

Holt

Science and Technology

Short Courses A-P

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correlated to

Missouri Science Grade-Level Expectations
Grade 7



HOLT, RINEHART AND WINSTON

A Harcourt Education Company

Explanation of Correlation

The following document is a correlation of *Holt Science and Technology: Short Courses A-P* to the Missouri Science Grade-Level Expectations, April 22, 2005. The format for this correlation follows the same basic format established by the Science Grade-Level Expectations, modified to accommodate the addition of page references. The correlation provides a cross-reference between the skills in the Science Grade-Level Expectations and representative page numbers where those skills are taught or assessed.

The references contained in this correlation reflect Holt, Rinehart and Winston's interpretation of the Science objectives outlined in the Missouri curriculum.

Key to References

SE	<i>Student's Edition</i>
HST A	<i>Microorganisms, Fungi and Plants</i>
HST B	<i>Animals</i>
HST C	<i>Cells, Heredity, and Classification</i>
HST D	<i>Human Body Systems and Health</i>
HST E	<i>Environmental Science</i>
HST F	<i>Inside the Restless Earth</i>
HST G	<i>Earth's Changing Surface</i>
HST H	<i>Water on Earth</i>
HST I	<i>Weather and Climate</i>
HST J	<i>Astronomy</i>
HST K	<i>Introduction to Matter</i>
HST L	<i>Interactions of Matter</i>
HST M	<i>Forces, Motion, and Energy</i>
HST N	<i>Electricity and Magnetism</i>
HST O	<i>Sound and Light</i>
HST P	<i>Introduction to Science</i>

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Strand 1: Properties and Principles of Matter and Energy

1. Changes in properties and states of matter provide evidence of the atomic theory of matter

D. Physical changes in the state of matter that result from thermal changes can be explained by moving particles (The kinetic theory of matter)

1.1.D.a	Describe the relationship between temperature and the movement of atmospheric gases (i.e., warm air rises due to expansion of the volume of gas, cool air sinks due to contraction of the volume of gas)	HST K	SE	36-39
		HST I	SE	5, 10-11

I. Mass is conserved during any physical or chemical change

1.1.I.a	Explain that the amount of matter remains constant while being recycled through the water cycle	HST L	SE	34-37, 50, 110
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2. Energy has a source, can be transferred, and transformed into various forms but is conserved between and within systems.

A. Forms of energy have a source, a means of transfer (work and heat) and a receiver

1.2.A.a	Recognize thermal energy as the random motion (kinetic energy) of molecules or atoms within a substance Use the molecular kinetic model to explain changes in the temperature of a material	HST K	SE	41-42
		HST M	SE	158-159
1.2.A.b	Use the kinetic molecular model to explain changes in the temperature of a material	HST M	SE	158-159
1.2.A.c	Recognize that thermal energy is transferred as heat from warmer objects to cooler objects until both reach the same temperature	HST K	SE	41-42
		HST M	SE	158-159
1.2.A.d	Recognize the type of materials that transfer energy by conduction, convection, and radiation	HST M	SE	164-168, 171, 176-177, 186, 206

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Strand 1: Properties and Principles of Matter and Energy (Cont.)

