

Teacher/Teacher Team: Dr. Pani
Grade: 12
Date: 03/18-03/29/2024

Lesson Plans should be posted by 3PM each Friday.

#	Planning Question	Teacher/Teacher Team Response
1	Which state standard is your lesson progression addressing?	<p>HAP.LS1.24 Model the sequential organization of the alimentary canal and its accessory organs to describe the physiological role.</p> <p>HAP.LS1.25 Analyze gastrointestinal wall histology and explain the anatomical architecture that supports efficient absorption and transport of molecules into cardiovascular or lymphatic circulation.</p> <p>HAP.LS1.25 Analyze gastrointestinal wall histology and explain the anatomical architecture that supports efficient absorption and transport of molecules into cardiovascular or lymphatic circulation.</p> <p>HAP.LS1.26 Investigate the actions of major digestive enzymes and hormones and identify their sources.</p> <p>HAP.LS1.27 Describe the role of the hepatic portal system in coupling the digestive and cardiovascular systems.</p>
2	What scientific concepts or phenomena are embedded in the state standard?	<p>Liver regeneration after the loss of hepatic tissue is a fundamental parameter of liver response to injury. Recognized as a phenomenon from mythological times, it is now defined as an orchestrated response induced by specific external stimuli and involving sequential changes in gene expression, growth factor production, and morphologic structure. The process is associated with signaling cascades involving growth factors, cytokines, matrix remodeling, and several feedback of stimulation and inhibition of growth-related signals. Liver manages to restore any lost mass and adjust its size to that of the organism, while at the same time providing full support for body homeostasis during the entire regenerative process.</p>
3	What teacher knowledge, reminders, and misconceptions are assumed in the standard?	<ul style="list-style-type: none"> • Spicy food and stress cause stomach ulcers. Most stomach ulcers are caused by Helicobacter pylori (H. pylori), a type of bacterial, or the use of nonsteroidal anti-inflammatory drugs (NSAIDs) such as naproxen, ibuprofen, or aspirin. Spicy foods and stress can worsen ulcer symptoms. Cancer can cause stomach ulcers too. • Celiac Disease is a rare childhood disease. Celiac disease is a disease that affects children and adults. It affects 1 in 133 otherwise healthy people in the U.S. Celiac symptoms are often apparent in children who experience failure to thrive, diarrhea, and retarded growth, but symptoms can manifest for the first time in adults as well.

		<p>People who have celiac disease must adhere to a strict, life-long gluten-free diet. • Bowel regularity means a bowel movement every day. Bowel function and the frequency of bowel movements are highly variable. It's normal to have as many as three bowel movements a day, to three per week. Even more or fewer bowel movements are normal for some healthy people. • Cirrhosis is only caused by alcoholism. Cirrhosis is scarring of the liver that may be caused by alcoholism and other conditions. Alcoholism is the second most common cause of cirrhosis in digestive system is to provide the body with amino acids, carbohydrates, fats, and vitamins to keep our cells functioning. The digestive system provides these essential materials to the 75 trillion cells that live in our bodies. Maintain homeostasis, or balance among the many elements of the body's internal environmentthe U.S. It is responsible for less than 50% of all cases of cirrhosis. • Digestion happens in the stomach. Some digestion happens in the stomach, but food passes through a series of stations on its way through our bodies beginning with the mouth. • Lactose intolerance and milk allergy are the same. Lactose intolerance refers to gastrointestinal symptoms following consumption of lactose greater than the body's amount of lactase, the intestinal enzyme needed to digest and absorb lactose. Milk allergy, is a reaction to one or more milk proteins triggered by the immune system.</p>
4	<p>What objective(s) must be taught? In what order? Why?</p>	<p>SWBAT identify the organs of the Digestive System IOT, analyze their mechanisms of functions, and evaluate the homeostasis.</p>
5	<p>What is your resource plan for each of the 5 Es of inquiry-based science instruction?</p> <ol style="list-style-type: none"> 1. Engage 2. Explore 3. Explain 	<p>Curricular Resources Textbook: Applied Anatomy & Physiology: A Case Study Approach • Chapter 8, pp. 272 – 303 Suggested Activities Engage • CK-12: The Digestive System • The Teaching Channel: Demonstrating Biology: It Takes Guts • Khan Academy: The Digestive System • TED-Ed: How Your Digestive System Works • The Digestive System Interactive • Gizmos: The Digestive System • Designing a Digestive System • Crash Course: Digestive System, Part 1 • Crash Course: Digestive System, Part 2 • Crash Course: Digestive System, Part 3 Explore EMC AA&P Workbook & Laboratory Manual: Chapter 13: The Digestive System, pp. 241-265 • Laboratory Activity 1: Microscopic Identification of Normal Digestive Organs; pp.259-260 • Laboratory Activity 2: Effects of Antacids on Protein Digestion, pp. 260-262 Investigation</p>

