**Plants and Animals in Our World – Unit 6**

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| **Title of Unit** | Our World in Motion | | **Grade Level** | 1st Grade |
| **Subject** | Science and ELA | | **Time Frame** | 3rd Term (2 weeks) |
| **Developed By** | Helen Rodio and Amanda Huenke | | | |
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| **Stage 1 - Identify Desired Results** | | | | |
| **Established Goals: CCSS / CCCS / Big Ideas / Big Themes** | | | | |
| **Concept:** Cause and Effect  **Big Ideas:** There are different types of energy around us. There is light energy, sound energy, heat energy, and motion energy.  **Topics:** Types of energy, light energy, sound energy, heat energy, motion energy  **Reconceived Standards:**   * Students will identify whether things are living or nonliving. (Analysis) * Students will describe the differences between living and nonliving things. (Comprehension) * Students will create a living and nonliving book. (Creating) * Students will debate whether or not dead and extinct things are living or nonliving. (Evaluating)     **Received Standards:**   |  |  | | --- | --- | | **Content Area** | **Science** | | **Standard** | **5.2 Physical Science:**All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science. | | **Strand** | **C. Forms of Energy:**Knowing the characteristics of familiar forms of energy, including potential and kinetic energy, is useful in coming to the understanding that, for the most part, the natural world can be explained and is predictable |      |  |  |  |  | | --- | --- | --- | --- | | 2 | The Sun warms the land, air, and water. | 5.2.2.C.1 | Compare, citing evidence, the heating of different colored objects placed in full sunlight. | | 2 | An object can be seen when light strikes it and is reflected to a viewer's eye. If there is no light, objects cannot be seen. | 5.2.2.C.2 | Apply a variety of strategies to collect evidence that validates the principle that if there is no light, objects cannot be seen. |  |  |  |  |  | | --- | --- | --- | --- | | 2 | When light strikes substances and objects through which it cannot pass, shadows result. | 5.2.2.C.3 | Present evidence that represents the relationship between a light source, solid object, and the resulting shadow. |  |  |  |  |  | | --- | --- | --- | --- | | 2 | Batteries supply energy to produce light, sound, or heat. | 5.2.2.D.1 | Predict and confirm the brightness of a light, the volume of sound, or the amount of heat when given the number of batteries, or the size of batteries. |  |  |  |  |  | | --- | --- | --- | --- | | 2 | Objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth). | 5.2.2.E.1 | Investigate and model the various ways that inanimate objects can move. | | 2 | A force is a push or a pull. Pushing or pulling can move an object. The speed an object moves is related to how strongly it is pushed or pulled. When an object does not move in response to a push or a pull, it is because another push or pull (friction) is being applied by the environment. | 5.2.2.E.2 | Predict an object’s relative speed, path, or how far it will travel using various forces and surfaces. | | 2 | Some forces act by touching, while other forces can act without touching. | 5.2.2.E.3 | Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip). |  * **Common Core – ELA Standards:**   + [CCSS.ELA-Literacy.RL.1.1](http://www.corestandards.org/ELA-Literacy/RL/1/1/) Ask and answer questions about key details in a text. (Knowledge)   + [CCSS.ELA-Literacy.RL.1.2](http://www.corestandards.org/ELA-Literacy/RL/1/2/) Retell stories, including key details, and demonstrate understanding of their central message or lesson. (Comprehension)   + [CCSS.ELA-Literacy.RL.1.3](http://www.corestandards.org/ELA-Literacy/RL/1/3/) Describe characters, settings, and major events in a story, using key details. (Comprehension)   + [CCSS.ELA-Literacy.RI.1.1](http://www.corestandards.org/ELA-Literacy/RI/1/1/) Ask and answer questions about key details in a text. (Knowledge)   + [CCSS.ELA-Literacy.RI.1.2](http://www.corestandards.org/ELA-Literacy/RI/1/2/) Identify the main topic and retell key details of a text. (Knowledge)   + [CCSS.ELA-Literacy.RI.1.3](http://www.corestandards.org/ELA-Literacy/RI/1/3/) Describe the connection between two individuals, events, ideas, or pieces of information in a text. (Comprehension)   + [CCSS.ELA-Literacy.RI.1.5](http://www.corestandards.org/ELA-Literacy/RI/1/5/) Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text. (Application)   + [CCSS.ELA-Literacy.RI.1.6](http://www.corestandards.org/ELA-Literacy/RI/1/6/) Distinguish between information provided by pictures or other illustrations and information provided by the words in a text. (Analysis)   + [CCSS.ELA-Literacy.SL.1.4](http://www.corestandards.org/ELA-Literacy/SL/1/4/) Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. (Knowledge) | | | | |
| **Cross-curricular Integration (Interdisciplinary Teaching and Learning)**  Will you integrate this unit with other curricular areas? If so, what areas? In what ways will you connect the curricular areas? | | | | |
