

USD 348
Secondary Science
Curricula

Revised 2007-2008

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Science Mission Statement:

The mission of secondary science education in USD 348 is to prepare all students as lifelong learners who can use science to make informed and reasoned decisions that contribute to society.

Science Vision:

The vision of secondary science education in USD 348 includes:

- National and State Standards and local curriculum guide science content instruction.
- Science instruction includes scientifically based instructional strategies reflecting current research.
- Science education applies to all students, regardless of age, gender, cultural or ethnic background, disabilities, aspirations, or interest and motivation in science.
- Students gain understanding in science processes through inquiry-based learning.
- Student understanding of science is a combination science knowledge, logic and reason, and critical thinking skills.
- Students make the connection between science knowledge and practical applications.
- Instructional strategies will incorporate technology and the tools of science.

Standard 1: Science as Inquiry

Benchmark 1: The student will demonstrate abilities necessary to do the processes of scientific inquiry.

Indicator 1: Identifies questions that can be answered through scientific investigations

Vocabulary: scientific inquiry

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) T

Standard 1: Science as Inquiry

Benchmark 1: The student will demonstrate abilities necessary to do the processes of scientific inquiry

Indicator 2: Designs and conducts scientific investigations safely using appropriate tools, mathematics, technology, and techniques to gather, analyze, and interpret data.

Vocabulary: scientific investigations

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) T

Standard 1: Science as Inquiry

Benchmark 1: The student will demonstrate abilities necessary to do the processes of scientific inquiry

Indicator 3: Identifies the relationship between evidence and logical conclusions

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) T

Standard 1: Science as Inquiry

Benchmark 1: The student will demonstrate abilities necessary to do the processes of scientific inquiry

Indicator 4: Communicates scientific procedures, results, and explanations

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) T

Standard 2: Physical Science

Benchmark 4: The student will understand and demonstrate the transfer of energy

Indicator 3: Observes and communicates how light energy interacts with matter: transmitted, reflected, refracted, and absorbed.

Vocabulary: reflected, refracted, absorbed, transmitted

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) T

Standard 4: Earth and Space Science

Benchmark 4: The student will model motions and identify forces that explain earth phenomena.

Indicator 1: Demonstrates and models object/space/time relationships that explain phenomena such as the day, the month, the year, seasons, phases of the moon, eclipses and tides.

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) T

Standard 2 : Physical Science

Benchmark 1: The student will observe, compare, and classify properties of matter.

Indicator 1 : Compares and classifies the states of matter: solids, liquids, gases, and plasma.

Vocabulary: solid, liquids, gases, plasma, matter

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) R2

Standard 2: Physical Science

Benchmark 2 : The student will observe, measure, infer, and classify changes in properties of matter.

Indicator 1 : Understands the relationship of atoms to elements and elements to compounds.

Vocabulary: atom, element, compound, properties

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) E

Standard 2 : Physical Science

Benchmark 2 : The student will observe, measure, infer, and classify changes in properties of matter.

Indicator 2 : Measures and graphs the effects of temperature on matter.

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) E

Standard 4: Earth and Space Science

Benchmark 2: The student will understand past and present earth processes and their similarity.

Indicator 1: Understands that earth processes observed today are similar to those that occurred in the past; earth history is also influenced by occasional catastrophes, such as the impact of a comet or asteroid.

Vocabulary: asteroid, comet

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 4: Earth and Space Science

Benchmark3 : The student will identify and classify stars, planets, and other solar system components.

Indicator1 : Compares and contrasts the characteristics of stars, planets, moons, comets and asteroids.

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard :

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard :

Benchmark :

Indicator :

Standard 1: Science as Inquiry

Benchmark 3: The student will analyze how science advances through the interaction of new ideas, scientific investigations, skepticism, and examinations of evidence of varied explanations.

Indicator 2: Evaluates the work of others to determine evidence which scientifically supports or contradicts the results, identifying faulty reasoning or conclusions that go beyond evidence and/or are not supported by data.

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) R

Standard 3: Life Science

Benchmark 1: The student will model structures or organisms and relate functions to the structures.

Indicator 1: Will understand the cell theory, that all organisms are composed of one or more cells, cells are the basic unit of life, and that cells come from other cells.

Vocabulary: organism

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 3: Life Science

Benchmark 2: The student will understand the role of reproduction and heredity for all living things.

Indicator 1: Differentiates between asexual and sexual reproduction of organisms.

Vocabulary: asexual and sexual reproduction

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 3: Life Science

Benchmark 3: The student will describe homeostasis, the regulation and balance of internal conditions in response to a changing external environment.

Indicator 1: Understands that internal and/or environmental conditions affect an organism's behavior and/or response in order to maintain and regulate stable internal conditions to survive in a continually changing environment.

Vocabulary: behavior

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 3: Life Science

Benchmark 5: The student will observe the diversity of living things and relate their adaptations to their survival.

Indicator 2: Understands that adaptations of organisms (changes in structure, function, or behavior that accumulate over successive generations) contribute to biological diversity.

Vocabulary: diversity, adaptations

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 3: Life Science

Benchmark 5: The student will observe the diversity of living things and relate their adaptations to their survival.

Indicator 3: Associates extinction of a species with environmental changes and insufficient adaptive characteristics.

Vocabulary: extinction

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard :

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard :

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard :

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard :

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard :

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard :

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2: Physical Science

Benchmark 3: The student will investigate motion and forces.

Indicator 3: Recognizes and describes examples of Newton's Laws of Motion.

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 2: Physical Science

Benchmark 4: The student will understand and demonstrate the transfer of energy.

Indicator 2: Understands that when work is done energy transforms from one form to another, including mechanical, heat, light, sound, electrical, chemical, and nuclear energy, yet is conserved.

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 3: Life Science

Benchmark 4: The student will identify and relate interactions of populations of organisms within an ecosystem.

Indicator 1: Recognizes that all populations living together (biotic resources) and the physical factors (abiotic resources) with which they interact compose an ecosystem.

Vocabulary: ecosystem, abiotic, biotic

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 3: Life Science

Benchmark 4: The student will identify and relate interactions of populations of organisms within an ecosystem.

Indicator 3: Traces the energy flow from the sun (source of radiant energy) to producers (via photosynthesis-chemical energy) to consumers and decomposers in food webs.

Vocabulary: radiant energy, photosynthesis, consumers, decomposers, producers

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 4: Earth and Space Science

Benchmark 1: The student will understand that the structure of the earth system is continuously changing due to earth's physical and chemical processes.

Indicator 1: Identifies properties of the solid earth, the oceans, and fresh water, and the atmosphere.

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 5: Science and Technology

Benchmark 1: The student will demonstrate abilities of technological design.

Indicator 1: Identifies appropriate problems for technological design, designs a solution or product, and communicates the process of technological design.

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested) I

Standard 1 : Science As Inquiry

Benchmark 1 : The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 1 : The student identifies questions that can be answered through scientific investigations.

Vocabulary: testable and untestable questions Empirical Observations

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1 : Science As Inquiry

Benchmark 1 : The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2 : The student designs and conducts scientific investigations safely using appropriate tools, Mathematics, technology, and techniques to gather, analyze, and interpret data.

Vocabulary: hypothesis, independent, dependent, constants, variables, control groups

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: Science As Inquiry

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: The student identifies the relationship between evidence and logical conclusions.

