BIOSCIENCE
41.0100.00
EMBEDDED SCIENCE CROSSWALK

The Bioscience program has been recognized by the Arizona State Board of Career and Technical Education (CTE) as being eligible for consideration by local governing boards to grant 1 credit in high school science. This document is the result of a committee analysis completed in April 2022.

CTE Bioscience Standards	AZ Science Standards	Reasoning/Rationale
STANDARD 1.0 MAINTAIN A SAFE WORK ENVIRONMENT		
1.1 Identify and wear appropriate lab attire and personal protective equipment (e.g., safety glasses or goggles, lab coat, gloves, and closed-toe shoes)		Science Skills connection identified in Standard 1: Planning and carrying out investigations, analyzing and interpreting data
1.2 Identify emergency contacts and practice emergency protocols (e.g., fire procedure, shower safety, eyewash practice, and evacuation procedure)		
1.3 Identify and follow handling instructions/information and usage of chemicals as identified in the safety data sheets (SDSs)		
1.4 Identify and explain the importance of routine maintenance of equipment and reporting unsafe or nonfunctioning equipment		
1.5 Maintain equipment log (i.e., eyewash, autoclave, laminar flow hood, etc.)		
1.6 Identify biological, biohazardous, and chemical materials and explain appropriate handling (i.e., body fluids, ethidium bromide, sodium hypochlorite, etc.)		
1.7 Identify and comply with safety signage and the significance of SDS symbols		

Standards used in this Crosswalk: AZ Science (Life, Chemistry, Physics) 2018 and CTE Bioscience 2021

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1.8 Distinguish the characteristics of biosafety levels (e.g., BSL-1 to BSL-4)		
1.9 Identify standard operating procedures (SOPs) for monitoring, using, storing, and disposal of biological, biohazardous, and chemical materials		
1.10 Identify standard operating procedures (SOPs) for biological, biohazardous, and chemical spills, including broken glass		
CTE Bioscience Standards	**AZ Science Standards**	**Reasoning/Rationale**
STANDARD 2.0 DEMONSTRATE STANDARD OPERATING PROCEDURE (SOPS) IN THE LABORATORY		
2.1 Discuss the importance of state, local, and industry regulations (i.e., EPA, FDA, OSHA, NIH, AZDEQ, etc.)		Science Skills connection identified in Standard 2: Planning and carrying out investigations, analyzing and interpreting data
2.2 Set up, maintain, and practice lab documentation (research approaches and observations) according to standard operating procedures (SOPs) (e.g., paper and/or electronic notebook)		
2.3 Describe protocols for securing the integrity of samples and data		
2.4 Explain the impact of social media and mobile communications technology on confidentiality, risks, and disclosures of information		
2.5 Practice recording all research approaches and observations		

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STANDARD 3.0 DEMONSTRATE QUALITY CONTROL PROCEDURES		
3.1 Perform and document quality tests on reagents prepared or used in the lab to ensure reproducibility (i.e., pH, conductivity, spectrophotometry, etc.)		Science Skills connection identified in Standard 3: Planning and carrying out investigations, analyzing and interpreting data
3.2 Describe manufacturing practices pertaining to quality control (e.g., standards and control chart ramifications)		
3.3 Demonstrate reproducibility from an SOP and characterize variation across samples (i.e., trend analysis)		
CTE Bioscience Standards	**AZ Science Standards**	**Reasoning/Rationale**
STANDARD 4.0 DEMONSTRATE CRITICAL THINKING AND PROBLEM-SOLVING SKILLS		
4.1 Identify and access scientific and technical literature (i.e., patents, peer-reviewed articles, white papers, and technical bulletins), including databases (i.e., Google Scholar, PubMED), assess the scientific merit, and create a literature review		Science Skills connection identified in Standard 4: Asking questions and defining problems, planning and carrying out investigations, analyzing and interpreting data
4.2 Identify and use observational methods and skills (i.e., records, checklists, frequency count, work samples, etc.)		
4.3 Design a research question with attention to relevant prior knowledge and develop a testable hypothesis		
4.4 Design an experiment or a series of experiments based on prior research that is/are suitable to the hypothesis		

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4.5 Test the hypothesis using appropriate experimental design (analytical and statistical), distinguishing between control and experimental variables		
4.6 Collect, record, and analyze data and analysis procedures		
4.7 Develop conclusions based on evidence		
4.8 Communicate results of scientific investigations in oral, written, digital, and graphical form using relevant technology and terminology		

