Grade 7th grade Subject: Science Quarter: 1st

Unit Title: CER and LAB SAFETY

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
6-8ETS1.A.1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. ETS1.B.1,2, Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	Differentiation Expectations Perspectives Variables investigate/investigations observe/observations Data Opinion Claim Evidence Reasoning Lab Equipment Microscope Scientific Method Inference Measuring Temperature Lab Safety Rules/guidelines	Week 1 Set up and establish routines: (1) Daily expectations (2) Science notebook procedures (3) Daily questions Learn lab safety Rules Kesler Lab Safety Escape Room Week 2 CER activities- commercials, interactive museum heist investigation, CER project (creating scene in which classmates have to find evidence make a claim and include reasoning) Week 3 M&M experiment following/practicing scientific method and utilizing lab equipment and lab safety procedures.(Focus on microscopes and microscope use)	**MUST pass lab safety test AND sign lab contract** Exit slips Projects Escape room results Lab safety test CER written statements meeting rubric guidelines Successfully completing scientific method lab Lab report

Grade 7th grade Subject: Science Quarter:

Unit Title: BIOSPHERE (topic 1)

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
6-8LS1.A.1- 6-8. LS1.A.1 Provide evidence that organisms (unicellular and multicellular) are made of cells an that a single cell must carry out all of the basic functions of life . [Clarification Statement: Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, a nd understanding that living things may be made of one cell or many and varied cells.] Supporting LS1.A.2-Develop and use a model to describe the function of a cell as a whole and ways parts of the cells contribute to that function. LS1.A.3-Develop an argument supported by evidence for how multicellular organisms are organized by varying levels of complexity;cells, tissue, organs, organ systems.i	Lesson 1: Organism, cell, unicellular, multicellular, stimulus, response, spontaneous generation, homeostasis, Lesson 2: species, classification, genus, binomial nomenclature, taxonomy, domain, evolution, convergent evolution, Lesson 3: virus, host, vaccine, bacteria, protist, parasite Lesson 4: tissue, vascular plants, nonvascular plants, vertebrates, organ, mammals	Topic 1: Living Things in the Biosphere -5E lesson model: 1. Engage-Bring in different sea shells–have students organize them 2. Explore (station labs)- a. cheek lab (prepared slide…to see nucleus (lesson 1) i. Taxonomy activity b. Interactivity (Savvas realize)- lesson 3 c. Interactivity (Savvas realize) lesson 4 3. Explain (powerpoint/students take notes over characteristics of living things, virus and bacteria, characteristics of plants, characteristics of animals) Case Study: Tardigrade- reading graphs) 4. Elaborate (challenge project)-? Its alive lab (text pg. 54-55) Sub plans: Dichotomous Key activity (lesson 2)	5E lesson model: **a. Evaluation (quizzes, homework, test)** **b. Sticky note quiz or quizizz for each lesson to review from the day before** **c. handout/worksheet (as needed) that reviews the notes** **d. Test at the end of each TOPIC (lessons 1-4)**

Grade 7th grade Subject: Science Quarter:

Unit Title: The Cell System (topic 2)

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
6-8LS1.A.2 6-8LS1.C.1 6-8LS2.A.2 Supporting Standards 6-8LS1.A.2 6-8LS1.A.3	Lesson 1: cell, microscope, cell theory Lesson 2: organelle, cell wall, cell membrane, cytoplasm, nucleus, mitochondria, chloroplast, vacuole, endoplasmic reticulum, golgi apparatus, ribosomes, Lesson 3: Selectively permeable, diffusion, osmosis, endocytosis, exocytosis, Lesson 4: cell cycle, interphase, replication, mitosis, cytokinesis Lesson 5/6: photosynthesis, autotroph, heterotroph, chlorophyll,	-Microscope best practice…review of lab safety/expectations, parts of a microscope 5E lesson model: 1. Engage-Cell theory video 2. Explore (station labs)- a. Lesson 1-explore pond water with microscope b. Lesson 2-explore plant and animal slides to see difference in structure and organelles c. Lesson 3-EGGS-osmosis and diffusion lab–this needs to be done over the course of a week d. Lesson 4,5,6 -Interactivity (Savvas realize) 3. Explain (powerpoint/students take notes) structure and function of cells, obtaining and removing materials, cell division, photosynthesis, cellular respiration, 4. Elaborate (challenge project)-Cell choice board (google doc) Case study: Naked Mole Rat	5E lesson model: **a. Evaluation (quizzes, homework, test)** **b. Sticky note quiz/quizizz to review from the day before and for each lesson** **c. homework -worksheet that reviews the notes (hardcopies)** **d. Test at the end of each unit-Savvas Editable test**

