**PLTW Gateway**

Medical Detectives | Unit Outline

*Become medical detectives and solve medical mysteries!*

*Apply experimental design, creative thinking, and problem solving to investigate the inner-workings of the human body, diagnose disease, and improve human health.*

In the Medical Detectives unit, students play the role of real-life medical detectives as they collect and analyze medical data to diagnose disease. They solve medical mysteries through hands-on projects and labs, measure and interpret vital signs, dissect a sheep brain, investigate disease outbreaks, and explore how a breakdown within the human body can lead to dysfunction.

**Medical Detectives Lesson Summary**

Lesson 1 Disease Detectives

Lesson 2 Mysteries of the Human Body Lesson 3 Outbreak!

**Lesson 1: Disease Detectives**

Students discover how healthcare professionals act as medical detectives to identify, treat, and prevent illness in their patients. Students collect and interpret vital signs to evaluate patient health, explore different infectious disease agents, and design and conduct experiments to test the effectiveness of antibiotics on bacteria. In the end-of-lesson project, students collect and analyze medical data to diagnose a patient with a mystery illness.

**Lesson 2: Mysteries of the Human Body**

This lesson introduces the human body as a collection of body systems, with a focus on the nervous system. Students investigate how the nervous system collects information from the outside world, moves this information through neurons, processes this information in the brain, and initiates the body's response accordingly. Students create neuron models and perform a sheep brain dissection. They use their knowledge to explore symptoms as they relate to specific nervous system dysfunction and analyze evidence to identify the cause of the dysfunction. In the end-of-lesson project, students create educational resources to help their patient understand the medical condition.

**Lesson 3: Outbreak!**

A mysterious toxin is endangering the health of a community. Using their understandings of human body systems, students describe how the suspected toxin has impacted the health of the patient. Students analyze patient symptoms and perform lab analyses of patient samples to identify the culprit and determine how it's spreading. In the end-of-unit problem, students locate the source of the toxin using a map of the community, patient histories, and lab data, then present their findings to help community leaders mitigate the situation.

## PLTW Gateway Standards Connection Medical Detectives

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# Common Core College and Career Readiness Anchor Standards

## Connections to Standards in Gateway

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 Medical Detectives connects to standards in the following:

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### Reading

Key Ideas and Details

CCSS.ELA-LITERACY.CCRA.R.1

Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.R.7

Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

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☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.R.10

Read and comprehend complex literary and informational texts independently and proficiently.

☑ 1.1 ☑ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☑ 2.1 ☑ 2.2 ☑ 2.3 ☑ 2.4 ☑ 2.5

☑ 3.1 ☑ 3.2

## Writing

Text Types and Purposes

CCSS.ELA-LITERACY.CCRA.W.1

Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.W.2

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

☐ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.W.4

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

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.W.9

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

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# Common Core College and Career Readiness Anchor Standards

☐ 1.1 ☐ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☑ 2.1 ☑ 2.2 ☑ 2.3 ☑ 2.4 ☑ 2.5

☑ 3.1 ☑ 3.2

## Speaking and Listening

Comprehension and Collaboration

CCSS.ELA-LITERACY.CCRA.SL.1

Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.SL.2

Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.SL.4

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

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.SL.5

Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

☐ ☐ ☐ ☐ ☑ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.SL.6

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# Common Core College and Career Readiness Anchor Standards

Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

☑ 1.1 ☑ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☑ 2.1 ☑ 2.2 ☑ 2.3 ☑ 2.4 ☑ 2.5

☑ 3.1 ☑ 3.2

## Language

Vocabulary Acquistion and Use

CCSS.ELA-LITERACY.CCRA.L.4

Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.L.5

Demonstrate understanding of word relationships and nuances in word meanings.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.CCRA.L.6

Acquire and use accurately a range of 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.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

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# Common Core State Standards for English Language Arts 6–8 Literacy Standards for History/Social Studies, Science, and Technical Subjects

## Reading Science/Technical

Key Ideas and Details

CCSS.ELA-LITERACY.RST.6-8.2
Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

- ☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5
- ☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5
- ☑ ☑ 3.13.2

CCSS.ELA-LITERACY.RST.6-8.3
Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

- ☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5
- ☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5
- ☑ ☑ 3.13.2

Craft and Structure

CCSS.ELA-LITERACY.RST.6-8.4
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 6–8 texts and topics.

- ☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5
- ☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5
- ☑ ☑ 3.13.2

Integration of Knowledge and Ideas

CCSS.ELA-LITERACY.RST.6-8.8
Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

- ☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5
- ☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5
- ☐ ☑ 3.13.2

Range of Reading and Level of Text Complexity

CCSS.ELA-LITERACY.RST.6-8.10

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# Common Core State Standards for English Language Arts 6–8 Literacy Standards for History/Social Studies, Science, and Technical Subjects

By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.

☑ 1.1 ☑ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☑ 2.1 ☑ 2.2 ☑ 2.3 ☑ 2.4 ☑ 2.5

☑ 3.1 ☑ 3.2

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## Writing in Hisotry/social Studies, Science, and Technical Subjects

Text Types and Purposes

CCSS.ELA-LITERACY.WHST.6-8.1.b

Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.WHST.6-8.1.c

Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.WHST.6-8.2

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

☐ ☑ ☐ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.WHST.6-8.2.b

Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

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# Common Core State Standards for English Language Arts 6–8 Literacy Standards for History/Social Studies, Science, and Technical Subjects

CCSS.ELA-LITERACY.WHST.6-8.2.d

Use precise language and domain-specific vocabulary to inform about or explain the topic.

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

Production and Distribution of Writing

CCSS.ELA-LITERACY.WHST.6-8.4

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

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.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.

- [ ] [x] [ ] [x] [ ] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [ ] 2.12.22.32.42.5
- [ ] [ ] 3.13.2

CCSS.ELA-LITERACY.WHST.6-8.9

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

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [ ] [ ] [x] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

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# Common Core State Standards for English Language Arts 6th Grade

## Reading Literature

Key Ideas and Details

CCSS.ELA-LITERACY.RL.6.1

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

☐ 1.1 ☐ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

## Reading Informational

Key Ideas and Details

CCSS.ELA-LITERACY.RI.6.1

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

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.RI.6.2

Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

Craft and Structure

CCSS.ELA-LITERACY.RI.6.4

Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

Integration of Knowledge and Ideas

CCSS.ELA-LITERACY.RI.6.7

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Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.RI.6.8

Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.

☐ 1.1 ☐ 1.2 ☑ 1.3 ☐ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

## Writing

Text Types and Purposes

CCSS.ELA-LITERACY.W.6.1.a

Introduce claim(s) and organize the reasons and evidence clearly.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.6.1.b

Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.6.1.c

Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.6.2

Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

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☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.6.2.b

Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.6.2.d

Use precise language and domain-specific vocabulary to inform about or explain the topic.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.W.6.3.d

Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

Production and Distribution of Writing

CCSS.ELA-LITERACY.W.6.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3.)

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.W.6.7

Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

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☐ ☐ ☑ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☐ ☐ 3.13.2

CCSS.ELA-LITERACY.W.6.9

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

☐ 1.1 ☐ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

## Speaking and Listening

Comprehension and Collaboration

CCSS.ELA-LITERACY.SL.6.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.SL.6.1.a

Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

☐ ☐ ☐ ☐ ☑ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.SL.6.1.b

Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.

☐ ☑ ☐ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.SL.6.1.c

Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.

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☐ ☑ ☐ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☐ ☑ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.SL.6.2

Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

Presentation of Knowledge and Ideas

CCSS.ELA-LITERACY.SL.6.6

Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

☐ 1.1 ☐ 1.2 ☐ 1.3 ☐ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☐ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

## Language

Vocabulary Acquisition and Use

CCSS.ELA-LITERACY.L.6.4

Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.L.6.6

Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

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# Common Core State Standards for English Language Arts 7th Grade

## Reading Literature

Key Ideas and Details

CCSS.ELA-LITERACY.RL.7.1

Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

☐ 1.1 ☐ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

## Reading Informational

Key Ideas and Details

CCSS.ELA-LITERACY.RI.7.1

Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

☐ 1.1 ☐ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

## Writing

Text Types and Purposes

CCSS.ELA-LITERACY.W.7.1

Write arguments to support claims with clear reasons and relevant evidence.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.7.1.b

Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.