	<p>4. Elaborate 5. Evaluate</p>	<ul style="list-style-type: none"> • Case Study Investigation #13, pp. 461, 463, 466, 476, 480, 487 • A Case Study: Is Exercise Bad for the Digestive System, pp. 493-495 • What Happens When You Eat? Explain • Digestive System Elaborate Short Readings • Artificial Digestive System, p. 464 • Fun Facts: The Digestive System, p. 578 • Lactose Intolerance: A Closer Look, p. 483 • Can Kissing Cause Ulcers, p. 485 Evaluate • Chapter 13: The Digestive System-Concept Check, pgs.463, 466, 470, 472, 474, 476, 478, 480, 484 • Chapter 13: The Digestive System-Study Guide, pp. 491-492.
6	<p>What academic language must be taught before and after the explain phase? How will the academic language be taught and assessed?</p>	<p>accessory digestive organs, digestive tract, esophagus, feces, flatulence, ingestion, oral cavity, palate, salivary glands, soft palate, uvula, wisdom teeth, reflux, stomach, small intestine, anus, appendicitis, appendix, ascending colon, cecum, colon, descending colon, large intestine, rectum, sigmoid colon, transverse colon, bile, common bile duct, pancreatic duct, gallbladder, gallstone, acid reflux, acute diarrhea, amoebic dysentery, celiac disease, chronic diarrhea, cirrhosis, colon cancer, colon polyp, diarrhea, dysphagia, food intolerance, gastric reflux, gastroesophageal reflux disease (GERD), hepatitis, hernia, hiatal hernia, inflammatory bowel disease (IBD), pancreatitis, salmonella, ulcer, diverticulitis</p>
7	<p>What is your plan to ensure that assessment of instruction on this standard is not solely characterized by remembering or regurgitating information?</p>	<p>How do the structures and functions of living things allow them to meet their needs? • How does energy change from one form to another as it moves through a system? • How does the variation among individuals affect their survival? • What are the functions of the dig.</p> <p>The Human digestive system is the system used in the human body for the process of digestion. The human digestive system consists primarily of the digestive tract, or the series of structures and organs through which food and liquids pass during their processing into forms absorbable into the bloodstream. The system also consists of the structures through which wastes pass in the process of elimination and other organs that contribute juices necessary for the digestive process. If the body did not have a digestive tract, you could not enjoy your favorite pizza, hamburger, or other food. The human body must obtain its energy by eating food. Therefore, the main purpose of the digestive system is to provide the body with amino acids, carbohydrates, fats, and vitamins to keep our cells functioning. The digestive system provides these essential materials to the 75 trillion cells that live in our bodies.</p>

8	What literacy concept can be intertwined with instruction on this scientific concept or phenomenon?	Including the content lecture, students will learn dissection of heart, brain, rats, piglets' systems that are similar as human structure and function. Compare the digestive system between the piglets, rats and human types, and the genetics info behind the system.
9	How will instruction be impacted by the Cross Cutting Concepts and the Science & Engineering Practices?	This is a premed course. This study will help them to prepare for nursing schools, medical colleges, pharmacy institutes, pharmacology labs, and the graduate school scientific careers.

Districtwide PLC Protocol for **Science**

Teacher/Teacher Team: Dr. Pani
Grade: 09
Date: 03/18-05/17/2024

Lesson Plans should be posted by 3PM each Friday.