A. Forms of energy have a source, a means of transfer (work and heat) and a receiver (Cont.)

1.2.A.e	Describe how heat is transferred by conduction, convection, and radiation and classify examples of each	HST M	SE	164-168, 171, 176-177, 186, 206
1.2.A.f	Classify common materials (e.g. wood, foam, plastic, glass, aluminum foil, soil, air, water) as conductors or insulators of thermal energy	HST M	SE	167, 177
1.2.A.g	Predict the differences in temperature over time on different colored (black and white) objects absorb and emit radiant energy	HST M	SE	168
1.2.A.h	Describe the interactions (i.e., repel, attract) of like and unlike charges (i.e., magnetic, static electric, electrical)	HST N	SE	4-11, 40-47
1.2.A.i	Diagram and identify a complete electric circuit by using a source (battery), a means of transfer (wires), and a receiver (resistance bulbs, motors, fans)	HST N	SE	24-29
1.2.A.j	Observe and describe the evidence of energy transfer in a closed series circuit	HST N	SE	24-29
1.2.A.k	Describe the effects of resistance (number of receivers), amount of voltage (number of energy sources), and kind of transfer materials on the current being transferred through a circuit (e.g., brightness of light, speed of motor)	HST N	SE	24-29
1.2.A.l	Classify materials as conductors or insulators of electricity when placed within a circuit (e.g. wood, pencil lead, plastic, glass, aluminum foil, lemon juice, air, water)	HST N	SE	8
1.2.A.m	Diagram and distinguish between complete series and parallel circuits	HST N	SE	26, 27, 30-31
1.2.A.n	Identify advantages and disadvantages of series and parallel circuits	HST N	SE	26, 27

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Strand 1: Properties and Principles of Matter and Energy

2. Energy has a source, can be transferred, and transformed into various forms but is conserved between and within systems. (Cont.)

C. Electromagnetic energy from the sun (solar radiation) is a major source of energy on Earth

1.2.C.a	Identify solar radiation as the primary source of energy for weather phenomena	HST I	SE	10-13
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F. Energy can change from one form to another within systems but the total amount remains the same

1.2.F.a	Identify the different energy transformations that occur between different systems (e.g. chemical energy in battery converted to electricity in circuit converted to light and heat from a bulb)	HST M	SE	176-183
		HST N	SE	70-75

1.2.F.b	Recognize that, during an energy transformation, heat is often transferred from one object (system) to another because of a difference in temperature	HST M	SE	176-183
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1.2.F.c	Recognize that energy is not lost but conserved as it is transferred and transformed	HST L	SE	43
		HST M	SE	138-141

Strand 2: Properties and Principles of Force and Motion

1. The motion of an object is described by its change in position relative to another object or point

A. The motion of an object is described as a change in position, direction, and speed relative to another object (frame of reference)

2.1.A.a	Describe circular motion of a moving object as the result of a force acting toward the center	HST M	SE	39-40
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2.1.A.b	Classify different types of motion (e.g., straight line, projectile, circular, vibrational)	HST M	SE	4-9, 36-43, 44-51
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Strand 2: Properties and Principles of Force and Motion (Cont.)

1. The motion of an object is described by its change in position relative to another object or point (Cont.)

A. The motion of an object is described as a change in position, direction, and speed relative to another object (frame of reference) (Cont.)

2.1.A.c Given an object in motion, calculate its speed (distance/time) HST M SE 3, 5-6, 192

2.1.A.d Interpret a line graph representing an object’s motion in terms of distance over time (speed) using metric units HST M SE 5, 31

2. Forces affect motion

A. Forces are classified as either contact forces (pushes, pulls, friction, buoyancy) or noncontact forces (gravity, magnetism) that can be described in terms of direction and magnitude

2.2.A.a Identify and describe the types of forces acting on an object in motion, at rest, floating/sinking (i.e., type of force, direction, and amount of force in Newtons) HST M SE 12-13, 20-21, 44-45

2.2.A.b Compare the forces acting on an object by using a spring scale to measure them to the nearest Newton HST M SE 10, 25

B. Every object exerts a gravitational force on every other object

2.2.B.a Recognize that every object exerts a gravitational force of attraction on every other object HST M SE 22-23, 25

2.2.B.b Recognize that an object’s weight is a measure of the gravitational force of a planet/moon acting on that object HST M SE 24-25, 36-37

2.2.B.c Compare the amount of gravitational force acting between objects (which is dependent upon their masses and the distance between them) HST M SE 49-50, 51, 55, 197, 198-199

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Strand 2: Properties and Principles of Force and Motion (Cont.)

