Individual Test Item Specifications

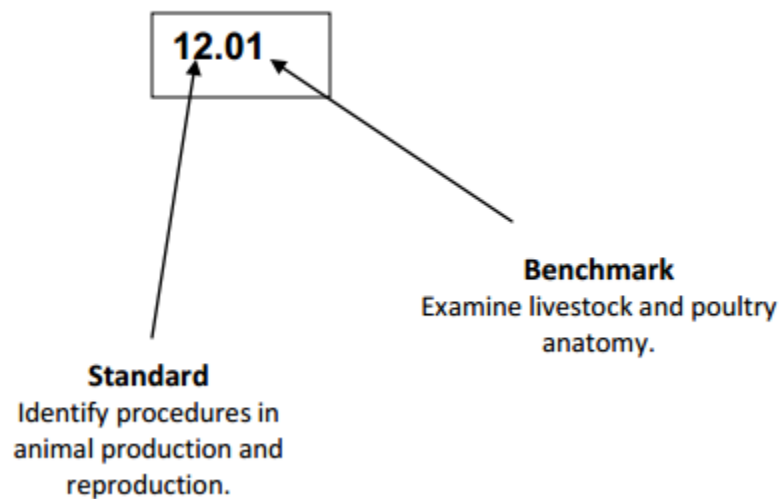8708110- Principles of Biomedical Science

2015
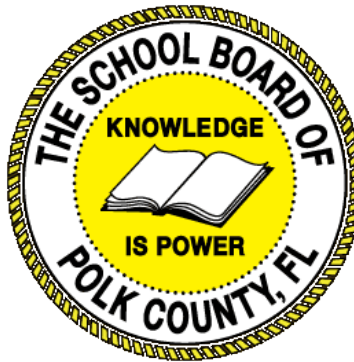
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I. Guide to the Individual Benchmark Specifications

Content specific guidelines are given in the *Individual Benchmark Specifications* for each course. The *Specifications* contains specific information about the alignment of items with the Florida Standards. It identifies the manner in which each benchmark is assessed, provides content limits and stimulus attributes for each benchmark, and gives specific information about content, item types, and response attributes.

Benchmark Classification System

- Each Career and Technical Education course has its own set of course standards. The benchmarks are organized numerically, with two numbers separated by a decimal point. The first number is the standard number, and the second number is the benchmark number. You will see these numbers on the Item Specifications for each course.

An example, from Agritechnology 1:

12.01

Standard
Identify procedures in
animal production and
reproduction.

Benchmark
Examine livestock and poultry
anatomy.

*The image above describes the components of a Career and
Technical Education Standard and Benchmark classification system.*

Each MAFS benchmark is labeled with a system of letters and numbers.

- The four letters in the *first position* of the label identify the **Subject**.
- The number(s) in the *second position* represents the **Grade Level**.
- The letter(s) in the *third position* represents the **Category**.
- The number in the fourth position shows the **Domain**.
- The number in the *fifth position* identifies the **Cluster**.
- The number in the last position identifies the specific **Benchmark**.

Benchmark
Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets

MAFS.912.S-ID.1.2

Subject Area
Florida Standards Math

Grade Level
Grades 9-12

Reporting Category
Statistics and Probability

Domain
Interpreting Categorical and Quantitative Data

Cluster
Summarize, represent, and interpret data on a single count or measurement variable

The image above describes the components of a Florida Standard and Benchmark classification system.

Definitions of Benchmark Specifications

The *Individual Benchmark Specifications* provides standard-specific guidance for assessment item development for the Florida Department of Education Career and Technical Education item banks. For each benchmark assessed, the following information is provided.