Vocabulary: hypothesis – full inquiry

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: Science As Inquiry

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 4: The student will communicate scientific procedures, results, and explanations.

Vocabulary: graph, graphic format, graphical organizer

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard :1 Science As Inquiry

Benchmark 3: The student will analyze how science advances through the interaction of new ideas, Scientific investigations, skepticism, and examinations of evidence of varied Explanations.

Indicator 2: The student will evaluate the work of others to determine evidence which scientifically Supports or contradicts the results, indentifying faulty reasoning or conclusions that go beyond evidence and are not supported by data.

Vocabulary: Reliable and unreliable conclusions

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2: Physical Science

Benchmark 1: The student will observe, compare, and classify properties of matter.

Indicator 1 : The student compares and classifies the states of matter; solids, liquids, gases, and plasma

Vocabulary: boiling point, density, solid, liquid, gas, solubility, mass, volume

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2: Physical Science

Benchmark 3: The student will investigate motion and forces.

Indicator 2: describes, measures, and represents data on a graph showing the motion of an object.

Vocabulary: friction, position, direction, speed, and velocity.

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2: Physical Science

Benchmark 3: The student will investigate motion and forces.

Indicator 3: recognizes and describes examples of Newton's Laws of Motion.

Vocabulary: inertia, action/reaction, net force, acceleration, friction

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 2: The student will understand the role of reproduction and heredity for all living things.

Indicator 1: differentiates between asexual and sexual reproduction of organisms.

Vocabulary: gamete, organism, regeneration, budding, life cycle.

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 1: The student will understand that the structure of the earth system is continuously changing due to Earth's physical and chemical processes.

Indicator 2: models Earth's cycles, constructive and destructive processes, and weather systems.

Vocabulary: erosion

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 2: The student will understand past and present earth processes and their similarity.

Indicator 1: understands that earth processes observed today are similar to those that occurred in the Past. With occasional catastrophes.

Vocabulary: plate tectonics, volcanoes, earthquakes.

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City
Course: 7th Grade Science

School: Baldwin Junior High
Instructor:

Quarter: 2

Standard 2: Physical Science

Benchmark 4: The student will understand and demonstrate the transfer of energy.

Indicator 1: understands the difference between potential and kinetic energy.

Vocabulary:

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2: Physical Science

Benchmark 4: The student will understand and demonstrate the transfer of energy.

Indicator 2: understands that when work is done energy transforms from one form to another

Including mechanical, heat, light, sound, electrical, chemical, and nuclear energy.

Vocabulary: energy transformations

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 2: The student will understand the role of reproduction and heredity for all living things.

Indicator 2: understands how hereditary info is passed from one cell to the next.

Vocabulary: punnett square, genome, genetic drift

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 4: The student will identify and relate interactions of populations of organisms within
_____An ecosystem.

Indicator 1: recognizes that all populations living together and the physical factors with which they
Interact compose an ecosystem.

Vocabulary: abiotic, biotic, ecosystem

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 4: The student will identify and relate interactions of populations of organisms within
_____An ecosystem.

Indicator 3: traces the energy flow from the sun to producers to consumers and decomposers in webs.

Vocabulary: food web, producer, consumer, and decomposer.

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 4: The student will model motions and identify forces that explain earth phenomena.

Indicator 1: demonstrates and models space and time relationships that explain the day, the month, the
Year seasons, phases of the moon, eclipses and tides.

Vocabulary:

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 6: Science in Personal and Environmental Perspectives

Benchmark 1: The student will understand scientific knowledge relative to personal health.

Indicator 1: identifies individual nutrition, exercise, and rest needs based on science.

Vocabulary: calories, metabolism

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 6: Science in Personal and Environmental Perspectives

Benchmark 2: The student will understand the impact of human activity on resources and environment.

Indicator 1: investigates the effects of human activities on the environment and analyzes decisions based on the knowledge of benefits and risks.

Vocabulary: atmospheric pollution, renewable and nonrenewable resources

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 7: History and Nature of Science

Benchmark 2: The student will research contributions to science throughout history.

Indicator 1: recognizes that new knowledge leads to new questions and new discoveries, replicates historic experiments to understand principles of science, and relates contributions of men and women to the fields of science.

Vocabulary: technological design

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard :

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2: Physical Science

Benchmark 1: The student will observe, measure, infer, and classify changes in property of matter.

Indicator 2: understands the relationship of atoms to elements and elements to compounds.

Vocabulary: atoms, compounds, elements, periodic table

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2: Physical Science

Benchmark 2: The student will observe, measure, infer, and classify changes in properties of matter.

Indicator 2: measures and graphs the effects of temperature on matter.

Vocabulary: expansion, contraction, Celsius, boiling points are independent.

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 3: The student will describe homeostasis, the regulation and balance of internal conditions in response to a changing external environment.

Indicator 1: understands that internal and/or environmental conditions affect an organism's behavior and/or response in order to maintain and regulate stable internal conditions to survive in a continually changing environment.

Vocabulary: stimulus, response, adaptation, nocturnal, migration, hibernation.

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 5: The student will observe the diversity of living things and relate their adaptations to their survival or extinction.

Indicator 2: understands that adaptations of organisms contribute to biological diversity.

Vocabulary: fossils, adaptations, natural selection

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 5: The student will observe the diversity of living things and relate their adaptations to Their survival or extinction.

Indicator 3: associates extinction of a species with environmental changes and insufficient adaptive characteristics.

Vocabulary: genetic diversity, extinction

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 1: The student will understand that the structure of the earth system is continuously changing due to earth's physical and chemical processes.

Indicator 1: identifies properties of the solid earth, the oceans and fresh water, and the atmosphere.

Vocabulary: layers of the atmosphere, density of water, lithosphere

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City School: Baldwin Junior High
Course: 7th grade Instructor: Quarter: 4th

Standard 2: Physical Science

Benchmark 4: The student will understand and demonstrate the transfer of energy.

Indicator 3: observes and communicates how light energy interacts with matter: transmitted, reflected, refracted, and absorbed.

Vocabulary:

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2: Physical Science

Benchmark 4: The student will understand and demonstrate the transfer of energy.

Indicator 4: understands that heat energy can be transferred from hot to cold by radiation, convection, and conduction.

Vocabulary: radiation, conduction, convection

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 1: The student will model structures of organisms and relate functions to the structures.

Indicator 1: will understand the cell theory, that all organisms are composed of one or more cells, cells are the basic unit of life, and that cells come from other cells.

Vocabulary: eukaryotes, functions of cells, structure, cell differentiation, RNA, DNA

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 1: The student will model structures of organisms and relate functions to the structures.

Indicator 2: relates the structure of cells, organs, tissues, organ systems, and whole organisms to their functions.

Vocabulary: body systems, entropy, gene, genome, genetic drift, system.

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 1: The student will model structures of organisms and relate functions to the structures.

Indicator 3: compares organisms composed of single cells with organisms that are multi-cellular.

Vocabulary:

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 3: The student will describe homeostasis to a changing environment.

Indicator 2: recognizes that the survival of all organisms requires the ingestion of materials, the intake and release of energy, growth, releases of wastes and responses to environmental change.

Vocabulary:

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City
Course: 8th Grade Science

School: Baldwin Junior High
Instructor: Troy Webb

Quarter: 1

Standard 1 : Science as Inquiry

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 5: The student communicates (reports) and defends the design, results, and conclusion of his/her investigation.