2. Forces affect motion (Cont.)

D. The interaction of mass and forces can be explained by Newton’s Laws of Motion that are used to predict changes in motion

2.2.D.a	Compare the effects of balanced and unbalanced forces (including magnetic, gravity, friction, push or pull) on an object’s motion	HST M	SE	12-13, 20-21, 44-45
2.2.D.b	Explain that when forces (including magnetic, gravity, friction, push or pull) are balanced, objects are at rest or their motion remains constant	HST M	SE	44-51
2.2.D.c	Explain that a change in motion is the result of an unbalanced force acting upon an object	HST K	SE	8-9
		HST M	SE	46, 51, 56-57
2.2.D.d	Explain how the acceleration of a moving object is affected by the amount of net force applied and the mass of the object	HST M	SE	47-48, 51

F. Simple machines (levers, inclined planes, wheels & axles, and pulleys) affect the forces applied to an object and/or direction of movement as work is done

2.2.F.a	Recognize examples of work being done on an object (force applied and distance moved in the direction of the applied force) with and without the use of simple machines	HST M	SE	94-99, 101-103, 114-115
2.2.F.b	Calculate the amount of work done when a force is applied to an object over a distance ($W = F \times d$)	HST M	SE	94-99, 101-103, 114-115
2.2.F.c	Explain how simple machines affect the amount of effort force, distance through which a force is applied, and/or direction of force while doing work	HST M	SE	104-105
2.2.F.d	Recognize that the amount of work input equals the amount of work output with or without the use of a simple machine	HST M	SE	104-105

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Strand 2: Properties and Principles of Force and Motion (Cont.)

2. Forces affect motion (Cont.)

F. Simple machines (levers, inclined planes, wheels & axles, and pulleys) affect the forces applied to an object and/or direction of movement as work is done (Cont.)

2.2.F.e	Evaluate simple machine designs to determine which design requires the least amount of effort force and explain why	HST M	SE	104-105
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Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere and Hydrosphere)

1. Earth’s Systems (Geosphere, Atmosphere and Hydrosphere) have common components and unique structures

C. The atmosphere (air) is composed of a mixture of gases, including water vapor, and minute particles

5.1.C.a	Describe the composition of the Earth’s atmosphere (i.e., mixture of gases, water and minute particles) and how it circulates as air masses	HST I	SE	4-9
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5.1.C.b	Describe the role atmosphere (e.g., clouds, ozone) plays in precipitation, reflecting and filtering light from the Sun, and trapping heat energy emitted from the Earth’s surface	HST I	SE	6-9, 10-13, 38-45
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D. Climate is a description of average weather conditions in a given area over time

5.1.D.a	Differentiate between weather and climate	HST I	SE	38, 74-81
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5.1.D.b	Identify factors that affect climate (e.g., latitude, altitude, prevailing wind currents, amount of solar radiation)	HST H	SE	86-89
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		HST I	SE	94-97
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Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere and Hydrosphere) (Cont.)

2. Earth’s Systems (Geosphere, Atmosphere and Hydrosphere) interact with one another as they undergo change by common processes

E. Changes in the form of water as it moves through Earth’s systems are described as the water cycle

5.2.E.a	Explain and trace the possible paths of water through the hydrosphere, geosphere and atmosphere (i.e., the water cycle: evaporation, condensation, precipitation, groundwater/ surface run-off)	HST H	SE	4-11, 12-15, 16-21, 22-27
		HST I	SE	38-45
5.2.E.b	Relate the different forms water can take (i.e., snow, rain, sleet, fog, clouds, dew, humidity) as it moves through the water cycle to atmospheric conditions (i.e., temperature, pressure, wind direction and speed, humidity) at a given geographic location	HST I	SE	38-45
		HST K	SE	41-43
5.2.E.c	Explain how thermal energy is transferred throughout the water cycle by the processes of convection, conduction, and radiation	HST I	SE	38-45
		HST K	SE	42-43

