

Connections to Standards in Biomedical Science

PLTW curriculum is designed to empower students to thrive in an evolving world. As a part of the design process when developing and updating our curriculum, we focus on connections to a variety of standards. PLTW Human Body Systems connects to standards in the following:

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Common Core State Standards for Mathematics

Quantities

Reason Quantitatively and Use Units to Solve Problems

CCSS.MATH.CONTENT.HSN.Q.A.1

Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.MATH.CONTENT.HSN.Q.A.2

Define appropriate quantities for the purpose of descriptive modeling.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.MATH.CONTENT.HSN.Q.A.3

Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Unit 1 Unit 2 Unit 3 Unit 4

Seeing Structure in Expressions

Interpret the Structure of Expressions

CCSS.MATH.CONTENT.HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

Unit 1 Unit 2 Unit 3 Unit 4

Reasoning with Equations and Inequalities

Represent and Solve Equations and Inequalities Graphically

CCSS.MATH.CONTENT.HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

Unit 1 Unit 2 Unit 3 Unit 4

Interpreting Functions

Interpret Functions That Arise in Applications in Terms of the Context

CCSS.MATH.CONTENT.HSF.IF.B.6

Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for Mathematics

Analyze Functions Using Different Representations

CCSS.MATH.CONTENT.HSF.IF.C.7

Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

Unit 1 Unit 2 Unit 3 Unit 4

Interpreting Categorical and Quantitative Data

Summarize, Represent, and Interpret Data on a Single Count or Measurement Variable

CCSS.MATH.CONTENT.HSS.ID.A.1

Represent data with plots on the real number line (dot plots, histograms, and box plots).

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.MATH.CONTENT.HSS.ID.A.3

Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

Unit 1 Unit 2 Unit 3 Unit 4

Summarize, Represent, and Interpret Data on Two Categorical and Quantitative Variables

CCSS.MATH.CONTENT.HSS.ID.B.6

Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.

Unit 1 Unit 2 Unit 3 Unit 4

Making Inferences and Justifying Conclusions

Make inferences and Justify Conclusions From Sample Surveys, Experiments, and Observational Studies

CCSS.MATH.CONTENT.HSS.IC.B.3

Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.MATH.CONTENT.HSS.IC.B.5

Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.MATH.CONTENT.HSS.IC.B.6

Evaluate reports based on data.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for Mathematics

Using Probability to Make Decisions

Use Probability to Evaluate Outcomes of Decisions

CCSS.MATH.CONTENT.HSS.MD.B.5.B

Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.MATH.CONTENT.HSS.MD.B.7

(+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

Unit 1 Unit 2 Unit 3 Unit 4

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Common Core State Standards for English Language Arts

Reading Informational Text

Key Ideas and Details

CCSS.ELA-LITERACY.RI.9-10.1

Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Unit 1 Unit 2 Unit 3 Unit 4

Integration of Knowledge and Ideas

CCSS.ELA-LITERACY.RI.9-10.7

Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.RI.9-10.8

Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

Unit 1 Unit 2 Unit 3 Unit 4

Writing

Text Types and Purpose

CCSS.ELA-LITERACY.W.9-10.2.D

Use precise language and domain-specific vocabulary to manage the complexity of the topic.

Unit 1 Unit 2 Unit 3 Unit 4

Production and Distribution of Writing

CCSS.ELA-LITERACY.W.9-10.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.W.9-10.6

Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.W.9-10.7

Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.W.9-10.9

Draw evidence from literary or informational texts to support analysis, reflection, and research.

Unit 1 Unit 2 Unit 3 Unit 4

Speaking and Listening

Comprehension and Collaboration

CCSS.ELA-LITERACY.SL.9-10.1

Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.9-10.1.B

Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.9-10.1.C

Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.9-10.1.D

Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.9-10.2

Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

Presentation of Knowledge and Ideas

CCSS.ELA-LITERACY.SL.9-10.4

Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.9-10.5

Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Unit 1 Unit 2 Unit 3 Unit 4

Language

Conventions of Standard English

CCSS.ELA-LITERACY.L.9-10.1

Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.L.9-10.2

Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.L.9-10.2.C

Spell correctly.

