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**Planning the inquiry**

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| **1. What is our purpose?**  **To inquire into the following:**   * **Transdisciplinary theme: Sharing the Planet** * **Central idea : Systems and machines impact our economy.** * **summative assessment task(s):** * Where the Money Resides: Students will analyze various maps depicting where certain natural resources are, as well as the main commodity for the region, in order to compare and contrast how the North and South specialized and how that helped or hindered their economy. Divide the students into small groups and give each group a copy of the “Map Analysis” sheet, the “Composite Map”, and the “Median Income Map” provided in “Resources” below. Alternatively, if the composite map seems too complicated – too many layers - the teacher may wish to provide the individual specific maps from which the composite was created (also provided below under “Other Maps”). Students analyze, discuss, and answer the questions on the Map Analysis sheet using evidence from the maps to justify their responses. Groups share their conclusions using their interpretation of the map data as evidence.   What are the possible ways of assessing students’ understanding of the central idea? What evidence, including student-initiated actions, will we look for?  Performance Matters Test  Benchmark Assessments  RCBOE Unit Pre-Test (Canvas Commons ELA)  RCBOE Unit Post Test (Canvas Commons ELA)  RCBOE Unit Pre-Test (Canvas Commons Math)  RCBOE Unit Post Test (Canvas Commons Math)  RCBOE Unit Pre-Test (Canvas Commons Science)  RCBOE Unit Post Test (Canvas Commons Science)  RCBOE Unit Pre-Test (Canvas Commons Social Studies)  RCBOE Unit Post Test (Canvas Commons Social Studies)  Balanced and Unbalanced Force Choice board  Economics PowerPoint Presentation  Student discussions on force and motion and the economy of North and South  Weekly Teacher created quizzes in each subject area | Class/grade: 4th Age group: 9-10  School: Copeland Elementary School School code:  Title: Unit 6  Teacher(s): Nelson, Brown, Hall, Garcia  Date: May 3, 2021- May 28, 2021  Proposed duration: 4 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 * Change * Responsibility   **Related Concepts**   * Systems * Consumers * Producers   **What lines of inquiry will define the scope of the inquiry into the central idea?**   * **Consumers influence the production and exchange of goods and services.** * **Systems change when impacted by different forces.** * **Our actions determine the state of our economy.** |
| **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?   * **LINK Chart** * List everything you know. * Inquire about what you want to know. * Now we are going to take notes. * What do you know now? * **KWL Chart (**Focus on K and W) * What I know? * What I want to know? * What I learned? * **KWHLAQ Chart (**Focus on K, W, and H) * What I think I know? * What I want to know? * How do I find out? * What I learned? * What actions do I think? * What new questions do I have? * **Unit Pre-Assessment**   What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?  The possible ways to assess student learning is by using the activities outlined in Box 4. We will use different provocations such as videos and activities that will engage students in learning and keep the interested in the standards covered during this unit. The egg drop challenge will show students the differences between balanced and unbalanced forces. They will get a visual and hands on experience with this activity. The simple machine project will show students how to use and create simple machines. They will see how forces change and how simple machines are used to complete tasks in everyday life. Students will use choice board to decide what summative project they will do for this skill. They will choose activities such as the Small Rube Goldberg Machine and Simple Machines at Work. The lemonade stand activity will introduce students to basic economic concepts. They will learn how to exchange goods for money and how to promote sells even when demand is not that high for thier product. Students will show a good understanding of opportunity cost and its relationship to decision making. The activity Party on a budget will show students the significance of money and how to make good decisions. The summative task of where the money resides will show all of what the students learned during this unit. | **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?  Week 1: Science  S4P3. Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces. a. Plan and carry out an investigation on the effects of balanced and unbalanced forces on an object and communicate the results.  Provocation:   * What is a force? * Egg Drop Video: <https://www.generationgenius.com/activities/balanced-and-unbalanced-forces-activity-for-kids/>   Activities:   * Egg Drop Challenge: As the egg sits on top of the stack, the forces acting upon the egg are balanced. Gravity pulls the egg down while the tube pushes it up, so the egg is not in motion. When we remove the plate and the tube, the force that was holding the egg up is suddenly removed and the only force on the egg is gravity—causing it to move down.   Week 2: Science  b. Construct an argument to support the claim that gravitational force affects the motion of an object. Ask questions to identify and explain the uses of simple machines (lever, pulley, wedge, inclined plane, wheel and axle, and screw) and how forces are changed when simple machines are used to complete tasks. (Clarification statement: The use of mathematical formulas is not expected.)  Provocation:   * Roller Coaster Video: <https://www.youtube.com/watch?app=desktop&v=LvNvXpFq4do>   Activities:   * Simple Machines Project: Create a ramp out of paper towel rolls. Students will plan and predict what can make their cars go faster. Then they can experiment with what changes will make their car improve in distance traveled. Have students draw and describe their ramps.   Week 3: Social Studies  SS4E1 Use the basic economic concepts of trade, opportunity cost, specialization, voluntary exchange, productivity, and price incentives to illustrate historical events.  a. Describe opportunity cost and its relationship to decision-making across time (e.g., decisions to settle in the west). b. Explain how price incentives affect people’s behavior and choices: decisions about what crops (e.g., cotton, and tobacco) to grow and products (e.g., textiles) to produce. d. Explain how voluntary exchange helps both buyers and sellers (e.g., Gold Rush mining towns).  Provocation:   * PowerPoint: 4th grade Economics   Activities:   * Lemonade Stand: Students will model selling hot chocolate and lemonade throughout the year, coming up with price incentives to promote sales during “off seasons”.   Week 4: Social Studies  e. Describe how trade promotes economic activity (e.g., trade between the U.S. and Europe). f. Give examples of technological advancements and their impact on business productivity during the development of the United States (e.g., cotton gin, steamboat, steam locomotive, and telegraph). SS4E2 Identify the elements of a personal budget (income, expenditures, and saving) and explain why personal spending and saving decisions are important.  Provocation:   * Shortage and Surplus Video: <https://www.youtube.com/watch?v=jjBEcwbvs04>   Activities:   * Party on a Budget**:** The teacher will divide the students into small groups and explain that they are to create a budget for a birthday party they would wish to host. Each group is given $100 to spend and can choose to spend it however they like, however they must have at least some drinks and snacks (enough for everyone), and entertainment for their party. Give each group a price list (let them “shop” online using a WalMart, Target, Party City or other comparable web site). Groups then complete the Party Budget form to track their decisions.   What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?   |  | | --- | | * Learner Profile of the month * Using the mobile library to get books that represent the Learner Profile * Classroom Learner Profile “Star Seat” | |
| **5. What resources need to be gathered?**  **What people, places, audio-visual materials, related literature, music, art, computer software, etc, will be available?**  MyOn  Brain Pop  iReady  Readworks  Flocabulary  GADOE  Envision  Social Studies Weekly  Media Center Books  How will the classroom environment, local environment, and/or the community to used to facilitate the inquiry?  Gallery Walk  Media Center: Research Projects | |

