FORMAT FOR CORRELATION TO THE GEORGIA PERFORMANCE STANDARDS

Subject Area: Physical Science **State-Funded Course:** Science/Grade 8 (Physical Science)

Textbook Title: Middle School Inquiry Science: InterActions in Physical Science

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The GPSs for grades K-12 Science and 9-12 Mathematics may be accessed on-line at: http://www.georgiastandards.org/.

Standard (Cite Number)	**Standard** (Cite specific standard)	**Where Taught** (If print component, cite page number; if non-print, cite appropriate location.)
S8CS1	**Students will explore the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**	
S8CS1.a	Understand the importance of—and keep—honest, clear, and accurate records in science	2-14; 110-126; 16-29; 128-145; 30-45; 202-214; 58-72 ; 240-252;326-336; 338-355; 400-412; 430-443; 520-532;534-542;624-634; 796-807;808-820;822-832;866-878;896-914;
S8CS1.b	Understand that hypotheses are valuable if they lead to fruitful investigations, even if the hypotheses turn out not to be completely accurate descriptions.	16-29; 30-45; 128-145; 294-308; 310-324;430-443; 480-485;624-634;678-686; 796-807;808-820;822-832;862-865;880-894;896-914;916-927; 950-959;960-973;
S8CS2	**Students will use standard safety practices for all classroom laboratory and field investigations.**	
S8CS2.a	Follow correct procedures for use of scientific apparatus.	2-14; 16-29; 128-145; 146-160; 202-214; 216-229; 254-263; 280-293; 326-336;430-443; 796-807;808-820;822-832;866-878;896-914;

S8CS2.b	Demonstrate appropriate techniques in all laboratory situations.	2-14; 16-29; 128-145; 146-160; 202-214; 216-229; 254-263; 294-308; 326-336;400-412;430-443; 486-495; 534-542; 624-634; 678-686; 796-807;808-820;822-832; 866-878;896-914
S8CS2.c	Follow correct protocol for identifying and reporting safety problems and violations.	254-263; 280-293; 294-308; 326-336;400-412; 430-443; 486-495; 534-542; 556-567; 796-807;808-820;822-832;866-878;896-914;
S8CS3	**Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**	
S8CS3.a	Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.	58-72; 202-214; 216-229; 254-263; 326-336; 338-355; 370-382; 702-715; 796-807;844-853;866-878;950-959;
S8CS3.b	Find the mean, median, and mode and use them to analyze a set of scientific data.	16-29; 30-45; 192-201; 216-229; 338-355; 796-807;
S8CS3.c	Apply the metric system to scientific investigations that include metric to metric conversions (i.e., centimeters to meters).	2-14; 182-191; 192-201; 202-214; 216-229; 240-252; 254-263; 338-355;702-715; 796-807;808-820;866-878;896-914;
S8CS3.d	Decide what degree of precision is adequate, and round off appropriately.	2-14; 192-201; 202-214; 240-252; 254-263;338-355; 796-807;808-820;822-832;866-878;
S8CS3.e	Address the relationship between accuracy and precision.	2-14; 16-29; 182-191; 192-201; 202-214; 240-252; 254-263; 338-355; 702-715; 796-807;808-820;822-832;866-878;896-914;

S8CS3.f	Use ratios and proportions, including constant rates, in appropriate problems.	202-214; 240-252; 338-355; 688-701; 808-820;822-832;
S8CS4	**Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities utilizing safe laboratory procedures.**	
S8CS4.a	Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.	254-263; 310-324; 338-355; 356-368; 520-532; 544-555; 730-746; 796-807;808-820;822-832;896-914;1016-1029;
S8CS4.b	Use appropriate tools and units for measuring objects and/or substances.	2-14; 58-72; 128-145; 162-175; 192-201; 202-214; 216-229; 230-239; 240-252; 254-263; 310-324; 326-336; 338-355; 430-443; 702-715; 796-807;808-820;822-832;866-878;896-914;
S8CS4.c	Learn and use standard safety practices when conducting scientific investigations.	2-14; 146-160; 216-229; 240-252; 254-263; 280-293; 294-308; 326-336; 430-443; 486-495; 534-542; 556-567; 678-686 ; 796-807;808-820;822-832;896-914;
S8CS5.	**Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**	
S8CS5.a	Observe and explain how parts can be related to other parts in a system such as the role of simple machines in complex machines.	80-92; 110-126; 128-145; 146-160; 162-175; 240-252; 254-263; 280-293; 294-308; 310-324; 326-336; 328-355; 400-412; 414-428; 430-443; 452-461; 486-495;520-532;534-542;544-555 ;556-567;576-585;598-611;716-128;730-746;748-759; 796-807;808-822;822-832;834-843;844-853;866-878;880-894; 896-914;916-927;950-959;960-973;974-986;988-999;1016-1029
S8CS5.b	Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.	162-175; 240-252; 310-324; 326-336; 338-355; 356-368; 392-389; 414-428; 520-532; 544-555;576-585; 624-634; 666-676; 730-746;748-759; 896-914;916-927;974-986;988-999;1016-1029