Reporting Category	is a grouping of related benchmarks that can be used to summarize and report achievement.
Standard	refers to the standard statement presented in the Florida Standards.
Benchmark	refers to the benchmark statement presented in the Florida Standards. In some cases, two or more related benchmarks are grouped together because the assessment of one benchmark addresses another benchmark.
Item Types	are used to assess the benchmark or group of benchmark.
Cognitive Complexity	ideal level at which item should be assessed.
Benchmark Clarifications	explain how achievement of the benchmark will be demonstrated by students. In other words, the clarification statements explain what the student will do when responding to questions.
Content Limits	define the range of content knowledge and that should be assessed in the items for the benchmark.
Stimulus Attributes	define the types of stimulus materials that should be used in the items, including the appropriate use of graphic materials and item context or content.
Response Attributes	define the characteristics of the answers that a student must choose or provide.
Content Focus	addresses the broad key terms and concepts associated with the examples found in the standards, benchmarks, or benchmark clarifications.
Sample Items	are provided for each type of question assessed. The correct answer for all sample items is provided.

II. Individual Benchmark Specifications

Standard	6.0 Understand the structure and functions of the major human body systems, the organs making up these systems and the interconnections between body systems. –The student will be able to:
Benchmark	06.02 Demonstrate an understanding of how body systems work together to maintain good health.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	L, M
Benchmark Clarification	Students will take any 2 body systems and show a working relationship to keep the body in homeostasis.
Content Focus	Homeostasis, integumentary, cardiovascular, edocrine, digestive, urinary, immune, muscular, respiratory, reproductive, skeletal, and nervous systems.
Content Limits	Lower limits would be common connections such as muscle/skeletal and cardiovascular/respiratory; Upper limits would be unconvential pairings such as digestive/integumentary or urinary/endocrine.
Stimulus Attributes	May include multiple choice or short answer with a stimulus pairing 2 body systems.
Response Attributes	Students will show how the 2 systems work together within the body.
Sample Item	How do the muscular and skeletal systems work together to keep the body functioning? RUBRIC: 2 Points Students correctly explains what system A does to aid system B and then what system B does to aid system A. 1 Point: Student correctly explains only one connection. 0 Points: The student is unable illustrate any correct connection between the sytems. EXEMPLAR: The muscular system contracts to move the bones of the skeletal and create ranges of motion. The skeletal system works as a support system to anchor the muscular system.

Standard	07.0 Understand how determining the cause of death involves the investigation of many aspects of the medical condition of the victim. –The student will be able to:
Benchmark	07.01 Describe how evidence at a crime scene, such as blood, hair, fingerprints, and shoeprints can help forensic investigators determine what might have occurred and help identify or exonerate potential suspects.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Low, Moderate, High
Benchmark Clarification	Take evidence from a crime scene and determine if it is from the potential victim or does it lead to persons of interest.
Content Focus	Blood: Types (A, B, O) Hair: cortex, cuticle, medulla Fingerprints: minutiae, whirls, loops, tents
Content Limits	Limit crime scene evidence to blood, hair, fingerprints, and shoe prints.
Stimulus Attributes	May include multiple choice and short answer with images of possible evidence outlined in the key terms.
Response Attributes	Students will analyze evidence at a crime scene and conclude what might be from the potential victim or from possible suspects/persons of interest.
Sample Item	Forensic investigators look for several different features on fingerprints to see if they match existing prints. What are the names of those features? A) Minutiae B) Ridges C) Tents D) Whirls Answer: A

Standard	07.0 Understand how determining the cause of death involves the investigation of many aspects of the medical condition of the victim. –The student will be able to:
Benchmark	07.03 Recognize that bloodstain patterns left at a crime scene can help investigators establish the events that took place during the crime.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	The student will recognize blood stain patterns to establish possible origins and mechanisms of how the victim was attacked.
Content Focus	Droplet shape: circular, oblong, small, spray, droplet size Height, Velocity, Angle.
Content Limits	Limit to how angles, height, and velocity will determine droplet shapes.
Stimulus Attributes	May include multiple choice and short answer with a stimulus that may include blood stain images.
Response Attributes	Students will recognize blood stain patterns and determine possible angle, height, and velocity at which the droplets fell.
Sample Item	A forensics investigator found a few large blood droplets at a crime scene that were circular in shape. What can the investigator conclude about the angle and velocity at which the droplets fell? A) Fell at a 45 degree angle at a high velocity B) Fell at a 45 degree angle at a low velocity C) Fell at a 90 degree angle at a high velocity D) Fell at a 90 degree angle at a low velocity Answer: D

