible understanding of complex concepts, allowing them to observe and question how different components interact.

Science 4.A

The student is expected to explain how scientific discoveries and innovative solutions to problems impact science and society.

The exhibit explores the history of energy usage and innovations, highlighting technological progression and societal impacts. It also showcases modern energy solutions, including renewable sources like wind and solar power, addressing global challenges such as climate change and energy sustainability.

Science 4.B

The student is expected to research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.

Seeing the work of scientists and engineers can inspire students to pursue careers in STEM fields. Exhibits often highlight the contributions of diverse professionals, motivating students to consider how they might use their skills to make a positive impact in the world.

Science 5.E

The student is expected to investigate how energy flows and matter cycles through systems and how matter is conserved.

The hall features installations that allow students to engage with energy production, transformation, and consumption concepts. These exhibits include components demonstrating how energy flows through different systems, such as circuits and electrical grids.

Science 8.B

The student is expected to identify conductors and insulators of thermal and electrical energy.

The Powerplays music videos in the hall offer students a dynamic and engaging way conductors and insulators.

Science 11.A

The student is expected to identify and explain advantages and disadvantages of using Earth's renewable and nonrenewable natural resources such as wind, water, sunlight, plants, animals, coal, oil, and natural gas.

The exhibit includes a section on renewable resources such as wind, water, and solar energy. Students can learn about the advantages and potential issues associated with each resource. The exhibit also covers coal, oil, and natural gas, exploring the advantages and disadvantages of each.

Science 11.C

The student is expected to determine the physical properties of rocks that allow Earth's natural resources to be stored there.

The exhibit in the hall showcases displays that illustrate how a rock's porosity, which refers to its amount of space, influences its capacity to store fluids such as water, oil, and natural gas. It also explains how salt domes can serve as reservoirs for trapping oil and natural gas.

5th Grade

Science 1.A

The student is expected to ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

The hall features models of geological formations, drilling rigs, and energy extraction processes. These models give students a tangible understanding of complex concepts, allowing them to observe and question how different components interact.

Science 4.A

The student is expected to explain how scientific discoveries and innovative solutions to problems impact science and society.

The exhibit explores the history of energy usage and innovations, highlighting technological progression and societal impacts. It also showcases modern energy solutions, including renewable sources like wind and solar power, addressing global challenges such as climate change and energy sustainability.

Science 4.B

The student is expected to research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.

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Science 5.E

The student is expected to investigate how energy flows and matter cycles through systems and how matter is conserved.

The hall features installations that allow students to engage with energy production, transformation, and consumption concepts. These exhibits include components demonstrating how energy flows through different systems, such as circuits and electrical grids.

Science 8.A

The student is expected to investigate and describe the transformation of energy in systems such as energy in a flashlight battery that changes from chemical energy to electrical energy to light energy.

The Powerplays music videos in the hall offer students a dynamic and engaging way to learn about energy transformation.

Science 8.B

The student is expected to demonstrate that electrical energy in complete circuit can be transformed into motion, light, sound, or thermal energy and identify the requirements for a functioning electrical circuit.

The Powerplays music videos in the hall use vibrant animations and dynamic visuals to illustrate how electrical energy flows through a circuit and transforms into different forms of energy.

Science10.B

The student is expected to model and describe the processes that formed sedimentary rocks and fossil fuels.

The exhibit includes examples and samples of sedimentary rocks and fossil fuels, allowing students to observe and touch the materials. Additionally, oversized models of the microscopic organisms that comprise petroleum are on display, helping students understand how fossil fuels form.

6th Grade

Science 1.A

The student is expected to ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

The hall features detailed models of geological formations, drilling rigs, and energy extraction processes. These models give students a tangible understanding of complex concepts, allowing them to observe and question how different components interact.

Science 4.C

The student is expected to research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.

Seeing the work of scientists and engineers can inspire students to pursue careers in STEM fields. Exhibits often highlight the contributions of diverse professionals, motivating students to consider how they might use their skills to make a positive impact in the world.

Science 5.E

The student is expected to analyze and explain how energy flows and matter cycles through systems and how energy and matter are conserved through a variety of systems.

The hall features installations that allow students to engage with energy production, transformation, and consumption concepts. These exhibits include components demonstrating how energy flows through different systems, such as circuits and electrical grids.

Science10.B

The student is expected to model and describe the layers of Earth, including the inner core, outer core, mantle, and crust.

The Geovator is an interactive exhibit that simulates an elevator ride through the Earth's layers, from the crust to the molten core. It provides insights into geological processes and the dynamic systems beneath the Earth's surface. In addition, the exhibit includes a Plate Tectonics interactive for experimenting with tectonic plate movement.

7th Grade

Science 1.A

The student is expected to ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

The hall features detailed models of geological formations, drilling rigs, and energy extraction processes. These models give students a tangible understanding of complex concepts, allowing them to observe and question how different components interact.

Science 4.C

The student is expected to research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.

Seeing the work of scientists and engineers can inspire students to pursue careers in STEM fields. Exhibits often highlight the contributions of diverse professionals, motivating students to consider how they might use their skills to make a positive impact in the world.

Science 5.E

The student is expected to analyze and explain how energy flows and matter cycles through system and how energy and matter are conserved through a variety of systems.

The hall features installations that allow students to engage with energy production, transformation, and consumption concepts. These exhibits include components demonstrating how energy flows through different systems, such as circuits and electrical grids.

Science 10.A

The student is expected to describe the evidence that supports that Earth has changed over time, including fossil evidence, plate tectonics, and superposition.

The exhibit includes a plate tectonics interactive that allows students to experiment with how the plates move over millions of years. Graphic texts in the area also address how the Earth has changed over time.

Science 10.B

The student is expected to describe how plate tectonics causes ocean basin formation, earthquake, mountain building, and volcanic eruptions, including supervolcanoes and hot spots.

The exhibit includes a plate-tectonics interactive that allows students to experiment with how the plates move over millions of years and contribute to creating a variety of formations and phenomena.

8th Grade

Science 1.A

The student is expected to ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

The hall features detailed models of geological formations, drilling rigs, and energy extraction processes. These models give students a tangible understanding of complex concepts, allowing them to observe and question how different components interact.

Science 4.C

The student is expected to research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.

Seeing the work of scientists and engineers can inspire students to pursue careers in STEM fields. Exhibits often highlight the contributions of diverse professionals, motivating students to consider how they might use their skills to make a positive impact in the world.

Science 5.E

The student is expected to analyze and explain how energy flows and matter cycles through systems and how energy and matter are conserved through a variety of systems.

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