

CRM 2 La materia es importante**Administración**

- 20 days
- Sept.17-Oct. 12
- Week 4-7

RESULTADOS ESPERADOS**Formando Conceptos**

The study of matter and energy can be used to explain and predict a large variety of phenomena. These concepts build a foundation for various strands of secondary science including: Atoms and Molecules, Conservation of Matter, States of Matter, and Chemical Reactions. In addition, understanding physical properties of matter helps students understand concepts in Earth, space, and life science.

The following make meaning valuable for learners and are investigated in this unit:

- Matter may be described by its physical properties (color, size, shape, mass, texture, flexibility, etc.) and the materials it is made of.
- Most objects are made of parts that work together and operate differently than the parts themselves.
- Some materials have similar properties, but also have distinct properties.
- Materials are made of particles that are too small to be seen without magnification.
- Heating and cooling cause changes to the properties of materials.
- Most substances can exist as a solid, liquid, or gas depending on the amount of heat energy.

Transferencia: Students will use inquiry to investigate physical properties of matter and use these properties to describe and communicate their thinking. Students will be able to identify and categorize the typical states of matter (solid and liquid) according to similarities and differences. They will predict how heating and cooling can cause changes to matter. Students will use critical thinking skills and problem solving while working cooperatively to investigate mixtures and solutions.

Entendimiento perdurable:

- La materia en todas formas puede ser medida, clasificada, y transformada.
- La energía provoca cambios en las propiedades de la materia.

Preguntas Esenciales:

- ¿Cómo se describe y compara la materia?
- ¿Qué provoca los cambios en la propiedad de la materia?

Vocabulario Esencial

- change of state/ cambio de estado
- combine/ combinar
- condensation / condensación
- dimension/dimensión
- float/ flotar
- function/ función
- intervals/ intervalos
- magnetism / magnetismo
- matter/material
- measure/medida
- melt / derretir
- mixture/mezcla
- particle/partícula
- physical change/cambio físico

- physical properties / propiedades físicas
- screen/tamiz
- separate/separar
- shape of their container / forma de su recipiente
- sift/tamizar
- sink/ hundir, sumergir
- solution/solución
- states of matter/estados de la materia
- temperature/ temperatura
- test /prueba
- texture/textura
- volume/volumen
- water vapor/vapor de agua

Vocabulario de apoyo

- [Vocabulario de apoyo para las escuelas primarias](#)

Requisitos de conocimiento previo del estudiante:

Students should know:

- matter is something that takes up space and has mass.
- matter is classified, changed and used because of its properties.
- physical properties include mass, volume, magnetism, physical state, density and solubility in water.
- matter can be in a solid state, a liquid state, or a gaseous state.
- changes in heat energy can cause matter to change state.
- adding enough heat energy to a solid so that it changes to a liquid is a process called melting.
- adding enough heat energy to a liquid so that it changes to a gas is called evaporation.
- evaporation of liquid water goes on constantly, even in cold places.
- water vapor returning to a liquid state is called condensation.
- different types of matter can be mixed together.
- in some mixtures we can still observe the ingredients, and their physical properties do not change.
- the volumes of ingredients might not add up when they make a mixture because there may be more space between particles of some ingredients.
- the mass of each ingredient does add up when they make a mixture because there is not more or less stuff.
- we use the properties of matter and its mixtures to make decisions on how to use it.

Recursos Kit del módulo de AISD, Carpeta de lecciones modelo, [STEMscopes](#), Libros electrónicos: Libros nivelados de ciencias de Envisions, Texto de Scott Foresman, [Recursos para el cuaderno de ciencias](#), [BrainPop Jr.](#), [Discovery Education](#), [Recursos y Estrategias de Diferenciación](#)

ELPS: Bajo el mandato del Código Administrativo de Texas (19 TAC §74.4), haz clic en el enlace [English Language Proficiency Standards \(ELPS\)](#) para proporcionar apoyo a los Aprendices del Idioma Inglés.

TEKS Conocimientos y Destrezas

STAAR: RC = Área de Conocimientos; DC = Destrezas de Doble Codificación; **Estándar de Preparación Esencial**; **Estándar de Apoyo**, **Conceptos** son tratados en otra unidad.