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☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.7.1.c

Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.7.2

Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.7.2.b

Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.7.2.d

Use precise language and domain-specific vocabulary to inform about or explain the topic.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.W.7.3.d

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# Common Core State Standards for English Language Arts 7th Grade

Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

Production and Distribution of Writing

CCSS.ELA-LITERACY.W.7.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 7.w.1–3)

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

CCSS.ELA-LITERACY.W.7.5

With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

- [ ] [ ] [ ] [ ] [x] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.W.7.7

Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

- [ ] 1.1 [ ] 1.2 [x] 1.3 [ ] 1.4 [ ] 1.5
- [ ] 2.1 [ ] 2.2 [ ] 2.3 [ ] 2.4 [ ] 2.5
- [ ] 3.1 [ ] 3.2

## Speaking and Listening

Comprehension and Collaboration

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# Common Core State Standards for English Language Arts 7th Grade

CCSS.ELA-LITERACY.SL.7.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

CCSS.ELA-LITERACY.SL.7.1.a

Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

- [ ] [ ] [ ] [ ] [x] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

CCSS.ELA-LITERACY.SL.7.1.b

Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.

- [ ] [x] [ ] [x] [x] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

CCSS.ELA-LITERACY.SL.7.1.c

Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.

- [ ] [x] [ ] [x] [x] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

CCSS.ELA-LITERACY.SL.7.1.d

Acknowledge new information expressed by others and, when warranted, modify their own views.

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

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CCSS.ELA-LITERACY.SL.7.2

Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

Presentation of Knowledge and Ideas

CCSS.ELA-LITERACY.SL.7.4

Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.SL.7.6

Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

☑ 1.1 ☑ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☑ 2.1 ☑ 2.2 ☑ 2.3 ☑ 2.4 ☑ 2.5

☑ 3.1 ☑ 3.2

## Language

Knowledge of Language

CCSS.ELA-LITERACY.L.7.3.a

Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

Vocabulary Acquisition and Use

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# Common Core State Standards for English Language Arts 7th Grade

CCSS.ELA-LITERACY.L.7.4

Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

CCSS.ELA-LITERACY.L.7.4.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).

- [ ] [ ] [x] [ ] [ ] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [ ] 2.12.22.32.42.5
- [ ] [ ] 3.13.2

CCSS.ELA-LITERACY.L.7.6

Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

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# Common Core State Standards for English Language Arts 8th Grade

## Reading Informational

Key Ideas and Details

CCSS.ELA-LITERACY.RI.8.1
Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.

☐ 1.1 ☐ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

## Writing

Text Types and Purposes

CCSS.ELA-LITERACY.W.8.1
Write arguments to support claims with clear reasons and relevant evidence.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.8.1.a
Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.8.1.b
Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.8.1.c
Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.

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☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.8.2

Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.8.2.b

Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.8.2.d

Use precise language and domain-specific vocabulary to inform about or explain the topic.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.W.8.3.d

Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.

☐ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☑ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

CCSS.ELA-LITERACY.W.8.3.e

Provide a conclusion that follows from and reflects on the narrated experiences or events.

☐ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

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Production and Distribution of Writing

CCSS.ELA-LITERACY.W.8.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3.)

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

CCSS.ELA-LITERACY.W.8.5
With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

- [ ] [ ] [ ] [ ] [x] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

Research to Build and Present Knowledge

CCSS.ELA-LITERACY.W.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.

- [ ] [ ] [x] [ ] [ ] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [ ] 2.12.22.32.42.5
- [ ] [ ] 3.13.2

CCSS.ELA-LITERACY.W.8.9
Draw evidence from literary or informational texts to support analysis, reflection, and research.

- [ ] [ ] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

## Speaking and Listening

Comprehension and Collaboration

CCSS.ELA-LITERACY.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.

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- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

CCSS.ELA-LITERACY.SL.8.1.a

Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

- [ ] [ ] [ ] [ ] [x] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

CCSS.ELA-LITERACY.SL.8.1.b

Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.

- [ ] [x] [x] [x] [x] 1.11.21.31.41.5
- [ ] [ ] [x] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

CCSS.ELA-LITERACY.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.

- [ ] [x] [x] [x] [x] 1.11.21.31.41.5
- [ ] [ ] [x] [ ] [x] 2.12.22.32.42.5
- [ ] [x] 3.13.2

CCSS.ELA-LITERACY.SL.8.1.d

Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.

- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [x] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

Presentation of Knowledge and Ideas

CCSS.ELA-LITERACY.SL.8.6

Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

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☐ 1.1 ☐ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☑ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

## Language

Vocabulary Acquisition and Use

CCSS.ELA-LITERACY.L.8.4

Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.L.8.4.a

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

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☑ ☑ ☑ ☑ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.ELA-LITERACY.L.8.4.c

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.

☐ ☐ ☑ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☐ ☐ 3.13.2

CCSS.ELA-LITERACY.L.8.4.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).

☐ ☐ ☑ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☐ ☐ 3.13.2

CCSS.ELA-LITERACY.L.8.6

Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

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# Common Core State Standards for English Language Arts 8th Grade

| | | | | |
|---|---|---|---|---|
| ☑ | ☑ | ☑ | ☑ | ☑ 1.11.21.31.41.5 |
| ☑ | ☑ | ☑ | ☑ | ☑ 2.12.22.32.42.5 |
| ☑ | ☑ 3.13.2 | | | |

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## Ratios And Proportional Relationships

Understand Ratio Concepts And Use Ratio Reasoning To Solve Problems.

CCSS.MATH.CONTENT.6.RP.A.3.c

Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

☐ 1.1 ☐ 1.2 ☐ 1.3 ☐ 1.4 ☐ 1.5

☐ 2.1 ☐ 2.2 ☐ 2.3 ☐ 2.4 ☐ 2.5

☑ 3.1 ☐ 3.2

## Expressions And Equations

Represent And Analyze Quantitative Relationships Between Dependent And Independent Variables.

CCSS.MATH.CONTENT.6.EE.C.9

Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.

☐ ☑ 1.2 ☑ 1.3 ☐ 1.4 ☐ 1.5

☐ 2.1 ☐ 2.2 ☐ 2.3 ☐ 2.4 ☐ 2.5

☐ 3.1 ☐ 3.2

1.1

## Statistics And Probability

Develop Understanding Of Statistical Variability.

CCSS.MATH.CONTENT.6.SP.A.1

Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.

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☐ ☐ ☐ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☑ ☑ 3.13.2

## Common Core State Standards for Mathematics 6th Grade

Summarize And Describe Distributions.

CCSS.MATH.CONTENT.6.SP.B.5
Summarize numerical data sets in relation to their context.

☐ ☐ ☐ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.MATH.CONTENT.6.SP.B.5.a
Reporting the number of observations.

☐ ☑ ☑ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☑ ☑ 3.13.2

CCSS.MATH.CONTENT.6.SP.B.5.b
Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.

☐ ☑ ☑ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☑ ☑ 3.13.2

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**Common Core State Standards for Mathematics 7th Grade**

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### Ratios And Proportional Relationships

Analyze Proportional Relationships And Use Them To Solve Real-World And Mathematical Problems.

CCSS.MATH.CONTENT.7.RP.A.2
Recognize and represent proportional relationships between quantities.

☐ ☐ ☐ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☑ ☑ 3.13.2

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## Core Concepts of Technology and Engineering

STEL-2S

Defend decisions related to a design problem.

☐ 1.1 ☑ 1.2 ☐ 1.3 ☐ 1.4 ☐ 1.5

☐ 2.1 ☐ 2.2 ☐ 2.3 ☐ 2.4 ☐ 2.5

☐ 3.1 ☐ 3.2

## Design in Technology and Engineering Education

STEL-7U

Evaluate the strengths and weaknesses of different design solutions.

☐ ☑ ☐ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☐ ☐ 3.13.2

STEL-7V

Improve essential skills necessary to successfully design.

☐ ☑ ☐ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☐ ☐ 3.13.2

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# Next Generation Science Standards

## From Molecules to Organisms: Structures and Processes

NGSS.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.

☐ 1.1 ☐ 1.2 ☐ 1.3 ☐ 1.4 ☐ 1.5

☐ 2.1 ☑ 2.2 ☐ 2.3 ☐ 2.4 ☐ 2.5

☐ 3.1 ☐ 3.2

## Science and Engineering Practices

Asking Questions and Defining Problems - Ask Questions

NGSS.P1

• that arise from careful observation of phenomena, models, or unexpected results, to clarify and/or seek additional information.

