

Bioplex

Common Core Standards,
Next Generation Science Standards,
and Texas Standards (TEKS)

Next Generation Science Standards (NGSS)

NGSS Subcategory	Standard ID	Standard Description
Developing and Using Models	MS-PS1-1, MS-PS1-4	Develop a model to predict and/or describe phenomena.
Developing and Using Models	MS-PS1-5	Develop a model to describe unobservable mechanisms.
Engaging in Argument from Evidence	MS-PS3-5	Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon.
Analyzing and Interpreting Data	MS-PS1-2	Analyze and interpret data to determine similarities and differences in findings.
Analyzing and Interpreting Data	MS-PS3-1	Construct and interpret graphical displays of data to identify linear and nonlinear relationships.
Planning and Carrying Out Investigations	MS-PS3-4	Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.
Systems and System Models	MS-PS3-2	Models can be used to represent systems and their interactions – such as inputs, processes, and outputs – and energy and matter flows within systems.
Constructing Explanations and Designing Solutions	MS-LS2-2	Construct an explanation that includes qualitative or quantitative relationships between variables that predict phenomena.
Constructing Explanations and Designing Solutions	MS-PS3-3	Constructing Explanations and Designing Solutions - Apply scientific ideas or principles to design, construct, and test a design of an object, tool, process or system.
ETS1.B: Developing Possible Solutions	MS-ETS1-2, MS-ETS1-3	There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.

NGSS Subcategory	Standard ID	Standard Description
ETS1.B: Developing Possible Solutions	MS-ETS1-4	A solution needs to be tested, and then modified on the basis of the test results, in order to improve it.
ETS1.C: Optimizing the Design Solution	MS-ETS1-3	Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design.
ETS1.C: Optimizing the Design Solution	MS-ETS1-4	The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.

Common Core – ELA: Science and Technical Subjects (CC-ELA)

CC Subcategory	Standard ID	Standard Description
Writing for History/Social Studies, Science and Technical Subjects	WHST.6-8.1	Write arguments focused on discipline content.
Writing for History/Social Studies, Science and Technical Subjects	WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
Reading for Science and Technical Subjects	RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
Speaking & Listening	SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
Speaking & Listening	SL.8.1.c	Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.

Texas Essential Knowledge & Skills (TEKS)

TEKS Category	Chapter	Standard ID	Standard Description
Science – Scientific Investigation and Reasoning	112.18 112.19 112.20	6.2.B 7.2.B 8.2.B	Design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology.
CTE – Career Portals	127.4	1.A	The student explores one or more career clusters of interest. The student is expected to: (A) identify the various career opportunities within one or more career clusters.
CTE – Career Portals	127.4	2.A	The student explores pathways of interest within one or more career clusters. The student is expected to: (A) investigate career opportunities within the pathways.
CTE – Exploring Careers	127.3	4.A	The student evaluates skills for personal success. The student is expected to: (A) implement effective study skills for academic success.
CTE – Exploring Careers	127.3	4.C	Use a problem-solving model and critical-thinking skills to make informed decisions.
CTE – Exploring Careers	127.3	4.D	Use effective time-management and goal-setting strategies.
CTE – Exploring Careers	127.3	4.E	Effectively use information and communication technology tools.
CTE – Exploring Careers	127.3	7.E	The student develops skills for professional success. The student is expected to: (E) explore and model characteristics necessary for professional success such as work ethics, integrity, dedication, perseverance, and the ability to interact with a diverse population.
CTE – Exploring Careers	127.3	7.F	Complete activities using project- and time-management techniques.
CTE – Exploring Careers	127.3	8.A	The student identifies and explores technical skills essential to careers in multiple occupations, including those that are high skill, high wage, or high demand. The student is expected to: (A) complete actual or virtual labs to simulate the technical skills required in various occupations

Next Generation Science Standards (NGSS)

NGSS Subcategory	Standard ID	Standard Description
Constructing Explanations and Designing Solutions	MS-PS1-6	Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints.
Engineering Design	MS-ETS1-4	Models of all kinds are important for testing solutions.
Engaging in Argument from Evidence	MS-PS3-5	Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon.
ETS1.C: Optimizing the Design Solution	MS-ETS1-4	The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.
ETS1.C: Optimizing the Design Solution	MS-ETS1-3	Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design.
Life Sciences – Structure, Function, and Information Processing	MS-LS1-1	Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells.
Life Sciences – Structure, Function, and Information Processing	MS-LS1-3	Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

Common Core – ELA: Science and Technical Subjects (CC-ELA)

<i>CC Subcategory</i>	<i>Standard ID</i>	<i>Standard Description</i>
Writing for History/Social Studies, Science and Technical Subjects	WHST.6-8.1	Write arguments focused on discipline content.
Writing for History/Social Studies, Science and Technical Subjects	WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
Reading for Science and Technical Subjects	RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
Speaking & Listening	SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
Speaking & Listening	SL.8.1.c	Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.

Texas Essential Knowledge & Skills (TEKS)

<i>TEKS Category</i>	<i>Chapter</i>	<i>Standard ID</i>	<i>Standard Description</i>
Science – Organisms and Environments	112.18	6.12.A	Understand that all organisms are composed of one or more cells.
Science – Organisms and Environments	112.18	6.12.D	Identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms.