Standard	07.0 Understand how determining the cause of death involves the investigation of many aspects of the medical condition of the victim. –The student will be able to:
Benchmark	07.05 Describe some of the major aspects involved in determining cause of death, including the gross physical condition of a victim, the need for internal and external examination of the body, and the need for chemical and microscopic analysis of tissues and body fluids.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Low, Moderate, High
Benchmark Clarification	The student will be able identify the parts of an autopsy and start to develop a theory at to cause and manner of death.
Content Focus	Autopsy (internal and external examination), toxicology, manner of death (homicide, suicide, undetermined, accidental natural), cause of death.
Content Limits	The parts of an autopsy and manner of death; keep stimuli to natural causes of death that might lead to a person with type 2 diabetes, sickle cell, or hearth disease (these are the diseases the victim has in the curriculum).
Stimulus Attributes	May include multiple choice and short answer questions with a stimulus that may include parts of an autopsy report such as internal and external parts of the exam or toxicology report and might explain certain conditions found in the report.
Response Attributes	Student will analyze findings on an autopsy report in relation to possible causes of death and manner.
Sample Item	During an autopsy internal examination, the medical examiner found that the only abnormal finding was necrosis (cell death) of the heart. What was the most likely manner of death? A) Accidental B) Homocide C) Natural D) Undetermined Answer: C

Standard	09.0 Understand and describe the importance of the circulatory system by examining the structure and function of the heart. –The student will be able to:
Benchmark	09.02 Understand and discuss that the human heart is a four-chambered living pump that provides the force needed to transport blood, both oxygenated and un-oxygenated, throughout the body without mixing the two types of blood.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	The student will know that the human heart is a four-chambered living pump that provides the force needed to transport blood, both oxygenated and un-oxygenated, throughout the body.
Content Focus	Atriums, ventricles, septum, oxygentated, de-oxygenated, bicuspid/mitral valve, tricuspid valve, pressure, veins, arteries.
Content Limits	Lower limits include the structures that would carry oxygenated blood vs. The structures that carry un-oxygenated blood and how structures help to keep it separated. Upper limits include discussing the different attributes of the heart that help to pump blood.
Stimulus Attributes	The questions may include multiple choice and short answers that can include images of the heart.
Response Attributes	Students will identify structures that hold oxygenated vs un-oxygenated blood, discuss the purpose of the valves, septum, and blood vessels or explain the difference is walls of atriums vs ventricles.
Sample Item	Which chamber of the heart is the first to receive un-oxygenated blood? A) Left Atrium B) Left Ventricle C) Right Atrium D) Right Ventricle Answer: C

Standard	09.0 Understand and describe the importance of the circulatory system by examining the structure and function of the heart. –The student will be able to:
Benchmark	09.06 Explain how blood pressure is a measure of the force put on the vascular walls by the blood as it is pushed by the cardiac muscles through the vascular system.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	Students will explain the blood pressure is a product of the blood pushing up against the arterial walls.
Content Focus	Pressure, diastolic, systolic, arteries, mmhg.
Content Limits	Limit to blood pressure, systole, diastole.
Stimulus Attributes	Questions include, but not limited to, multiple choice and short answers.
Response Attributes	Student will explain what blood pressure is and the difference between diastolic and systolic pressures.
Sample Item	To measure blood pressure, blood must push against which structure in the vascular system? A) Arteries B) Capillaries C) Ventricles D) Veins Answer: A