S8CS6.	**Students will communicate scientific ideas and activities clearly.**	
S8CS6.a	Write clear, step-by-step instructions for conducting scientific investigations, operating a piece of equipment, or following a procedure.	624-634;
S8CS6.b	Write for scientific purposes incorporating information from a circle, bar, or line graph, data tables, diagrams, and symbols.	94-109; 128-145; 294-308; 326-336; 370-382; 400-412; 430-443; 496-504;534-542; 576-585;678-686;688-701; 702-715; 716-728; 796-807;808-820;822-832;834-843;844-853;880-894;896-914; 916-927; 940-948;950-959;
S8CS6.c	Organize scientific information in appropriate tables, charts, and graphs, and identify relationships they reveal.	2-14; 16-29; 30-45; 110-126;128-145; 162-175; 192-201; 202-214; 240-252; 370-382; 400-412; 414-428; 430-443; 520-532; 534-542; 624-634; 702-715; 796-807;808-820 ;822-832;866-878 ;896-914;
S8CS7.	**Students will question scientific claims and arguments effectively.**	
S8CS7.a	Question claims based on vague attributions (such as “Leading doctors say...”) or on statements made by people outside the area of their particular expertise.	392-399; 480-485; 496-504; 534-542; 544-555; 568-573; 576-585; 660-665; 730-746; 748-759; 796-807;808-820;822-832;
S8CS7.b	Identify the flaws of reasoning in arguments that are based on poorly designed research (e.g., facts intermingled with opinion, conclusions based on insufficient evidence).	30-45; 46-57;58-72 ; 310-324; 370-382; 430-443; 452-461 ; 496-504; 544-555; 568-573; 576-585; 660-665; 808-820;896-914;940-948;
S8CS7.c		

	Question the value of arguments based on small samples of data, biased samples, or samples for which there was no control.	58-72; 310-324; 370-382; 392-399; 430-443; 480-485; 520-532; 568-573; 796-807;808-820;822-832;
S8CS7.d	Recognize that there may be more than one way to interpret a given set of findings.	80-92; 392-399; 430-443; 534-542; 568-573; 576-585 ; 796-807;808-820;822-832;
S8CS8.	**Students will be familiar with the characteristics of scientific knowledge and how it is achieved.**	
S8CS8.a	When similar investigations give different results, the scientific challenge is to judge whether the differences are trivial or significant, which often requires further study. Even with similar results, scientists may wait until an investigation has been repeated many times before accepting the results as meaningful.	2-14; 30-45; 80-92; 110-126; 192-201; 202-214; 216-229; 240-252; 400-412; 430-443; 496-504; 520-532; 544-555; 556-567; 624-634; 702-715; 796-807;808-820;822-832;834-843;896-914;915-927;
S8CS8.b	When new experimental results are inconsistent with an existing, well-established theory, scientists may pursue further experimentation to determine whether the results are flawed or the theory requires modification.	430-443; 636-648; 660-665; 730-746; 808-820;822-832;834-843;916-927;
S8CS8.c	As prevailing theories are challenged by new information, scientific knowledge may change.	80-92; 636-648;660-665;730-746; 796-807;822-832;834-843;916-927;1016-1029;
S8CS9	**Students will understand the features of the process of scientific inquiry.**	
S8CS9.a	Investigations are conducted for different	