Vocabulary:

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: Chemistry

Benchmark 1: The student will understand the structure of the atom.

Indicator 1: The student understands atoms, the fundamental organizational unit of matter, are composed of subatomic particles, organized in a small, dense, positively charged nucleus (containing protons and neutrons which determines the atomic mass) and surrounded by a negatively charged electron cloud (containing electrons, which determines the size of the atom).

Vocabulary: proton, neutron, electron, nucleus, energy levels

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: Chemistry

Benchmark 1: The student will understand the structure of the atom.

Indicator 2: The student understands isotopes are atoms with the same atomic number (same number of protons) but different numbers of neutrons. The nuclei of some atoms are radioactive isotopes that spontaneously decay, releasing radioactive energy.

Vocabulary:

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: Chemistry

Benchmark 2: The student will understand the states and properties of matter.

Indicator 2: The student understands the periodic table lists elements according to increasing atomic number. This table organizes physical and chemical trends by groups, periods, and categories.

Vocabulary: atomic mass, atomic number, period, family, group, metal, nonmetal, transition element, alkali metal, alkaline earth metal, halogen, noble gas, metalloid.

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: Chemistry

Benchmark 2: The student will understand the states and properties of matter.

Indicator 3: The student understands chemical bonds result when valence electrons are transferred or shared between atoms. Ionic compounds result from atoms transferring electrons. Molecular compounds result from atoms sharing electrons.

Vocabulary: ionic bond, covalent bond, ions, valence electrons, dot diagram

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: Physics
Benchmark 3: The student will understand the nature of the fundamental interactions of matter and energy
Indicator 3: The student understands electromagnetic waves result when a charged particle is accelerated or decelerated.
Vocabulary: electromagnetic spectrum, alpha ray, beta ray, gamma ray, x-ray
Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 5: Science and Technology
Benchmark 1: The student will develop an understanding that technology is applied science.
Indicator 3: The student understands science advances new technologies. New technologies open new areas for scientific inquiry.
Vocabulary:
Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 7: History and Nature of Science
Benchmark 1: The student will develop and understanding that science is a human endeavor that uses models to describe and explain the physical universe.
Indicator 2: The student explains how science uses peer review, replication of methods, and norms of honesty.
Vocabulary:
Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 7: History and Nature of Science
Benchmark 1: The student will develop and understanding that science is a human endeavor that uses models to describe and explain the physical universe.
Indicator 5: The student understands there are many issues which involve morals, ethics, values, or spiritual beliefs that go beyond what science can explain, but for which solid scientific literacy is useful.
Vocabulary:
Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 7: History and Nature of Science
Benchmark 2: The student will develop an understanding of the nature of scientific knowledge.
Indicator 3: The student understands scientific knowledge consists of hypotheses, inferences, laws, and theories.
Vocabulary:
Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 7: History and Nature of Science
Benchmark 2: The student will develop an understanding of the nature of scientific knowledge.
Indicator 4: The student understands a testable hypothesis or inference must be subject to confirmation by empirical evidence.
Vocabulary:
Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: Science as Inquiry
Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.
Indicator 1: The student develops and evaluates research questions.
Vocabulary:
Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: Chemistry
Benchmark 2: The student will understand the states and properties of matter.
Indicator 1: The student understands chemists use kinetic and potential energy to explain the physical and chemical properties of matter on earth. Matter may exist in any of these three states: solids, liquids, and gases.
Vocabulary:
Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: Chemistry
Benchmark 3: The student will gain a basic concept of chemical reactions.
Indicator 1: The student understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products)
Vocabulary: chemical equation, balanced chemical equation, product, reactant, coefficients, subscripts
Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: Chemistry
Benchmark 3: The student will gain a basic concept of chemical reactions.
Indicator 2: The student understands there are different types of chemical reactions, all of which demonstrate the Law of Conservation of Mass
Vocabulary: synthesis, decomposition, single replacement, double replacement
Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: Physics
Benchmark 1: The student will understand the relationships between force and motion
Indicator 1: The student understands Newton's Laws and the kinematic variables of time, position, velocity, and acceleration can be used to describe the position and motion of particles.
Vocabulary: introduce velocity as rate of motion
Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: Physics
Benchmark 2: The student will understand the conservation of mass and energy, and the 1st and 2nd laws of thermodynamics.
Indicator 1: The student understands matter has energy. Mass and energy can be interchanged. The total energy in the universe is constant, but the type of energy may vary.
Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: Physics
Benchmark 2: The student will understand the conservation of mass and energy, and the 1st and 2nd laws of thermodynamics.
Indicator 2: The student understands the 1st law of thermodynamics states the total internal energy of a substance (the sum of all the kinetic and potential energies of its constituent molecules) will change only if heat is exchanged with the environment or work is done on or by the substance. In any physical interaction, the total energy in the universe is conserved.
Vocabulary: heat, radiation, convection, conduction, thermal energy
Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science
Benchmark 3: The student will develop an understanding of dynamics of our solar system.
Indicator 1: The student understands gravitational attraction of objects in the solar system keeps solar system objects in orbit.
Vocabulary:
Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science
Benchmark 3: The student will develop an understanding of dynamics of our solar system.
Indicator 2: The student understands the relationship between the Earth, Moon, and Sun explains the seasons, tides, and moon phases.
Vocabulary:
Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science
Benchmark 3: The student will develop an understanding of dynamics of our solar system.
Indicator 3: The student understands the relative sizes and distances of objects in the solar system.
Vocabulary:
Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science
Benchmark 4: The student will develop an understanding of the organization of the universe and its development.
Indicator 2: The student understands the current scientific explanation of the origin and structure of the universe.
Vocabulary: big-bang theory, galaxy, milky way
Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 6: Science in Personal and Environmental Perspectives
Benchmark 3: The student will understand that human populations use natural resources and influence environmental quality.
Indicator 2: The student understands Earth does not have infinite resources.
Vocabulary:
Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City
Course: 8th Grade Science

School: Baldwin Junior High
Instructor: Troy Webb

Quarter: 3

Standard 2B: Physics

Benchmark 3: The student will understand the nature of the fundamental interactions of matter and energy.

Indicator 2: The student understands waves have energy and can transfer energy when they interact with matter.

Vocabulary: seismic waves

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 1: The student will develop an understanding of the sources of energy that power the subsystems and cycles of the dynamic Earth: geosphere, hydrosphere, atmosphere, and biosphere

Indicator 2: The student understands the theory of plate tectonics explains that internal energy drives the Earth's ever changing structure.

Vocabulary: plate tectonics, continental drift, continental plate, oceanic plate, convection, Pangaea

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 2: The student will develop an understanding of the origin and development of the dynamic Earth system.

Indicator 1: The student understands geological time is used to understand the Earth's past.

Vocabulary: geologic time scale, fossils, radioactive dating, relative dating, paleontologic event, mass extinction

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 3: The student will develop an understanding of dynamics of our solar system.

Indicator 4: The student understands the Sun, Earth, and other objects in the solar system formed from a nebular cloud of dust and gas.

Vocabulary:

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 4: The student will develop an understanding of the organization of the universe and its development.

Indicator 1: The student understands stellar evolution.

Vocabulary: nebula, nuclear fusion, apparent brightness, actual brightness

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 4: The student will develop an understanding of the organization of the universe and its development.

Indicator 3: The student understands how the tools of astronomy have revolutionized the study of the universe.

Vocabulary:

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 6: Science in Personal and Environmental Perspectives

Benchmark 3: The student will understand that human populations use natural resources and influence environmental quality.