☑ ☑ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☑ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

NGSS.P1

• to identify and/or clarify evidence and/or the premise(s) of an argument.

☐ ☐ ☑ ☑ ☑ 1.11.21.31.41.5

☐ ☐ ☑ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

NGSS.P1

• to determine relationships between independent and dependent variables and relationships in models.

☐ ☑ ☐ ☑ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☐ ☑ 3.13.2

NGSS.P1

• to clarify and/or refine a model, an explanation, or an engineering problem.

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- [x] [x] [x] [x] [x] 1.11.21.31.41.5
- [ ] [x] [x] [x] [x] 2.12.22.32.42.5
- [x] [x] 3.13.2

NGSS.P1

• that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles.

- [x] [x] [ ] [ ] [ ] 1.11.21.31.41.5
- [ ] [ ] [ ] [ ] [ ] 2.12.22.32.42.5
- [ ] [ ] 3.13.2

Developing and Using Models

NGSS.P2

• Evaluate limitations of a model for a proposed object or tool.

- [ ] [ ] [ ] [ ] [ ] 1.11.21.31.41.5
- [ ] [x] [ ] [ ] [ ] 2.12.22.32.42.5
- [ ] [ ] 3.13.2

NGSS.P2

• Develop and/or use a model to predict and/or describe phenomena.

- [ ] [ ] [ ] [ ] [ ] 1.11.21.31.41.5
- [x] [x] [ ] [ ] [ ] 2.12.22.32.42.5
- [ ] [ ] 3.13.2

NGSS.P2

• Develop a model to describe unobservable mechanisms.

- [ ] [ ] [ ] [ ] [ ] 1.11.21.31.41.5
- [x] [x] [ ] [ ] [ ] 2.12.22.32.42.5
- [ ] [ ] 3.13.2

Planning and Carrying Out Investigations

NGSS.P3

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• 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.

☐ ☑ ☐ ☑ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☐ ☐ 3.13.2

NGSS.P3

• Conduct an investigation and/or evaluate and/or revise the experimental design to produce data to serve as the basis for evidence that meet the goals of the investigation.

☐ ☑ ☑ ☐ ☐ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☐ 2.12.22.32.42.5

☐ ☐ 3.13.2

NGSS.P3

• Evaluate the accuracy of various methods for collecting data.

☐ ☑ ☑ ☐ ☑ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☑ 2.12.22.32.42.5

☐ ☑ 3.13.2

NGSS.P3

• Collect data to produce data to serve as the basis for evidence to answer scientific questions or test design solutions under a range of conditions.

☐ ☑ ☑ ☐ ☑ 1.11.21.31.41.5

☐ ☐ ☐ ☐ ☑ 2.12.22.32.42.5

☑ ☑ 3.13.2

Analyzing and Interpreting Data

NGSS.P4
Analyzing and interpreting data.

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NGSS.P4

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- Analyze and interpret data to provide evidence for phenomena.

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NGSS.P4

- Analyze and interpret data to determine similarities and differences in findings.

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Using Mathematics and Computational Thinking

NGSS.P5

Apply mathematical concepts and/or processes (e.g., ratio, rate, percent, basic operations, simple algebra) to scientific and engineering questions and problems.

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Constructing Explanations and Designing Solutions

NGSS.P6

- Construct an explanation that includes qualitative or quantitative relationships between variables that predict(s) and/or describe(s) phenomena.

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NGSS.P6

- Construct an explanation using models or representations.

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NGSS.P6

- Apply scientific reasoning to show why the data or evidence is adequate for the explanation or conclusion.

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NGSS.P7

• Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

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☐ ☑ 3.13.2

Obtaining, Evaluating, and Communicating Information

NGSS.P8

• Critically read scientific texts adapted for classroom use to determine the central ideas and/or obtain scientific and/or technical information to describe patterns in and/or evidence about the natural and designed world(s).

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NGSS.P8

• Communicate scientific and/or technical information (e.g. about a proposed object, tool, process, system) in writing and/or through oral presentations.

☑ 1.1 ☑ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☑ 2.1 ☑ 2.2 ☑ 2.3 ☑ 2.4 ☑ 2.5

☑ 3.1 ☑ 3.2

## Nature of Science

Scientific Investigations Use a Variety of Methods

• Science investigations use a variety of methods and tools to make measurements and observations.