#	Planning Question	Teacher/Teacher Team Response
1	Which state standard is your lesson progression addressing?	PSCI.PS1.5 Trace the development of the modern atomic theory to describe atomic particles properties and position. SCI.PS1.4 Apply scientific principles and evidence to provide explanations about physical and chemical changes.
2	What scientific concepts or phenomena are embedded in the state standard?	Suggested Phenomena: PSCI.PS1.5: Democritus (460-370 B.C.) proposed the existence of the atom. Modern atomic theory has evolved with continued scientific experimentation. PSCI.PS1.6: Technetium, Tc, and promethium, Pm, are not naturally occurring elements (i.e., human made isotopes). Two forms of Technetium can be used as radioactive tracers in living tissues for research and diagnosis. PSCI.PS1.7: Copper, Cu, and Gold, Au, share many properties. They are both relatively unreactive, soft and easily shaped, and have high values for jewelry because of their shine. PSCI.PS1.8: Sodium and chlorine are not seen in elemental form in nature but often found as sodium chloride (i.e., table salt).
3	What teacher knowledge, reminders, and misconceptions are assumed in the standard?	Atomic Structure – Students often do not understand that atoms consist mostly of empty space. If the nucleus of an atom were the size of a marble, then the first electron level would be about a half mile or 0.8 km away from the nucleus. • Periodic Table – Students should understand that Mendeleev was at a disadvantage when he created his periodic table. He did not have knowledge of the atomic structure. Electrons were not discovered until the late 1890s. His chart was based on mass and properties of the elements. • Conductivity and Temperature – Students might think that electrical conductivity is independent of temperature or that it increases as temperature increases. Explain that conductivity in metals generally decreases as temperature decreases. • Protons vs. Neutrons – Students might think that all elements have the same number of protons as neutrons because many of the lighter elements do. Remind them that this is not true. Large atoms have more neutrons than protons because neutrons play a role in stabilizing the repulsive forces between the protons in the nucleus. • A Disadvantage- Mendeleev did not have the advantage of knowing atomic structure when he made his periodic chart. Electrons were not discovered until the late 1890s. His chart was based on mass and properties of

		<p>the elements.</p> <p>What are the reactants and products in a chemical reaction?</p> <ul style="list-style-type: none"> • Is mass conserved in a chemical reaction? • Why are chemical equations important? • How do you balance a chemical equation? • What are the five general types of reactions? • How can you predict if a metal will replace another in a compound? • What do the terms oxidation and reduction mean? • How are redox reactions identified? • How can the source of energy changes in chemical reactions be identified? • How do exothermic and endothermic reactions compare? • Is energy conserved during a chemical reaction? • How do chemists express the rates of chemical reactions
4	<p>What objective(s) must be taught? In what order? Why?</p>	<p>All or a portion of the following PBO(s) are supported in the textbook resources and may be referenced.</p> <p>SWBAT apply scientific principles and evidence IOT provide explanations about physical and chemical changes.</p> <p>SWBAT trace the development of the modern atomic theory IOT describe atomic particle properties and position.</p>
5	<p>What is your resource plan for each of the 5 Es of inquiry-based science instruction?</p> <ol style="list-style-type: none"> 1. Engage 2. Explore 3. Explain 	<p>Curricular Resources Textbook: Glencoe Physical Science Log into McGraw-Hill ConnectED platform via Clever and Canvas before accessing hyperlinked materials. Chapter 19: Chemical Reactions • Section 19.1: Chemical Changes, pp. 582-589 • Section 19.2: Classifying Chemical Reactions, pp. 590-593 • Section 19.3: Chemical Reactions & Energy, pp. 594-597 • Section 19.4: Reaction rates and Equilibrium, pp. 598-604</p> <p>Suggested Activities Engage • Observing Reactions p. 582 • Quick Demo: What's the same about moles? p. 588 • Reading Preview: Chemical Reactions p. 590 Quick Demo: Synthesis Reaction p. 591 • Reading Preview: Eating Food p. 594 • Word Chart p. 594 • Demonstration: Exothermic Processes p. 59</p>