Indicator 1: The student understands natural resources from the lithosphere and ecosystems are required to sustain human populations.

Vocabulary: water cycle

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 7: History and Nature of Science

Benchmark 1: The student will develop and understanding that science is a human endeavor that uses models to describe and explain the physical universe.

Indicator 6: The student recognizes society's role in supporting topics of research and determining institutions where research is conducted.

Vocabulary:

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 7: History and Nature of Science

Benchmark 2: The student will develop an understanding of the nature of scientific knowledge.

Indicator 1: The student understands scientific knowledge describes and explains the natural world. Scientific knowledge is provisional and is subject to change as new evidence becomes available.

Vocabulary:

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City
Course: 8th Grade Science

School: Baldwin Junior High
Instructor: Troy Webb

Quarter: 4

Standard 1: Science as Inquiry

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: The student uses the appropriate technological tools and mathematics in their own scientific investigations.

Vocabulary:

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: Science as Inquiry

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: The student designs investigations, including developing questions, gathering and analyzing data, and designing and conducting research.

Vocabulary: scientific method, hypothesis, theory, independent variable, dependent variable

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: Science as Inquiry

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 4: The student actively engages in conducting an inquiry, formulating and revising his/her scientific explanations and models (physical, conceptual, or mathematical) using logic and evidence, and recognizing that potential alternative explanations and models should be considered.

Vocabulary: scientific method, hypothesis, theory, independent variable, dependent variable

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 3: Life Science

Benchmark 4: The student will understand the interdependence of organisms and their interaction with the physical environment.

Indicator 1: The student understands atoms and molecules on the Earth cycle among the living and nonliving components of the biosphere.

Vocabulary: water cycle, biosphere

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: Earth and Space Science

Benchmark 1: The student will develop an understanding of the sources of energy that power the subsystems and cycles of the dynamic Earth: geosphere, hydrosphere, atmosphere, and biosphere

Indicator 1: The student understands constructive and destructive processes dynamically reshape the surface of the Earth.

Vocabulary:

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 5: Science and Technology
Benchmark 1: The student will develop an understanding that technology is applied science.
Indicator 1: The student understands technology is the application of scientific knowledge for functional purposes.

Vocabulary:

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 5: Science and Technology
Benchmark 1: The student will develop an understanding that technology is applied science.
Indicator 2: The student understands creativity, imagination, and a broad scientific knowledge base are required to produce useful results.

Vocabulary:

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 6: Science in Personal and Environmental Perspectives
Benchmark 4: The student will understand the effect of natural and human-influenced hazards.
Indicator 1: The student understands that natural processes on the Earth may be hazardous for humans.

Vocabulary: weather

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

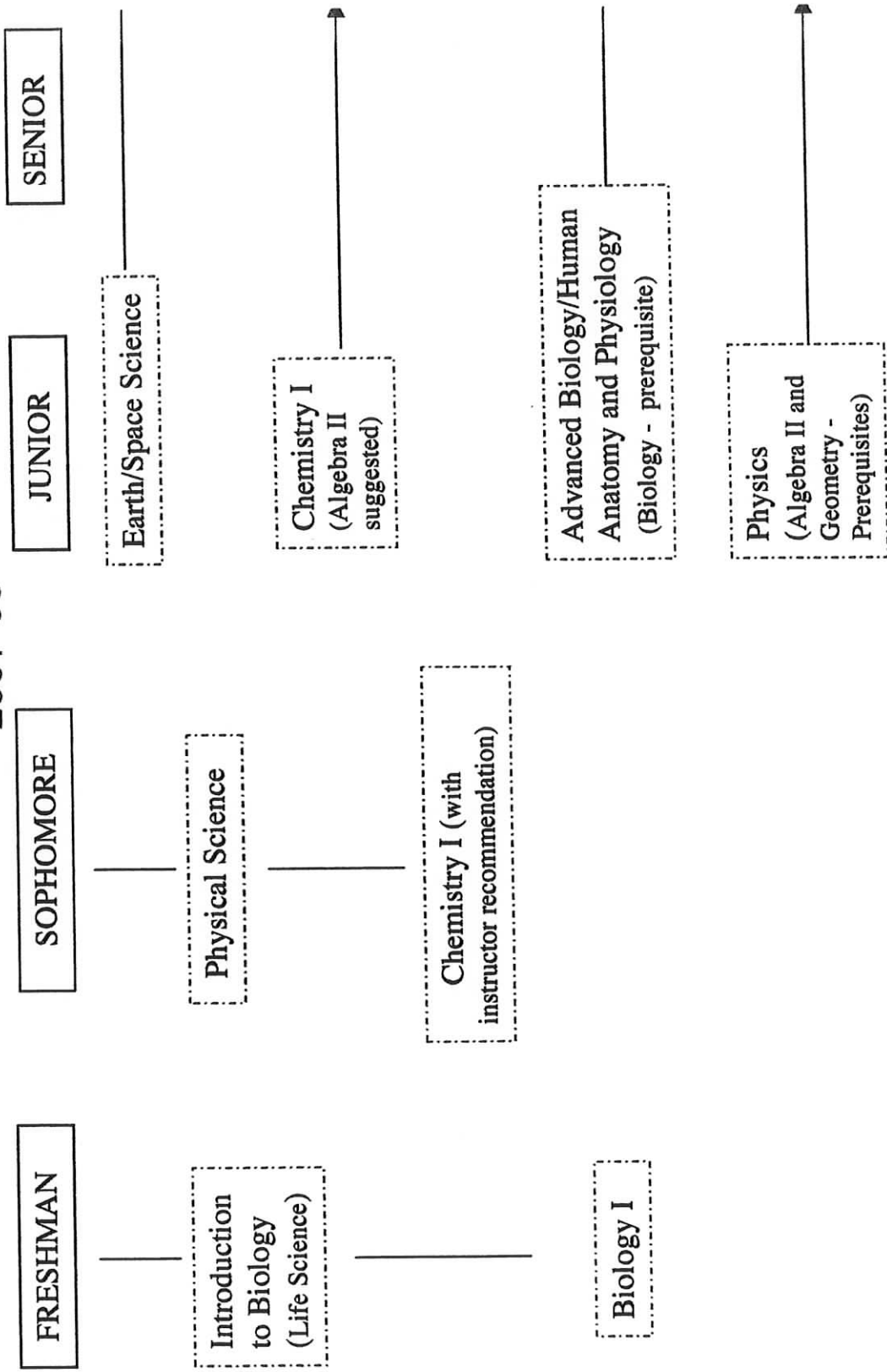
Standard 7: History and Nature of Science
Benchmark 3: The student will understand science from historical perspectives.
Indicator 1: The student demonstrates an understanding of the history of science.

Vocabulary:

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

B.H.S. SCIENCE SEQUENCE

2007-08



Standard #1: SCIENCE AS INQUIRY

Benchmark #1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator #2: Actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research.

Vocabulary: empirical observation, full inquiry, hypothesis, scientific investigation, scientific inquiry, technology, tools, independent variables, dependent variables, control group, constants, data, theory, law

Concepts: Scientific method of inquiry

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #1: SCIENCE AS INQUIRY

Benchmark #1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator #3: Actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: empirical observation, full inquiry, hypothesis, scientific investigation, scientific inquiry, technology, tools, independent variables, dependent variables, control group, constants, data, theory, law

Concepts: Scientific method of inquiry

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #3: The student will understand the major concepts of the theory of biological evolution.