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STANDARD 5.0 DEMONSTRATE ETHICAL AND LEGAL CONDUCT		
5.1 Discuss codes of ethics and ethical protocols that apply to confidentiality and security in bioscience research, development, and manufacturing	**HS.L3U3.26 Life Science** Engage in argument from evidence regarding the ethical, social, economic, and/or political implications of a current genetic technology. **HS.P1U3.4 Chemistry** Obtain, evaluate, and communicate information about how the use of chemistry related technologies have had positive and negative ethical, social, economic, and/or political implications.	Science content connections identified: Genetic technology such as locating, isolating, and sequencing DNA and later modifying the DNA using transformation/gene therapy are key topics in the news and have significant implications to society The science standards combine to provide a comprehensive knowledge of the various implications of genetic technology and genetic manipulation
5.2 Identify laboratory behaviors and practices that could result in liability, negligence, or loss of research integrity (i.e., sample manipulation, data omission/falsification, etc.)	**HS.L1U3.23 Life Science** Obtain, evaluate, and communicate the ethical, social, economic and/or political implications of the detection and treatment of abnormal cell function **HS.L3U3.26 Life Science** Engage in argument from evidence regarding the ethical, social, economic, and/or political implications of a current genetic technology. **HS.P1U3.4 Chemistry** Obtain, evaluate, and communicate information about how the use of chemistry related technologies have had positive and negative ethical,	Science content connections identified: Cancer and other abnormal cell functions are key topics in the news and have significant implications to society These standards combine to provide a comprehensive knowledge of how stem cells and other cell line research are key in society in terms of ethics, economics and politics Genetic technology such as locating, isolating, and sequencing DNA and later modifying the DNA using transformation/gene therapy

	social, economic, and/or political implications.	are key topics in the news and have significant implications to society
		These standards combine to provide a comprehensive knowledge of the various implications of genetic technology and genetic manipulation
		Every biological process is chemistry related - by discussing bioethics the social, economic and political implications are covered
		SAMPLE for context: Pharmaceutical companies have ethics departments, and they must focus on how their marketing and products can impact society
		Lesson examples: Writing lab protocols from scratch, peer revision of lab protocols, testing lab SOPs, calibrating tool log, labeling and lab safety connections to liability
5.3 Examine implications of bioethical issues (e.g., the use of GMOs and the HeLa privacy issue)	**HS.P1U3.4 Chemistry** Obtain, evaluate, and communicate information about how the use of chemistry related technologies have had positive and negative ethical, social, economic, and/or political implications. **HS.L2U3.18 Life Science:** Obtain, evaluate, and communicate about the positive and negative ethical, social, economic, and political implications of human activity on the biodiversity of an ecosystem. **HS.L1U3.23 Life Science** Obtain, evaluate, and communicate the ethical, social, economic and/or political implications of the detection and treatment of abnormal cell function. **HS.L3U3.26 Life Science** Engage in argument from evidence regarding the ethical, social, economic, and/or political implications of a current genetic technology.	Science content connections identified: Every biological process is chemistry related - by discussing bioethics the social, economic, and political implications are covered. SAMPLE for context: Pharmaceutical companies have ethics departments, and they must focus on how their marketing and products can impact society Cancer and other abnormal cell functions are key topics in the news and have significant implications for society. These standards combine to provide a comprehensive knowledge of how stem cells and other cell line research are key in society in terms of ethics, economics, and politics Genetic technology such as locating, isolating, and sequencing DNA and later modifying the DNA using transformation/gene therapy are key topics in the news and have significant implications for society. The Science standards combine to provide a comprehensive

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		knowledge of the various implications of genetic technology and genetic manipulation including gene therapy, personalized medicine, cloning, and in vivo / ex vivo genetic modifications
5.4 Apply risk management practices and policies to incident reporting		
5.5 Identify and comply with legal, regulatory, and accreditation standards or codes		
5.6 Identify standards for harassment, labor, and employment laws (i.e., OSHA, ADA, DOL, USAGov, etc.)		
5.7 Identify applicable intellectual property protections (e.g., patents, trademark protections, and copyrights)		
5.8 Discuss privacy and protections of human subjects (i.e., HIPAA rules, IRB-regulated research protocols/informed consent, etc.)		
5.9 Discuss regulations for the ethical treatment and use of living organisms	**HS.L3U3.26 Life Science** Engage in argument from evidence regarding the ethical, social, economic, and/or political implications of a current genetic technology.	Science content connection identified: U3 Applications of science often have ethical, social, economic, and/or political implications
5.10 Apply ethical considerations to disclosure regulations (i.e., cancer and smoking research, Tuskegee experiments, etc.)	**HS.L1U3.23 Life Science** Obtain, evaluate, and communicate the ethical, social, economic and/or political implications of the detection and treatment of abnormal cell function.	Science content connection identified: U3 Applications of science often have ethical, social, economic, and/or political implications

