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**Planning the inquiry**

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| **1. What is our purpose?****To inquire into the following:*** **Transdisciplinary theme:**

**How the World Works:** An inquiry into the states of matter, interactions of the sun, moon, earth, and stars with their effect on the universe. **Central idea :** Everything is composed of matter and moves through cycles**summative assessment task(s):** What are the possible ways of assessing students’ understanding of the central idea? What evidence, including student-initiated actions, will we look for?**Experiments on Matter**: Students will produce a lab report on each science experiment that we complete in class. <https://www.dropbox.com/sh/uzoih0qviyj6gpr/AADvLwHG7XQ_hK9QgE4JtxrMa/Seasons%2C%20Shadows%20and%20the%20Moon?dl=0&preview=s2e2-seasons_shadows_and_the_moon-stem_journal.docx&subfolder_nav_tracking=1> **Opinion Writing:** Do you prefer the daytime or nighttime sky?**Informational Writing:** Students will write a journal entry using evidence to support the claim “The sun is not the biggest star in the universe.”**State of Matter Collage**: Students will create a collage of the different types of matter. **Matter Book:** Students will create a book that demonstrates their knowledge of matter.**Art collaboration:** can combine with opinion writingArt/Mahon - Students will create a clay project and learn about the ceramic process. Students will focus on the ceramic process and how materials (clay) changes throughout different stages of the ceramic process.PE/O’Brien - Students will observe how force causes changes in the speed or direction of an object.Huggins- Students really enjoyed doing the states of matter college and doing the opinion writing on if they prefer daytime or nighttime. | Class/grade: 2 Age group: 7-8School: Copeland Elementary School code: 924266Title: How the World WorksTeacher(s): Brown, Echols, Huggins, Rozier, Mahon, O’Brien, C. LongDate: 01/18/21 – 02/26/21 (6 Weeks)**2. What do we want to learn?****What are the key concepts (form, function, causation, change, connection, perspective, responsibility, reflection) to be emphasized within this inquiry?**Function, Form and Change **Related concepts**: cycles, pattern,**What lines of inquiry will define the scope of the inquiry into the central idea?**· Each State of Matter can be altered Some forms of matter can be put back together while others cannot (Brown)· The earth moves through cycles  **What teacher questions/provocations will drive these inquiries?****Mystery Box**: Students will guess what is in a box. However, they will have to produce their reasoning and record them.* What is a scientist?
* What is matter?
* How does matter change?
* What causes the seasons?
* What is an orbit?
* What is the difference between rotation and revolution?
* How long does it take to revolve around our sun?
* How long does it take to rotate?
* What causes day and night?

Art/Mahon Students will create a clay project and learn about the ceramic process. Students will focus on the ceramic process and how materials (clay) changes throughout different stages of the ceramic process.PE/O’Brien - Ask students what different types of force can be used to move an object.Huggins- Students were able to grasp the different states of matter and how it changes more than the other things and it was because they enjoyed changing the state of chocolate.Brown: Students  |
| **3. How might we know what we have learned?***This column should be used in conjunction with “How best might we learn?”*What are the possible ways of assessing students’ prior knowledge and skills? What evidence will we look for?**Students will be exposed to gallery walks, KWL charts, videos to create wondering.** What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?* Video quizzes (Brain pop) – Evidence to include acquisition of knowledge contained in videos.
* Students will create a mini-book on the Phases of the Moon. Evidence to include: correct depiction of moon phases.
* Seasonal Poem including illustration – evidence to include characteristics or description of season, appropriate illustration
* Concept Wheel (graphic organizer) – placing correct information related to the sun, rotation, revolution of the Earth, etc.
* Unit Project- Student Choice
	+ Model of the moon phases
	+ Poster- States of Matter
	+ Science Fiction Writing- Space themed

Art/Mahon Probing questions, student predictions about the ceramic process. What do you think will come next? * Identifying where their project is in the ceramic process. Completed project.