F. Constantly changing properties of the atmosphere occur in patterns which are described as weather

5.2.F.a	Explain how the differences in surface temperature, due to the different heating and cooling rates of water and soil, affect the temperature and movement of the air above	HST I	SE	38-45, 46-51, 52-59
5.2.F.b	Recognize the characteristics of air masses (i.e., high/low barometric pressure, temperature) and predict their effect on the weather in a given location	HST I	SE	46-47
5.2.F.c	Identify weather conditions associated with cold fronts and warm fronts	HST I	SE	46-47
5.2.F.d	Identify factors that affect weather patterns in a particular region (e.g., proximity to large bodies of water, latitude, altitude, prevailing wind currents, amount of solar radiation, location with respect to mountain ranges)	HST I	SE	38-45, 46-51, 52-59, 60-63

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Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere and Hydrosphere) (Cont.)

2. Earth’s Systems (Geosphere, Atmosphere and Hydrosphere) interact with one another as they undergo change by common processes (Cont.)

F. Constantly changing properties of the atmosphere occur in patterns which are described as weather (Cont.)

Collect and interpret weather data (e.g., cloud cover, precipitation, wind speed and direction) from weather instruments and maps to explain present day weather and to predict the next day’s weather	HST I	SE	60-63, 106-107, 112-113
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5.2.F.f Recognize that significant changes in temperature and barometric pressure may cause dramatic weather phenomena (i.e., severe thunderstorms, tornadoes, hurricanes)	HST I	SE	52-59
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3. Human activity is dependent upon and affects Earth’s resources and systems

5.3.A.a Distinguish between renewable (e.g., geothermal, hydroelectric) and nonrenewable (e.g., fossil fuels) energy sources	HST E	SE	102-105, 106-113, 114-121
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	HST M	SE	142-144, 145-146
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5.3.A.b Provide examples of how the availability of fresh water for humans and other living organisms is dependent upon the water cycle	HST E	SE	32-33
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	HST I	SE	38-45
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	HST K	SE	42-43
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Strand 6: Composition and Structure of the Universe and the Motion of the Objects within It

1. The universe has observable properties and structure

A. The Earth, sun, and moon are part of a larger system that includes other planets and smaller celestial bodies

6.1.A.a	Classify celestial bodies in the solar system into categories: sun, moon, planets and other small bodies (i.e., asteroids, comets, meteors) based on physical properties	HST J	SE	32-39, 68-73, 94-97, 110-117, 118-123
6.1.A.b	Compare and contrast the size, composition, atmosphere and surface of the planets (inner vs. outer) in our solar system and Earth's moon	HST J	SE	94-95, 98, 99, 100, 101, 104, 105, 108
6.1.A.c	Identify the relative proximity of common celestial bodies (i.e., sun, moon, planets, smaller celestial bodies such as comets and meteors, and other stars) in the sky to the Earth	HST J	SE	95-97, 98-103, 110-117, 118-123

B. The Earth has a composition and location that is suitable to sustain life

6.1.B.a	Describe how the Earth's placement in the solar system is favorable to sustain life (i.e. distance from the sun, temperature, atmosphere)	HST J	SE	76-78, 79, 100
6.1.B.b	Compare and contrast the characteristics of Earth that support life with the characteristics of other planets that are considered favorable or unfavorable to life (e.g. atmospheric gases, temperatures, water, pressure)	HST J	SE	76-78, 79, 100

C. Most of the information we know about the universe comes from the electromagnetic spectrum

6.1.C.a	Recognize that stars are separated from one another by vast and different distances, which causes stars to appear smaller than the Sun	HST J	SE	37, 84-85, 93
6.1.C.b	Compare the distance light travels from the sun to Earth to the distance light travels from other stars to Earth using light years	HST J	SE	18, 37

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Strand 6: Composition and Structure of the Universe and the Motion of the Objects within It (Cont.)