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STANDARD 6.0 EXAMINE THE ROLE OF LIVING ORGANISMS IN BIOSCIENCE RESEARCH		
6.1 Discuss the benefits, limitations, and ethics of using model organisms and cell lines in research (e.g., C. elegans, Arabidopsis, fruit flies, yeast, E.	**HS.L3U3.26 Life Science** Engage in argument from evidence regarding the ethical, social, economic, and/or political	Science content connections identified: Genetic technology such as locating, isolating, and sequencing DNA and later modifying the DNA using

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coli, mice, and, as well, HeLa and CHO cells)	implications of a current genetic technology. **HS.L1U3.23 Life Science** Obtain, evaluate, and communicate the ethical, social, economic and/or political implications of the detection and treatment of abnormal cell function.	transformation/gene therapy are key topics in the news and have significant implications for society Cancer and other abnormal cell functions are key topics in the news and have significant implications to society. These standards combine to provide a comprehensive knowledge of how stem cells and other cell line research are key in society in terms of ethics, economics, and politics The Science standards combine to provide a comprehensive knowledge of the various implications of genetic technology and genetic manipulation
6.2 Compare and contrast standards of practice for treatment, care, maintenance, and propagation of different living organisms (i.e., invertebrate, vertebrate, cell lines, etc.)	**HS.L1U3.23 Life Science** Obtain, evaluate, and communicate the ethical, social, economic and/or political implications of the detection and treatment of abnormal cell function. **HS.L1U1.20 Life Science** Ask questions and/or make predictions based on observations and evidence to demonstrate how cellular organization, structure, and function allow organisms to maintain homeostasis. **HS.L2U1.21 Life Science** Obtain, evaluate, and communicate data showing the relationship of photosynthesis and cellular respiration; flow of energy and cycling of matter.	Science content Connection identified: Cancer and other abnormal cell functions are key topics in the news and have significant implications to society These standards combine to provide a comprehensive knowledge of how stem cells and other cell line research are key in society in terms of ethics, economics and politics Standard requires prior Science knowledge for the student to understand and perform the CTE skill. Teacher examples: Antibiotic resistance labs - structure of cells, transference of genes Propagate plants, study C elegans, and bacterial culture Lab examples: Fast plant lab - changes in light of water to affect growth, fermentation labs, and mitochondria studies
CTE Bioscience Standards	**AZ Science Standards**	**Reasoning/Rationale**
STANDARD 7.0 DEMONSTRATE BASIC LAB SKILLS IN THE USE OF EQUIPMENT AND INSTRUMENTATION		
7.1 Use software for scientific analyses and documentation		Science Skills connection identified: Using mathematics and computational thinking

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(e.g., spreadsheet, presentation, and word processing)		
7.2 Identify and demonstrate proper use of laboratory glassware		
7.3 Identify and demonstrate proper use of laboratory balances		
7.4 Identify and demonstrate proper use of micropipettes		
7.5 Identify and demonstrate proper use of spectrophotometers, including creating a standard curve relating absorbance and concentration	**HS.P4U1.10 Physics** Construct an explanation about the relationships among the frequency, wavelength, and speed of waves traveling in various media, and their applications to modern technology.	Science content connection identified: To select the correct instrument (vis or UV), the student must have prior knowledge to analyze the samples Students generate a standard curve and that is the explanation of the relationships among frequency, wavelength, and speed of waves through media
7.6 Identify, balance, and operate centrifuges		
7.7 Describe the purpose of and how to operate an autoclave		
7.8 Describe the purpose of and how to operate fume and laminar flow hoods		
7.9 Prepare microscopic specimens and interpret results using appropriate microscopes (i.e., dissecting, compound, digital, etc.)		
7.10 Identify and demonstrate proper use of hot plate/stirrers		
7.11 Identify and demonstrate proper use of incubators, including shaking incubators		
7.12 Identify and demonstrate proper use of water baths and heat blocks		
7.13 Use a pH meter and explain the logarithmic nature of the pH scale		