| **Science and Literacy (ELA):**  Literacy strategies and skills will be applied as students acquire information and communicate their learning and understanding in Science. Integration of Literacy and Science is critical for student success. It is essential that literacy strategy and skill instruction be purposefully and appropriately planned and embedded within Science instruction; i.e. planning for the literacy and science outcomes, differentiating, matching instruction to the learners, and in consideration of resources.  This unit will transition from a Social Studies unit that integrates Social Studies and Literacy (ELA) on geography. This unit will transition into a Social Studies unit that integrates Social Studies and Literacy (ELA). The next unit will be on Egypt. | | | | |
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| **Enduring Understandings**  If a student spends time with you during this unit, what is  absolutely essential that the student understand and  be able to transfer as a result of the experience (Rigor: Quadrant “D”)? | | **Essential Questions**  What provocative questions will foster inquiry, understanding, and transfer of learning (Relevance)?(Often, open-ended questions that stimulate reflective thought and inquiry and connect the knowledge and skills to the enduring understanding are used.) | | |
| *Students will understand that...*   * there are different types of energy. * energy is used. * heat is a type of energy. * light is a type of energy. * motion is a type of energy. * sound is a type of energy. | | *Content specific….*  Big Idea:   * What does energy do? * How do we use energy?   Topical:   * What are some types of energy? * What does light do? * How do we use heat? * What gives off heat? * What is light? * What is sound? * What makes sound? * How do we use motion energy? | | |
| **Knowledge:**  What knowledge (topics and facts) will student acquire as a result of this unit? This content knowledge may come from the indicators, or might also address pre-requisite knowledge that students will need for this unit. | | **Skills**  What skills will students acquire as a result of this unit? List the skills and/or behaviors that students will be able to exhibit as a result of their work in this unit. These will come from the indicators. | | |
| *Students will know...*   * Examples of things that give off heat. * Examples of things that make sound. * Examples of things that give off light. * Examples of things that are in motion. * The four types of energy. * How energy can be used. * What energy can do. | | *Students will be able to…*   * Name the types of energy. * Give examples of each type of energy. * Understand how energy is used. * Describe what gives off heat. * Demonstrate understanding of what light can do. * Discover how sounds are made. * Discover how energy keeps objects in motion. | | |

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| **Stage 2 – Assessment Evidence** | | |
| **Performance Task**  Through what authentic performance task will students demonstrate the desired understandings, knowledge, and skills? (Typically, the P.T. describes the learning activity in narrative form. The P.T. usually includes a scenario or situation that requires students to apply knowledge and skills to demonstrate their understanding in an authentic, real life situation {Relevance}. Describe your performance task scenario below)  By what criteria will performances of understanding be judged? | | |
| **GRASPS Elements of the Performance Task** | | |
| ***G*** *– Goal*  *What should students accomplish by completing this task?* | Goals:   * Design a pendulum swing that will swing back and forth for an extended period of time and analyze the data of what made it swing longer or shorter. (Formative) * Give examples of things that give off or create each type of energy. (Formative) * Tell what energy is and how it is used. (Summative) * Construct 3 ramps for a car and analyze which ramp helps the car move farther and predict why. (Formative) * Participate in discussions about different types of energy (Formative)   Role:   * Scientists, researchers, observers, questioners, presenters, writers, and readers   Audience:   * Teachers and/or peers   Situation:   * Students will demonstrate their understanding of energy through an end of unit test. * Students will present their knowledge to the teachers through labs, discussions, and projects.   Products:   * Test, lab reports, class discussion, swings, ramps | |
| ***R*** *– Role*  *What role (perspective) will your students be taking?* |
| ***A*** *– Audience*  *Who is the relevant audience?* |
| ***S*** *– Situation*  *The context or challenge provided to the student.* |
| ***P*** *– Product, Performance*  *What product/performance will the student*  *create?* |
| ***S*** *– Standards & Criteria for Success*  *Create the rubric for the Performance Task* | Standards:  Grading key for test | |
