Deconstructing the TEKS

1. Write the TEKS & circle the verbs.

2. Identify the topic of TEKS or noun phrases

3. Break the TEKS out into the different "branches" of content

4. Synthesize information from the **TEKS clarification** & **vocabulary** defined from the Scope & Sequence. Add notes under each "branch" about what students need to know and any common misconceptions.

5. Analyze applicable **released STAAR questions.** Add notes under each "branch" about what students need to know and any common misconceptions.

5.5(A) classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy

Mortar words: evidence, investigate, conclusion,immediately,common, spark, maintain, column heading,observe, settle,appearance, visible, particles, substance,procedure, illustrate (show all versions of words)

Classify

Grouping;sorting;categorization based of similar properties; divide

Matter based on measurable, testable, and observable physical properties

Relative density in water
- Float/less dense/surface/top: wood,plastic,cork,all types of oil,cardboard,foam, soap bubble, air, feather
- Sink/more dense/settle to the bottom: metal spoon,penny, all metals,glass,rubber;syrup
- Solubility is often a distractor answer
- Lab Ideas: shaking a jar of oil & water and let it settle

Solubility
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- base "sol" in both dis**sol**ve and **sol**uble

LAb idea:powdered sugar on fruit

Ability to

conduct
- All metals are conductor both thermal & electrical energy but NOT attracted to a magnet
- Metals:iron, copper,tin, steel, wires, aluminum,
- Bad or poor insulator
- "Conductors let it flow and Insulators slow"

CONDUCTORS
Let it flow

insulate
- Protect hands
- Plastic;rubber, wood, cotton, fabric,paper, air,
- Poor conductor
- SLOWs the energy and warms slower or feels cooler to the touch.
- Can keep hot or cold in

INSULATORS
Slow's

From Experience we know students.... don't read entire label; don't know the term physical; need practice choosing the BEST evidence; need to list all the properties of one object in a table; practice culminating properties; practices writing evidence for answers choices; need to be taught to apply knowledge of materials to other objects such as a wood cube floats so more than likely a wood pencil would float; need to use properties to identify an unknown object

TEKS Clarification

Fundamental Questions
- What is matter? What are some physical properties of matter that we can measure, test, and observe?
- How does matter behave when placed in water? What if it is stirred into water? How does matter react to a magnet?
- How is matter classified? What tools or tests can you use to measure or observe matter?

Student Instruction:
- Students need opportunities to examine and reflect on a variety of objects & different observable properties.
- Students should be instructed how to apply knowledge about materials to unknown objects. Ex: Wood is a material that is less dense, therefore if a pencil is made of mostly wood then it will likely float in water. Ex: sugar is soluble & because cotton candy is made of mostly sugar, then it is most likely soluble.
- Students need to be introduced to data tables and explicitly taught how to interpret meaning from them.
- Students need to be able to determine how physical properties can help identify the material an object is made from. Ex: more dense, conductor of electrical and thermal energy is most likely a metal.
- Students need opportunities to create titles for classified groups of objects based on their properties.
- Students need experience creating charts, tables, and lists using an object's multiple observable properties.
- Students should be familiar with synonyms such as using "float" in one part of the chart and "less dense" in another. The phrase "settles to the bottom" for more dense. The phrase "can no longer be seen" for solubility.
- Students need practice identifying an object based on multiple physical properties from a data table or list.

Student Misconceptions:
- Students should understand that relative density determines the ability of a substance to float or sink. Density of a substance is how much mass there is in a given volume. Relative density is simply that a substance or object will float or sink when it is compared to water. If the substance or object is more dense than water, it will sink. If the substance or object is less dense than water, it will float. STAAR tested objects that float: foam, wood, cardboard, plastic, oils such as vegetable or cooking, cork/ Materials that sink: rubber, metals, glass. Students often think objects are less dense because air trapped inside (soda can). This is related to buoyancy which has not shown up on STAAR. Try to use objects that do not have air trapped inside.
- Students may struggle to understand how less dense, more dense, & relative density apply to objects in water.
- A misconception is that **all** metals are magnetic. Common metals that are attracted to magnets- Nickel, Iron, Cobalt, Steel (not stainless steel) . The mnemonic NICS helps students remember which metals are magnetic.

2018 – Q5

5 The table lists some physical properties of two objects.

Object 1	Object 2
Solid	Solid
Insulates thermal energy	Conducts thermal energy
Less dense than water	More dense than water
Poor electrical conductor	Good electrical conductor

Based on their properties, which of the objects is most likely a metal?

