**Grade** **Level**: 3 **Dates**: January 4-January 28

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| **School Information**  **School**: Copeland Elementary  **School Code**: 060043  **Teachers**: Gist, Denson, Rozier, Brace  **Buffer**: None | **Transdisciplinary Theme**: How the World Works  **Segment of Theme**: interconnectedness of individuals and civilizations  **Over Arching Concept**: Heat | |
| **Section 1: Overview** | | |
| 1. **Central Idea**: Changes in the world may drive people to adapt | | |
| 1. **Key Concepts**: Change- How is it changing, Form- What is it like & Function- How does it work? | | |
| 1. **Guiding Related Concepts**: | 1. **Lines of Inquiry**: | 1. **Teacher Questions (Guided Questions)**: |
| Burning  friction  heat energy  heat source  insulation (insulator)  Temperature  Thermometer  transfer of heat energy | * There are many sources of heat energy * Various Sources of heat and natural energy can be transferred, measured and used * An inquiry into how a region affects energy use. | * What is the difference between heat and temperature? * How is heat transferred? * How is heat energy produced? * Why is temperature important in our lives? * How do scientist use thermometers? * Why do some materials conduct heat better than others? * What does it mean to be energy efficient? * Why is using insulation important when heating and cooling? * How do various materials affect the transfer of heat energy from the sun? |
| 1. **Prior Content Knowledge**: | 1. **Assessing the Lines of Inquiry**: |
| Students would need to understand cause and effect and be able to describe the logical connections between historical events, scientific ideas of concepts, or steps in technical procedures. | Students will then work in groups to list as many sources of heat energy  Students will research heat energy comparing then to the now  Students will write a short story about what daily life would be like if your only energy sources was the sun, water and wind.  Student Class Diary  In class discussions / journal writing topics |
| **Section 2: What Are Our Target Goals?** | | |
| 1. **Concept Based Summative Assessment:** | 1. **Targeted Approaches to Learning (highlight 3):** | 1. **Targeted Learner Profile Attributes (highlight 2):** |
| Students will create a diary of all information gathered about heat and its transfer. The diary will include notes, journal entries, science labs, graphic organizers, vocabulary, Frayer model (vocabulary) Students will summarize their diary into the form of a presentation.  **Choice board:**  PowerPoint  Poster (Visual)  Flip Book  Brochure | Communication skills-Students will present on the heat energy. Students will collaborate with peers in various activities and assignments each week of the units.  Social Skills-Students will participate in collaborative group and partner discussions | Inquirer, communicator & reflective |
| **Section 3: What Assessments will be provided in this unit of inquiry?** | | |
| 1. Pre-Assessments:   What assessment will be given at the beginning of the unit to inform current understanding | 1. Formative Content Based Assessments:   What assessments will be given to monitor student learning of content? | 1. Summative Content Based Assessments:   What assessments will be given for students to show mastery of unit content? |
| District Unit Pre-Test –Canvas  District Unit Post Test  Kahoot  Group Discussion | Unit informal Checks- Canvas  Exit Tickets  Station Work Activities  Heat Energy Diary  Class Discussions  KWL Charts  Graphic Organizers/Graffiti Wall | Seesaw activities –formal and informal assessments  District Unit Pre-Test –Canvas  District Unit Post Test  Kahoot  Group Discussion |
| **Section 4: How will we Facilitate Learning?** | | |
| 1. Provocation:   How will interest into this unit be sparked? | 1. Learning Experiences:   What activities/experiences will help facilitate the learning? | 1. Evidence of Differentiation:   How will the learning experiences be adjusted to different learning styles/abilities? |
| KWL Chart Collage: picture collage of heat sources.  Heat Energy Graffiti board identify -Students are free to write or draw any ideas that are sparked by the words displayed.  Heat energy Video  <https://www.youtube.com/watch/xGKg3TSO4v8>  Heat Sort Activity - Students are provided with objects (pictures) and they will sort the objects based on whether or not the objects is a heat energy source | **Tuning In/Finding out Week One**  **The goal for students to obtain, evaluate, and communicate information about the ways heat energy is transferred and measured.**  Students will be shown a collage of pictures of heat sources and write down two or three questions of what they think about heat  Students will do a Graffiti board identify sources of heat energy. Students are free to write or draw any ideas that are sparked by the words displayed.  Students will watch Heat Energy video on <https://www.youtube.com/watch/xGKg3TSO4v8>  Students will watch BrainPOP Jr video <https://jr.brainpop.com/science/energy/heat/>.  **Sorting Out (Week 1)**  Students will use their Science textbook to locate photographs, drawings, and other visual images of heat energy. Students will then work in groups to list as many sources of heat energy in 10 mins.  Students will then utilize in class technology to research heat energy comparing then to the now. They will learn about Lewis Howard Lattimore the African American inventor of the incandescent light bulb and other African American inventors that contributed to ( gas burner, lantern, heating furnace)  This will allow the students to form opinions as to why and how the sources of heat energy have changed over the year  **Sorting Out Week Two:**  Students will sort heat and cool insulators. They will also be able to answer Why do some materials conduct heat better than others?  Students will complete the Chocolate Kiss Heat Experiment.  