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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.  Hall- The students truly understood the central idea well. They were able to get some firsthand experience on how things impact our economy.  Nelson: Virtual students were able to show their understanding of the Central Idea. I broke the Central Idea down and students completed the Carousel Brainstorming activity. The students went from word/word phrases to word/ word phrases to share what they knew about the word/ word phrases.  Brown: The students were able to comprehend the central idea . They enjoyed learning about the how things impact the economy.  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.  Hall- I think the assessment tasks were accurate for this unit. They were able to show clear understanding of the central idea and also aligned with the lines of inquiry as well.  Nelson: To improve on the assessment task of understanding the Central Idea, I incorporated more class time to refer to the Central Idea. I asked questions that connected the central idea and the standards as best as they could be so that I could incorporate them on the assessment.  Brown: To make the assessment a bit more challenging I added a homework sheet that coincided it with the central idea. They were able to complete the homework sheet and we went over it the next day during buffer week. Homework sheet was surrounded about tax and trade with sugar and spices and silks and gold.  What was the evidence that connections were made between the central idea and the transdisciplinary theme?  Hall- Some evidence that connections were made is that students were able to successfully create a lemonade stand. They came up with different ways to trade they showed opportunity cost and they were able to dabble in marketing as well. This was a very successful assessment of understanding.  Nelson: Virtual students were able to make the connection to the Central Idea and the theme by researching and understanding how systems and machines impact our economy.  Brown: Class created there very on Bodega. It was so much fun. We had everything from chips to drinks ,and bubble gum and juices. They had the option to create their very own prices for everything. We had cupcakes which was the most expensive thing in the store. This was a fun and great learning activity ! | **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.  Hall- Students were able to develop and understanding of the concepts, demonstrate the learning application of skill and develop particular attribute of the learner profile when they created their own simple machines. They had to work together and manage themselves during this process. They also used research to back up their work to show how their machines worked.   * Nelson:   Concepts:   * Connection: How is it connected to other things? * Causation: Why is it the way it is? * Reflection: How do we know?   Transdisciplinary Skills:   * Research: Students did independent research on famous abolitionist, and also on stars and planets. · * Self-Management: Students were required to use time management and organization to complete independent assignments on their Asynchronous learning days.     Learner Profiles:   * Inquirer: Students were inquirers while learning new things about systems and machines.   Brown: Students were able to understand the concept and explain the concepts of the learning application on the learner profile. They all pulled together and worked together to create their very own machine models. |
| **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.  **Hall- Students had some very good questions about trade. They wanted to know about people who started their own businesses. We talked about what an entrepreneur is and they were able to discover that they knew several people who have their own business. It opened up a very good discussion about what they might want to do in the future and how we trade money for goods. They were able to realize the importance of demand for example, when we discussed people they knew that made masks during this pandemic.**  Nelson: Some student- initiated inquires and questions were: “What are systems”, What kinds of machines are in our economy” and “What is an economy”  **Brown : We were able to talk and discuss the opportunity of what small business can do for the economy. Why are small business important for the community? Also we completed research in how do you start up a small business.**  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.  Nelson: What is light made of?  **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.  **Hall- Students took the lemonade stand to a different level by creating their own marketing strategies. They made ads and even came up with some catch phrases to get people to buy. They were able to really understand how to get people to want what they are selling and see how much it would cost to produce goods or services that people want.**  Nelson- My students were able to initiate many actions. One student initiated action that was that students wanted to have watch a light show.  Students had decided to make signs for the different prices of the snacks ,and drinks and cupcakes they even had a catch phrase buy one get one for free. | **9. Teacher notes** |

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