PE/O’Brien - Ask students does equipment help the player hit harder and farther than by hand. Ask the class to predict what will happen if I push a ball with one finger. Next ask the class what they think will happen if I use a bat, golf club, tennis racquet to hit a ball.Huggins-Students enjoyed learning about space and telling me about what they moon looked like on a daily until quarantine.  | **4. How best might we learn?**What are the learning experiences suggested by the teacher and/or students to encourage the students to engage with the inquiries and address the driving questions?Matter Attack Stations<https://www.dropbox.com/sh/uzoih0qviyj6gpr/AAAqF1vOAADSchzhFnNj5cl4a/Properties%20of%20Matter?dl=0&preview=s2p1-matter-lesson_1.docx&subfolder_nav_tracking=1>Melting Chocolate<https://www.dropbox.com/sh/uzoih0qviyj6gpr/AAAqF1vOAADSchzhFnNj5cl4a/Properties%20of%20Matter?dl=0&preview=s2p1-matter-lesson_2-_physical_properties_stations.docx&subfolder_nav_tracking=1>Sun, Earth, and Shadows<https://www.dropbox.com/sh/uzoih0qviyj6gpr/AADvLwHG7XQ_hK9QgE4JtxrMa/Seasons%2C%20Shadows%20and%20the%20Moon?dl=0&preview=s2e2-lesson_1.docx&subfolder_nav_tracking=1>Moon Data (Month Long Project)<https://www.dropbox.com/sh/uzoih0qviyj6gpr/AADvLwHG7XQ_hK9QgE4JtxrMa/Seasons%2C%20Shadows%20and%20the%20Moon?dl=0&preview=s2e2-lesson_3.docx&subfolder_nav_tracking=1>My Moon Observation Calendar (Month Long Project)<https://www.dropbox.com/sh/uzoih0qviyj6gpr/AADvLwHG7XQ_hK9QgE4JtxrMa/Seasons%2C%20Shadows%20and%20the%20Moon?dl=0&preview=s2e2-seasons_shadows_and_the_moon-lesson_3-student_moon_recording_sheet.docx&subfolder_nav_tracking=1>Experiment Recording Sheet<https://www.dropbox.com/sh/uzoih0qviyj6gpr/AADvLwHG7XQ_hK9QgE4JtxrMa/Seasons%2C%20Shadows%20and%20the%20Moon?dl=0&preview=s2e2-seasons_shadows_and_the_moon-stem_journal.docx&subfolder_nav_tracking=1>Me and My Shadow<https://www.dropbox.com/sh/uzoih0qviyj6gpr/AADvLwHG7XQ_hK9QgE4JtxrMa/Seasons%2C%20Shadows%20and%20the%20Moon?dl=0&preview=s2e2-stem_lesson-me_and_my_shadow.docx&subfolder_nav_tracking=1>Length of Day and Night<https://www.dropbox.com/sh/uzoih0qviyj6gpr/AADvLwHG7XQ_hK9QgE4JtxrMa/Seasons%2C%20Shadows%20and%20the%20Moon?dl=0&preview=s2e2-lesson_2_length_of_day_chart.docx&subfolder_nav_tracking=1>Learner profile: Communicators, Reflective, Thinkers, Risk Takers, Open-Minded**Tuning In*** Students will be able to brainstorm ways that a liquid can turn into a solid.
* Students will look at mystery boxes that contain solids, liquids and gasses.
* Students will have the opportunity to bring something from home that is a solid, liquid, and gas.
* Students will watch video of moon, sun, and earth interactions.
* Students will look at an observatory to locate different stars in our solar system.

**Finding Out** * Students will conduct science experiment on what freezing does. (social studies book page 214)
* Students will use My On and the internet to research objects that change from one state of matter to another.
* Students will observe many objects that change from one state of matter to another.
* Students will use internet to research and watch videos on our solar systems.

**Sorting Out*** Students will make a collage of a chosen state of matter. Students can use different magazines to cut out pictures and create own pictures.
* Students will use Venn Diagrams to sort information about different states of matter.
* Students will write informational text using information that they learned about states of matter.
* Students will understand that the earth, sun, and moon move in different directions and ways.

**Going Further** * Students will have many group tasks to work with each other. Students will have to answer a problem through critical thinking.
* Students will make a model of the solar system in order to have a better understanding of how the solar system works.

**Reflection** * Students will be able to play the game “What am I?” by using information that they have learned to identify an object.
* Students will use learning maps to organize information that they have learned.
* Students will discuss what would happen if Earth, Moon and Sun did not rotate or spin.

**Action** * Students will read from their class reflection book and share with the class.
* Students will meet with another grade level and share information that they learned on the solar system.

STEAM teacher will include Inquiry Cycle activities  Art/Mahon Students will use clay and witness firsthand the changes in materials throughout the ceramic process as their project is created.Huggins- Students uses different states of matter for assignments and pictures of different states of matter to complete poster/collage.What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?Huggins-The experiments conducted by our grade level enhanced students abilities to becoming effective communicators, thinkers, risk takers, and open mindedness.Students will conduct several experiments which will develop their thinking and communication skills.

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| Art/Mahon Students will be open-minded when working with new media.PE/O’Brien I will gently pitch a foam ball to each student and they will hit it with their hand. They will measure how far the ball went. Next, I will gently pitch the same ball to each student, but have student hit the ball with a bat. Measure and mark how far it will go. Students will observe that the greater the force applied to an object, the greater the change in speed or direction.Huggins-Students did different activities on manipulating different states of matter and used thinking skills to hypothesize the outcome before the experiments. |
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| **5. What resources need to be gathered?**What people, places, audio-visual materials, related literature, music, art, computer software, etc., will be available?Schlessinger Space Science Videos – All About the Sun, All About the Stars, All About the Moon, All About the Planets: [www.Brainpop.com](http://www.Brainpop.com) videos; “What is Matter” by Lisa TrumbauerScience Textbook and Readers: Sky Patterns, Patterns in the Sky, By the North Star; Language Arts Leveled Readers: Space Walk and Explore the GalaxyWebsites: <http://www.kidsastronomy.com/>[www.space.com](http://www.space.com)Teacher Resources Turtle Diary games Art/Mahon – Clay, PowerPoint about ceramic artists.PE’O’Brien - bat, ball, playground ball, golf ball, golf clubHuggins-posters, chocolate, gloves, computer, promethean board, related literature, pictures How will the classroom environment, local environment, and/or the community to use to facilitate the inquiry? Art/Mahon - Students will engage with new media in art.Huggins- Students will engage in a classroom setting as well as home setting in order to complete their phases of the moon calendar. |

