# GIPS 4th Grade Science Design Map

| **Units** (in sequence) | **Estimated Time Frame** (days) | **K-12 Program Strands With Corresponding Course/Grade Level Standards** | **K-12 Program Enduring Understandings (for content only)** | **K-12 Program Essential Questions (for content only)** | **Unit Assessments** (note if optional) | **C/GL Key Vocabulary Concepts** |
|---|---|---|---|---|---|---|
| Unit 1 **Magnetism & Electricity**<br><br>Optional: Investigation 3, part 3 | 12+ Days | **<u>Physical Science</u>:**<br>**2.2 Motions and Forces**<br><br>Describe how magnets display forces of attractions and repulsion<br><br>Describe the interaction of permanent magnets with a variety of common materials<br><br>**<u>Physical Science</u>:**<br>**2.3 Matter & Energy**<br><br>Identify and construct simple open, closed, parallel, and series circuits.<br><br>Identify materials that are conductors and insulators | The interaction between energy and matter creates forces (pushes and pulls) that produce predictable patterns of change.<br><br>The total amount of matter and energy remains constant, even though their form and location undergo continual change.<br><br>Although the various forms of energy seem very different, each can be measured in a way that makes it possible to keep track of how much of one form is converted into another.<br><br>**See strand one for full text.** | What role do forces play?<br><br>How does energy cause change?<br><br>Where does energy come from? Where does it go?<br><br>How does energy flow and how is it transmitted? | FOSS End-of-Module Assessment<br><br>Performance Page 8<br><br>Structured Response (Multiple Choice page 10-13; Short Answer Page 13; Narrative page 14-15) | repel<br>attract<br>magnet<br>circuit<br>electricity |
| Unit 2 **Earth Materials** | 14+ Days | **<u>Physical Science</u>:**<br>**2.1 Chemical and Physical Properties of Matter**<br><br>**<u>Earth & Space Science</u>:**<br>**4.1 Structure, History, & Cycles**<br><br>Observe, describe, and record properties of minerals<br><br>Investigate the effect of vinegar (acid) on a specific mineral, calcite<br><br>Collect data about rocks<br><br>Compare and contrast rocks and minerals | All matter is made up of relatively few kinds of basic materials combined in various ways.<br><br>The way matter can be separated determines what type of matter it is.<br><br>When two or more substances interact to form new substances, the properties of the new combinations may be very different from those of the old.<br><br>The Earth system is composed of interacting subsystems of the geosphere, hydrosphere, atmosphere, and biosphere.<br><br>Systems are not mutually exclusive: they may be so closely related that there is no way to separate all parts of one from all parts of the other.<br><br>The elements that make up the molecules of living things are continually recycled.<br><br>Materials within the Earth system have physical/ chemical properties that make them useful in different ways.<br>**See strand one for full text.** | How do scientists distinguish between objects? What do they learn from the comparisons?<br><br>What causes a reaction? How do we predict reactions before they happen?<br><br>How do properties of a substance determine its use?<br><br>What are the parts of this system? How do they work together? | FOSS End-of-Module Assessment<br><br>Performance Page 8<br><br>Structured Response: (Short Answer Page 9; Multiple Choice Page 10-11; Narrative Page 11 last item & Page 13) | mineral<br>rock<br>evidence<br>crystal |

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| Unit 3<br>**Human Body**<br><br>**Combine Investigation Lesson 3**<br>~Small groups make models day 1<br>~Discuss day 2<br><br>Alternative Lessons:<br>**Choose between** Owl Pellets, Project Wild, or Interactive Website | 15+ Days | **<u>Physical Science</u>:**<br>**2.3 Matter and Energy**<br><br>Observe and diagram a food chain<br><br>**<u>Life Science</u>:**<br>**3.1 Diversity of Life**<br><br>Compare and contrast the movement of a hinge joint and ball and socket joint<br><br>Locate and list human bone and muscle structures and functions<br><br>**<u>Life Science</u>:**<br>**3.3 Ecosystems**<br><br>Observe rand diagram a food chain | Although the various forms of energy seem very different, each can be measured in a way that makes it possible to keep track of how much of one form in converted into another.<br><br>Living things have certain structures that serve necessary functions for growth, response to stimulus, reproduction and use of energy.<br><br>Organisms can survive only in environments in which their needs can be met.<br><br>The change one organism makes in order to adapt/survive has significant ripple effects.<br><br>Environment has the power to shape/change how an organism responds/functions in it's surroundings.<br><br>**See strand one for full text.** | How does energy flow and how is it transmitted?<br><br>What are living things made of?<br><br>How do organisms change, survive and adapt to their environments?<br><br>How do living things interact with each other?<br><br>What are life cycles of living things? | FOSS End-of-Module Assessment<br><br>Structured Response (Multiple Choice Page 8-10 and three Food Chain questions; Short Answer Page 11 & 15; Narrative Page 16) | bones<br>joints<br>muscles<br>skeleton<br>food chain |