Students will place one chocolate kiss in each hand. One hand will be left open and the other closed. Students will predict and observe what will happen during this experiment.  **Going Further Week Three:**  Cooperative group task: The students will work together to discuss the original source of heat energy (Sun). Sun is the original source of heat energy. Heat energy is transferred in many different ways.  So Many Sources Lesson ( Discovering Science through Inquiry)  Students will write a short story about what daily life would be like if your only energy sources was the sun, water and wind. Describe and draw a picture of how the neighborhood would look like.  **Drawing Conclusions/** Reflecting and Acting **Week Four:**  Students will create a Class Diary of their personal experiences and the students will be able to share what they’ve learned through this unit.  Why are the Temperatures Changing? Ice-Cold Lemonade experiment  Which idea do you thin best explains why the Lemonade was cold?  Students will be given a cup of lemonade and take the temperature. Ice will be added and students will wait 10 minutes to take the temperature again. Students will have made predictions about if how and why the temperature changed. | Para, EIP teacher or SPED teacher will work with small groups as needed or lead a group of learners that may need additional support.  An organizer will be a great resource for students to frequently revisit to remember what they have been learning. It is very important to make the document useful and not merely “complete.” Many students will need to reread it often. Students may need guidance to do this. It is crucial that they are able to read back what they have written.  If writing is not developmentally appropriate, students will be given a copy after the lesson. Students will highlight or color the key vocabulary terms |
| 1. Learning Experiences in Specials:   How are Specials Courses able to connect to this unit? | 1. Local/National/Global Connections:   How can we connect the content to local/national/global issues? | 1. Student Action:   What learning experiences support potential student-initiated action? |
| Spanish  Ss will be connected to this unit by learning a Spanish song about the sun as the main source of heat energy. | Students can research what heat sources their class assigned countries use and compare them to the United states.  Students can also have discussions on inventors that have created heat sources and how they have affected the world. | Students may choose to continue with heat experiments at home.  Students may choose to conserve heat energy at home.  Students may choose books from the media center and Myon related to heat energy. |
| 7. Student Agency and Play:  What learning experiences provide students with voice, choice and ownership? What play opportunities will be provided by Kindergarten/Pre-K?hands on/STEAM for K-5? | | 1. Resources:   Which resources will you and the students use? This may include people, places, technologies, learning spaces and physical materials. |
| Students will participate in two hands on labs:  Lemonade:  Students will be given a cup of lemonade and take the temperature. Ice will be added and students will wait 10 minutes to take the temperature again. Students will have made predictions about if how and why the temperature changed.  Chocolate Kiss Heat Experiment.  Students will place one chocolate kiss in each hand. One hand will be left open and the other closed. Students will predict and observe what will happen during this experiment.  Students will be able to choose their presentation method for the concept based summative assessment  .  During the Lemonade and Chocolate experiments, students will be able to formulate their hypothesis based on prior knowledge and observation. | | Science Books (Section on Heat)  Outdoor (Play Ground area)  Discovery Education  Myon – Heat and Sizzle, Temperature (Texts)  Materials for Experiments: Chocolate / Lemonade  Science Text  Students will watch Heat Energy video on <https://www.youtube.com/watch/xGKg3TSO4v8>  BrainPOP Jr video <https://jr.brainpop.com/science/energy/heat/>.  Library – Resources/Texts |
| **Section 5: Reflection** (Write the year, change font color for each year) | | |
| 1. Reflect on learning experiences: | | |
| Denson 2022- Students were able to identify a lot of heat sources through guided discussion. They noticed that our bodies, certain clothing and the sun gives heat. They were able to understand the vocabulary associated with heat. This years’ experiment went a little different from last year. When students conducted the chocolate kiss experiment a lot of the students chocolate did not melt. Although it did lead to inquiry about why it happened that way, only a few students were able to see the true nature of the experiment. Students also found the books about temperature and heat very helpful for understanding as well as the Brainpop jr video. Note: Due to personal reasons students were not able to participate in all learning experiences because of the days I was out.  Rozier (2022)- Students were able to view images on different heat sources by a small gallery walk and through our science book activities. Students were introduced to the unit of inquiry through a Brainpop video on heat and a mini ice experiment. After the mini experiment, students were able to write their predictions and what happened during and after the ice cube melting. Students were also able to participate in the chocolate kiss experiment where they had the opportunity to see how heat transform through their hands to the chocolate.  Brace(2022) Students enjoyed identifying the heat sources as well as sharing their prior knowledge about heat and energy as we navigated through the science book, powerpoints, and hands on experiments. The favorite part for most of the students was making predictions about the ice cube and Hershey Kiss experiments.  **Gist 2022- Students created a graffitti board with sources of heat. They then shared with their groups what sources they chose and their thoughts on why they chose the heat sources that they illustrated. They also completed a gallery walk of heat sources. They were able to connect with the heat unit even more through an interactive video as well. The students completed a chocolate kiss experiment as well demonstrating the transfer of heat energy.** | | |