Unit 1 Unit 2 Unit 3 Unit 4

Vocabulary Acquisition and Use

CCSS.ELA-LITERACY.L.9-10.4.A

Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.L.9-10.6

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

Reading Science and Technical

Key Ideas and Details

CCSS.ELA-LITERACY.RST.9-10.1

Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.RST.9-10.3

Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

Unit 1 Unit 2 Unit 3 Unit 4

Craft and Structure

CCSS.ELA-LITERACY.RST.9-10.4

Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

Unit 1 Unit 2 Unit 3 Unit 4

Range of Reading and Level of Text Complexity

CCSS.ELA-LITERACY.RST.9-10.10

By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

Unit 1 Unit 2 Unit 3 Unit 4

Writing History/Social Studies, Science, and Technical

Text Types and Purposes

CCSS.ELA-LITERACY.WHST.9-10.1

Write arguments focused on discipline-specific content.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.1.D

Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.1.E

Provide a concluding statement or section that follows from or supports the argument presented.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

CCSS.ELA-LITERACY.WHST.9-10.2

Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.2.A

Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.2.B

Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.2.D

Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.2.E

Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.2.F

Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

Unit 1 Unit 2 Unit 3 Unit 4

Production and Distribution of Writing

CCSS.ELA-LITERACY.WHST.9-10.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.6

Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.WHST.9-10.7

Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.8

Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.9-10.9

Draw evidence from informational texts to support analysis, reflection, and research.

Unit 1 Unit 2 Unit 3 Unit 4

Reading Informational Text

Key Ideas and Details

CCSS.ELA-LITERACY.RI.11-12.1

Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

Unit 1 Unit 2 Unit 3 Unit 4

Integration of Knowledge and Ideas

CCSS.ELA-LITERACY.RI.11-12.7

Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

Unit 1 Unit 2 Unit 3 Unit 4

Writing

Text Types and Purpose

CCSS.ELA-LITERACY.W.11-12.1.D

Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

CCSS.ELA-LITERACY.W.11-12.2

Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.W.11-12.2.B

Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.W.11-12.2.D

Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.W.11-12.2.E

Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.W.11-12.2.F

Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

Unit 1 Unit 2 Unit 3 Unit 4

Production and Distribution of Writing

CCSS.ELA-LITERACY.W.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.W.11-12.6

Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Unit 1 Unit 2 Unit 3 Unit 4

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.W.11-12.7

Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

CCSS.ELA-LITERACY.W.11-12.8

Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.W.11-12.9

Draw evidence from literary or informational texts to support analysis, reflection, and research.

Unit 1 Unit 2 Unit 3 Unit 4

Speaking and Listening

Comprehension and Collaboration

CCSS.ELA-LITERACY.SL.11-12.1

Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.11-12.1.B

Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.11-12.1.C

Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.11-12.1.D

Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.11-12.2

Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

Presentation of Knowledge and Ideas

CCSS.ELA-LITERACY.SL.11-12.4

Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.SL.11-12.5

Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Unit 1 Unit 2 Unit 3 Unit 4

Language

Conventions of Standard English

CCSS.ELA-LITERACY.L.11-12.1

Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.L.11-12.2

Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.L.11-12.2.B

Spell correctly.

Unit 1 Unit 2 Unit 3 Unit 4

Vocabulary Acquisition and Use

CCSS.ELA-LITERACY.L.11-12.4.A

Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.L.11-12.4.D

Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

CCSS.ELA-LITERACY.L.11-12.6

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Unit 1 Unit 2 Unit 3 Unit 4

Reading Science and Technical

Key Ideas and Details

CCSS.ELA-LITERACY.RST.11-12.1

Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.RST.11-12.3

Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Unit 1 Unit 2 Unit 3 Unit 4

Craft and Structure

CCSS.ELA-LITERACY.RST.11-12.4

Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

Unit 1 Unit 2 Unit 3 Unit 4

Integration of Knowledge and Ideas

CCSS.ELA-LITERACY.RST.11-12.7

Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.RST.11-12.8

Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.RST.11-12.9

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

Range of Reading and Level of Text Complexity

CCSS.ELA-LITERACY.RST.11-12.10

By the end of grade 12, read and comprehend science/technical texts in the grades 11–12 text complexity band independently and proficiently.

Unit 1 Unit 2 Unit 3 Unit 4

Writing History/Social Studies, Science, and Technical

Text Types and Purposes

CCSS.ELA-LITERACY.WHST.11-12.1

Write arguments focused on discipline-specific content.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.1.D

Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.1.E

Provide a concluding statement or section that follows from or supports the argument presented.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.2

Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.2.A

Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.2.B

Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.2.E

Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).