Standard	09.0 Understand and describe the importance of the circulatory system by examining the structure and function of the heart. –The student will be able to:
Benchmark	09.07 Describe the flow of electricity through the heart and the result of this electrical pattern.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	Students will explain the conduction system in the heart and know the parts of an EKG
Content Focus	Conduction system, EKG, p wave, QRS complex, t wave, polarization, depolarization, repolarization, sinoatrial node, atrioventricular node, Bundle of His, Purkinjie fibers.
Content Limits	Limits include the conduction system and electrial path within the heart.
Stimulus Attributes	Questions may include multiple choice and short answer with images of EKG's, the heart, or the conduction system.
Response Attributes	Students will identify different parts of an EKG and understand the corresponding action occuring within the heart
Sample Item	Which structure in the heart's conduction system would finish the depolarization of the ventricles? A) Atrioventricular Node B) Bundle of His C) Purkinjie Fibers D) Sinoatrial Node Answer: C

Standard	09.0 Understand and describe the importance of the circulatory system by examining the structure and function of the heart. –The student will be able to:
Benchmark	09.08 Indicate how heart rate, blood pressure and EKG can be used to measure a person's medical condition.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	Students will correlate the health of a person using heart rate, EKG, and blood pressure as indicators.
Content Focus	Heart rate, bpm, heart disease, EKG, blood pressure, hypertension, angina, tachycardia, bradycardia.
Content Limits	Conditions should be limited to those that may indicated in the key terms.
Stimulus Attributes	Questions may include multiple choice and short answer with stimuli that indicate medical conditions that effect heart rate OR blood pressure OR EKG.
Response Attributes	Students will correlate the proper medical conditions with heart rate, blood pressure, and EKG.
Sample Item	Which health indicator would be best used to measure hypertension? A) Blood pressure B) EKG C) Heart rate D) Pulse rate Answer: A

Standard	10.0 Understand and describe the importance of blood in relation to the circulatory system and the human body. –The student will be able to:
Benchmark	10.01 Explain that blood is a liquid connective tissue composed of red cells, white cells and platelets that are suspended in liquid plasma.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	The student will indicate the blood is considered a loose connective tissue that hold red blood cells, white blood cells, and platelets.
Content Focus	Plasma, red blood cells, white blood cells, platelets, lymph, erythrocytes, leukocytes, thrombocytes, loose connective tissue, etc.
Content Limits	Limited to the components of blood indicated in key terms.
Stimulus Attributes	Questions may include multiple choice and short answer with images of the different components of blood.
Response Attributes	Students will relate that blood is a loose connective tissue with 3 solid components.
Sample Item	What type of tissue would blood be classified? A) Cardiac muscle tissue B) Dense connective tissue C) Loose connective tissue D) Simple squamous tissue Answer: C

Standard	10.0 Understand and describe the importance of blood in relation to the circulatory system and the human body. –The student will be able to:
Benchmark	10.02 Compare and contrast the functions of red blood cells, white blood cells, platelets
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	Students will indicate, identify and explain the functions of the different components of blood.
Content Focus	Red blood cells, white blood cells, platelets, erythrocytes, leukocytes, thrombocytes
Content Limits	Limited to the components of blood indicated in key terms.
Stimulus Attributes	Questions may include multiple choice and short answer with images of the different components of blood.
Response Attributes	Students will identify the different components of blood.
Sample Item	Which of the components of blood helps aid in fighting against foreign invaders? A) Plasma B) Platelets C) Red blood cells D) White Blood Cells Answer: D

Standard	11.0 Demonstrate an understanding of how food and water are essential to the health of the human body.–The student will be able to
Benchmark	11.01 Identify the different categories used in a food label and what they mean in relation of the nutrition of the body.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, High
Benchmark Clarification	Students will identify and explain the different parts of a food label and how those nutrients are used in the body.
Content Focus	Serving size, calories, proteins, carbohydrates, sodium, cholesterol, vitamins, minerals, unsaturated fats, saturated fats, trans-fats, fiber.
Content Limits	Limited to the label terminology listed in the key terms.
Stimulus Attributes	Questions may include multiple choice, short or extended response that may include actual images of food labels.
Response Attributes	Students will explain what the different aspects of a food label and how those nutrients work in the body.
Sample Item	Which part(s) of a food label would help you to calculate the total number of calories in a whole bag of potato chips? A) Calories and serving size B) Calories and servings per container C) Calories and total fat D) Calories and total carbohydrates Answer: B