A Object 1, because it is a solid that is less dense than water

B Object 2, because all metals float in water

C Object 2, because metals conduct thermal energy and electricity

D Object 1, because it can be used to provide insulation for thermal energy

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Matter based on measurable, testable, and observable physical properties

Mass

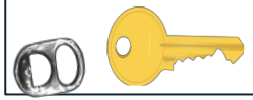
- Grams measured to the nearest whole number
- Used as a distractor
- Same size does not mean same mass
- Lab idea: use density cubes with same color but different materials and have students use properties to determine what is is
- Use balances to order masses from least to greatest

Physical State

- Is states of matter and mean the same thing; solids, liquids, & gases
- Solid- maintain its shape
- Liquids- takes shape of container starting at the bottom; floating
- Gases- clear; free moving; spreads out everywhere; carbon dioxide; oxygen

Magnetism

- Attract by magnet to test
- NOT all metals are magnetic
- SINC or NICS are the magnetics metals steel, iron, nickel cobalt
- Nonmagnetic- ABC aluminum, brass & copper
- Repel has never been tested and not necessary to determine the property BUT if it comes up address it.



Volume

- Amount of space something takes up
- Lab idea: place something in water and discuss it increased because their more space taken up

Flexibility

bendable like wires or rubber

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Deconstruct 5.7A Sedimentary Rock & 5.9D Fossils as Evidence

Directly responsible; arrows represent time; know processes in sequential order; images for each process; before and after images

Explore

Diagrams & processe

Identify

The processes that led to the formation of

Fossils as evidence of...organisms...environment

Found in

Sedimentary Rocks

Found in

Fossil Fuels

- What was there before; include biomes with climate;
- Tropical is warmer
- Desert is dry
- Types of consumers with teeth
- Plants was an forest environment
- Seashells is a aquatic environment or **marine**

Mortar words: process, action, directly responsible; grains, sediment, transport; forming; settles; pressure

Instructional ideas:
Starburst lab

W Loosened from rock, picture of ice wedging, freezing & thawing; broken off sediment; break down of rock; making grains

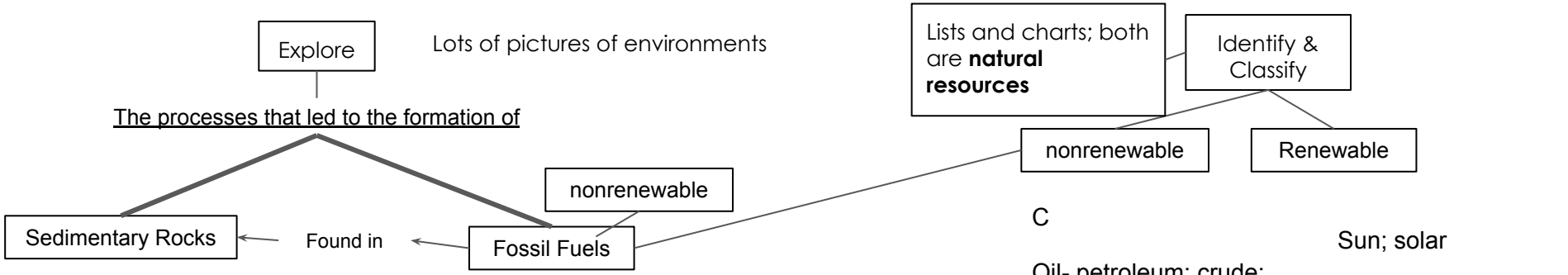
E Transport; scraping; carrying; carrying away; variety of examples; speed of ice is slower than the rest (cover it in landforms 5.7B)

D Layers; dropping off; forming layers; before compaction; falls to the bottle; settles; lots of deposition will result in compaction; where fossils become buried

C Weight of water; things on top squish; pressure;

C Gluing; hardening of minerals as water evaporates;

Deconstruct 5.7A Fossil Fuel Formation & 4.7C Renewable /nonrenewable



Old- organisms growth; marine mud has organisms

Dinos- Decay;

Build- Burial of organisms:Deposition part of sedimentary rock

Mega- millions of years

Planes- pressure

Homes-

FF must start with living things; front load plants are the direct link to the sun and therefore acts like a battery and stores energy once it is buried (book: buried sunlight)

C

Oil- petroleum; crude; gasoline; NOT peanut oil

N

Sun; solar

Water

Air- wind; moving air

Animals

Plants

MIsconceptions: confusing gasoline with natural gas; kids see the word heat and think rock;

How the TEKS fit Together