Unit 1 Unit 2 Unit 3 Unit 4

Common Core State Standards for English Language Arts

Production and Distribution of Writing

CCSS.ELA-LITERACY.WHST.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.6

Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Unit 1 Unit 2 Unit 3 Unit 4

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.WHST.11-12.7

Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.8

Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

Unit 1 Unit 2 Unit 3 Unit 4

CCSS.ELA-LITERACY.WHST.11-12.9

Draw evidence from informational texts to support analysis, reflection, and research.

Unit 1 Unit 2 Unit 3 Unit 4

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Next Generation Science Standards

From Molecules to Organisms: Structures and Processes

HS.LS1.2

Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Unit 1 Unit 2 Unit 3 Unit 4

HS.LS1.3

Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Unit 1 Unit 2 Unit 3 Unit 4

Engineering Design

HS.ETS1.1

Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

Unit 1 Unit 2 Unit 3 Unit 4

HS.ETS1.3

Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

Unit 1 Unit 2 Unit 3 Unit 4

Disciplinary core ideas

ETS1.A Engineering Design - Defining and Delimiting Engineering Problems

• Criteria and constraints also include satisfying any requirements set by society, such as taking issues of risk mitigation into account, and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them. (secondary to HS-PS2-3)

Unit 1 Unit 2 Unit 3 Unit 4

ETS1.B Engineering Design - Developing Possible Solutions

• When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts. (HS-ETS1-3)

Unit 1 Unit 2 Unit 3 Unit 4

LS1.A From Molecules to Organisms: Structures and Processes - Structure and Function

• Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. (HS-LS1-2)

Unit 1 Unit 2 Unit 3 Unit 4

Next Generation Science Standards

- Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system. (HS-LS1-3)

Unit 1 Unit 2 Unit 3 Unit 4

Science and Engineering Practice

Practice 1 - Asking questions and defining problems in 9-12 builds on K-8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.

- Ask questions that can be investigated within the scope of the school laboratory, research facilities, or field (e.g., outdoor environment) with available resources and, when appropriate, frame a hypothesis based on a model or theory.

Unit 1 Unit 2 Unit 3 Unit 4

Practice 2 Developing and Using Models

Modeling in 9-12 builds on K-8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds.

- Evaluate merits and limitations of two different models of the same proposed tool, process, mechanism or system in order to select or revise a model that best fits the evidence or design criteria.

Unit 1 Unit 2 Unit 3 Unit 4

- Design a test of a model to ascertain its reliability.

Unit 1 Unit 2 Unit 3 Unit 4

Practice 3 Planning and Carrying Out Investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

- Plan an investigation or test a design individually and collaboratively to produce data to serve as the basis for evidence as part of building and revising models, supporting explanations for phenomena, or testing solutions to problems. Consider possible confounding variables or effects and evaluate the investigation's design to ensure variables are controlled.

Unit 1 Unit 2 Unit 3 Unit 4

- Select appropriate tools to collect, record, analyze, and evaluate data. Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated.

Unit 1 Unit 2 Unit 3 Unit 4

Next Generation Science Standards

Practice 8 Obtaining, Evaluating, and Communicating Information

Obtaining, evaluating, and communicating information in 9-12 builds on K-8 experiences and progresses to evaluating the validity and reliability of the claims, methods, and designs.

- Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions and/or to obtain scientific and/or technical information to summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

Unit 1 Unit 2 Unit 3 Unit 4

- Gather, read, and evaluate scientific and/or technical information from multiple authoritative sources, assessing the evidence and usefulness of each source.

Unit 1 Unit 2 Unit 3 Unit 4

- Evaluate the validity and reliability of and/or synthesize multiple claims, methods, and/or designs that appear in scientific and technical texts or media reports, verifying the data when possible. Communicate scientific and/or technical information or ideas (e.g., about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (i.e., orally, graphically, textually, mathematically).

Unit 1 Unit 2 Unit 3 Unit 4

Crosscutting Concepts

Structure and Function

- The way an object is shaped or structured determines many of its properties and functions.

Unit 1 Unit 2 Unit 3 Unit 4

Stability and Change

- Feedback (negative or positive) can stabilize or destabilize a system.

Unit 1 Unit 2 Unit 3 Unit 4

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Foundation Standard 1: Academic Foundation: Understand human anatomy, physiology, common diseases and disorders, and medical math principles.