Standard	11.0 Demonstrate an understanding of how food and water are essential to the health of the human body.–The student will be able to
Benchmark	11.02 Compare and contrast the recommended daily values for food groups, minerals and vitamins.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, High
Benchmark Clarification	Students will understand that nutrients should be ingested in certain amounts per day.
Content Focus	Proteins, carbohydrates, fats, oils, DRV, myplate.gov, vitamins, calcium, grains, fruits, vegetables, calories.
Content Limits	Limit to the nutrients listed in key terms.
Stimulus Attributes	Questions may include multiple choice, short or extended response.
Response Attributes	Students will differentiate the various recommended daily values for nutrients within the different food groups.
Sample Item	According to the Food and Drug Administration, what is the recommended daily value for protien? A) 40 mg B) 40 g C) 400 mg D) 400 g Answer: B

Standard	11.0 Demonstrate an understanding of how food and water are essential to the health of the human body.–The student will be able to
Benchmark	11.03 Describe that food is made of molecules and macromolecules which in turn are made of atoms.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	Student will describe that food is made of molecules and macromolecules which in turn are made of atoms.
Content Focus	Polymers, monomers, macromolecules, molecules, carbohydrates, proteins, lipids, carbon, oxygen, hydrogen, saccarides, amino acids.
Content Limits	Limit to the molecular make up of proteins, carbohydrates, and lipids.
Stimulus Attributes	Questions may include multiple choice and short response with images of macromoles.
Response Attributes	Students will demostrate that all structures, including food are made of atoms.
Sample Item	Which macromolecule has a 1:2:1 ratio of carbon, oxygen, and hydrogen atoms? A) Carbohydrates B) Lipids C) Nucleic Acids D) Proteins Answer: A

Standard	11.0 Demonstrate an understanding of how food and water are essential to the health of the human body.–The student will be able to
Benchmark	11.06 Describe the role of chemical bonding in chemical reactions and transfer of energy
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	Students will describe the fold of electron transfer and sharing.
Content Focus	Covalent bonding, ionic bonding, electron sharing, electron trading, valence electrons compounds, energy.
Content Limits	Limit to energy transfer to covalent and ion bonding of major elements found in the body, such as oxygen, carbon, hydrogen, calcium, sodium, and potassium.
Stimulus Attributes	Questions may be multiple choice or short answer with stimuli of images of atoms or chemical equations.
Response Attributes	Students will differentiate between ionic bonding and covalent bonding and how it effects energy transfer
Sample Item	Carbon has an atomic number of 6. How many valence electrons are available for chemical bonding? A) 2 B) 4 C) 6 D) 8 Answer: B

Standard	12.0 Describe how food provides nutrients for the body to help maintain homeostasis.–The student will be able to:
Benchmark	12.02 Differentiate between the four classes of macromolecules in terms of their structure and function and build a model of each.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	Low, Moderate, High
Benchmark Clarification	Students will recognize macromolecules based on their shape and function.
Content Focus	Proteins, carbohydrates , lipids, nucleic acids, alpha-helix, beta-pleated, trigyclerides, ring
Content Limits	Can use any macromolecule even though nucleic acids are not a nutrient; students many need materials to build a model or at least be able to sketch.
Stimulus Attributes	Questions may be multiple choice, short response, or performance task.
Response Attributes	Students will recognize the different structures of macromolecules.
Sample Item	Which macromolecule's structure is in the form of a ring made of carbon, oxygen, and hydrogen atoms? A) Carbohydrates B) Lipids C) Nucleic Acids D) Proteins Answer: A

