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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  **Central idea :**   * We use our understanding of natural laws to improve the human experience.   **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?   * **Science project**- ask a question, make an observation, test a hypothesis, reflect on results (apply to science fair) * **Unit 3 performance matters Post-Test** * **Opinion writing**- does technology improve life? (teacher or student chooses which technology) (rough write, add opinion, add supporting fact, polish) * Spanish/Garcia Ss will inquiry about technology terms in Spanish | Class/grade: 5 Age group:  School: Copeland School code:  Title:  Teacher(s): Jackson, Medlock, Rivera, Wallace, Yeldell, Garcia  Date: Jan 5, 2020  Proposed duration: number of hours over number of weeks 4 weeks (1 buffer week) Jan 11-Feb 11  **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**- process, problem, law (nature)  -**causation**- cause/effect, harness, technology  -**connection**- intent, impact, improve  **What lines of inquiry will define the scope of the inquiry into the central idea?**   * We have processes by which we can solve problems (function) * We can harness natural laws to create new technology (causation) * Technology is intended to improve people's lives (connection)   **What teacher questions/provocations will drive these inquiries?**   * What is electricity? * How do objects become electrically charged? * How would you determine if an object is a conductor or insulator? * What are the necessary components of a simple electric circuit? * What is magnetism? * What applications of the properties and functions of magnets make them useful? * What is the relationship between a positive and negative charge? * How does an electric circuit work? * How does energy travel along a circuit? * How does electricity improve human experiences? * What is the scientific method?   Spanish/Garcia Which Spanish/English cognate words are used in technology? |
| **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?  Wallace   * Performance Matters Unit 3 Pre/post Test * What are processes? Can you think of an example of a process you may use to solve a problem? * Think, See, Wonder - Show compilation of photographs depicting natural processes. What are some natural processes our earth goes through to create new landforms? Writing to examine prior knowledge * KWL chart for electricity * Think, Pair, Share - What are examples of technology? * Create your own technology that could improve human lives. (Write and illustrate) Construct and design solutions * Plan and carry out investigations   Spanish/Garcia - -Ss will reflect about how we can use technology to learn another language.  What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?  Wallace   * teacher observation * classroom observation * ongoing inquiry notebook * class discussions | **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?    Jan 14-19   * TRANSITION TO LEARN@HOME * Videos, readings on constructive vs destructive forces * Written responses to “what would you do”  situations(would you live on a fault line? (California) would you live on a volcanic island? (Hawaii), how would you overcome these forces to live?) * Search around your home/community for examples for some of these forces (erosion, deposition, animal activity, chemical/physical weathering)   Jan 25-29   * Static Can racing * Positive and negative charged characters writing activity * Separate salt and pepper with static electricity * Bending water * Move water with static * Can you turn the lightbulb on activity? * Complete the circuit game-what's missing?   Feb 1-5   * What in your house uses electricity (and what kinds of electricity? scavenger hunt * Will it conduct electricity experiment? Make a circuit work with random items * Making an electromagnetic train! (battery, wire, magnets) * Making an electromagnet * Brainstorm uses for an electromagnet * YouTube videos of electromagnets at work! * Who invented electricity? Timeline of discovery- intro to small scale research * Lets ask questions to lead us into research! How do we ask questions?   Feb 7-11   * Research projects on inventors and other forces that have applied to said inventions, connecting back to understanding of multiple natural forces being in existence, these past weeks just covering some. * Specifically focus on the wright brothers (and sister), alexander graham bell, Thomas Edison (and Lewis Latimer) * Present research * Create a mini quiz for your presentation * Mini quiz or each presentation to assess takeaways * Reflection on Unit 3   What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?   * Encouraging questioning * Group work * Independent research * Hands on activities * Experiments that are not rail-roading the students to one answer * Class discussions * Short research projects with presentations inviting choice  |  | | --- | | Spanish/Garcia Ss will make a foldable about technology terms in English/Spanish | |