Human Anatomy and Physiology - Describe the organization of the human body and directional terms.

1.1.1 a

Identify levels of organization

- Cellular
- Chemical
- Organ
- Organsim
- System
- Tissue

Unit 1 Unit 2 Unit 3 Unit 4

1.1.1 b

Demonstrate anatomical position

Unit 1 Unit 2 Unit 3 Unit 4

1.1.1 c

Identify body planes

- Coronal / Frontal
- Midsagittal
- Sagittal
- Transverse / Horizontal

Unit 1 Unit 2 Unit 3 Unit 4

1.1.1 d

Use directional terms

- Anterior / Posterior
- Cephalic/Cadual
- Medial / Lateral
- Proximal / Distal
- Superficial /Deep
- Superior / Inferior
- Ventral / Dorsal

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1.1.1 e

Identify body cavities

- Abdominal
- Cranial
- Dorsal
- Nasal
- Oral
- Orbital
- Pelvic
- Spinal
- Thoracic

Unit 1 Unit 2 Unit 3 Unit 4

1.1.1 f

Identify the components of the abdominal quadrants

- Left upper
- Left lower
- Right upper
- Right lower

Unit 1 Unit 2 Unit 3 Unit 4

Human Anatomy and Physiology - Identify basic structures and describe functions of human body systems.

1.1.2 a

Skeletal

- Structures of the skeletal system
 - Distinguish between axial and appendicular skeletons
 - Describe long bone anatomy
 - Identify joint types and movement
 - Name and classify all bones (206)
- Functions of the skeletal system
 - Hematopoiesis
 - Mineral storage
 - Muscle attachment and movement
 - Ossification
 - Structure and support

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1.1.2 b

Muscular

- Structures of the muscular system
 - Identify types of muscle tissue
 - Identify major muscle groups of neck, shoulder, chest, abdomen, back, arms, and legs
- Functions of the muscular system
 - Body movement
 - Posture
 - Protection

Unit 1 Unit 2 Unit 3 Unit 4

1.1.2 c

Integumentary

- Structures of the integumentary system
 - Identify integumentary components
 - Label the layers of skin
- Functions of the integumentary system
 - Infection protection
 - Sensory organ
 - Temperature regulation
 - UV light protection
 - Vitamin D production

Unit 1 Unit 2 Unit 3 Unit 4

1.1.2 d

Cardiovascular

- Structures of the cardiovascular system
 - Distinguish blood components
 - Identify cardiovascular organs
 - Label the parts of the heart
- Functions of the cardiovascular system
 - Blood flow through the heart and body
 - Cardiac conduction system
 - Transports nutrients, waste, antibodies, hormones, and gases

Unit 1 Unit 2 Unit 3 Unit 4

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1.1.2 e

Lymphatic / Immune

- Structures of the lymphatic system
 - Identify lymphatic organs
- Functions of the lymphatic system
 - Movement of lymph fluid
 - Provide protection against disease

Unit 1 Unit 2 Unit 3 Unit 4

1.1.2 f

Respiratory

- Structures of the respiratory system
 - Identify respiratory organs
- Functions of the respiratory system
 - Gas exchange

Unit 1 Unit 2 Unit 3 Unit 4

1.1.2 g

Nervous

- Structures of the nervous system
 - Differentiate CNS and PNS
 - Differentiate sympathetic and parasympathetic
 - Identify organs of the nervous system
 - Identify structures of the special sense organs
- Functions of the nervous system
 - Movement
 - Processing
 - Sensation

Unit 1 Unit 2 Unit 3 Unit 4

1.1.2 h

Endocrine

- Structures of the endocrine system
 - Identify endocrine glands
- Functions of the endocrine system
 - Controls metabolism
 - Production of hormones
 - Regulation of body processes
 - Regulates growth, development, and maturation

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1.1.2 i

Digestive

- Structures of the digestive system
 - Differentiate between alimentary and accessory organs
 - Identify digestive organs in sequence
- Functions of the digestive system
 - Absorption of nutrients
 - Chemical and mechanical digestion
 - Excretion of waste

Unit 1 Unit 2 Unit 3 Unit 4

1.1.2 j

Urinary

- Structures of the urinary system
 - Identify gross and microscopic anatomy of the kidney
 - Identify urinary organs
- Functions of the urinary system
 - Homeostatic balance
 - Process of urine formation
 - Urine composition