	reasons, which include exploring new phenomena, confirming previous results, testing how well a theory predicts, and comparing different theories. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.	110-126; 128-145; 146-160; 280-293; 294-308; 310-324; 326-336; 338-355; 392-399; 400-412; 430-443; 480-485; 486-495; 496-504; 520-532; 534-542; 556-567; 624-634; 678-686; 702-715; 716-728; 796-807;808-820;822-832 ;866-878;880-894;896-914;916-927;960-973;974-986; 988-999;
S8CS9.b	Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.	30-45; 46-57; 58-72; 94-109; 110-126; 128-145; 146-160; 254-263; 326-336; 338-355;370-382; 400-412; 430-443; 452-461; 486-495; 496-504; 520-532; 534-542; 544-555 ; 556-567; 624-634; 678-686; 796-807;822-832;866-878 ;896-914;974-986;988-999;
S8CS9.c	Scientific experiments investigate the effect of one variable on another. All other variables are kept constant.	2-14; 30-45; 46-57; 58-72; 80-92; 94-108; 110-126; 128-145; 146-160; 240-252; 280-293; 294-308; 310-324; 480-485;486-495;496-504;520-532;556-567;678-686;702-715; 716-728; 326-336; 338-355; 356-368; 430-443; 452-461; 796-807;808-820;822-832;844-853;866-878;880-894;896-914;;960-973;974-986;988-999;
S8CS9.d	Scientists often collaborate to design research. To prevent this bias, scientists conduct independent studies of the same questions.	326-336; 430-443; 486-495;624-634;678-686;
S8CS9.e	Accurate record keeping, data sharing, and replication of results are essential for maintaining an investigator's credibility with other scientists and society.	2-14; 30-45; 58-72; 110-126; 128-145; 202-214; 338-355; 370-382; 430-443; 534-542;568-573;624-634; 796-807;808-820;822-832; 866-878;896-914;
S8CS9.f	Scientists use technology and mathematics to enhance the process of scientific inquiry.	30-45; 128-145; 162-175; 192-201; 202-214; 216-229; 230-239; 240-252;254-263; 310-324; 326-336; 338-355; 356-368; 370-382; 430-443; 520-532;544-555;586-596;678-686;702-715;716-728;730-746;748-759;760-773; 788-794;796-807;808-820;822-832;866-878;896-914;974-986;988-999;1016-1029;
S8CS9.g		

	The ethics of science require that special care must be taken and used for human subjects and animals in scientific research. Scientists must adhere to the appropriate rules and guidelines when conducting research.	110-126; 128-145; 400-412; 430-443; 796-807;808-820;822-832; 1016-1029;
S8CS10	**Students will enhance reading in all curriculum areas by:**	
S8CS10.a	Reading in All Curriculum Areas ∞ Read a minimum of 25 grade-level appropriate books per year from a variety of subject disciplines and participate in discussions related to curricular learning in all areas ∞ Read both informational and fictional texts in a variety of genres and modes of discourse ∞ Read technical texts related to various subject areas.	414-428; 486-495;496-504;
S8CS10.b	Discussing books ∞ Discuss messages and themes from books in all subject areas. ∞ Respond to a variety of texts in multiple modes of discourse. ∞ Relate messages and themes from one subject area to messages and themes in another area. ∞ Evaluate the merit of texts in every subject discipline. ∞ Examine author's purpose in writing. ∞ Recognize the features of disciplinary texts.	414-428; 486-495;496-504;

S8CS10.c	Building vocabulary knowledge ∞ Demonstrate an understanding of contextual vocabulary in various subjects. ∞ Use content vocabulary in writing and speaking. ∞ Explore understanding of new words found in subject area texts.	30-45; 16-29; 182-191; 192-201; 202-214; 216-229; 230-239; 240-252; 254-263; 276-279; 280-293; 294-308; 310-324; 326-336; 338-355; 370-382; 400-412; 414-428; 496-504;660-665;716-728; 796-807;808-820;822-832;844-853;880-894;916-927;940-948;950-959;974-986;988-999;1016-1029;
S8CS10.d	Establishing context ∞ Explore life experiences related to subject area content. ∞ Discuss in both writing and speaking how certain words are subject area related ∞ Determine strategies for finding content and contextual meaning for unknown words.	162-175; 254-263; 338-355; 400-412; 576-585;702-715; 796-807;896-914;916-927; 950-959;
S8P1.	**Students will examine the scientific view of the nature of matter.**	
S8P1.a	Distinguish between atoms and molecules.	1242-1250; 1252-1277; 1308-1324; 1326-1348; 1366-1379; 1392-1404; 1406-1415; 1430-1441; 1442-1453; 1612-1624;1626-1637;1638-1651
S8P1.b	Describe the difference between pure substances (elements and compounds) and mixtures.	796-807;822-832; 1116-1132;1134-1147;1148-1166;1168-1182;1184-1194; 1406-1415; 1442-1453; 1612-1624;1626-1637
S8P1.c	Describe the movement of particles in solids, liquids, gases, and plasmas states.	808-820;916-927; 1252-1277; 1278-1288;1290-1307;1308-1324; 1326-1348; 1350-1365; 1366-1379; 1392-1404; 1406-1415; 1416-1428;