| **Performance Evidence**  Through what evidence (work samples, projects, surveys, observations, quizzes, tests, journals or other means) will students demonstrate achievement of the desired results? What formative and summative assessments will be used throughout the unit to arrive at the outcomes. | | **Student Self-Assessment**  In what ways will students reflect upon or self-assess their learning? |
| * Design a swing that will swing back and forth for an extended period of time and analyze the data of what made it swing longer or shorter. (Formative) * Give examples of things that give off or create each type of energy. (Formative) * Tell what energy is and how it is used. (Summative) * Construct 3 ramps for a car and analyze which ramp helps the car move farther and predict why. (Formative) * Participate in discussions about different types of energy (Formative) * Test (Summative) | | * Traffic light * Use reflective questions, prompts, and responses * What did I learn? How am I a scientist? |

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| **Stage 3 – Learning Plan**  What teaching and learning experiences (WHERETO) will you use to:   * achieve the desired results identified in Stage 1? * equip students to complete (with understanding) the assessment tasks identified in Stage 2? | | | | |
| **Where are your students headed? Where have they been? How will you make sure the students know where they are going?**  **What experiences do the learners bring to the unit? How have the interests of the learners been ascertained? Have the learners been part of the pre-planning in any way? What individual needs do you anticipate will need to be addressed?**  **Learning environment: Where can this learning best occur? How can the physical environment be arranged to enhance learning?** | | | | |
| |  |  | | --- | --- | | **W**  **H**  **E**  **R**  **E**  **T**  **O** | Where – We will start the unit by giving an overview of energy. We will then break it into small chunks as we present each type of energy, one at a time. | | Hook – Students will be given a flashlight and some materials. Students will record if the light is able to go through the object and how bright it is. Record data on a check sheet. Students will respond after the lab about what things light can do based on observations they made. | | Equip -   * Class discussions about energy, its different forms, and how it is used * Develop vocabulary – energy, electricity, fuel, shadow, vibrate, reflect/reflection, heat, light, sound, motion * Practice identifying key facts and nonfiction text features in nonfiction texts and how they relate to the main topic * Compare and contrast the different types of energy * Discuss with a group how energy is at work in various examples of texts, videos, photographs, and situations * Work with a group to do lab activities and experiment with different types of energy and their effects on objects | | Rethink – Provide opportunities for students to discuss what they know and think. Ask students lots of questions to help them articulate their ideas. | | Evaluate – Students will consider the different types of energy, examples of different types of energy, and how they are used every day. | | Tailor – If needed, students will receive extra support in lab groups, completing the test, and/or provide them with a graphic organizer. | | Organization –   * Plan science labs and hands on activities * Plan an end of unit test | | | | | |
| **In what ways will you engage students at the beginning of the unit?** | | | | |
| Students will be given a flashlight and some materials. Students will record if the light is able to go through the object and how bright it is. Record data on a check sheet. Students will respond after the lab about what things light can do based on observations they made. | | | | |
| **What activities / events will help students experience and explore the enduring understandings and essential questions in the unit? How will you equip them with needed skills and knowledge?** | | | | |
| **#** | **Lesson Title** | **Lesson Activities** | **Cross-curricular** | **Resources** |
| 1 | Hook: Flashlight Lab | Students will be given a flashlight and some materials. Students will record if the light is able to go through the object and how bright it is. Record data on a check sheet. Students will respond after the lab about what things light can do based on observations they made.  CHECK FLASHLIGHT BATTERIES!  Lab is in unit folder. | Yes | Interactive Science textbook by Pearson and online resources  The Three Little Pigs  Scholastic News Magazines and website (as appropriate)  Science A-Z materials  Reading A-Z materials  Brainpop Jr. |
| 2 | How do we use energy? | Read and complete My Planet Diary p. 272.  Read Interactive Science textbook p. 273 -275. Use the interactive lesson on the smartboard.  Watch Brainpopjr.com video > Energy Sources. Take the easy quiz as a class and students put fingers up to predict the answer (1=A, 2=B, 3=C, 4=D)  Read Energy is Everywhere from Science A-Z (in folder) - Can be done during morning meeting.  Complete Lesson 1 check up | Yes |