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STANDARD 8.0 DEMONSTRATE MICROBIOLOGY SKILLS		
8.1 Demonstrate sterile technique (i.e., maintain lab and equipment hygiene, etc.)		
8.2 Identify, prepare, sterilize, dispense, and store culture media		
8.3 Identify, propagate, and quantify microorganisms and cells	**HS.L1U1.20 Life Science** Ask questions and/or make predictions based on observations and evidence to demonstrate how cellular organization, structure, and function allow organisms to maintain homeostasis.	Science content connection identified: Students are identifying and categorizing cells based on their structure and function Both the structure and function are identified through a variety of chemical and observational techniques Homeostasis is inferred here because the cells would not survive unless it is maintained
8.4 Identify techniques for short- and long-term cultures (e.g., stabs, slants, liquid nitrogen, and glycerol stocks)		
8.5 Isolate, maintain, and store pure cultures	**HS.L1U1.20 Life Science** Ask questions and/or make predictions based on observations and evidence to demonstrate how cellular organization, structure, and function allow organisms to maintain homeostasis.	Science content connection identified: Students are identifying and categorizing cells based on their structure and function Both the structure and function are identified through a variety of chemical and observational techniques Homeostasis is inferred here because the cells would not survive unless it is maintained
8.6 Transform and maintain bacteria (e.g., E. coli)	**HS.L1U1.20 Life Science** Ask questions and/or make predictions based on observations and evidence to demonstrate how cellular organization, structure, and function allow organisms to maintain homeostasis.	Science content connection identified: Students are identifying and categorizing cells based on their structure and function Both the structure and function are identified through a variety of chemical and observational techniques Homeostasis is inferred here because the cells would not survive unless it is maintained

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8.7 Decontaminate and dispose of equipment, glassware, and biologicals, including disinfection with 0.5% sodium hypochlorite solution and sterilization using the autoclave		
8.8 Identify bacteria types (i.e., gram staining, catalase activity, DNA sequencing)	**HS.L1U1.20 Life Science** Ask questions and/or make predictions based on observations and evidence to demonstrate how cellular organization, structure, and function allow organisms to maintain homeostasis.	Science content connection identified: Students are identifying and categorizing cells based on their structure and function Both the structure and function are identified through a variety of chemical and observational techniques Homeostasis is inferred here because the cells would not survive unless it is maintained

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STANDARD 9.0 DEMONSTRATE PROTEIN TECHNIQUES		
9.1 Compare and contrast methods to detect proteins (e.g., Western Blot, ELISA, and immunohistochemical methods)	**HS.P1U1.1 Chemistry** Develop and use models to explain the relationship of the structure of atoms to patterns and properties observed within the periodic table and describe how these models are revised with new evidence.	Science content connection identified: This CTE standard requires prior science knowledge for the student to understand and perform the CTE skill U1-Scientists explain phenomena using evidence obtained from observations and or scientific investigations Evidence may lead to developing models and or theories to make sense of phenomena- as new evidence is discovered, models and theories can be revised
9.2 Extract proteins		
9.3 Separate and characterize proteins (e.g., column chromatography and SDS-PAGE)	**HS.P1U1.3 Chemistry** Ask questions, plan, and carry out investigations to explore the cause-and-effect relationship between reaction rate factors.	Science content connection identified: This CTE standard requires prior science knowledge for the student to understand and perform the CTE skill Separation of proteins is based on the forces and interactions within and between molecules.
9.4 Perform protein assays and compare to protein standards	**HS.P1U1.3 Chemistry** Ask questions, plan, and carry out investigations to explore the cause-	Science content connection identified: Assays are run to identify

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(i.e., Bradford and Lowry methods, etc.)	and-effect relationship between reaction rate factors. **HS+L1U1.5 Life Science:** Analyze and interpret data that demonstrates the relationship between cellular function and the diversity of protein functions.	enzymatic activity and protein concentration These reactions can be carried out by changing several variables including concentration, temperature, pH, etc. The Bradford assay is a type of protein concentration indicator test. Science Plus Standard content identified: Separating and analyzing proteins is key in biotech for showing how various types of proteins affect cellular functions

