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SCIENCE PARENT GUIDE – UNIT 6

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| ***IMPORTANT CONCEPTS YOUR STUDENT SHOULD KNOW AND ACTIVITIES TO DO AT HOME*** | |
| **BALANCED AND UNBALANCED FORCES** | |
| **DESCRIPTION** | |
| In this unit, fourth graders will focus on studying the effects of balanced and unbalanced forces on an object. Students will analyze how simple machine impact forces. Students will perform the following science and engineering practices to help investigate balanced and unbalanced forces: plan and carry out investigations and construct an argument. | |
| **KEY WORDS TO KNOW** | |
| * Motion: describes change in an object’s position with respect to time and in comparison to other objects * Force: a push or pull that causes an object to move, stop, or change direction * Gravity: a force of attraction between objects * Friction- a force that opposes (acts against) motion * Balanced force: two equal forces acting in opposite directions to cancel each other out Unbalanced force: two unequal forces that put an object into motion * Gravitational force: the **force** of attraction between all objects in the universe; especially the attraction of the earth's mass for bodies near its surface. * Simple Machine: The basic machines that make up other machines * Work: That which is done on an object when a force moves the object through a distance | * Force: A push or pull * Fulcrum: The fixed point, or point that doesn't move, on a lever * Wheel and Axle: A simple machine made up of a large wheel attached to a smaller wheel or rod * Inclined Plane: A flat surface with one end higher than the other * Lever: A simple machine made up of a bar that turns around a fixed point * Pulley: A simple machine made up of a rope or chain and a wheel around which the rope fits * Screw: An inclined plane wrapped around a pole * Wedge: A machine made up of two inclined plane placed back-to-back   http://1.bp.blogspot.com/-QOn2S_p5PU8/Vg5eWgC54BI/AAAAAAAAPuU/lQnA-gp1UkM/s640/vocabulary.png |

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| C:\Users\KENNEDY\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\QH0NFGU2\idea-azione-motivazione[1].png**Recommended Children’s Literature (Available at your local public library or Amazon).**  *Give It a Push. Give It a Pull.* By Jennifer Boothroyd  *Motion: Push and Pull, Fast and Slow* by Darlene Stille  *Forces Make Things Move* by Kimerly Bradley  *Eyewitness: Force and Motion* by Dorling Kindersley | | | |
| **BALANCED AND UNBALANCED FORCES** | | | |
| **Important Concepts**  **Addressed in this Unit** | **Sample Problems** | | **How You Can Help Your Student** |
| S4P3. Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces.   1. **Plan and carry out an investigation** on the effects of balanced and unbalanced forces on an object and communicate the results. 2. **Construct an argument** to support the claim that gravitational force affects the motion of an object. 3. **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.) | 1. How can forces be used to make objects move, change direction, or stop? 2. How is the motion of an object related to the size of the object and the amount of force that is applied to the object? 3. What is gravity and how does it affect things on the earth? 4. How do simple machines make work easier for people? 5. How would you justify how simple machines change the amount of force required to lift or move a load? | | **Digital Resources**   * Science Curriculum: STEMscopes via MyBackpack <https://launchpad.classlink.com/atlanta> * Force and Motion Activities <http://www.teachjunkie.com/sciences/19-fun-ideas-resources-force-and-motion/> * Forces and Motion <https://www.bbc.co.uk/bitesize/articles/zr6kbqt> * Simple Machines Games and Videos <https://www.learninggamesforkids.com/simple-machines-games.html> |
| **Changes to Science Standards: Students are expected to perform the practices while learning the content and understanding the crosscutting concepts.** | | | |
| **Science and Engineering Practices**  Students can use their understanding to investigate the natural world through the practices of science inquiry, or solve meaningful problems through the practices of engineering design.  **Crosscutting Concepts**  Provide students with connections and intellectual tools that are related across the differing areas of disciplinary content and can enrich their application of practices and their understanding of core ideas  **Core Ideas**  Core ideas cover the four domains: physical sciences, earth and space sciences, life science, and engineering and technology. | |  | |