Unit 1 Unit 2 Unit 3 Unit 4

1.1.2 k

Reproductive

- Structures of the reproductive system
 - Identify female reproductive organs
 - Identify male reproductive organs
- Functions of the reproductive system
 - Formation of gametes
 - Production of hormones

Unit 1 Unit 2 Unit 3 Unit 4

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Diseases and Disorders -

1.2.1

Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders, including, but not limited to the following:

- Anxiety
- Arthritis
- Asthma
- Bipolar Disorder
- Cancer
- Cataracts
- Concussion / Traumatic Brain Injury (TBI)
- Cystic fibrosis
- Diabetes
- Dementia
- Depression
- Gastric ulcer
- Hepatitis
- Hypertension
- Melanoma
- Muscular Dystrophy
- Myocardial Infarction
- Sexually Transmitted Infection (STI)
- Stroke / Cerebrovascular Accident (CVA)
- Tuberculosis
- Urinary Tract Infection (UTI)

Unit 1 Unit 2 Unit 3 Unit 4

1.2.2

Describe biomedical therapies as they relate to the prevention, pathology, and treatment of disease.

- Gene editing
- Gene testing
- Gene therapy
- Immunizations
- Immunotherapy
- Stem cell research

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Medical Mathematics - Demonstrate competency using basic math skills and mathematical conversions as they relate to healthcare.

1.3.1

Metric system

- Centi-
- Deci-
- Kilo-
- Milli-
- Micro-

Unit 1 Unit 2 Unit 3 Unit 4

1.3.1 b

Mathematical

- Addition / Subtraction
- Average
- Fractions
- Multiplication / Division
- Percentages
- Ratios

Unit 1 Unit 2 Unit 3 Unit 4

1.3.1 c

Conversions

- Height (inches/meters)
- Household measurements (Tbsp/tsp/cup/oz)
- Length (inches/meters)
- Temperature (F/C)
- Volume (ml/cc)
- Weight/mass (pounds/grams)

Unit 1 Unit 2 Unit 3 Unit 4

Medical Mathematics

1.3.2

Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results.

Unit 1 Unit 2 Unit 3 Unit 4

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Foundation Standard 2: Communications Demonstrate methods of delivering and obtaining information, while communicating effectively.

Concepts of Effective Communication - Identify common barriers to communication.

2.1.2 a

Physical disabilities

- Aphasia
- Developmental level
- Hearing loss
- Impaired vision

Unit 1 Unit 2 Unit 3 Unit 4

2.1.2 b

Psychological barriers

- Attitudes
- Bias
- Prejudice
- Stereotyping

Unit 1 Unit 2 Unit 3 Unit 4

Concepts of Effective Communication

2.1.5

Modify communication to meet the needs of the patient/client and to be appropriate to the situation.

Unit 1 Unit 2 Unit 3 Unit 4

Medical Terminology

2.2.1

Use common roots, prefixes, and suffixes to communicate information.

Unit 1 Unit 2 Unit 3 Unit 4

2.2.2

Interpret common medical abbreviations to communicate information.

Unit 1 Unit 2 Unit 3 Unit 4

Written Communication Skills

2.3.1

Use proper elements of written and electronic communication (spelling, grammar, and formatting).

Unit 1 Unit 2 Unit 3 Unit 4

2.3.2

Prepare examples of technical and informative writing.

Unit 1 Unit 2 Unit 3 Unit 4

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Foundation Standard 3: Systems Identify how key systems affect services performed and quality of care.

Healthcare Delivery Systems - Differentiate healthcare delivery systems and healthcare related agencies.

3.1.1 a

Types of practice settings

- Acute care
- Ambulatory care
- Behavioral and mental health services
- Home care
- Long-term care
- Medical and dental practices

Unit 1

Unit 2

Unit 3

Unit 4

Foundation Standard 4: Employability Skills Use employability skills to enhance employment opportunities and job satisfaction.

Personal Traits of the Health Professional

4.1.1

Identify personal traits and attitudes desirable in a career ready member of a health team.