Adquisición Conocimientos y Destrezas Importantes

Los estudiantes conocerán

Los estudiantes serán capaces de

4.5: Materia y energía. El estudiante entiende que la materia tiene propiedades físicas que se pueden medir y estas propiedades determinan cómo la materia es clasificada, cambiada y usada. Se espera que el estudiante:

4.5A: mida, compare y contraste las propiedades físicas de la materia, incluyendo tamaño, masa, volumen, estados (sólido, líquido y gaseoso), temperatura, magnetismo y la habilidad para hundirse o flotar.

- Matter is something that takes up space and has mass.
- Matter has properties that can be observed.
- Magnetism is a property of some types of matter. Matter that is magnetic will be attracted to a magnet.
- Common magnetic materials are iron and materials that contain iron, such as steel;
- We can measure physical properties of matter using scientific tools. (Each tool has a separate lesson.)
- We need to determine the intervals on scales in order to read them correctly.
- How well an object floats in water depends on its mass per unit volume, or density.

- Decide and justify if examples describe “matter.”
- Exemplify, describe, apply to classify and re-classify by properties.
- Organize and represent information gained from testing magnetic and non-magnetic materials.
- Determine intervals on scales.
- Sort tools in teams to match with measurement uses.
- Predict mass and measure objects on balances.
- Use metric rulers and meter sticks to determine distance, length, width and height.
- Compare example objects by one and multiple dimensions.
- Estimate then measure water using liters and milliliters.
- Sort equal-sized objects by perceived mass, then confirm.
- Predict then investigate and

		<p>compare objects by their floatability in water.</p> <ul style="list-style-type: none"> • Measure with thermometers, then investigate and explain some objects' differences in temperature. • Explore and explain that materials in a room are (usually) the same temperature as the room, though they may feel cooler or warmer.
<p>4.5B: haga predicciones de los cambios causados por el calor o el frío, tales como cuando el hielo se convierte en agua líquida y la condensación que se forma en la parte de afuera de un vaso con agua helada.</p>	<ul style="list-style-type: none"> • The properties of size and floating of matter can be changed by forces like squeezing or tearing, but the type of matter does not change. • Matter can be in a solid state, a liquid state, or a gaseous state. • Changes in heat energy can cause matter to change state. • Adding enough heat energy to a solid so that it changes to a liquid is a process called melting. • Adding enough heat energy to a liquid so that it changes to a gas is called evaporation. • Evaporation of liquid water goes on constantly, even in cold places; • When heat energy of 100°C is added to liquid water it begins to vaporize. • When air contains tiny bits of water from evaporation or vaporization we say the air is humid or moist. • Water particles can stay in air until enough heat energy is removed that the vapor turns back to a liquid. • Water vapor returning to a liquid state is called condensation. • Almost every type of matter changes state (phase) when adding or taking away enough heat energy. • The changing of solid, liquid, and gas states of water on Earth due to adding or removing heat energy is a pattern in nature that goes on continuously. • We call that pattern the water cycle, and it is caused by energy from the Sun. 	<ul style="list-style-type: none"> • Describe matter that is solid, liquid, and gas at room temperature. • Sort ideas to predict how solid water may change under different amounts of heat energy. • Plan and carry out an investigation on melting rate and explain results. • Apply given melting and evaporation point data.

