Kansas State Department of Education High School Science Performance Level Descriptors

Academic Warning	Approaches Standard	Meets Standard	Exceeds Standard	Exemplary
A student scoring at the academic warning level always performs inconsistently and/or inaccurately when working on all grade-level science tasks. The student struggles to demonstrate content knowledge, scientific processes and connections. The student seldom understands • experimental design and graphical representations • proper technological, mathematical, and safety procedures in scientific investigations • the proper application of technology for functional uses • personal and environmental perspectives in a local, national, and global setting The student in using physical science concepts is inaccurate in understanding • the fundamental organization of matter • how energy is used to explain physical and chemical properties of matter • trends of the periodic table by groups, periods, and sub-category • chemical and molecular bond formation and energy transfer between atoms • the Law of Conservation of Matter and Energy to types of chemical reactions • the application of Newton's Laws to calculate and predict changes in motion the relevance of the first law of thermodynamics • waves have energy and can transfer energy when they interact with matter • electromagnetic waves result when a charged particle is accelerated or decelerated The student in using life science concepts is inaccurate in understanding • cell function involves specific chemical reactions • structure and function of all organisms is controlled by their genetic material (DNA and RNA) • hereditary material information is	A student scoring at the approaches standard level usually performs inconsistently and/or inaccurately when working on most grade-level science tasks. The student demonstrates limited content knowledge, scientific processes and connections. The student sometimes understands • experimental design and graphical representations • proper technological, mathematical, and safety procedures in scientific investigations • the proper application of technology for functional uses • personal and environmental perspectives in a local, national, and global setting The student in using physical science concepts is rarely accurate in understanding • the fundamental organization of matter how energy is used to explain physical and chemical properties of matter • trends of the periodic table by groups, periods, and sub-category • chemical and molecular bond formation and energy transfer between atoms • the Law of Conservation of Matter and Energy to types of chemical reactions • the application of Newton's Laws to calculate and predict changes in motion • the relevance of the first law of thermodynamics • waves have energy and can transfer energy when they interact with matter • electromagnetic waves result when a charged particle is accelerated or decelerated The student in using life science concepts is rarely accurate in understanding • cell function involves specific chemical reactions • structure and function of all organisms is controlled by their genetic material (DNA	A student scoring at the meets standard level usually performs consistently and accurately when working on most grade level science tasks. The student demonstrates sufficient content knowledge, scientific processes and connections. The student usually understands • experimental design and graphical representations • proper technological, mathematical, and safety procedures in scientific investigations • the proper application of technology for functional uses • personal and environmental perspectives in a local, national, and global setting The student in using physical science concepts is usually accurate in understanding • the fundamental organization of matter • how energy is used to explain physical and chemical properties of matter • trends of the periodic table by groups, periods, and sub-category • chemical and molecular bond formation and energy transfer between atoms • the Law of Conservation of Matter and Energy to types of chemical reactions • the application of Newton's Laws to calculate and predict changes in motion • the relevance of the first law of thermodynamics • waves have energy and can transfer energy when they interact with matter • electromagnetic waves result when a charged particle is accelerated or decelerated The student in using life science concepts is usually accurate in understanding • cell function involves specific chemical reactions • structure and function of all organisms is controlled by their genetic material (DNA	A student scoring at the exceeds standard level usually performs consistently and accurately when working on all grade-level science tasks. The student demonstrates well-developed content knowledge, scientific processes and connections. The student consistently understands • experimental design and graphical representations • proper technological, mathematical, and safety procedures in scientific investigations • the proper application of technology for functional uses • personal and environmental perspectives in a local, national, and global setting The student in using physical science concepts is accurate in understanding • the fundamental organization of matter • how energy is used to explain physical and chemical properties of matter • trends of the periodic table by groups, periods, and sub-category • chemical and molecular bond formation and energy transfer between atoms • the Law of Conservation of Matter and Energy to types of chemical reactions • the application of Newton's Laws to calculate and predict changes in motion • the relevance of the first law of thermodynamics • waves have energy and can transfer energy when they interact with matter • electromagnetic waves result when a charged particle is accelerated or decelerated The student in using life science concepts is accurate in understanding • cell function involves specific chemical reactions • structure and function of all organisms is controlled by their genetic material (DNA and RNA) • hereditary material information is	A student scoring at the exemplary level always performs consistently and accurately when working on all grade-level science tasks. The student demonstrates highly-developed content knowledge, scientific processes and connections. The student consistently understands • experimental design and graphical representations • proper technological, mathematical, and safety procedures in scientific investigations • the proper application of technology for functional uses • personal and environmental perspectives in a local, national, and global setting The student in using physical science concepts is highly accurate in understanding • the fundamental organization of matter. • how energy is used to explain physical and chemical properties of matter • trends of the periodic table by groups, periods, and sub-category • chemical and molecular bond formation and energy transfer between atoms • the Law of Conservation of Matter and Energy to types of chemical reactions • the application of Newton's Laws to calculate and predict changes in motion • the relevance of the first law of thermodynamics • waves have energy and can transfer energy when they interact with matter • electromagnetic waves result when a charged particle is accelerated or decelerated The student in using life science concepts is highly accurate in understanding • cell function involves specific chemical reactions • structure and function of all organisms is controlled by their genetic material (DNA

Created Jan. 17, 2008 by Joanna Farmer, Marilyn McComber, Tina Savage, and Eric Thomas. For more detailed benchmark and indicator content, consult the Kansas Science Curricular Standards (2007) at www.ksde.org.

