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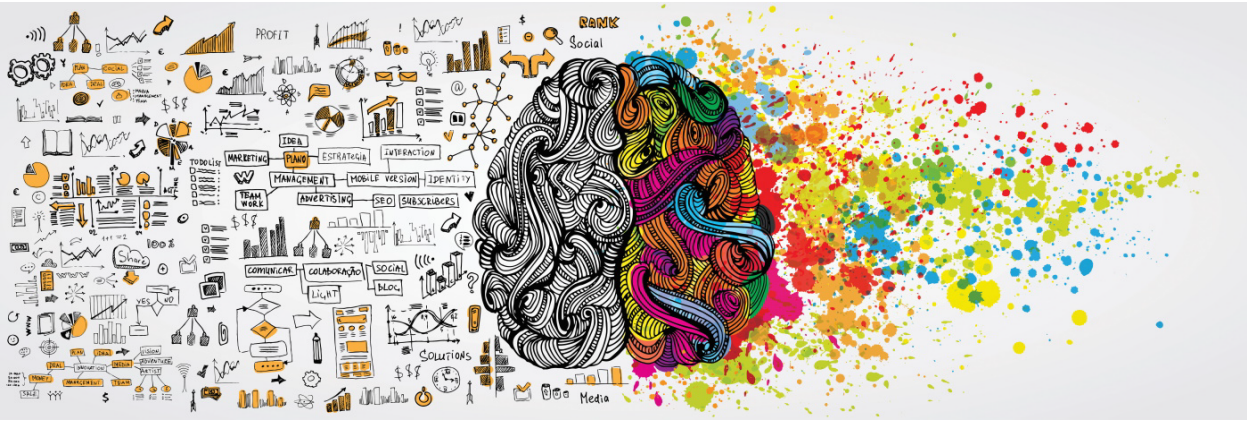

STEM Art

This unit contains several different lessons about integrating Art into STEM curriculum. Lessons are written for kindergarten through 5th grade.

Science and Art don't seem to have that much in common but if you dig a little deeper you will discover that science and art are not that separate. Adding art to STEM curriculum helps to discover and create ingenious ways of problem solving, integrating principles, and presenting information.

All supplies needed for the lessons are provided in the trunk.

Digital copies of handouts and video links used in the lessons can also be found at www.petroleummuseum.org.

The STEM Art Trunk is sponsored by:

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TEKS:

Science, Kindergarten, Adopted 2021.

(b) Knowledge and skills.

(1) Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and Models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

(E) collect observations and measurements as evidence.

(5) Recurring themes and concepts. The student uses recurring themes and concepts to make connections across disciplines. The student is expected to:

(A) identify and use patterns to describe phenomena or design solutions.

(B) investigate and predict cause-and-effect relationships in science.

(G) describe how factors or conditions can cause objects, organisms, and systems to either change or stay the same.

(6) Matter and its properties. The student knows that objects have physical properties that determine how they are described and classified. The student is expected to identify and record observable physical properties of objects, including shape, color, texture, and material, and generate ways to classify objects.

(7) Force, Motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull.

Science, Grade 1, Adopted 2021.

(b) Knowledge and skills.

(1) Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

(E) collect observations and measurements as evidence.

(5) Recuring themes and concepts. The student uses recurring themes and concepts to make connections across disciplines. The student is expected to:

(A) identify and use patterns to describe phenomena or design solutions.

(B) investigate and predict cause-and-effect relationships in science.

(G) describe how factors or conditions can cause objects, organisms, and systems to either change or stay the same.

(6) Matter and its properties. The student knows that objects have physical properties that determine how they are described and classified. The student is expected to:

(A) classify objects by observable physical properties, including, shape, color, and texture, and attributes such as larger and smaller and heavier and lighter.

(7) Force, motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to:

(A) explain how pushes and pulls can start, stop, or change the speed or direction of an object's motion.

(B) plan and conduct a descriptive investigation that predicts how pushes and pulls can start, stop, or change the speed or direction of an object's motion.

Science, Grade 2, Adopted 2021.

(b) Knowledge and skills.

(1) Scientific and engineering practices. The students ask questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

(B) use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems.

(3) Scientific and engineering practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

(B) communicate explanations and solutions individually and collaboratively in a variety of settings and formats.

(C) listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion.

(5) Recurring themes and concepts. The student uses recurring themes and concepts to make connections across disciplines. The student is expected to:

(A) identify and use patterns to describe phenomena or design solutions.

(B) investigate and predict cause-and-effect relationships in science.

(6) Matter and its properties. The student knows that matter has physical properties that determine how it is described, classified, and used. The student is expected to:

(B) Conduct a descriptive investigation to explain how physical properties can be changed through processes such as cutting, folding, sanding, melting, or freezing.

(7) Force, motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to:

(A) explain how objects push on each other and may change shape when they touch or collide; and

(B) plan and conduct a descriptive investigation to demonstrate how the strength of a push and pull changes an object's motion.

Science, Grade 3, Adopted 2021.

(b) Knowledge and skills.

(1) Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

(3) Scientific and engineering practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

(B) communicate explanations and solutions individually and collaboratively in a variety of settings and formats.

(C) listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion.

(5) Recurring themes and concepts. The student understands that recurring themes and concepts provide a framework for making connections across disciplines. The student is expected to:

(A) identify and use patterns to explain scientific phenomena or to design solutions.

(B) identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.

(7) Force, motion, and energy. The student knows the nature of forces and the patterns of their interactions. The student is expected to:

(A) demonstrate and describe forces acting on an object in contact or at a distance, including magnetism, gravity, and pushes and pulls; and

(B) plan and conduct a descriptive investigation to demonstrate and explain how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons.

Science, Grade 4, Adopted 2021.

(b) Knowledge and skills.

(1) Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

(5) Recurring themes and concepts. The student understands that recurring themes and concepts provide a framework for making connections across disciplines. The student is expected to:

(A) identify and use patterns to explain scientific phenomena or to design solutions.

(B) identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.

(7) Force, motion, and energy. The student knows the nature of forces and the patterns of their interactions. The student is expected to plan and conduct descriptive investigation to explore the patterns of forces such as gravity, friction, or magnetism in contact or at a distance on an object.

Science, Grade 5, Adopted 2021.

(b) Knowledge and skills

(1) Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:

(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations.

(5) Recuring themes and concepts. The student understands that recuring themes and concepts provide a framework for making connections across disciplines. The student is expected to:

(A) identify and use patterns to explain scientific phenomena or to design solutions.

(B) identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.

(7) Force, motion, and energy. The student knows the nature of forces and the patterns of their interactions. The student is expected to:

(A) investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy.

(8) Force, Motion, and energy. The student know that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to:

(A) investigate and describe that transformation of energy in systems such as energy in a flashlight battery that changes from chemical energy to electrical energy to light energy.

(B) demonstrate that electrical energy in complete circuits can be transformed into motion, light, sound, or thermal energy and identify the requirements for a functioning electrical circuit.