| 3 | What gives off heat? | Intro Lab- rub hands on desk for 15 seconds. Describe how they feel. Rub hands on pants for 15 seconds. Describe how they feel. Why did your hands get hotter when you rubbed your pants?  Read Interactive Science textbook p. 277-279. Watch Got It video and take Got It quiz on the smartboard as a class to review the content from the textbook.  Watch Brainpopjr.com video > Heat. Take the easy quiz as a class and students put fingers up to predict the answer (1=A, 2=B, 3=C, 4=D)  Read Heat in the Kitchen from Science A-Z (in folder) - Can be done during morning meeting.  Complete the chocolate chip heat lab. (in folder) | Yes |
| 4 | What is light? | Read and complete My Planet Diary p. 280.  Read Interactive Science textbook p. 281-283. Use the interactive lesson on the smartboard.  Watch Brainpopjr.com video > Light. Take the easy quiz as a class and students put fingers up to predict the answer (1=A, 2=B, 3=C, 4=D)  Read Is Light Good or Bad? From Science A-Z (in folder) - Can be done during morning meeting.  \*If weather is nice (optional) in the morning, put cup of water, orange peel, piece of colored paper out in the sun and keep one covered from any light. Check in the afternoon. How did the light energy change the objects? | Yes |
| 5 | What is sound? | Watch “Pipedream by Animusic” video on Science A-Z and use the discussion questions guide.  Use rubberbands on boxes for students to explore different sound vibrations in a hands on way.  Read Interactive Science textbook p. 285-287. Use the interactive lesson on the smartboard.  Watch Brainpopjr.com video > Sound. Take the easy quiz as a class and students put fingers up to predict the answer (1=A, 2=B, 3=C, 4=D)  Read The Sound of Drums from Science A-Z (in folder) - Can be done during morning meeting. | Yes |
| 6 | What is motion energy?  (2 days- 1 day lesson and 1 day STEM activity) | Read Energy on the Playground from Science A-Z (in folder)  Watch Brainpopjr.com video > Pushes and Pulls. Take the easy quiz as a class and students put fingers up to predict the answer (1=A, 2=B, 3=C, 4=D)  Car & Ramp Lab- Students will build a ramp with 1 block, 2 blocks, and 3 blocks. They will determine which ramp made the car go farthest after making their hypotheses and infer why that ramp went the farthest. Use lab discussion questions in the packet.  STEM ACTIVITY- Build your own swing! Attach a string to a heavy object. Hang the swing so it can move freely. Pull the swing up and let it go. How long does it keep swinging? Use a timer to find out. Now try some new ways to make the swing move for a longer time. Compare the times. What works best? What forces did you use in each test? Write or draw your results. | Yes |
| 7 | Shared Reading | Read 3 Little Pigs books throughout this unit.  Culminating Activity for Shared Reading- Students will build their own houses out of materials and see if they will stay standing when someone tries to blow them down. Record the results. Can your house stay standing with a hair dryer? What things made some houses stronger than others?  Spend 1 day reading about a sports player (Roberto Clemente) and make connections to energy & science. | Yes |
| 8 | Centers activities | Write the room (energy image cards).  Put topic books on shelf for Read To Self. (Energy Concept Books & Focus Books)  Examples of Energy Foldable Art (Learning About Energy Packet) | Yes |
| 9 | Review | Water bottle sound lab p. 288 from Interactive Science.  Use discussion cards from Science A-Z. Students pull card out of a bucket and discuss the question as a class.  Discussion: What are the different kinds of energy used when you go to see a movie. | Yes |
| 12 | Summative Assessment | Science Chapter Test | Yes |
| **Special Considerations**:   * Each lesson will begin and end with an essential question * Some instruction will occur during Shared Reading block and some will occur during Science literacy block * Some of the teaching will occur in small groups during centers * Additional resources will be added * Differentiation will occur as needed | | | |  |

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| **Assess and Reflect (Stage 4)** | |
| **Reflections / Considerations (Self-assessment)** | **Comments** |
| **Unit and Areas of Study:**  **Did I maintain alignment and integrity between and among Stage 1, Stage 2, and Stage 3?** |  |
| **Adaptive Dimension:**  **Did I make purposeful adjustments to the curriculum content (not outcomes), instructional practices, and/or the learning environment to meet the learning needs and diversities of all my students?** | For struggling students:  For students who need a challenge: |
| **Instructional Approaches:**  **Did I use a variety of teacher directed and student centered instructional approaches?** |  |
| **Resource-based Learning:**  **Did the students have access to various resources on an ongoing basis?** |  |
| **Content and Perspectives/Gender Equity/Multicultural Education:**  **Have I nurtured and promoted diversity while honoring each child’s identity?** |  |

Adapted from: Wiggins, Grant and J. McTighe. (1998). *Understanding by Design*, Association for Supervision and Curriculum Development.