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STANDARD 10.0 DEMONSTRATE MATERIAL PREPARATION AND STORAGE		
10.1 Calculate and prepare solutions and buffers (e.g., mass/volume, %, molarity, and pH)		
10.2 Calculate and prepare dilutions, including serial dilutions		
10.3 Calculate the molar mass of a given compound using a Periodic Table of Elements	**HS.P1U1.1 Chemistry** Develop and use models to explain the relationship of the structure of atoms to patterns and properties observed within the Periodic Table and describe how these models are revised with new evidence.	Science content connection identified: This CTE standard requires prior science knowledge for the student to understand and perform the CTE skill
10.4 Label and store solutions and buffers (e.g., ingredients, preparer's initials, dates, concentration, lots, storage conditions, sterility, hazards, and special directions)		
10.5 Use scientific sources to find appropriate solution preparation protocols		
10.6 Explain the control inventory process for materials and supplies		

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Arizona Department of Education / Career and Technical Education
Bioscience Technical Standards 41.0100.00
11

CTE Bioscience Standards	AZ Science Standards	Reasoning/Rationale
STANDARD 11.0 DEMONSTRATE THE USE OF BIOINFORMATICS RESOURCES		
11.1 Access and analyze gene and genome maps (i.e., FlyBase, NCBI, and genome.org)		Science Skills connection identified: Asking questions and defining problems, analyzing and interpreting data, planning and carrying out investigations
11.2 Access and evaluate protein structures in PDB (e.g., hemoglobin)	**HS+L1U1.5 Life Science** Analyze and interpret data that demonstrates the relationship between cellular function and the diversity of protein functions.	Science Plus Standard content identified: Identifying and evaluating protein structures
11.3 Use BLAST to identify and retrieve homologous/similar DNA or protein sequences from sequence databases (e.g., NCBI)		Science Skills connection identified: Asking Questions and Defining Problems, Analyzing and Interpreting Data, Planning and Carrying out Investigations
11.4 Explain the purpose of different BLAST searches including interpreting E-values and Scores (e.g., NCBI)	**HS.L3U3.26 Life Science** Engage in argument from evidence regarding the ethical, social, economic, and/or political implications of a current genetic technology.	Science content connection identified: Using BLAST, Bioinformatics and DNA barcodes to identify and classify living organisms
11.5 Use PCR primer sequences to perform database searches and determine the nature and size of expected PCR fragments (e.g., NCBI)		This Technical Skill uses the highest-level tools to collect evidence to support Life Science concepts but not a science standard
11.6 Use alignment tools to determine sequence relationships (i.e., DNA Subway, NCBI, MEGA, etc.)	**HS.L3U3.26 Life Science** Engage in argument from evidence regarding the ethical, social, economic, and/or political implications of a current genetic technology.	Science content connection identified: Using tools to pass judgment. investigating the CODIS system
11.7 Identify and evaluate genetic variation (i.e., SNPs, inversions, translocations, copy number variations) (e.g., NCBI)	**HS.L3U1.25 Life Science** Obtain, evaluate, and communicate information about the causes and implications of DNA mutation.	Science content connection identified: Detecting and identifying by using DNA Barcodes to Identify and Classify Living Things This CTE standard requires prior DNA structure knowledge for the student to understand and perform the CTE skill

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STANDARD 12.0 DEMONSTRATE NUCLEIC ACID TECHNOLOGIES		
12.1 Explain the structure of DNA (e.g., DNA miniprep/plasmid and genomic DNA)	**HS.L3U1.25 Life Science** Obtain, evaluate, and communicate information about the causes and implications of DNA mutation. **HS+B.L3U1.11 Life Science** Construct an explanation for how the structure of DNA and RNA determine the structure of proteins that perform essential life functions.	Science content connections identified: This CTE standard requires prior DNA structure knowledge for the student to understand and perform the CTE skill DNA/RNA function together to build proteins. Diverse proteins and their characteristics determine cellular functions
12.2 Perform and analyze restriction digests		
12.3 Perform and explain gel electrophoresis (e.g., electrolysis, buffer selection and preparation, and gel concentration preparation)	**HS.P1U1.2 Chemistry** Develop and use models for the transfer or sharing of electrons to predict the formation of ions, molecules, and compounds in both natural and synthetic processes. **HS.P1U1.3 Chemistry** Ask questions, plan, and carry out investigations to explore the cause-and-effect relationship between reaction rate factors.	Science content connections identified: Students construct standard curve for Hind III cut DNA and explain the relationship between number of base pairs and distance migrated before calculating the size of the DNA fragments cut with EcoRI Students define electrophoresis and distinguish between vertical and horizontal gel electrophoresis Students model pouring molten agarose and loading DNA samples into agarose gels, then separate DNA Fragments using agarose gel electrophoresis and explain how methylene blue stains DNA
12.4 Identify and troubleshoot common gel electrophoresis errors (e.g., punctured well during loading, overloaded well, nuclease contamination, and poor separation of bands)		Science Skills connection identified: Asking questions and defining problems
12.5 Describe DNA sequencing methods, including Sanger and next-generation sequencing, and compare the advantages and disadvantages of each method		
12.6 Compare and contrast PCR method to the cellular process of DNA replication		

