5th Grade Science

Goal	ISAT%	Objective Description (with content limits)
		Standard 1: Nature of Science
1.1: Understand Systems, Order, and Organization	35-38%	5.S.1.1.1 Compare and contrast different systems. (603.01.a) CL: E Content Limit: Compare one item to another; do not make multiple-item comparisons. Systems tested should be familiar to students. Systems that could be used to develop items include classroom systems (stations, seating plans, built-in operation schemes), games (tag, kick ball), school systems (student: teacher: principal), the water cycle, and body systems (skeletal, digestive, respiratory).
1.2: Understand Concepts and Processes of Evidence, Models, and Explanations		5.S.1.2.1 Use observations and data as evidence on which to base scientific explanations and predictions. (603.02.a) CL: E Content Limit: Explanations and predictions are limited to directly described or illustrated information in the item.
1.2: Understand Concepts and Processes of Evidence, Models, and Explanations		5.S.1.2.2 Explain the difference between observation and inference. (603.02.b) CL: Content Limit:
1.2: Understand Concepts and Processes of Evidence, Models, and Explanations		5.S.1.2.3 Use models to explain or demonstrate a concept. (603.02.c) CL: Content Limit:
1.3: Understand Constancy, Change, and Measurement		5.S.1.3.1 Analyze changes that occur in and among systems. (603.03.b) CL: E Content Limit: Analysis is limited to changes directly described or illustrated in the item.
1.3: Understand Constancy, Change, and Measurement		5.S.1.3.2 Measure in both U.S. Customary and International System of Measurement (metric system) units with an emphasis on the metric system. (603.03.c) CL: C Content Limit: Measurement should be in millimeters, centimeters, grams.
1.5: Understand Concepts of Form and Function		5.S.1.5.1 Explain how the shape or form of an object or system is frequently related to its use or function. (603.05.a) CL: E Content Limit: Items are limited to very visual content, including the streamlining of a dolphin's body and the webbing on a duck's foot.
1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills		5.S.1.6.1 Write and analyze questions that can be answered by conducting scientific experiments. (604.01.a) CL: C Content Limit: Content should be limited to questions including the amount of water required by bean seedlings grown in small containers for healthy growth, and the conditions necessary for painted lady butterfly larva to pupate.

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1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills		5.S.1.6.3 Select and use appropriate tools and techniques to gather and display data. (604.01.c) CL: C Content Limit: Content should be limited to metric rulers, bar graphs, and basic tables.
1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills		5.S.1.6.4 Use evidence to analyze descriptions, explanations, predictions, and models. (604.01.d) CL: E Content Limit: Students should be presented a set of evidence or series of observations and be asked to derive information or make predictions based on this evidence.
1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills		5.S.1.6.5 State a hypothesis based on observations. (604.01.e) CL: E Content Limit: When provided sequential graphics, students will be able to select the most logical hypothesis from a list of possible options.
1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills		5.S.1.6.6 Compare alternative explanations and predictions. (604.01.f) CL: E Content Limit: When provided sequential graphics and a set of possible explanations, students will be able to select the most logical explanation from a list of possible options.
		Standard 2: Physical Science
2.1: Understand the Structure and Function of Matter and Molecules and Their Interactions	15-17%	5.S.2.1.1 Describe the differences among elements, compounds, and mixtures. (605.01.a) CL: D Content Limit: Students should be able to identify the characteristics of an element, compound, and mixture.
2.1: Understand the Structure and Function of Matter and Molecules and Their Interactions		5.S.2.1.2 Compare the physical differences among solids, liquids and gases. (605.01.c) CL: D Content Limit: Students should be able to recognize the differences in molecular distance between a solid, a liquid, and a gas, as well as differences in basic molecular motion.
2.1: Understand the Structure and Function of Matter and Molecules and Their Interactions		5.S.2.1.3 Explain the nature of physical change and how it relates to physical properties. (605.01.d) CL: D Content Limit: Students should be able to recognize the change(s) in physical properties that take place when physical changes occur including ice melting into water and water being heated into steam.
		Standard 3: Biology

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Goal	ISAT%	Objective Description (with content limits)
3.2: Understand the Relationship between Matter and Energy in Living Systems	15-17%	5.S.3.2.1 Communicate how plants convert energy from the Sun through photosynthesis. (608.01.a) CL: D Content Limit: Students will know that chlorophyll, carbon dioxide, and water are necessary for photosynthesis to occur. Additionally, students will know that the energy necessary to "power" the photosynthetic reaction is provided by the Sun.
3.3: Understand the Cell is the Basis of Form and Function for All Living Things		5.S.3.3.1 Compare and contrast the structural differences between plant and animal cells. (606.01.b) CL: E Content Limit: Address only the readily observable organelles: cell wall, cell membrane, and chloroplast.
3.3: Understand the Cell is the Basis of Form and Function for All Living Things		5.S.3.3.2 Explain the concept that traits are passed from parents to offspring. (606.01.c) CL: D Content Limit: Traits should be limited to clearly observable characteristics including eye color, hair color and texture, and widow's peak.
		Standard 4: Earth & Space Systems
4.1: Understand Scientific Theories of Origin and Subsequent Changes in the Universe and Earth Systems	15-17%	5.S.4.1.1 Describe the interactions among the solid earth, oceans and atmosphere (erosion, climate, tectonics and continental drift). (609.01.a) CL: D Content Limit: The role wind and water play in erosion, different cloud types, and the formation of earthquakes and volcanoes can all be addressed.
4.2: Understand Geo-chemical Cycles and Energy in the Earth System		5.S.4.2.1 Explain the rock cycle and identify the three classifications of rocks. (609.02.a) CL: D Content Limit: How sedimentary, igneous, and metamorphic rocks are formed.
		Standard 5: Personal/Social Perspectives/Technology
5.1: Understand Common Environmental Quality Issues, Both Natural and Human Induced	15-17%	5.S.5.1.1 Identify issues for environmental studies. (611.01.a) CL: E Content Limit: Content should be limited to events in the local school or community environment including food waste from the hot lunch program, storm runoff entering a local stream, and the impact on grass color due to uneven watering of the school yard.
5.2: Understand the Relationship between Science and Technology		5.S.5.2.1 Describe how science and technology are part of a student's life. (610.01.a) CL: Content Limit:
5.2: Understand the Relationship between Science and Technology		5.S.5.2.2 List examples of science and technology. (610.01.b) CL: Content Limit:

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5.3Understand the Importance of Natural Resources and the Need to Manage and Conserve Them		5.S.5.3.1 Identify the differences between renewable and nonrenewable resources. (611.03.a) CL: E Content Limit: Content should be limited to issues within a school or local community including recycling programs for paper and aluminum and landfill issues.

Cognitive level codes:
B: Memorize
C: Perform procedures
D: Demonstrate understanding
E: Conjecture, generalize, prove
F: Solve non-routine problems, make connections