Indicator #4: Understands organisms vary widely within and between populations. Variation allows for natural selection to occur.

Vocabulary: natural selection, adaptations, extinction, Lamarckian concept of acquired traits, mutations, artificial selection, environmental niche

Concepts: Heritable variation, Compare Lamarckian concept of acquired traits vs. natural selection, Compare artificial selection to natural selection,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #4: The student will understand the interdependence of organisms and their interactions with the physical environment.

Indicator #1: Understands atoms and molecules on the Earth cycle among the living and nonliving components of the biosphere.

Vocabulary: atoms, molecules, biosphere, abiotic, biotic, fossil fuel

Concepts: Biogeochemical cycles (carbon/oxygen, nitrogen, water), matter recycles, energy doesn't recycle, Explain the burning of fossil fuels and its affects on the composition of the atmosphere

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #4: The student will understand the interdependence of organisms and their interactions with the physical environment.

Indicator #3: Understands the distribution and abundance of organisms and populations in ecosystems are limited by the carrying capacity.

Vocabulary: carrying capacity, limiting factors, tolerance

Concepts: factors influencing carrying capacity, environmental factors affecting population size, interpretation of species population vs. time regarding carrying capacity (graph), fluctuation of essential resources

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #6: The student will understand the behavior of animals.

Indicator #1: Understands animals have behavioral responses to internal changes and to external stimuli.

Vocabulary: innate, learned behavior, stimulus/response, behavioral responses

Concepts: innate/learned responses, instincts/instinctive reactions, ability to identify different responses based upon environmental stimuli

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

Benchmark #3: The student will understand that human populations use natural resources and influence environmental quality.

Indicator #1: Understands natural resources from the lithosphere and ecosystems are required to sustain human populations.

Vocabulary: sustainable yield, renewable resources, lithosphere, ecosystem

Concepts: detrimental/beneficial human activities, process of ecosystems required to sustain human populations, Understanding the difference between renewable, renewable through long processes, and non-renewable

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

Benchmark #1: The student will develop an understanding of the overall functioning of human systems and their interaction with the environment in order to understand specific mechanisms and processes related to health issues.

Indicator #2: Understands the severity of disease symptoms is dependent on many factors.

Vocabulary: communicable/noncommunicable, antigens, antibodies, receptor site, virus, bacteria pathogenic, pathogens, virulence, immune system, genetic predisposition

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #1: The student will demonstrate an understanding of the structure and function of the cell.

Indicator #2: Understands cell functions involve specific chemical reactions.

Vocabulary: ATP, Passive/Active transport, enzyme, catalyst, reactants/products, photosynthesis, respiration, monomer, polymer

Concepts: Enzyme catalyst reaction, Transfer/transformation of energy, Photosynthesis equation

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #5: The student will develop an understanding of matter, energy, and organization in living systems.

Indicator #2: Understands the sun is the primary source of energy for life through the process of photosynthesis.

Vocabulary: light energy, chemical energy, producers, consumers, decomposers, trophic level, pyramid of energy, chemosynthetic/photosynthetic organisms, food web, food chain

Concepts: Construction of a food web, Energy loss between trophic levels

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #5: The student will develop an understanding of matter, energy, and organization in living systems.

Indicator #3: Understands food molecules contain biochemical energy, which is then available for cellular respiration.

Vocabulary: ATP, cellular respiration, biochemical energy/reactants, enzymes, mitochondria, food molecules (carbohydrates, lipids, proteins), glucose

Concepts: ATP, Anaerobic/Aerobic respiration, glycolysis, fermentation (lactic acid, alcoholic), breakdown of glucose (two-chemical reaction)

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Indicator #2: Understands that homeostasis is the dynamic regulation and balance of an organism's internal environment to maintain conditions suitable for survival.

Vocabulary: Homeostasis, membrane, diffusion, osmosis

Concepts: Mechanisms of Homeostasis, Transportations of substances across membranes, Specialized structures

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #2: The student will demonstrate an understanding of chromosomes, genes, and the molecular basis.

Indicator #1: Understands living organisms contain DNA or RNA as their genetic material, which provides the instructions that specify the characteristics of organisms.

Vocabulary: DNA, RNA, nucleotides, genes, chromosomes, replication, transcription, translation, codon/anticodon, template, nitrogen bases

Concepts: Protein synthesis, DNA replication

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #2: The student will demonstrate an understanding of chromosomes, genes and the molecular basis.

Indicator #3: Understands hereditary information is contained in genes, located in the chromosomes of each cell.

Vocabulary: alleles, dominant, recessive, co-dominant, incomplete dominance, genotype, phenotype, punnett square, mutations, homozygous, heterozygous, genetic variation, polygenic trait, genetic recombination

Concepts: Punnett Square,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #4: EARTH AND SPACE SCIENCE

Benchmark #2: The student will develop an understanding of the origin and development of the dynamic earth system.

Indicator #1: Understands geological time is used to understand the Earth's past.

Vocabulary: fossils, radioactive dating, relative dating, paleontologic events, mass extinctions, sedimentary rock, superposition

Concepts: Geologic time scale, Principle of superposition

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #3: The student will understand biological evolution.

Indicator #1: Understands biological evolution, descent with modification, is a scientific explanation for the history of the diversification of organisms from common ancestors.

Vocabulary: Analogous, homologous, and vestigial structures, phylogeny, fossil

Concepts: Understanding and interpreting cladograms, Patterns of fossil record, Rock layering, Benefits of studying organisms with short life cycles to observe evolution

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #3: The student will understand biological evolution.

Indicator #3: Understands biological evolution is used to explain the earth's present day biodiversity; the number, variety and variability of organisms.

Vocabulary: Speciation, mutation, extinction

Concepts: Causes of speciation,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Indicator #3: Understands that living things change following a specific pattern of developmental stages called life cycles;

Vocabulary: Metamorphosis, dormancy,

Concepts: Periods of dormancy, Life cycle stages, Alternation of generations

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Indicator #4: Understands that in complex organisms there is a division of labor into specific body systems i.e., respiration, digestion, nervous, endocrine, excretion, circulatory, reproductive, immune, skeletal and muscle.

Vocabulary:

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

(May be found on state science assessment administered in the 2008-09 school year, and thereafter.)

Standard #3: LIFE SCIENCE

Benchmark #7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Indicator #5: Understands taxonomy is the systematic way in which organisms are placed into a hierarchical classification system, according to their physical and genetic characteristics and their evolutionary history.

Vocabulary:

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard : FUNGI

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard : PLANTS

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

DISTRICT: U.S.D. 348, Baldwin City
COURSE: Biology **INSTRUCTOR:**

SCHOOL: Baldwin High School
QUARTER: 1 - 2

Standard #1: SCIENCE AS INQUIRY

Benchmark #1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator #2: Actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research.

Vocabulary: empirical observation, full inquiry, hypothesis, scientific investigation, scientific inquiry, technology, tools, independent variables, dependent variables, control group, constants, data, theory, law

Concepts: Scientific method of inquiry

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #1: SCIENCE AS INQUIRY

Benchmark #1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator #3: Actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: empirical observation, full inquiry, hypothesis, scientific investigation, scientific inquiry, technology, tools, independent variables, dependent variables, control group, constants, data, theory, law

Concepts: Scientific method of inquiry

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #3: The student will understand the major concepts of the theory of biological evolution.