Standard	12.0 Describe how food provides nutrients for the body to help maintain homeostasis.–The student will be able to:
Benchmark	12.04 Describe different foods that contain each kind of nutrients.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate, High
Benchmark Clarification	Students will explain different food sources for different types of nutrients.
Content Focus	Proteins, carbohydrates , lipids, fiber, sodium, vitamin A, vitamin C, calcium, iron.
Content Limits	Limit to those nutrients listed in the key terms.
Stimulus Attributes	Questions may be multiple choice, short and extended response with stimuli that may include food labels and menus.
Response Attributes	Student will pair nutrients with appropriate food sources.
Sample Item	Which food would be the best source for vitamin C? A) Cereal B) Eggs C) Milk D) Oranges Answer: D

Standard	13.0 Describe and discuss the causes, symptoms, treatments and effects of diabetes and the impact that this specific disease has on the human body and human lifestyle.–The student will be able to:
Benchmark	13.01 Explain how many systems, living and non-living, operate using feeback mechanisms and that information put into a system cause a reaction within the system.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	Students will explain what feeback loops.
Content Focus	Positive and negative feeback loop.
Content Limits	Loops may be either negative or positive and are not limited to the human body.
Stimulus Attributes	Questions may include multiple choice and short response where stimuli are from the human body or from any system that illustrates a feedback loop.
Response Attributes	Students will explain what a feedback loop is and may be able differentiate between positive and negative loops.
Sample Item	Which of the following is any example of a positive feeback loop? A) Air conditioning turns on when the temperature rises B) The heater turns on when the temperature drops C) Pushing on the brake pedal makes the car slow down D) Pushing on the gas pedal makes the car speed up Answer: D

Standard	13.0 Describe and discuss the causes, symptoms, treatments and effects of diabetes and the impact that this specific disease has on the human body and human lifestyle.–The student will be able to:
Benchmark	13.03 Summarize how insulin regulates the transfer of glucose into the body cells and its role as part of the feedback system.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, High
Benchmark Clarification	Students will explain the glucose-insulin model and how insulin signals to cells the need for glucose intake.
Content Focus	Insulin, glucose, blood sugar, pancreas, feedback loops, alpha cells, beta cells, glycolysis, glycogen, Glut4 transporter.
Content Limits	Content is limited to the glucose insulin model and glut4 protein.
Stimulus Attributes	Questions may include multiple choice and short response.
Response Attributes	Students will illustrate the insulin-glucose model how the pancreas will secrete alpha and beta cells when glucose is present or when it is needed.
Sample Item	Which organ secretes insulin? A) Adrenal glands B) Kidney C) Pancreas D) Thymus Answer: C

Standard	13.0 Describe and discuss the causes, symptoms, treatments and effects of diabetes and the impact that this specific disease has on the human body and human lifestyle.–The student will be able to:
Benchmark	13.05 Explain the major causes, symptoms, complications effects and treatments of both Type 1 and Type 2 diabetes.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate, High
Benchmark Clarification	Students will describe type 1 and type 2 diabetes, its effect on the human body, and how we might treat a person with these conditions.
Content Focus	Insulin resistant, insulin deficient, diet, exercise, heredity, life style factors.
Content Limits	Limit to causes, treatment, and symptoms of type 1 and type 2 diabetes and key terms listed.
Stimulus Attributes	Questions may include multiple choice and short answer.
Response Attributes	Students will differentiate between type 1 and 2 with classify the differences in terms of causes, symptoms, treatment.
Sample Item	What are two differences in Type 1 and Type 2 diabetes? RUBRIC: 2 Points- The student sights 2 correct differences and correctly correlates the difference to the correct type 1 Point - The students only states 1 correct difference to the correct type 0 Points - The student is unable to provide 2 correct differences or does not correlate them to the correct type EXEMPLAR: Type 1 diabetes is not preventable and the body is unable to produce insulin. Type 2 diabetes is preventable through a healthy lifestyle and the body produces insulin, which is not used efficiently