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| **6. To what extent did we achieve our purpose?**Assess the outcome of the inquiry by providing evidence of students’ understanding of the central idea. The reflections of all teachers involved in the planning and teaching of the inquiry should be included. Rozier- Students understood the central focus of everything is composed of matter and moves through cycles by first conducting a scavenger hunt. Each component of matter was listed on the screen. Students had to find solids, liquids, and draw pictures of what items could consist of gas. This allowed students to understand that each components looks and feels different. Huggins-Students were able to understand matter and take part in a class scavenger hunt and create a collage of solids, liquids, and gases. Brown: Students were able to grasp and understand the central idea through some of the experiments we conducted throughout the unit. The experiments we conducted was able to let the students see how matter really works through their own eyes. They also got to see and understand that matter is always all around them. How you could improve on the assessment task(s) so that you would have a more accurate picture of each student’s understanding of the central idea.Rozier- I wish I could have had more time to hear from my students individually of what they take from the central focus due to being online. Also, I would have loved to have more small group activities that revolve around the central focus.  Huggins- I wish that we had more time to conduct more experiments and students get a better understanding on what they were lacking in this unit. Brown: I believe that we could have more student involvement when it comes to creating or coming up with an assessment. Have them help us throughout the unit on things they feel they should be assessed on. What was the evidence that connections were made between the central idea and the transdisciplinary theme? Rozier- Each student participated in a slime experiment. Students had to record themselves on Canvas studio on their slime procedure. Students were provided a checklist on what they should have inside of their video. Students had to show their ingredients, use transitions words, use vocabulary that was introduced in the unit, show the connection of liquids and solids, and most of all have fun. Huggins- Students were able to understand how matter was able to change from different states and how it was able to change through the different states.Brown: The obleck experiment really required my students to become risk takers, inquirers, and full on thinkers. They really got into it and dug right in to understanding the different elements of the materials used to complete the experiment. They had tons of questions and as a class we were able to find out the answers while working through the experiment.  | **7. To what extent did we include the elements of the PYP?**What were the learning experiences that enabled students to:* develop an understanding of the concepts identified in “What do we want to learn?”
* demonstrate the learning and application of particular transdisciplinary skills?
* develop particular attributes of the learner profile and/or attitudes?

In each case, explain your selection. Rozier- A class turn and talk (virtual edition) was conducted before the unit. I asked students what they thought the definition of matter was. Students conducted educational guesses of what they thought the definition would be. Huggins- Using the mystery box for matter, provocations, and being able to do a ticket out the door.Brown: Thinking Skills were used. My students will enjoyed the Oobleck experiment with Mrs. Mailhot. It was geared towards learning about matter and the chemical and physical changes. It inquired them to think critically and deeply to understand the different states the Oobleck went through.  |
| **8. What student-initiated inquiries arose from the learning?**Record a range of student-initiated inquiries and student questions and highlight any that were incorporated into the teaching and learning.Rozier- Is snow a solid? How can ice turn into a liquid and back to a solid? How long does it take to make slime? What are the stages of matter?Huggins- At first students were having a hard time understanding gases but with the reading, teachings, and videos they were able to understand what are gases.**Brown: What is slime made out of? Is slime matter? Can the melted chocolate be turned back into its shape if we form it how it was?** At this point teachers should go back to box 2 “What do we want to learn” and highlight the teacher questions/provocations that were most effective in driving the inquiries. Rozier-Huggins- the line of inquiry that was the most effective was that some forms of matter can be put back together while others cannot**What student-initiated actions arose from the learning?** Record student-initiated actions taken by individuals or groups showing their ability to reflect, to choose and to act.Rozier- Student initiated drawings and arts/crafts activities based on unit of inquiry**Brown: Refer to box 2** | **9. Teacher notes****Art/Mahon - 2nd - Unfortunately, I was not able to even approach unit three with second grade. During the first few weeks of the unit week of the unit, we pivoted to learn at home. When we returned many second-grade classes had to quarantine. Looking at my Calander, I had 2nd grade in art twice for 45 minutes. During these two classes, we reviewed rules and procedures because we had been out of school so long and I spent time getting to know the new students who returned from online and started attending art for the first**PE – Due to quarentine and pivot to Virtual Learning during the duration of the Unit, students were not able to attend PE. I was also quarantined during this time and unable to work with students. I was not able to engage with this unit as orginally planned. Moving forward, I would like this unit taught earlier in the school year to allow ample time for students to collect the materials needed for the inquiries |

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