| 1. How were the tasks differentiated to meet different learning styles? | | 1. How did the learning experiences and strategies we used throughout the unit help to develop and show students understanding of the central idea? |
| Denson- Tasks were differentiated with scaffolding, Students had choice and received additional assistance when completing all task. The text books on my-on about heat and temperature were both supplied in Spanish for our non-English speaking students.  Rozier (2022)- Tasks were differentiated to meet different learning styles by giving students the opportunity to demonstrate student agency. Students were able to read, write, and draw as the unit on heat went on. Learning styles were met to target what interest students.  **Brace(2022)**  Differentiation of tasks included a collection of supplemental resources to support the unit. Ex. Books on various lexile levels related to the unit.  **Gist (2022) Reading passages for the unit were leveled to meet all students on their lexile levels. Differentiation of written reflections provided with writing prompts were also given to the students. All materials were translated and produced for ESOL students to connect with this unit.** | | Denson- Students enjoyed the learning experience with the chocolate kiss even though it didn’t turn out as planned. Students were able to express verbally when comparing how heat was used in earlier times and how we use heat now. They also gained an understanding of how it would be without heat, as far as cooking and keeping the house warm.  Rozier (2022)- Students were able to understand the central idea that changes in the world may drive people to adapt. When understanding the different heat sources students were able to talk with their groups about how heat effect people clothing, housing, and even their food sources.  **Brace(2022)** Students understood the importance of heat in their daily lives. Students also made connections to the environment and their responsibility in helping to protect their world.  **Gist (2022) Students made connections in their learning with connecting the importance of heat sources and conductors and heat sources.** |
| 1. What learning experiences best supported students’ development and demonstration of the attributes of the learner profile and approaches to learning? | | 1. How effective were the summative assessments in measuring student learning? What, if any, changes need to be made to the assessments? |
| Denson- The learning experience that best supported the students were the discussions and the chocolate kiss experiment. The guided discussions allowed students to make connections to their reality.  Rozier (2022)- The learning experience that best supported students demonstration of the attributes of the learner profile and approaches to learning thorough small group discussions, visual drawings, and the chocolate kiss experiment. Students were able to connect that heat is all around us and ways it is used.  **Brace(2022) The learning experiences that best supported student leaning were hands on experiences (Kiss Experiment) and real world situations that the students shared.**  **Gist 2022- The learning experience that best supported student engagement and learning through inquiry were collaborative discussions, guided reading and discussions and the chocolate kiss experiment. The students were able to sharie their hypothesis of the experiment while demonstrating it through the activity real time.** | | Rozier (2022)- Students completed the post assessment on Canvas. Students were able to identify and answer questions on heat sources. \  **Brace(2022) Students completed post assessments on Canvas as well as throughout the unit as they discovered answers to their own questions.**  **Gist 2022- Students completed kowledge checks throughout the unit as well as District post assessments through Canvas. Students demonstrated what they knew on each assessment.** |
| 1. What student-initiated inquiries (questions) arose from this unit of inquiry? | | 1. What student action arose from this connect of inquiry? |
| Denson-The questions that arose from this unit is why did the chocolate not melt, if our body gives off heat. Students were able to offer suggestions that it could have been because they didn’t keep their hands closed or that maybe their hands were cold.  Rozier (2022)- Why are some places hotter than others?  Why do we wear less clothes in the summer?  Why do certain color of clothing attract more heat?  **Brace(2022)**  **What makes heat rise?**  **Is metal a good source of heat?**  **Gist 2022**  **What are ways we can warm up in cold weather?**  **How can certain objects and materials keeps things hot and cold?**  **Why is the sun important when it relates to hot and cold?** | | Denson-Students wondered and researched multiple heat sources for discussion.  Rozier (2022)- Students were interested in doing more mini experiments on heat and participate in more scenerios.  **Brace(2022) Students took what they learned and applied to other real world experiences.**  **Gist-Students enjoyed the hands on activities in the heat unit that they were able to relate to in their personal lives at home.** |
| 1. Any additional notes or changes that need to be considered next year? | | |
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| **Section 6: Picture Evidence** | | |
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\*\*Scroll Down for Unit Standards\*\*

**Unit Standards**:

**ELA**: 3W1, 3RL6, 3RI6

**Math**:

**Science**: S3P1

**Social Studies**