Indicator #4: Understands organisms vary widely within and between populations. Variation allows for natural selection to occur.

Vocabulary: natural selection, adaptations, extinction, Lamarckian concept of acquired traits, mutations, artificial selection, environmental niche

Concepts: Heritable variation, Compare Lamarckian concept of acquired traits vs. natural selection, Compare artificial selection to natural selection,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #4: The student will understand the interdependence of organisms and their interactions with the physical environment.

Indicator #1: Understands atoms and molecules on the Earth cycle among the living and nonliving components of the biosphere.

Vocabulary: atoms, molecules, biosphere, abiotic, biotic, fossil fuel

Concepts: Biogeochemical cycles (carbon/oxygen, nitrogen, water), matter recycles, energy doesn't recycle, Explain the burning of fossil fuels and its affects on the composition of the atmosphere

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #4: The student will understand the interdependence of organisms and their interactions with the physical environment.

Indicator #3: Understands the distribution and abundance of organisms and populations in ecosystems are limited by the carrying capacity.

Vocabulary: carrying capacity, limiting factors, tolerance

Concepts: factors influencing carrying capacity, environmental factors affecting population size, interpretation of species population vs. time regarding carrying capacity (graph), fluctuation of essential resources

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #6: The student will understand the behavior of animals.

Indicator #1: Understands animals have behavioral responses to internal changes and to external stimuli.

Vocabulary: innate, learned behavior, stimulus/response, behavioral responses

Concepts: innate/learned responses, instincts/instinctive reactions, ability to identify different responses based upon environmental stimuli

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

Benchmark #3: The student will understand that human populations use natural resources and influence environmental quality.

Indicator #1: Understands natural resources from the lithosphere and ecosystems are required to sustain human populations.

Vocabulary: sustainable yield, renewable resources, lithosphere, ecosystem

Concepts: detrimental/beneficial human activities, process of ecosystems required to sustain human populations, Understanding the difference between renewable, renewable through long processes, and non-renewable

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

Benchmark #1: The student will develop an understanding of the overall functioning of human systems and their interaction with the environment in order to understand specific mechanisms and processes related to health issues.

Indicator #2: Understands the severity of disease symptoms is dependent on many factors.

Vocabulary: communicable/noncommunicable, antigens, antibodies, receptor site, virus, bacteria pathogenic, pathogens, virulence, immune system, genetic predisposition

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #1: The student will demonstrate an understanding of the structure and function of the cell.

Indicator #2: Understands cell functions involve specific chemical reactions.

Vocabulary: ATP, Passive/Active transport, enzyme, catalyst, reactants/products, photosynthesis, respiration, monomer, polymer

Concepts: Enzyme catalyst reaction, Transfer/transformation of energy, Photosynthesis equation

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #5: The student will develop an understanding of matter, energy, and organization in living systems.

Indicator #2: Understands the sun is the primary source of energy for life through the process of photosynthesis.

Vocabulary: light energy, chemical energy, producers, consumers, decomposers, trophic level, pyramid of energy, chemosynthetic/photosynthetic organisms, food web, food chain

Concepts: Construction of a food web, Energy loss between trophic levels

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #5: The student will develop an understanding of matter, energy, and organization in living systems.

Indicator #3: Understands food molecules contain biochemical energy, which is then available for cellular respiration.

Vocabulary: ATP, cellular respiration, biochemical energy/reactants, enzymes, mitochondria, food molecules (carbohydrates, lipids, proteins), glucose

Concepts: ATP, Anaerobic/Aerobic respiration, glycolysis, fermentation (lactic acid, alcoholic), breakdown of glucose (two-chemical reaction)

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Indicator #2: Understands that homeostasis is the dynamic regulation and balance of an organism's internal environment to maintain conditions suitable for survival.

Vocabulary: Homeostasis, membrane, diffusion, osmosis

Concepts: Mechanisms of Homeostasis, Transportations of substances across membranes, Specialized structures

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #2: The student will demonstrate an understanding of chromosomes, genes, and the molecular basis.

Indicator #1: Understands living organisms contain DNA or RNA as their genetic material, which provides the instructions that specify the characteristics of organisms.

Vocabulary: DNA, RNA, nucleotides, genes, chromosomes, replication, transcription, translation, codon/anticodon, template, nitrogen bases

Concepts: Protein synthesis, DNA replication

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #2: The student will demonstrate an understanding of chromosomes, genes and the molecular basis.

Indicator #3: Understands hereditary information is contained in genes, located in the chromosomes of each cell.

Vocabulary: alleles, dominant, recessive, co-dominant, incomplete dominance, genotype, phenotype, punnett square, mutations, homozygous, heterozygous, genetic variation, polygenic trait, genetic recombination

Concepts: Punnett Square,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #4: EARTH AND SPACE SCIENCE

Benchmark #2: The student will develop an understanding of the origin and development of the dynamic earth system.

Indicator #1: Understands geological time is used to understand the Earth's past.

Vocabulary: fossils, radioactive dating, relative dating, paleontologic events, mass extinctions, sedimentary rock, superposition

Concepts: Geologic time scale, Principle of superposition

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #3: The student will understand biological evolution.

Indicator #1: Understands biological evolution, descent with modification, is a scientific explanation for the history of the diversification of organisms from common ancestors.

Vocabulary: Analogous, homologous, and vestigial structures, phylogeny, fossil

Concepts: Understanding and interpreting cladograms, Patterns of fossil record, Rock layering, Benefits of studying organisms with short life cycles to observe evolution

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #3: The student will understand biological evolution.

Indicator #3: Understands biological evolution is used to explain the earth's present day biodiversity; the number, variety and variability of organisms.

Vocabulary: Speciation, mutation, extinction

Concepts: Causes of speciation,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Indicator #3: Understands that living things change following a specific pattern of developmental stages called life cycles;

Vocabulary: Metamorphosis, dormancy,

Concepts: Periods of dormancy, Life cycle stages, Alternation of generations

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard #3: LIFE SCIENCE

Benchmark #7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Indicator #4: Understands that in complex organisms there is a division of labor into specific body systems i.e., respiration, digestion, nervous, endocrine, excretion, circulatory, reproductive, immune, skeletal and muscle.

Vocabulary:

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

(May be found on state science assessment administered in the 2008-09 school year, and thereafter.)

Standard #3: LIFE SCIENCE

Benchmark #7: The student will demonstrate an understanding of the diversity of structure and function in organisms.

Indicator #5: Understands taxonomy is the systematic way in which organisms are placed into a hierarchical classification system, according to their physical and genetic characteristics and their evolutionary history.

Vocabulary:

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard : FUNGI

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard : PLANTS

Benchmark :

Indicator :

Vocabulary:

Level of Instruction: (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City
Course: Physical Science

School: Baldwin High School
Instructor: Hartman

Quarter: 1

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, constant variable, evaluation of data, control variable, control group, replication, revision, sample size, validity of results

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 4: actively engages in conducting an inquiry, formulating and revising his or her scientific explanations and models (physical, conceptual, or mathematical) using logic and evidence, and recognizing that potential alternative explanations and models should be considered.

Vocabulary: discussion, revision, review literature, evidence, logic, evaluate biases, modifications

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: CHEMISTRY

Benchmark 1: The student will understand the structure of the atom.

Indicator 1: understands atoms, the fundamental organizational unit of matter, are composed of subatomic particles. Chemists are primarily interested in the protons, electrons, and neutrons found in the atom.