Kansas State Department of Education High School Science Performance Level Descriptors

contained in genes, located in the chromosomes of each cell • the implications of descent with modification, diversification of organisms, in biological evolution and present day biodiversity • the cycle of matter throughout components of biosphere • carrying capacity in ecosystems. • the sun is the primary sources of life • food molecules contain biochemical energy which fuels cellular respiration • animals have behavioral responses to external changes and internal stimuli survival is dependent upon the ability to maintain dynamic regulation of homeostasis • living things follow a specific pattern of developmental stages called life cycles The student in using earth/space science concepts is <u>inaccurate</u> in understanding • the theory of plate tectonics explains that internal energy drives dynamic earth • geological time is used to understand the earth's past • the relationships between the earth, moon, and sun explains the seasons, tides, and moon phases • stellar evolution	and RNA) • hereditary material information is contained in genes, located in the chromosomes of each cell • the implications of descent with modification, diversification of organisms, in biological evolution and present day biodiversity • the cycle of matter throughout components of biosphere • carrying capacity in ecosystems. • the sun is the primary sources of life • food molecules contain biochemical energy which fuels cellular respiration • animals have behavioral responses to external changes and internal stimuli. • survival is dependent upon the ability to maintain dynamic regulation of homeostasis • living things follow a specific pattern of developmental stages called life cycles The student in using earth/space science concepts is <u>rarely accurate</u> in understanding • the theory of plate tectonics explains that internal energy drives dynamic earth • geological time is used to understand the earth's past • the relationships between the earth, moon, and sun explains the seasons, tides, and moon phases • stellar evolution	and RNA) • hereditary material information is contained in genes, located in the chromosomes of each cell • the implications of descent with modification, diversification of organisms, in biological evolution and present day biodiversity • the cycle of matter throughout components of biosphere • carrying capacity in ecosystems. • the sun is the primary sources of life • food molecules contain biochemical energy which fuels cellular respiration • animals have behavioral responses to external changes and internal stimuli • survival is dependent upon the ability to maintain dynamic regulation of homeostasis • living things follow a specific pattern of developmental stages called life cycles The student in using earth/space science concepts is <u>usually accurate</u> in understanding • the theory of plate tectonics explains that internal energy drives dynamic earth • geological time is used to understand the earth's past • the relationships between the earth, moon, and sun explains the seasons, tides, and moon phases • stellar evolution	contained in genes, located in the chromosomes of each cell • the implications of descent with modification, diversification of organisms, in biological evolution and present day biodiversity • the cycle of matter throughout components of biosphere • carrying capacity in ecosystems • the sun is the primary sources of life • food molecules contain biochemical energy which fuels cellular respiration • animals have behavioral responses to external changes and internal stimuli • survival is dependent upon the ability to maintain dynamic regulation of homeostasis • living things follow a specific pattern of developmental stages called life cycles The student in using earth/space science concepts is <u>accurate</u> in understanding • the theory of plate tectonics explains that internal energy drives dynamic earth • geological time is used to understand the earth's past • the relationships between the earth, moon, and sun explains the seasons, tides, and moon phases • stellar evolution	and RNA) • hereditary material information is contained in genes, located in the chromosomes of each cell • the implications of descent with modification, diversification of organisms, in biological evolution and present day biodiversity • the cycle of matter throughout components of biosphere • carrying capacity in ecosystems • the sun is the primary sources of life • food molecules contain biochemical energy which fuels cellular respiration • animals have behavioral responses to external changes and internal stimuli • survival is dependent upon the ability to maintain dynamic regulation of homeostasis • living things follow a specific pattern of developmental stages called life cycles The student in using earth/space science concepts is <u>highly</u> <u>accurate</u> in understanding • the theory of plate tectonics explains that internal energy drives dynamic earth • geological time is used to understand the earth's past • the relationships between the earth, moon, and sun explains the seasons, tides, and moon phases • stellar evolution

Created Jan. 17, 2008 by Joanna Farmer, Marilyn McComber, Tina Savage, and Eric Thomas. For more detailed benchmark and indicator content, consult the Kansas Science Curricular Standards (2007) at www.ksde.org.