S8P1.d	Distinguish between physical and chemical properties of matter as physical (i.e., density, melting point, boiling point) or chemical (i.e., reactivity, combustibility).	230-239; 254-263; 1044-1056;; 1058-1075; 1076-1088;1090-1102; 1104-11151184-1194; 1204-1213; 1214-1226; 1488-1500;1518-1533;1576-1591
S8P1.e	Distinguish between changes in matter as physical (i.e., physical change) or chemical (development of a gas, formation of precipitate, and change in color).	796-807808-820;822-832 844-853 ; 1090-1102; 1104-1115; 134-1147; 1148-1166; 1184-1194; 1488-1500;1518-1533;1562-1575;1576-1591
S8P1.f	Recognize that there are more than 100 elements and some have similar properties as shown on the Periodic Table of Elements.	1148-1166; 1168-1182; 1184-1194; 1214-1226; 1442-1453
S8P1.g	Identify and demonstrate the Law of Conservation of Matter.	788-794;796-807;808-820;;822-832;834-843;844-853;896-914;928-938; 1478-487;1488-1500;1502-1516;1518-1533;1534-1551;1552-1561;1562-1575;1592-1600;1602-1610
S8P2.	**Students will be familiar with the forms and transformations of energy.**	
S8P2.a	Explain energy transformation in terms of the Law of Conservation of Energy.	280-293; 392-399; 400-412;414-428; 430-443; 444-451;452-461; 480-485; 486-495; 568-573; 716-728; 862-865;880-894;896-914;916-927;928-938;950-959; 1478-1487;1502-1516;1552-1561;1576-1591;1592-1600; 1602-1610
S8P2.b	Explain the relationship between potential and kinetic energy.	392-399; 414-428; 444-451; 452-461; 520-532; 534-542; 716-728; 866-878;880-894;916-927;950-959;960-973;974-986;988-999;1000-1015;1016-1029; 1502-1516;1518-1533;1602-1610

S8P2.c	Compare and contrast the different forms of energy (heat, light, electricity, mechanical motion, sound) and their characteristics.	276-279; 310-324; 326-336; 392-399; 400-412; 414-428; 444-451; 452-461; 480-485; 486-495; 496-504; 506-519; 520-532; 534-542; 544-555; 556-567; 636-648; 730-746; 866-878;880-894;896-914;940-948;950-959; 1488-1500;1502-1516;1518-1533;1576-1591
S8P2.d	Describe how heat can be transferred through matter by the collisions of atoms (conduction) or through space (radiation). In a liquid or gas, currents will facilitate the transfer of heat (convection).	730-746; 1430-1441; 1518-1533;1552-1561;1576-1591
S8P3.	**Students will investigate relationship between force, mass, and the motion of objects.**	
S8P3.a	Determine the relationship between velocity and acceleration.	338-355; 370-382; 400-412; 544-555; 586-596;
S8P3.b	Demonstrate the effect of balanced and unbalanced forces on an object in terms of gravity, inertia, and friction.	400-412; 414-428; 444-451; 452-461; 480-485; 486-495; 496-504; 506-519; 520-532; 534-542;544-555; 556-567; 576-585; 586-596; 619-623; 624-634;636-648; 650-659; 660-665;666-676; 678-686; 688-701; 702-715; 730-746; 760-773;
S8P3.c	Demonstrate the effect of simple machines (lever, inclined plane, pulley, wedge, screw, and wheel and axle) on work.	598-611;
S8P4.	**Students will explore the wave nature of sound and electromagnetic radiation.**	
S8P4.a		

S8P4.b	Identify the characteristics of electromagnetic and mechanical waves.	
S8P4.c	Describe how the behavior of light waves is manipulated causing reflection, refraction diffraction, and absorption.	960-973;974-986;1016-1029;
S8P4.d	Explain how the human eye sees objects and colors in terms of wavelengths.	974-986;988-999;
S8P4.e	Describe how the behavior of waves is affected by medium (such as air, water, solids).	310-324; 356-368; 370-382; 974-986;1016-1029;
S8P4.f	Relate the properties of sound to everyday experiences.	310-324;326-336; 356-368;
S8P5.	Diagram the parts of the wave and explain how the parts are affected by changes in amplitude and pitch.	294-308; 310-324; 356-368; 370-382;
S8P5.a	**Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature.**	
S8P5.b	Recognize that every object exerts gravitational force on every other object and that the force exerted depends on how much mass the objects have and how far apart they are.	624-634; 636-648; 650-659; 660-665;
	Demonstrate the advantages and disadvantages of series and parallel circuits and how they transfer energy.	128-145; 146-160;326-336

S8P5.c	Investigate and explain that electric currents and magnets can exert force on each other.	94-109; 110-126; 128-145; 146-160; 162-175;326-336;

Page _____ of _____