Vocabulary: protons, electrons, neutrons, nucleus, atomic number, atomic mass number, positive charge, negative charge, neutral charge, atomic mass units (amu), electron cloud, ion, isotopes, relative mass of subatomic particles, Bohr model of atom, energy levels

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: CHEMISTRY

Benchmark 2: The students will understand the states and properties of matter.

Indicator 1: understands chemists use kinetic and potential energy to explain the physical and chemical properties of matter on earth that may exist in any of these three states: solids, liquids, and gases.

Vocabulary: element, compound, gas, liquid, solid, ionic compound, intermolecular attraction, chemical bonds, ionic bonds, hydrogen bonding, permanent dipole, induced dipole, physical properties, chemical properties,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: CHEMISTRY

Benchmark 2: The students will understand the states and properties of matter.

Indicator 2: understands the periodic table lists elements according to increasing atomic number. This table organizes physical and chemical trends by groups, periods, and sub-categories.

Vocabulary: valence electrons, periods, energy levels, electromagnetic radiation, metals, non-metals, transition metals, noble gases, electron configuration

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City
Course: Physical Science

School: Baldwin High School
Instructor: Hartman

Quarter: 2

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, constant variable, evaluation of data, control variable, control group, replication, revision, sample size, validity of results

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: CHEMISTRY

Benchmark 2: The students will understand the states and properties of matter.

Indicator 3: understands chemical bonds result when valence electrons are transferred or shared between atoms. Breaking a chemical bond requires energy. Formation of a chemical bond releases energy. Ionic compounds result from atoms transferring electrons. Molecular compounds result from atoms sharing electrons.

Vocabulary: valence electron configurations, cations, anions, covalent bonds, electron configuration, non-polar, polar; electro-negativity, chains, rings, networks of carbon, metallic bonding, octet rule, electron dot diagram, endothermic reaction, exothermic reaction, activation energy, catalyst

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: CHEMISTRY

Benchmark 3: The student will gain a basic concept of chemical reactions.

Indicator 1: understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products). There are different types of chemical reactions all of which demonstrate the Law of Conservation of Matter and Energy.

Vocabulary: chemical reactions, balanced equations, reactants, products, coefficient, physical change, chemical change, effervescence, mass change, precipitation, light emission, heat exchange, rate of chemical reaction,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City
Course: Physical Science

School: Baldwin High School
Instructor: Hartman

Quarter: 3

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, constant variable, evaluation of data, control variable, control group, replication, revision, sample size, validity of results

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: PHYSICS

Benchmark 1: The student will understand the relationships between force and motion.

Indicator 1: understands Newton's Laws and the variables of time, position, velocity, and acceleration can be used to describe the position and motion of particles.

Vocabulary: kinematics, position, velocity, acceleration, vectors, net force, Newton's Laws of Motion, uniform circular motion, gravity, gravitational forces, weight, mass, inertia, friction, slope of motion graph

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: PHYSICS

Benchmark 2: The student will understand the conservation of mass and energy, and the First and Second Laws of Thermodynamics.

Indicator 2: understands the first law of thermodynamics states the total internal energy of a substance (the sum of all the kinetic and potential energies of its constituent molecules) will change only if heat is exchanged with the environment or work is done on or by the substance. In any physical interaction, the total energy in the universe is conserved.

Vocabulary: kinetic energy, gravitational potential energy, electric potential energy, mechanical energy, heat energy, heat flow, heat engine, radiation, convection, conduction, work, power, forms of energy: mechanical, heat, light, sound, chemical, electrical, nuclear; temperature, Kelvin, average kinetic energy, conservation of energy

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 5: SCIENCE AND TECHNOLOGY

Benchmark 1: The student will develop an understanding that technology is applied science.

Indicator 1: understands technology is the application of scientific knowledge for functional purposes.

Vocabulary: engineering, medicine,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City **School:** Baldwin High School

Course: Physical Science

Instructor: Hartman

Quarter: 4

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, constant variable, evaluation of data, control variable, control group, replication, revision, sample size, validity of results

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: PHYSICS

Benchmark 3: The student will understand the nature of the fundamental interactions of matter and energy.

Indicator 2: understands waves have energy and can transfer energy when they interact with matter.

Vocabulary: transverse waves, longitudinal waves, water waves, sound waves, electromagnetic waves, wave speed, wavelength, frequency, period, amplitude, pitch, interference, superposition, reflection, refraction, diffraction, law of reflection, Snell's Law, constructive interference, destructive interference, Doppler Effect, concave lens, convex lens, concave mirror, convex mirror

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: PHYSICS

Benchmark 3: The student will understand the nature of the fundamental interactions of matter and energy.

Indicator 5: understands electromagnetic waves result when a charged particle is accelerated or decelerated.

Vocabulary: radio waves, microwaves, infrared radiation, visible light, ultraviolet radiation, X-rays, gamma rays, Coulomb's Law, magnetic field, induction

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: PHYSICS

Benchmark 3: The student will understand the nature of the fundamental interactions of matter and energy.

Indicator 6: The student understands basic electrostatics and circuits.

Vocabulary: electric potential energy, DC circuit, AC circuit, series circuit, parallel circuit, current, voltage, resistance, conductor, insulator, Ohm's Law

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 5: SCIENCE AND TECHNOLOGY

Benchmark 1: The student will develop an understanding that technology is applied science.

Indicator 1: understands technology is the application of scientific knowledge for functional purposes.

Vocabulary: engineering, medicine,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Quarter 11.1.2

Standard 1: SCIENCE AS INQUIRY – The student will develop the abilities necessary to do scientific inquiry and develop an understanding of scientific inquiry.

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, control variables, constant variable, evaluation of data (data table, graphs)

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Specifications- hypothesis if/then, data tables/graph

1.1.3

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment use and safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

5.1.1

Standard 5: SCIENCE AND TECHNOLOGY

Benchmark 1: The student will develop an understanding that technology is applied science.

Indicator 1: understands technology is the application of scientific knowledge for functional purposes.

Vocabulary: engineering, medicine, new technologies

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

2A.1.1

Standard 2A: CHEMISTRY

Benchmark 1: The student will develop an understanding of the structure of atoms, compounds, chemical reactions, and the interactions of energy and matter.

Indicator 1: The student understands atoms, the fundamental organizational unit of matter, are composed of subatomic particles. Chemists are primarily interested in the protons, electrons, and neutrons found in the atom. Vocabulary: protons, neutrons, electrons, elements, electrostatic attraction, Bohr model, electron cloud

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

2A.2.2

Standard 2A: CHEMISTRY

Benchmark 2: The students will understand the states and properties of matter.

Indicator 2: understands the periodic table lists elements according to increasing atomic number. This table organizes physical and chemical trends by groups, periods, and sub-categories.

Vocabulary: valence electrons, periods, energy levels, electromagnetic radiation, metals, non-metals, transition metals,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: CHEMISTRY

Benchmark 2: The students will understand the states and properties of matter.

Indicator 3: The student understands chemical bonds result when valence electrons are transferred or shared between atoms. Breaking a chemical bond requires energy. Formation of a chemical bond releases energy. Ionic compounds result from atoms transferring electrons. Molecular compounds result from atoms sharing electrons. For example, carbon atoms can bond to each other in chains, rings, and branching networks. Branched network and metallic solids also result from bonding.