| **5. What resources need to be gathered?**  What people, places, audio-visual materials, related literature, music, art, computer software, etc, will be available?  LEARN@HOME-packets will be sent home with reading, links to videos, and hands-on reflection activities that can be accomplished in the home or local community safely and without strain on resources.  Materials for electricity and statice electricity-science bucket in Ms. Jacksons room with batteries, lights, wires, magnets, etc  Spanish/Garcia Spanish Reading books, websites, Duolingo, Spanish videos and songs.  How will the classroom environment, local environment, and/or the community be used to facilitate the inquiry?  Community highly used during LEARN@HOME time period, and home used during the electricty scavenger hunt | |

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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.  **Art/Mahon: We are waiting on supplies to create the collaborative free library. I hope to start this during unit 4 if the supplies are available. The project will continue during the duration of the next two units.**  **Spanish/Garcia - A class in 5th grade discussed about how technology has changed over the years.**  Yeldell- Overall students understood the central idea, but quarantining made it difficult to assess. Students loved the hands on electricity and magnetism experiences, and the visible learning was awesome. If we had had the full time, I believe my students would have been able to do a great job!  Jackson- Students were able to be more engaged into this Unit and actually enjoyed it the most out of all the units. Students were able to make connections with the central idea and lines of inquiry. Even though, we were not able to enjoy the entire unit it was still beneficial for the students and myself.  Wallace- Students really enjoyed this unit and made connections with the central idea and lines of inquiry. Students were invested in each hands on activity and made further in-depth inquiries pertaining to the standards. Many students were out due to family members needing to quarantine, so the class was not able to complete the science fair portion of this unit.  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.  Yeldell- we switched from using performance matters to using district required tests on canvas. Consistency here would have helped. The investigations in the inquiry notebook were the best way to assess student learning in my class.  Jackson- Even though the assessment for performance matters was required by a higher party and later switched to a different assessment. It allowed us to be flexible and adjust the unit to the expectations of the district, and use the observations from students’ investigations as the best way to assess students’ knowledge.  Wallace – Switching required test is draining on the students. We seem to have a district required testing that changed regularly during this unit.  What was the evidence that connections were made between the central idea and the transdisciplinary theme?  **Spanish/Garcia - Spanish was connected to the central idea through the related concepts: function, cause, process, and problem.**  **Jackson- Students were required to use the central idea as a apart of experimenting and providing evidence of learning on exit tickets and within inquiry notebooks.**  **Wallace – Students wrote in their writing journals to reflect on the connections between the central idea and the theme.** | **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.  **Spanish  Students made a reflection about how technology has changed over the years, they also inquired about some technology words: function, process, technology, impact, improve, computer, and calculator.**  Yeldell- students developed the concepts in “what do we want to learn through intentional use of vocabulary terms, class discussions, and hands-on open-ended experiments.  Students continued to demonstrate application of transdisciplinary skills particularly in their group projects. This encourages them to develop those skills necessary for interpersonal communication, conflict resolution, and individual reflection.  Especially during the open ended experimentation sessions, students really had to develop their thinker and inquirer learner profiles. They weren’t given instructions beyond “make this move without touching it” and “turn the lightbulb/soundbox on with the supplies at your table”. They had to get thinking and ask questions to make improvements and discover how these ideas worked on their own like true scientists!  Jackson- Students developed the understanding between human harnessed and law (nature) activity that occurs around us. Students demonstrated the learning by being knowledgeable about the different circuits and being able to be risk taker make their own. |
| **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.  **Spanish/Garcia - Student's were very curious about how technology has changed over the years...and asked the about what were the first technological devices that I knew.**  Jackson- Students were inquired by how the flow of electricity and atoms are not seen by the naked eye or microscope as a cell is viewed, Students completed mini research on why these two things are not seen, but can be felt through being shocked .  **Yeldell- students wondered how electricity moved (led to the discussion on light, sound, etc. Waves moving through the world), whether water and electricity were similar (led to discussion on flow. Comparing circuit to pipes), if electricity could be captured (lead to the discussion of turbines and batteries), and what electricity was if you couldn’t touch it (led to the discussion on things we can't touch but can see the effect of like light, wind, etc.)