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12.7 Optimize and perform PCR protocols	**HS.P1U1.2 Chemistry** Develop and use models for the transfer or sharing of electrons to predict the formation of ions, molecules, and compounds in both natural and synthetic processes. **HS.P1U1.3 Chemistry** Ask questions, plan, and carry out investigations to explore the cause-and-effect relationship between reaction rate factors.	Science content connections identified: Determine the limiting factor in a PCR Reaction, balance concentrations of dNTPs, primer concentration, temperatures, and number of cycles
12.8 Perform basic molecular biology techniques (e.g., cloning, gene expression, and protein production)	**HS.L3U1.25 Life Science** Obtain, evaluate, and communicate information about the causes and implications of DNA mutation **HS.L2U1.19 Life Science** Develop and use models that show how changes in the transfer of matter and energy within an ecosystem and interactions between species may affect organisms and their environment. **HS.L1U1.20 Life Science** Ask questions and/or make predictions based on observations and evidence to demonstrate how cellular organization, structure, and function allow organisms to maintain homeostasis. **HS.L3U1.24 Life Science** Construct an explanation of how the process of sexual reproduction contributes to genetic variation.	Science content connections Identified: Genetic technology such as locating, isolating, and sequencing DNA and later modifying the DNA using transformation/gene therapy are key topics in the news and have significant implications to society The science standards combine to provide a comprehensive knowledge of the various implications of genetic technology and genetic manipulation
12.9 Explain gene structure and regulation (e.g., lac operon and trp operon, introns and exons, and alternative splicing)	**HS.P1U1.2 Chemistry** Develop and use models for the transfer or sharing of electrons to predict the formation of ions, molecules, and compounds in both natural and synthetic processes. **HS.P1U1.3 Chemistry** Ask questions, plan, and carry out investigations to explore the cause-and-effect relationship between reaction rate factors. **HS.L1U1.20 Life Science** Ask questions and/or make predictions based on observations and evidence to demonstrate how cellular organization, structure, and	Science content connections identified: Technical Skills are at the highest-level tools used to collect evidence to support this Life Science standard Whereas the Life Science standard does more than what the technical standard states - ex cause and implication Using a model to predict formation of molecules in natural processes CTE simulations are considered scientific investigations, continue exploring cause and effect for rate factors

	function allow organisms to maintain homeostasis.	Using a model and/or an investigation as evidence to explain and demonstrate that gene regulation relates directly relates to homeostasis and cellular structure and function
12.10 Design PCR primers	**HS.P1U1.2 Chemistry** Develop and use models for the transfer or sharing of electrons to predict the formation of ions, molecules, and compounds in both natural and synthetic processes.	Science content connections identified: Understanding of the molecule structure to create the PCR primer

Technical Skills are the highest-level tools used to collect evidence to support the Life Science standard

Whereas the Life Science standard does more than what the technical standard states - ex cause and implication

Teacher lab example: Chromosome 16: PV92 PCR Informatics Kit |
| 12.11 Prepare a standard curve based on a DNA ladder to estimate DNA size | | Science Skills connection identified: Using mathematical and computational thinking |

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STANDARD 13.0 DEMONSTRATE SCIENTIFIC MEASUREMENTS		
13.1 Perform calculations and solve problems using scientific notation		Science Skills connection identified in Standard 13: Using mathematical and computational thinking
13.2 Utilize appropriate SI (International System of Units) base units and prefixes for all measurements (e.g., milli, micro, and nano)		
13.3 Construct, interpret, and apply graphs using software tools (e.g., spreadsheets)		
13.4 Calculate appropriate statistics (e.g., mean, median, mode, range, standard deviation, and linear regression)		