Standard	13.0 Describe and discuss the causes, symptoms, treatments and effects of diabetes and the impact that this specific disease has on the human body and human lifestyle.–The student will be able to:
Benchmark	13.07 Describe healthy behaviors and actions that could help prevent the onset of Type 2 diabetes
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)=X (ER)=
Cognitive Complexity Level	Moderate, High
Benchmark Clarification	Students will demonstrate actions that can be taken to help prevent type 2 diabetes.
Content Focus	Lifestyle, factors, type 2, diet, exercise.
Content Limits	Limit to type 2 diabetes.
Stimulus Attributes	questions may include multiple choice and short answer.
Response Attributes	student responses can include both healthy behaviors and avoidance of unhealthy risk factors.
Sample Item	What is the best method that a person could use to help prevent or delay the onset of type 2 diabetes? A) Garden & eat vegetables from your garden B) Drink lots of caffinated drinks, like coffe C) Smoke e-cigarettes instead of regular cigarettes D) Reduce activity to prevent injury Answer: A

Standard	14.0 Investigate the significance of DNA and Chromosomes in the human body.–The student will be able to:
Benchmark	14.03 Explain the relationship between chromosomes, DNA and Genes.
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=X
Cognitive Complexity Level	Moderate, High
Benchmark Clarification	Students can articulate the difference between chromosomes, DNA, and genes and how they relate to each other
Content Focus	Nucleus, sequence, nucleic acids, choromosomes, genes, DNA.
Content Limits	students may use analogies definitions, or sketches in order to illustrate relationships.
Stimulus Attributes	questions may include short and extended responses as well as multiple choice with stimuli that may include images DNA, chromosomes, or genes.
Response Attributes	students will correctly define terms and can show how they work build upon each other.
Sample Item	Which of the following is best described as the actual sequence that codes for heredity? A) DNA B) Chromosomes C) Genes D) Phenotype Answer C

Standard	15.0 Describe factors that contribute to sickle cell disease and the impact it can have on the human body.–The student will be able to:
Benchmark	15.05 List the major symptoms and complications of sickle cell disease
Item Types (MC)-Multiple Choice (SA)-Short Answer (P)-Performance (ER)-Extended Response	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	Low, Moderate
Benchmark Clarification	Students will illustrate an understanding how sickle cell effects the body.
Content Focus	Anemia, sickle cell, red blood cells, erythrocytes, hemoglobin, recessive.
Content Limits	Limit to symptoms and complications of sickle cell.
Stimulus Attributes	Questions may include multiple choice and short answer.
Response Attributes	Responses will include correct attributes to sickle cell disease.
Sample Item	If a person has sickle cell anemia, how is a person's blood affected? A) Red Blood cell shape is cresent B) Red blood cell size is enlarged C) White blood cell shape is cresent D) White blood cell size is decreased Answer: A

Standard	16.0 Understand the factors involved in heredity and mutation in relation to sickle cell disease.–The student will be able to:
Benchmark	16.12 Create and analyze pedigree charts to illustrate passage of a trait through at least three generations and calculate the probability of a trait appearing in offspring.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)= (SA)= (P)=X (ER)=X
Cognitive Complexity Level	High
Benchmark Clarification	Students will create and make their pedigrees that illustrate passing a trait and calculate the probability of a couple having offspring with that trait, both recessive and dominant traits.
Content Focus	Pedigree, probability, generations, trait, indivduals, dominant, recessive.
Content Limits	Students may need paper and pencil to sketch their own pedigree.
Stimulus Attributes	Stimuli should include whether the trait is dominant or recessive, as this will change probability.
Response Attributes	May include diagrams and punnett squares that will aid in the answer.
Sample Item	In a pedigree, what would an affected female look like? A) Shaded circle B) Shaded square C) White circle D) White square Answer: A