Vocabulary: valence electrons, ionic compounds, cations, anions, metals, non-metals, molecules, octet rule, dot diagrams (Lewis structures), polar bonds, endothermic reactions, exothermic reactions, activation energy, catalyst

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2B: Physics

Benchmark 3: The student will understand the nature of the fundamental interactions of matter and energy.

Indicator 2: understands waves have energy and can transfer energy when they interact with matter.

Vocabulary: transverse waves, longitudinal waves, water waves, sound waves, electromagnetic waves, wave speed, wavelength, frequency, pitch, interference, superposition, reflection, refraction, diffraction, law of reflection, Snell's Law,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

1.1.2

Standard 1: SCIENCE AS INQUIRY – The student will develop the abilities necessary to do scientific inquiry and develop an understanding of scientific inquiry.

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, control variables, constant variable, evaluation of data (data table, graphs)

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Specifications- hypothesis if/then, data tables/graph

1.1.3

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment use and safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

5.1.1

Standard 5: SCIENCE AND TECHNOLOGY

Benchmark 1: The student will develop an understanding that technology is applied science.

Indicator 1: understands technology is the application of scientific knowledge for functional purposes.

Vocabulary: engineering, medicine, new technologies

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

2A.3.1

Standard 2A: CHEMISTRY

Benchmark 3: The student will gain a basic concept of chemical reactions.

Indicator 1: understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products). There are different types of chemical reactions all of which demonstrate the Law of Conservation of Matter and Energy.

Vocabulary: chemical reactions, balanced equations; synthesis, decomposition, combustion, single replacement, double replacement, acid/base, oxidation/reduction reactions; physical change, chemical change, effervescence, mass change, precipitation, light emission, heat exchange, rate of chemical reaction,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

1.1.2

Standard 1: SCIENCE AS INQUIRY – The student will develop the abilities necessary to do scientific inquiry and develop an understanding of scientific inquiry.

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, control variables, constant variable, evaluation of data (data table, graphs)

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Specifications- hypothesis if/then, data tables/graph

1.1.3

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment use and safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

5.1.1

Standard 5: SCIENCE AND TECHNOLOGY

Benchmark 1: The student will develop an understanding that technology is applied science.

Indicator 1: understands technology is the application of scientific knowledge for functional purposes.

Vocabulary: engineering, medicine, new technologies

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: CHEMISTRY

Benchmark 2: The students will understand the states and properties of matter.

Indicator 1: understands chemists use kinetic and potential energy to explain the physical and chemical properties of matter on earth that may exist in any of these three states: solids, liquids, and gases.

Vocabulary: element, molecules, compound, gas, liquid, solid, ionic compound, intermolecular attraction, hydrogen bonding, permanent dipole interaction, induced dipole interaction, physical properties, chemical properties,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 2A: CHEMISTRY

Benchmark 2: The students will understand the states and properties of matter.

Indicator 3: The student understands chemical bonds result when valence electrons are transferred or shared between atoms. Breaking a chemical bond requires energy. Formation of a chemical bond releases energy. Ionic compounds result from atoms transferring electrons. Molecular compounds result from atoms sharing electrons. For example, carbon atoms can bond to each other in chains, rings, and branching networks. Branched network and metallic solids also result from bonding.

Vocabulary: valence electrons, ionic compounds, cations, anions, metals, non-metals, molecules, octet rule, dot diagrams (Lewis structures), polar bonds, endothermic reactions, exothermic reactions, activation energy, catalyst

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 4: actively engages in conducting an inquiry, formulating and revising his or her scientific explanations and models (physical, conceptual, or mathematical) using logic and evidence, and recognizing that potential alternative explanations and models should be considered.

Vocabulary: discussion, revision, review literature, evidence, logic, evaluate biases, modifications

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

5.1.1

Standard 5: SCIENCE AND TECHNOLOGY

Benchmark 1: The student will develop an understanding that technology is applied science.

Indicator 1: understands technology is the application of scientific knowledge for functional purposes.

Vocabulary: engineering, medicine, new technologies

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, constant variable, evaluation of data, control variable, control group, replication, revision, sample size, validity of results

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 4: actively engages in conducting an inquiry, formulating and revising his or her scientific explanations and models (physical, conceptual, or mathematical) using logic and evidence, and recognizing that potential alternative explanations and models should be considered.

Vocabulary: discussion, revision, review literature, evidence, logic, evaluate biases, modifications

Level of Instruction: R (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: EARTH AND SPACE SCIENCE

Benchmark 1: The student will develop an understanding of the sources of energy that power the subsystems and cycles of the dynamic earth: the geosphere, hydrosphere, atmosphere and biosphere.

Indicator 1: understands constructive and destructive processes, including weathering, erosion and deposition, dynamically reshape the surface of the earth.

Vocabulary: rock cycle, constructive processes, destructive processes, erosion agents

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 5: SCIENCE AND TECHNOLOGY

Benchmark 1: The student will develop an understanding that technology is applied science.

Indicator 1: understands technology is the application of scientific knowledge for functional purposes.

Vocabulary: engineering, medicine,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

District: USD 348, Baldwin City
Course: Earth/Space Science

School: Baldwin High School
Instructor: Hartman

Quarter: 3

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, constant variable, evaluation of data, control variable, control group, replication, revision, sample size, validity of results

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: EARTH AND SPACE SCIENCE

Benchmark 3: The student will develop an understanding of dynamics of our solar system.

Indicator 1: understands gravitational attraction of objects in the solar system keeps solar system objects in orbit.

Vocabulary: Kepler's laws of planetary motion, solar system model

Level of Instruction: E (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: EARTH AND SPACE SCIENCE

Benchmark 3: The student will develop an understanding of dynamics of our solar system.

Indicator 2: understands the relationship between the earth, moon, and sun explains the seasons, tides and moon phases

Vocabulary: angle of incidence of solar energy, gravitational relationship, tides, relative size and distances of planets, nebular clouds of dust and gas, lunar eclipse, solar eclipse, phases of moon,

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 2: actively engages in investigations, including developing questions, gathering and analyzing data, and designing and conducting research

Vocabulary: hypothesis, independent variable, dependent variable, constant variable, evaluation of data, control variable, control group, replication, revision, sample size, validity of results

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 1: SCIENCE AS INQUIRY

Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Indicator 3: actively engages in using technological tools and mathematics in their own scientific investigations.

Vocabulary: technologies, mathematical functions, statistical analysis, graphing, accuracy, precision, equipment safety

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: EARTH AND SPACE SCIENCE

Benchmark 4: The student will develop an understanding of the organization of the universe, and its development

Indicator 1: understands stellar evolution.

Vocabulary: condensation of gases, life cycle of star, nebula, star classification, supernovae, Hertzsprung-Russell diagram, main sequence stars, giants, dwarfs

Level of Instruction: T (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: EARTH AND SPACE SCIENCE

Benchmark 4: The student will develop an understanding of the organization of the universe, and its Development

Indicator 2: understands the current scientific explanation of the origin and structure of the universe.

Vocabulary: expanding universe, red shift of light, Doppler effect,

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

Standard 4: EARTH AND SPACE SCIENCE

Benchmark 4: The student will develop an understanding of the organization of the universe, and its Development

Indicator 3: understand how the tools of astronomy have revolutionized the study of the universe.

Vocabulary: galaxies, telescopes, spectral analysis,

Level of Instruction: I (I-Introduction, R-Reinforce, E-Essential, T-Tested)

