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| **Unit Topic or Unit Inquiry Question:** Matter **Grade level:** 3 | | | | | |
| **Unit overview:**   1. **Describe the unit – how have you designed it? What does it involve?**   This is a mini unit on matter. We will discuss what matter is and the three different states they are in (solid, liquid, and gas). The students will learn about what atoms look like in each state and examples of each state. Students will do two experiments to further their understanding of changing states from one to another.   1. **Describe what students will be learning. What are your goals for the unit in your OWN**   **WORDS? List the 3-5 most important things that you hope students will gain, in terms of knowledge, skills or understandings by participating in this sequence of lessons. This will help to guide you throughout the unit.**   1. What is matter? 2. The three states of matter – solid, liquid, and gas 3. Particles called atoms are the building blocks of matter – what do they look like in each state? 4. The different ways to change the states of matter (evaporation, condensation, freezing, melting) 5. Physical vs. chemical changes | | | | | |
| **Rationale: How is this learning meaningful for your students? What understandings are you hoping they’ll gain?**  Matter is a very important concept for students to understand because everything is made up of matter. Students will learn about the different states of matter as well as chemical and physical changes. Students should gain a deeper understanding of each state and how we can change states from one to another. | | | | | |
| **STAGE 1: Desired Results – Curriculum Connections ( indicate different subject areas if this is an interdisciplinary unit)** | | | | | |
| **UNDERSTAND** | **Big Ideas** | | | **Essential Questions** | |
| * All matter is made up of particles | | | * What is matter? What is it made of? * What are the different states of matter? * What is a solid? Gas? Liquid? * What is a chemical change? * What is a physical change? | |
| **DO** | **Core Competencies: (focus on one or two)** | | | | |
| **Communication** | **Thinking** | | | **Personal & Social** |
| * Connect and engage with others (to share and develop ideas) * Acquire, interpret, and present information (includes inquiries) * Collaborate to plan, carry out, and review constructions and activities * Explain/recount and reflect on experiences and accomplishments | **Creative**   * Novelty and value * Generating ideas * Developing ideas   **Critical**   * Analyze and critique * Question and investigate * Develop and design | | | **Positive Personal & Social Identity**   * Relationships and cultural contexts * Personal values and choices * Personal strengths and abilities   **Personal Awareness & Responsibility**   * Self-determination * Self-regulation * Well-being   **Social Responsibility**   * Contributing to community and caring for the environment * Solving problems in peaceful ways * Valuing diversity * Building relationships |
| **Curriculum Competencies:**   * Observe objects and events in familiar contexts * Make predictions based on prior knowledge * Compare results with predictions, suggesting possible reasons for findings * Transfer and apply learning to new situations * Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports | | | | |
| **KNOW** | **Content:**   * Matter is anything that has mass and takes up space * Atoms are the building blocks of matter | | | | |
| **STAGE 2: Assessment Plan** | | | | | |
| **Summative Assessment (of Learning):**  In what multiple ways will students represent their learning? Will you have a rich culminating task or activity that allows students to apply and/or show you what they have learned? Which final products, observations, conversations offer evidence OF learning so that you can determine whether your learning goals have been met? What will help you to communicate student learning? | | | | | |
| * Worksheets * Recording sheets for the experiments they conduct | | | | | |
| **Formative Assessment (for Learning):**  What kind of assessment for learning opportunities can you provide to support progress towards the summative tasks? Which ONGOING/DRAFT products, observations and conversations can guide your instruction and offer support FOR learning? ( how will you check progress along the way and help students to improve? ( ie sharing learning intentions, develop criteria, use models, give feedback, peer and self assessment opportunities, gallery walks, guided practice opportunities ) | | | | | |