<p>4.5C: compare y contraste una variedad de mezclas y soluciones, tales como rocas en arena, arena en agua o azúcar en agua.</p>	<ul style="list-style-type: none"> • Different types of matter can be mixed together. • In some mixtures we can still observe the ingredients, and their physical properties do not change. • The volumes of ingredients might not add up when they make a mixture because there may be more space between particles of some ingredients. • The mass of each ingredient does add up when they make a mixture because there is not more or less stuff. • Matter is made up of small particles. • Mixtures in which one material dissolves in another are called solutions. • Solutions can have a solid dissolved in a liquid, like sugar water, a liquid dissolved in a gas, like fog, or solids dissolved in a gas, like smoke. • We use the properties of matter and its mixtures to make decisions on how to use it. 	<ul style="list-style-type: none"> • Observe, sort, and classify mixtures and solutions. • Describe classification schemes. • Design and evaluate some ways to test a mixture to find out more about its ingredients and properties. • Measure and compare volumes and masses of ingredients before and after mixing. • Apply experience and knowledge about properties of matter to make decisions.
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El estudio de las Ciencias se enseña a través de la perspectiva de los [Procesos Científicos \(TEKS 4.1-4.4\)](#) por lo tanto, los Conocimientos y Destrezas Esenciales de Texas (TEKS) deberán enseñarse en conjunto con el contenido durante el transcurso del año. Sugerencias para integrar los TEKS en cada unidad se ofrecen en el Itinerario Anual; sin embargo, los TEKS que se pueden tratar dentro de una unidad dependen en gran parte de las actividades de aprendizaje en que están participando los estudiantes. Por esta razón, el maestro debe considerar las actividades que se emplearán con los estudiantes para asegurar que todos los Procesos Científicos TEKS estén debidamente incorporados durante el curso. En el cuarto grado, se recomienda a los distritos que faciliten la realización de investigaciones en el laboratorio y de campo por lo menos en 50 por ciento de tiempo de instrucción.

EVIDENCIA DE EVALUACIÓN	
Productos del trabajo del estudiante/evidencia de evaluación	
Actividades de Desempeño Académico	Otras pruebas o evidencia (ej. exámenes de unidad, exámenes con preguntas abiertas, tipo ensayo, pruebas breves, ejemplos de trabajo diario del estudiante, observaciones, etc.)
<ul style="list-style-type: none"> • Classification as Matter/Not Matter (probe) • Magnetic/non-magnetic data in notebook • Ice melting experiment results in notebook • Team use of a heat energy continuum to explain their matter's phase change • Classification of mixtures and explanation of criteria • Data table of mass and volume before and after mixing • Apply knowledge of properties to select best materials for certain uses 	<p>Evaluación de Ciclo Corto</p> <ul style="list-style-type: none"> • <i>SCA Testing Window: October 15-19, 2012</i> • <i>Tested TEKS: : 4.5A, 4.5B, 4.5C, 4.5D</i> <p>Sugerencias Adicionales para la Evaluación</p> <ul style="list-style-type: none"> • Contribution to class array on Properties of Matter • T-chart of properties • Observations of student team discussions and products • Responses to probes and pre-assessments of understanding • Explanations of team discussion on solid-liquid-gas • Intervals on scales labeled accurately • Data, diagrams, and summaries in student notebooks • Classification, comparison, and contrast of materials and properties • Proper use of measurement tools and accurate measurements • Valid predictions and investigations • Application of understanding about properties of matter in decision-making • Teacher observations: Use of safety rules and equipment • Teacher observations: management and use of tools • Tools foldable/web in Interactive Notebook • Students' use of evidence to support explanations and claim.

HERRAMIENTAS PARA LA PLANEACIÓN DE LECCIONES DE CLASE
<p>En el transcurso de la planeación de lecciones de clase, la expectativa es que los maestros tomen en cuenta consideraciones del estudiante en su totalidad como incluirán elementos que cubren todos los aspectos de diferenciación instructiva, educación especial, aprendizaje del idioma inglés, nivel de dotados y talentosos, aprendizaje social y emocional, actividad física y bienestar.</p>
<p>LECCIÓN MODELO- PROPERTIES OF MATTER</p> <ul style="list-style-type: none"> • Is It Matter? • Properties of Matter We Can Observe • Magnetic Matter • Using Measurement Scales • Measuring Matter with Tools • Measuring Mass

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- Linear Measurement
 - Measuring Volume
 - Exploring Density
 - Measuring Temperature
- Suggested Pacing: (10 days)
TEKS: 4.5A

LECCIÓN MODELO- [HEATING AND COOLING](#)

- Solid, Liquid or Gas
 - Melting Ice
 - Investigate Drying
 - Everyday Condensation
 - Every Matter Can Change State
- Suggested Pacing: (5 days)
TEKS: 4.5B

LECCIÓN MODELO- [MIXTURES AND SOLUTIONS](#)

- Observing and Comparing Mixtures
 - Making and Measuring Mixtures
 - Explaining Shrunken Mixtures
 - Exploring Solutions
 - Deciding What Matters
- Suggested Pacing: (5 days)
TEKS: 4.5C