Grade 7th grade Subject: Science Quarter:

Unit Title: Human Body Systems (topic 3)

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
6-8LS1.A.4- Present evidence that body systems interact to carry out key body functions, including providing nutrients and oxygen to cells, removing carbon dioxide and waste from cells and the body, controlling body motion/activity and coordination, and protecting the body (if needed I will cut from this unit and combine lessons into 2 and skip labs)	Tissue, organ, organ system, stimulus, response, gland, hormone, stress, digestion, nutrients, carbohydrates, peristalsis, saliva, enzyme, absorption, elimination, digestion,circulatory system, artery, capillary, vein, lymph, bronchi, alveoli, exception, nephron,neron, synapse, brain, spinal cord, gland, negative feedback, reflex	1. Engage-microscopes looking at different cells in the body (blood, skin tissue, 2. Explore (station labs)- a. Lesson 1-Interactivity human body systems (text Lesson 2-Interactivity-he's a growing boy) b. Lesson 3-chip lab (pg. 154) c. Lesson 4,5 -Interactivity (Savvas realize) 3. Explain (powerpoint/students take notes) Body organization, systems interacting, supplying energy, managing materials, controlling processes 4. 5. Elaborate (challenge project)-Reaction Research (lab) pg. 190-192 Case Study: Agents of Infection	5E lesson model: **Evaluation (quizzes, homework, test)** **a. Sticky note quiz/quizizz to review from the day before and for each lesson** **b. homework -worksheet that reviews the notes (hardcopies)** **c. Test at the end of each unit-Savvas Editable test**

Grade 7th grade Subject: Science Quarter:

Unit Title: Reproduction and Growth (topic 4)

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
6-8LS1.B.1 6-8LS1.B.2	Asexual reproduction Sexual reproduction Fertilization, Trait Gene Inheritance Allele, Dominant Recessive, Zygote Pollination Cones, Ovule Fruit Germination Behavior Instinct Pheromone Mating system Migration Hormone Auxin Tropism Photoperiodism Dormancy Metamorphosis Stimuli Essential	6. Engage-Quest (How can we reproduce the impact of construction of plants and animals?) 7. Explore (labs)- a. Lesson 1-Interactivity Moon Jellyfish Pg.200) b. Lesson 2- Interactivity-Designer Flowers pg.212 c. Lesson 3-fireflies (pg. 225) d. Lesson 4, growing and thriving -Interactivity (Savvas realize) 8. Explain (powerpoint/students take notes) Patterns of reproduction, plant structures for reproduction, animal behaviors for reproduction, factors influencing growth 9. Elaborate (challenge project)-Clean and Green (pg. 244) Case Study: Warmer Waters, Fewer Fish	5E lesson model: **e. Evaluation (quizzes, homework, test)** **f. Sticky note quiz/quizizz to review from the day before and for each lesson** **g. homework -worksheet that reviews the notes (hardcopies)** **h. Test at the end of each unit-Savvas Editable test**

Grade 7th grade Subject: Science Quarter:

Unit Title: Genes and Heredity (topic 7)

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
6-8LS4.B.1 6-8LS4.B.2	Heredity, dominant allele, recessive allele, probability, genotype, phenotype, homozygous, heterozygous, chromosome, cell cycle, pedigree, meiosis, chromatids, mitosis, DNA, protein synthesis, messenger RNA, transfer RNA, variation, sex chromosomes, autosomal chromsomes, mutation, sex-linked genes, sequence, artificial selection, genetic engineering, gene therapy, clone, genome,	10. Engage-microscopes looking at different cells in the body (blood, skin tissue, 11. Explore (station labs)- a. Lesson 1-Observing Pistils and Stamens b. Lesson 2- look inside interactivity pg. 365 c. Lesson 3-Design It pg. 373 d. Lesson 4 -Describe that dog- Interactivity (Savvas realize) e. Lesson 5- DNA fingerprinting interactivity 12. Explain (powerpoint/students take notes) Patterns of Inheritance, Chromosomes and Inheritance, Genetic Coding and protein synthesis, trait variation, genetic technologies 13. Elaborate (challenge project)- Make the Right Call pg. 406-407 Case Study: Cephalopods	5E lesson model: **Evaluation (quizzes, homework, test)** **d. Sticky note quiz/quizizz to review from the day before and for each lesson** **e. homework -worksheet that reviews the notes (hardcopies)** **f. Test at the end of each unit-Savvas Editable test**