| * Experiments * Class discussions * Observations | | | | | |
| **Stage 3: Learning Plan** | | | | | |
| **Learning Intentions** | | | **Teaching/learning activity**  **(Brief version here – use lesson plans**  **to flesh out each lesson)** | | |
| * I can name the three states of matter * I can tell someone what matter is * I can show what atoms look like in each state | | | **Lesson #1**   * What is matter? * **Access prior knowledge** – web on chart paper or on the board * **Introduce 3 states of matter** – see what they already know about each state * **Video**: <https://jr.brainpop.com/science/matter/solidsliquidsandgases/> * What are the building blocks of matter? (Particles called atoms) * What do they look like in each state? * **Movement Break:** act like atoms in each state * **Activity:** Cheerio atoms activity * Bonus: Cut and sort solids, liquids, gases activity | | |
| * I can tell the difference between a solid, liquid, and a gas * I can give examples of a solid, liquid, and gas | | | **Lesson #2**   * **Access prior** knowledge - What are the 3 states of matter? What are their characteristics? (Solid, Liquid, Gas) * Examples of solids, liquids, and gases * **Activity:** Students do a sort of examples for each state of matter – create a sheet for each state | | |
| * I can name one way to change a state of matter * I have a basic understanding of the water cycle | | | **Lesson #3**   * **Question:** Can we change what state of matter an object is? * Different ways of changing states of water (freezing, melting, evaporation, condensation) * Water cycle video: <https://www.youtube.com/watch?v=tuE1LePDZ4Y> * **Movement Break:** act like atoms in each state of matter as the water changes from state to state * **Activity:** Changing states of matter cut and sort | | |
| * I can give an example of a physical change * I can give an example of a chemical change * I can tell the difference between a physical change and a chemical change | | | **Lesson #4**   * **Access prior knowledge:** What is evaporation, condensation, freezing, and melting? * **Review video:** <https://jr.brainpop.com/science/matter/changingstatesofmatter/> * Introduce physical and chemical changes * **Video:** <https://jr.brainpop.com/science/matter/physicalandchemicalchanges/> * Chart on whiteboard – what is the difference between physical changes and chemical changes * Give examples of each one * **Activity:** Physical and chemical changes cut and sort and bonus activities | | |
| * I can conduct an experiment about matter * I can make a prediction based on prior knowledge about matter | | | **Lesson #5**  **Balloon experiment (whole class experiment)**   * Solid and liquid combine to create a gas * Chemical change is occurring   **Making chalk experiment (individual experiment)**   * Adding liquid to powder to make a solid * Physical change is occurring | | |
| **Resources needed:** | | | | | |
| * Whiteboard and felt pen for all   **Lesson #1:**   * <https://jr.brainpop.com/science/matter/solidsliquidsandgases/> * Cheerios or Froot Loops * Worksheet for Cheerio atom activity (made by me) * Bonus cut and sort activity (made by me)   **Lesson #2:**   * Pictures and headings for *States of Matter Sort* @ Hope King * Blank Paper (3 per student)   **Lesson #3:**   * <https://www.youtube.com/watch?v=tuE1LePDZ4Y> * *Changing States of Matter Cut and Paste* @ Scienceisfun   **Lesson #4:**   * <https://jr.brainpop.com/science/matter/changingstatesofmatter/> * <https://jr.brainpop.com/science/matter/physicalandchemicalchanges/> * *Physical and Chemical Changes Cut and Sort* Worksheet @moretime2teach2015 * *Physical and Chemical Changes* Worksheet @ Melissa Mazur * *Physical and Chemical Changes Fill in the Blank* Worksheet @ Melissa Mazur   **Lesson #5:**   * 22 Dixie cups * Stir sticks or popsicle sticks * Plaster * Water * Multiple colors of paint * 11 empty bottles * Vinegar * Baking soda * 11 Balloons | | | | | |
| **How will the learning be made ACCESSIBLE FOR ALL students to succeed?**  (adaptations, Universal Design, Differentiated Instruction, learning supports, multimodal resources) | | | | | |
| * The experiments will be in pairs and led by the teacher * The students will be able to work with their peers * The students will have charts to reference throughout the unit | | | | | |
| **Reflection** | | | | | |
| **How did it go? How do I know?** | | | | | |
| **Where to next?** | | | | | |