TEKS Category	Chapter	Standard ID	Standard Description
Science – Organisms and Environments	112.19	7.12.B	Identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems.
Science – Organisms and Environments	112.19	7.12.C	Recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms.
Science – Organisms and Environments	112.19	7.13.B	Describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance.
CTE – Career Portals	127.4	1.A	The student explores one or more career clusters of interest. The student is expected to: (A) identify the various career opportunities within one or more career clusters.
CTE – Career Portals	127.4	2.A	The student explores pathways of interest within one or more career clusters. The student is expected to: (A) investigate career opportunities within the pathways.
CTE – Exploring Careers	127.3	4.A	The student evaluates skills for personal success. The student is expected to: (A) implement effective study skills for academic success.
CTE – Exploring Careers	127.3	4.C	Use a problem-solving model and critical-thinking skills to make informed decisions.
CTE – Exploring Careers	127.3	4.D	Use effective time-management and goal-setting strategies.
CTE – Exploring Careers	127.3	4.E	Effectively use information and communication technology tools.
CTE – Exploring Careers	127.3	7.E	The student develops skills for professional success. The student is expected to: (E) explore and model characteristics necessary for professional success such as work ethics, integrity, dedication, perseverance, and the ability to interact with a diverse population.
CTE – Exploring Careers	127.3	7.F	Complete activities using project- and time-management techniques.

<i>TEKS Category</i>	<i>Chapter</i>	<i>Standard ID</i>	<i>Standard Description</i>
CTE – Exploring Careers	127.3	8.A	The student identifies and explores technical skills essential to careers in multiple occupations, including those that are high skill, high wage, or high demand. The student is expected to: (A) complete actual or virtual labs to simulate the technical skills required in various occupations

Next Generation Science Standards (NGSS)

NGSS Subcategory	Standard ID	Standard Description
Interdependence of Science, Engineering, and Technology	MS-PS1-3	Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
Influence of Science, Engineering and Technology on Society and the Natural World	MS-PS1-3	The uses of technologies and any limitation on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time.
Developing and Using Models	MS-PS1-1, MS-PS1-4	Develop a model to predict and/or describe phenomena.
Constructing Explanations and Designing Solutions	MS-PS3-3	Apply scientific ideas or principles to design, construct, and test a design of an object, tool, process or system.
Systems and System Models	MS-PS3-2	Models can be used to represent systems and their interactions – such as inputs, processes, and outputs – and energy and matter flows within systems.
Engineering Design	MS-ETS1-1	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.
Engineering Design	MS-ETS1-2	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
Engineering Design	MS-ETS1-3	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.

NGSS Subcategory	Standard ID	Standard Description
Engaging in Argument from Evidence	MS-PS3-5	Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon.
ETS1.B: Developing Possible Solutions	MS-ETS1-3	Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors.
ETS1.B: Developing Possible Solutions	MS-ETS1-4	A solution needs to be tested, and then modified on the basis of the test results, in order to improve it.
ETS1.C: Optimizing the Design Solution	MS-ETS1-3	Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design.
ETS1.C: Optimizing the Design Solution	MS-ETS1-4	The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.
Life Sciences – Structure, Function, and Information Processing	MS-LS1-1	Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells.
Life Sciences – Structure, Function, and Information Processing	MS-LS1-2	Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
Life Sciences – Structure, Function, and Information Processing	MS-LS1-3	Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

Common Core – ELA: Science and Technical Subjects (CC-ELA)

<i>CC Subcategory</i>	<i>Standard ID</i>	<i>Standard Description</i>
Writing for History/Social Studies, Science and Technical Subjects	WHST.6-8.1	Write arguments focused on discipline content.
Writing for History/Social Studies, Science and Technical Subjects	WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
Reading for Science and Technical Subjects	RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
Speaking & Listening	SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
Speaking & Listening	SL.8.1.c	Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.

Texas Essential Knowledge & Skills (TEKS)

<i>TEKS Category</i>	<i>Chapter</i>	<i>Standard ID</i>	<i>Standard Description</i>
Science – Scientific Investigation and Reasoning	112.18 112.19 112.20	6.2.B 7.2.B 8.2.B	Design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology.
Science – Scientific Investigation and Reasoning	112.18 112.19 112.20	6.2.D 7.2.D 8.2.D	Relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.

TEKS Category	Chapter	Standard ID	Standard Description
Science – Scientific Investigation and Reasoning	112.19	7.3.B	Use models to represent aspects of the natural world such as human body systems and plant and animal cells.
Science – Organisms and Environments	112.18	6.12.A	Understand that all organisms are composed of one or more cells.
Science – Organisms and Environments	112.18	6.12.D	Identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms.
Science – Organisms and Environments	112.19	7.12.B	Identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems.
Science – Organisms and Environments	112.19	7.12.C	Recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms.
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CTE – Career Portals	127.4	1.A	The student explores one or more career clusters of interest. The student is expected to: (A) identify the various career opportunities within one or more career clusters.
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CTE – Exploring Careers	127.3	4.A	The student evaluates skills for personal success. The student is expected to: (A) implement effective study skills for academic success.
CTE – Exploring Careers	127.3	4.C	Use a problem-solving model and critical-thinking skills to make informed decisions.

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CTE – Exploring Careers	127.3	4.D	Use effective time-management and goal-setting strategies.
CTE – Exploring Careers	127.3	4.E	Effectively use information and communication technology tools.
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