- Acceptance of criticism
- Competence
- Dependability
- Discretion
- Empathy
- Enthusiasm
- Honesty
- Initiative
- Integrity
- Patience
- Positive attitude
- Responsibility
- Self-motivation
- Social and cultural competence
- Tact
- Team player
- Willingness to learn

Unit 1

Unit 2

Unit 3

Unit 4

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Career Decision-making

4.3.1

Research levels of education, credentialing requirements, and employment trends in health professions.

Unit 1 Unit 2 Unit 3 Unit 4

4.3.2

Distinguish differences among careers within a health science pathway.

- Biotechnology research and development
- Diagnostic services
- Health informatics
- Support services
- Therapeutic services

Unit 1 Unit 2 Unit 3 Unit 4

Foundation Standard 5: Legal Responsibilities Describe legal responsibilities, limitations, and implications on healthcare worker actions.

Legal Practices

5.2.1

Apply standards for the safety, privacy and confidentiality of health information.

- Privileged communication

Unit 1 Unit 2 Unit 3 Unit 4

Foundation Standard 6: Ethics Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.

Ethical Practice

6.1.2

Identify ethical issues and their implications related to healthcare.

- Ethics committee
- Euthanasia
- Gene editing
- Immunizations
- In vitro fertilization
- Organ donation/transplantation
- Scope of practice

Unit 1 Unit 2 Unit 3 Unit 4

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6.2.1

Discuss religious, social, and cultural values as they impact healthcare.

- Ageism
- Ethnicity
- Gender
- Race
- Religion

Unit 1 Unit 2 Unit 3 Unit 4

Foundation Standard 7: Safety Practices Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.

Infection Control - Explain principles of infection transmission.

7.1.1 a

Identify classifications of pathogens

- Bacteria
- Fungi
- Parasites
- Protoza
- Viruses

Unit 1 Unit 2 Unit 3 Unit 4

7.1.1 b

Describe characteristics of microorganisms

- Aerobic
- Anaerobic
- Non-pathogenic
- Pathogenic

Unit 1 Unit 2 Unit 3 Unit 4

7.1.1 c

Recognize chain of infection

Unit 1 Unit 2 Unit 3 Unit 4

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7.1.1 d

Describe mode of transmission

- Common vehicle (air, food, water)
- Direct
- Healthcare-associated infections (nosocomial)
- Indirect
- Opportunistic
- Vectors

Unit 1 Unit 2 Unit 3 Unit 4

Infection Control - Differentiate methods of controlling the spread and growth of pathogens.

7.1.2 a

Asepsis

- Antisepsis
- Disinfection
- Sanitization
- Sterile technique
- Sterilization

Unit 1 Unit 2 Unit 3 Unit 4

7.1.2 b

Standard precautions

- Environmental cleaning
- Gloving
- Handwashing
- Personal Protective Equipment (PPE)

Unit 1 Unit 2 Unit 3 Unit 4

7.1.2 e

Vaccinations

Unit 1 Unit 2 Unit 3 Unit 4

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Foundation Standard 8: Teamwork Identify roles and responsibilities of individual members as part of the healthcare team.

Healthcare Teams

8.1.2

Identify characteristics of effective teams.

- Collaboration
- Defined roles
- Effective communication
- Effective leadership
- Measurable processes and outcomes
- Mutual respect
- Shared goals

Unit 1 Unit 2 Unit 3 Unit 4

Team Member Participation

8.2.1

Recognize methods for building positive team relationships.

Unit 1 Unit 2 Unit 3 Unit 4

Team Member Participation

8.2.3

Apply effective techniques for managing team conflict.

- Communicate assertively
- Gather the facts
- Mediate disputes
- Negotiate resolutions
- Set clear expectations

Unit 1 Unit 2 Unit 3 Unit 4

8.2.4

Evaluate why teamwork is an important part of healthcare and how it improves patient care.

Unit 1 Unit 2 Unit 3 Unit 4

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Foundation Standard 10: Technical Skills

Apply and demonstrate technical skills and knowledge common to health career specialties.

Technical Skills

10.1.1

Demonstrate procedures for measuring and recording vital signs in both normal and abnormal ranges - including but not limited to:

- Blood pressure
- Height and weight
- Oxygen saturation
- Pain
- Pulse
- Respirations
- Temperature

Unit 1

Unit 2

Unit 3

Unit 4

References

National Consortium for Health Education (2022). *National health science standards*. Retrieved from https://resources.youscience.com/hubfs/Partners/NCHSE/National_Health_Science_Standards.pdf

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