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• Science depends on evaluating proposed explanations.

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# Next Generation Science Standards

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Scientific Knowledge is Based on Empirical Evidence

- Science disciplines share common rules of obtaining and evaluating empirical evidence.

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# National Consortium for Health Science Education (2022)

## 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

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

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

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1.1.2 f
Respiratory

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

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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

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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 Disease
- Cancer
- Cataracts
- Concussion / Traumatic Brain Injury (TBI)
- Cystic fibrosis
- Diabetes
- Dementia
- Depression
- Gastric ulcer
- Hepatitis
- Hypertension
- Melanoma

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- Muscular dystrophy
- Myocardial infarction
- Sexually Transmitted Infection (STI)
- Stroke / Cerebrovascular Accident (CVA)
- Tuberculosis
- Urinary Tract Infection (UTI)

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☐ ☐ 3.13.2

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

1.3.1 b
Mathematical

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

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☑ ☑ 3.13.2

1.3.2
Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results.

☑ 1.1 ☑ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☑ 2.4 ☑ 2.5

☑ 3.1 ☑ 3.2

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

Concepts of Effective Communication

2.1.1
Model verbal and nonverbal therapeutic communication.

- Active listening
- Reflecting

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- Silence
- Summarizing

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Concepts of Effective Communication

2.1.5

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

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Written Communication Skills

2.3.1

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

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2.3.2

Prepare examples of technical and informative writing.

☐ 1.1 ☑ 1.2 ☑ 1.3 ☑ 1.4 ☑ 1.5

☐ 2.1 ☐ 2.2 ☑ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

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

Healthcare Delivery Systems

3.1.3

Analyze the impact of emerging issues on healthcare delivery systems. • Behavior/Mental Health

- Bioethics
- Epidemiology
- Socioeconomics
- Technology

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**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

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Employability Skills

4.2.1

Apply employability/soft skills in healthcare.

- Chain of command
- Communication skills
- Customer service

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- Decision making
- Emotional intelligence
- Flexible
- Organization
- Problem solving
- Scope of practice
- Time management
- Work ethic

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☑ ☑ 3.13.2

Career Decision-making

4.3.2

Distinguish differences among careers within a health science pathway.

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

☑ ☐ 1.2 ☑ 1.3 ☑ 1.4 ☐ 1.5

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☑ 3.1 ☐ 3.2

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1.1

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

6.1.1

Differentiate between ethical and legal issues impacting healthcare.

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Cultural, Social, and Ethnic Diversity

6.2.2

Demonstrate respectful and empathetic treatment of all patients/clients/families. • Civility

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- Customer service
- Patient satisfaction

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☐ 2.1 ☐ 2.2 ☐ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☐ 3.2

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**Foundation Standard 7: Safety Practices: Identify existing and potential hazards to clients, coworkers, 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

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7.1.1 b

Describe characteristics of microorganisms

- Aerobic
- Anaerobic
- Non-pathogenic
- Pathogenic

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7.1.1 d

Describe mode of transmission

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

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- Opportunistic
- Vectors

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☑ ☑ 3.13.2

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

7.1.2 a
Asepsis

- Antisepsis
- Disinfection
- Sanitization
- Sterile technique
- Sterilization

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7.1.2 b
Standard precautions

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

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Personal Safety

7.2.3
Demonstrate and apply the use of Personal Protective Equipment (PPE).

☐ 1.1 ☐ 1.2 ☑ 1.3 ☐ 1.4 ☐ 1.5

☐ 2.1 ☐ 2.2 ☐ 2.3 ☑ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

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

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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

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Team Member Participation

8.2.1
Recognize methods for building positive team relationships.

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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

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8.2.4
Evaluate why teamwork is an important part of healthcare and how it improves patient care.

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☐ 2.1 ☐ 2.2 ☐ 2.3 ☐ 2.4 ☑ 2.5

☐ 3.1 ☑ 3.2

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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

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**Foundation Standard 11: Information Technology in Healthcare**
**Apply information technology practices common across health professions.**

Key Principles, components and practices of Health Information Systems

11.1.3
Create electronic documentation that reflects timeliness, completeness, and accuracy.

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