	<p>4. Elaborate 5. Evaluate</p>	<p>Reading Preview: Fast and Slow Reactions p. 598 • Quick Demo: Does temperature affect reaction rate? p. 600 • Demonstration: Surface Area and Reaction Rate p. 600 • Quick Demo: Using a Catalyst p. 601 Explore • MiniLab Design a Team Equation p. 582 • Activity: Table of Elements p. 583 • Virtual Lab: In Balance p. 585 • Activity: Building-Block Reactions p. 591 • Activity: Hand Warmers p. 595 • Demonstration: Exothermic Processes p. 596 • MiniLab: Model Equilibrium p. 603 Explain • Science Journal: Evidence of a Change p. 582 • Differentiated Instruction: Challenge (photography) p. 583 • Reading Strategy: Clarify Text p. 583 • Use an Analogy: Baseball Scores p. 584 • Differentiated Instruction: English Learners (chemical formulas) p. 584 • Use an Analogy: Balancing a Ledger p. 585 • Science Journal: Soda Coefficients p. 585 • Discussion: Burning Copper p. 585 • Discussion: Balancing Strategies p. 586 • Reading Strategy: p. 586 Check for Understanding: Chemical Formulas p. 589 • Reteach: Understanding Coefficients p. 589 • Word/Analysis: (decomposition reaction) p. 590 • Visual Learning: Chemical Reactions (animation) p. 590 • Reading Strategy: Shared Reading p. 591 • Make a Model: Electron Transfer p. 592 • Use an Analogy: Basketball p. 592 • Differentiated Instruction: Struggling Learner (types of reactions); Challenge (oxidation and reduction) p. 592 • Visual Learning: Oxidation & Reduction (animation) p. 593 • Check for Understanding: Auditory - Musical (mnemonic device to remember the types of reactions) p. 593 • Reteach: Play Cards p. 593 • Use Science Words: Word Meanings p. 595 • Visual Learning: Exothermic Reactions (animation) p. 595 • Visual Learning: Glow Sticks p. 596 • Check for Understanding: Sounds of Chemistry p. 597 • Reteach: Chemical Energy p. 597 • Make a Model: Collision Model p. 599 • Use an Analogy: Concentration and Collisions p. 599 • Differentiated Instruction: Challenge (consumption and production) p. 59 Discussion: Reaction Rate p. 600 • Use an Analogy: Gears p. 601 • Discussion: Dynamic Equilibrium p. 602 • Reading Strategy: Clarify Text p. 602 • Differentiated Instruction: Struggling Learners (equilibrium) p. 602 • Science Journal: Reversible Reactions p. 603 • Check for Understanding: Chemistry Flashcards p. 604 • Reteach: Understanding Equilibrium p. 604 Elaborate • Integrate Life Science: Controlling Body Heat p. 595 Evaluate • Practice Problems: p. 587 • Section Review p. 589 • Post Reading: Essay Writing • Section Review p. 593 • Post Reading: Discussion (endergonic, exothermic, and endergonic) p. 597 • Section Review p. 597 • Post Reading: Illustrations p. 603 • Section Review p. 606.</p>
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6	<p>What academic language must be taught before and after the explain phase? How will the academic language be taught and assessed?</p>	<p>atom, nucleus, proton, neutron, electron, quark, electron cloud, atomic number, mass number, isotope, average atomic mass, periodic table, period, group, electron dot diagram, metal, malleable, ductile, metallic bonding, radioactive element, transition element, non-metal, diatomic metal, metalloid, allotrope, semiconductor, trans uranium elements, chemical reaction, reactants, products, chemical equation, coefficient, balanced chemical equation, mole, molar mass, combustion reaction, synthesis reaction, decomposition reaction, single displacement reaction, double displacement reaction, precipitate, oxidation, reduction, exergonic reaction, exothermic reaction, endergonic reaction, endothermic reaction, percentage composition, Avogadro's number, molar volume of gas at STP.</p> <p>strong force, radioactivity, alpha particles, beta particles, gamma rays, transmutation, chain reaction, tracer, half-lif</p> <p>.</p> <p>Students are required to define and describe each word as a sentence using the textbook.</p>
7	<p>What is your plan to ensure that assessment of instruction on this standard is not solely characterized by remembering or regurgitating information?</p>	<p>Launch Lab: Technology in Your Life, TE p. 4 • Introduce the Chapter: Discuss, TE p. 5 • Tie to Prior Knowledge: What is Science? TE p. 6 • Differentiated Instruction: Challenge, TE p. 6 • Differentiated Instruction: Struggling Learner, TE p. 7 • Activity: Venn Diagram, TE p. 7 • Use an Analogy: Finding Classrooms, TE p. 8 • Discussion: Hypothesis Confirmed, TE p. 8 • Inquiry Lab: The Path of Theory Development, TE p. 10 • Quick Demo: The Scientific Method, TE p. 11 • Tie to Prior Knowledge: Measuring, Visualize, and Table 5, TE p. 14 • Identify Misconceptions: SI Precision, TE p. 15 • Activity: Relative Volume, TE p. 14 • Activity: Rulers, TE pg. 17 • Minilab: Determine the Density of a Pencil, p. 18 • Activity: Different Measurements, TE p. 19 • Tie to Prior Knowledge: Finding Graphs and Charts and Graphs, TE p. 21 • Visual Learning: Graphing Data, TE p. 2</p>
8	<p>What literacy concept can be intertwined with instruction on this scientific concept or phenomenon?</p>	<p>Textbook study and Online Research Evaluate • Assessment: Oral, TE p. 4 • Reteach: Freezing Water, TE p. 13 • Section 1 Review, p. 12 • Reteach: Candle Wicks, TE p. 25 • Standardized Test Practice, pp. 40-41</p>

9	How will instruction be impacted by the Cross Cutting Concepts and the Science & Engineering Practices?	<p>Suggested Science and Engineering Practice(s)</p> <ul style="list-style-type: none"> • Developing and Using Models • Asking Questions Suggested Crosscutting Concept(s) • Energy & Matter • Patterns ACT Content Connection(s) • States, Classes, and Properties of Matter (PS)
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