Grade 7th grade Subject: Science Quarter

Unit Title: Ecosystems and population and communities (topics 5 & 6)

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
6-8LS2.A.1 6-8LS2.B.1 6-8LS2.C.1 Supporting: 6-8LS2.A.2 6-8LS2.C.2	Organism, habitat, biotic factors, abiotic factors, population, community, ecosystems, limiting factor, producer, consumer, decomposer, food chain, food web, energy pyramid, Law of Conservation of Mass, Law of Conservation of Energy, evaporation, condensation, precipitation, niche, competition, predation, symbiosis, commensalism, mutualism, parasitism, succession, pioneer species, biodiversity, keystone species, extinction, invasive species, ecosystem services, ecology, natural resources, conservation, sustainability, ecological restoration	14. Engage- Introduce Meal Worms project (we will do this throughout the unit) 15. Explore (station labs)- a. Lesson 1-Elbow room (pg 257) b. Lesson 2-Interactivity-Food Sources c. Lesson 3-Earth's Recyclables (pg. 278) 16. Explore: a. Lesson 1- competition and predation b. Lesson 2- a butterfly mystery c. Lesson 3- Biodiversity in the Amazon d. Lesson 4- Walk This Way 17. Explain (powerpoint/students take notes) Interactions in ecosystems, Dynamic and Resilient, biodiversity, Ecosystem Services 18. Elaborate (challenge project)-Meal Worm and Owl Pellet Case Study: The Dependable Elephant Career Spotlight: Ecology in Action pg. 311 The case of the disappearing Cerulean Warbler pg 260-261	5E lesson model: **Evaluation (quizzes, homework, test)** **g. Sticky note quiz/quizizz to review from the day before and for each lesson** **h. homework -worksheet that reviews the notes (hardcopies)** **i. Test at the end of each unit-Savvas Editable test**

Grade 7th grade Subject: Science Quarter:

Unit Title: Natural Selection and Change Over Time (topic 8)

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
6-8LS4.A.1 6-8LS4.B.1 6-8LS4.C.1 Supporting Standards LS4.B.2	Species, evolution, fossil, adaptation, scientific theory, natural selection, fitness, sexual selection, coevolution, Fossil record, embryo, homologous structures, extinct, protein, endosymbiosis,	19. Engage-Mystery on the Galapagos Island 20. Explore (station labs)- a. Lesson 1-Meet the blackcaps b. Lesson 2 Squirrel Color and Survival Interactivity- c. Lesson 3- Frog Jump (pg. 435) d. Lesson 4- Finding Proof e. Lesson 5- Technology over time 21. Explain (powerpoint/students take notes) Evolution 22. Elaborate (challenge project) Case Study: Could Dinosaurs Roar?	5E lesson model: **Evaluation (quizzes, homework, test)** **j. Sticky note quiz/quizizz to review from the day before and for each lesson** **k. homework -worksheet that reviews the notes (hardcopies)** **l. Test at the end of each unit-Savvas Editable test**

General Lesson Overview(5E concept):

1. Bellringer and objective (I use **I can** statements for the objective)
2. Introduction/Engagement (I do/We do- Guided)- An engaging activity or demonstration to get them "hooked" on the concept
3. Explore (students do -Guided/Independent)-stations and labs
4. Explain (I do)--I use guided notes, where they fill in the blanks while I go through a powerpoint
5. Elaborate (Student challenge projects) (students do- Independent)
6. Evaluation (students do- Independent)

(I like to **explore** 1st to get them even more curious about our topic and then **explain** but sometimes I do switch these)

4 DAY WEEK CHANGE: Tuesday-Intro/Engage….explore

I would like to add that ETS learning standards are covered more in depth