**  **Wallace – Students inquired about how currents move through different items. They were “shocked” that currents could flow through humans. Student-led discussions talked about other ways humans harvest and use energy to improve our lives.**  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.  **Spanish/Garcia -  Spanish video about how technology has changed over the years helped me to connect Ss with technology changes, their impact and the vocabulary.**  **Jackson- Most effective teacher questions: What is electricity? How do objects become electrically charged? How does electricity travel?**   * **These teacher questions allowed students to create their own questions to help drive their inquiry for this unit.**   **Wallace -** How would you determine if an object is a conductor or insulator?  What applications of the properties and functions of magnets make them useful?  How does electricity improve human experiences?  **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.  **Spanish/Garcia - were able to connect easily many terms in Spanish, since most of them are cognate words.**  **Jackson- Students designed multiple circuits to help figure out which items will make the light brighter. While working with static electricity, students found different ways to make static electricity. One activity was the remote controller race, where students used a balloon, wool cloth, and soda to race their can between classmates. Students noticed that it required a lot of energy to rub the wool cloth against the balloon, used other objects, such as their clothing, the wall, and even each other to produce static electrcity.**  **Yeldell- I loved the activity that JAckson discusses above. I would add another- the lightbulb/sound box experiment. Students were given supplies and the suggestion was made that they could turn those items on with only the supplies at their table and man did they figure it out. But ALSO- student started testing other materials in the room unprompted! They checked the chair, the magnets, paper, the desk, etc. It was incredible to watch. I wouldn’t have thought to test the distance of the connection by using a chair leg, but one of my groups did!**  **Wallace – My students had the same experiences as discussed above. I also enjoyed seeing them explore to other items around the room. Students enjoyed trying to figure out what other items could possibly generate more static electricity to get their cans rolling faster.** | **9. Teacher notes**   * Mailhot Notes * Do natural laws ALWAYS improve the human experience * Natural laws may improve human experience * Remove pronouns * Add in the word “may” * People may use understanding of natural laws to improve human experience * Energy / Power ~~Force~~ instead of natural laws (electricity) Natural forces * Energy, force and power improve.......(lifestyles.....) * Is this true ALL the time? ] * People can use their natural laws to improve the human experience. * People can use their understanding natural laws to improve lifestyles * Exploring what the human experience is....(Line of inquiry?) * **Add in activity to break down the central idea** * Standard of living (inventions/how they improve lives) * 6-8 week unit would allow more time to breakdown these concepts (4.5 week unit) * Used the term experience within unit one – using experience in a different context will further help students understand human experience in a different context * **People can use their understanding of natural laws to improve the human experience.** * People can use their understanding of natural laws to improve standards of living * **People’s understanding of natural laws CAN improve the human experience**.   **Spanish:**  **K-5: Unfortunately, we didn’t have enough time to cover the unit of inquiry because many classes had to pivot to learn at home, included myself. So, we didn’t have the time to develop the unit ...and just few classes had the chance to connect Spanish with the Unit of Inquiry.**  **Nevertheless, the Spanish Youtube Channel that was created in collaboration with another Spanish PYP teacher and I helped a lot to connect Ss with the vocabulary, concepts and classes that we missed face to face.**  **Jackson: The unit was welled thought out amongst my colleagues and self; however, we were not able to continue fully with the unit as expected due to the causes of the pandemic. My students and I were both quarantined at different times, which made us have a late start to exploring this unit. Once we could start it was an amazing unit for the both of us. My students enjoyed this unit the most and was upset about ending early.**  **Yeldell: I would agree with Ms. Jackson. The quarantine got us off track with our peers, however, it also enabled us to have supplies ready to move and transition between classes when experimentation began. A silver lining would be the abliity to use minimal supplies to achieve maximum experimentation and discovery. We were also able to assist one another with setting up the experiment and reflection conversation prompt development.**  **Wallace – Having only 3 to 4 students daily due to quarantine had my students in different places in learning the information throughout this unit. The students who did not miss a day of school REALLY benefited from having that time. They became honorary teachers to get their quarantined classmate up to speed.** |

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