2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces

A. The positions of the Sun and other stars, as seen from Earth, appear to change in observable patterns

6.2.A.a	Relate the apparent east-to-west changes in the positions of the Sun, other stars, and planets in the sky over the course of a day to Earth's counterclockwise rotation about its axis	HST J	SE	37-38, 39
6.2.A.b	Describe the pattern that can be observed in the changes in number of hours of visible sunlight, and the time and location of sunrise and sunset, throughout the year	HST J	SE	15, 164-165
6.2.A.c	Recognize that in the Northern Hemisphere, the Sun appears lower in the sky during the winter and higher in the sky during the summer	HST J	SE	37-38, 39
6.2.A.d	Recognize that in winter, the Sun appears to rise in the Southeast and set in the Southwest, accounting for a relatively short day length, and that in summer, the Sun appears to rise in the Northeast and set in the Northwest, accounting for a relatively long day length	HST J	SE	15, 164-165
6.2.A.e	Recognize that the Sun is never directly overhead when observed from North America	HST J	SE	37-38, 39

B. The appearance of the moon that can be seen from Earth and its position relative to Earth changes in observable patterns

6.2.B.a	Observe the change in time and location of moon rise, moon set, and the moon's appearance relative to time of day and month over several months and note the pattern in this change	HST J	SE	112
6.2.B.b	Recognize that the moon rises later each day due to its revolution around the Earth in a counterclockwise direction	HST J	SE	112

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Strand 6: Composition and Structure of the Universe and the Motion of the Objects within It (Cont.)

2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces (Cont.)

B. The appearance of the moon that can be seen from Earth and its position relative to Earth changes in observable patterns (Cont.)

6.2.B.c	Recognize that the Moon is in the sky for roughly 12 hours in a 24-hour period (i.e., if the Moon rises at about 6 P.M., it will set at about 6 (A.M.))	HST J	SE	112
6.2.B.d	Recognize that one half of the Moon is always facing the Sun and therefore one half of the Moon is always lit	HST J	SE	112, 173
6.2.B.e	Relate the apparent change in the moon’s position in the sky as it appears to move east to west over the course of a day to Earth’s counterclockwise rotation about its axis	HST J	SE	112
6.2.B.f	Describe how the appearance of the moon that can be seen from Earth changes approximately every 28 days in an observable pattern (moon phases)	HST J	SE	112-114, 173

C. The regular and predictable motions of the Earth and moon relative to the sun explain natural phenomena on Earth such as the day, the month, the year, shadows, moon phases, eclipses, tides, and seasons

6.2.C.a	Illustrate and explain a day as the time it takes a planet to make a full rotation on its axis	HST J	SE	80
6.2.C.b	Diagram the path (orbital ellipse) the Earth travels as it revolves around the sun	HST J	SE	80, 81
6.2.C.c	Illustrate and explain a year as the time it takes a planet to revolve around the sun	HST J	SE	80
6.2.C.d	Explain the relationships between a planet’s length of year (period of revolution) and its position in the solar system	HST J	SE	80, 98

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Strand 6: Composition and Structure of the Universe and the Motion of the Objects within It (Cont.)

2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces (Cont.)

C. The regular and predictable motions of the Earth and moon relative to the sun explain natural phenomena on Earth such as the day, the month, the year, shadows, moon phases, eclipses, tides, and seasons (Cont.)

6.2.C.e	Describe how the moon’s relative position changes as it revolves around the Earth	HST J	SE	112-114
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6.2.C.f	Recognize that the phases of the moon are due to the relative positions of the Moon with respect to the Earth and Sun	HST J	SE	112
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6.2.C.g	Relate the axial tilt and orbital position of the Earth as it revolves around the sun to the intensity of sunlight falling on different parts of the Earth during different seasons	HST I	SE	76
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D. Gravity is a force of attraction between objects in the solar system that governs their motion

6.2.D.a	Describe how the Earth’s gravity pulls any object on or near the Earth toward it (including natural and artificial satellites)	HST J	SE	82-83
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6.2.D.b	Describe how the planets’ gravitational pull keeps satellites and moons in orbit around them	HST J	SE	83
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6.2.D.c	Describe how the Sun’s gravitational pull holds the Earth and other planets in their orbits	HST J	SE	82-83, 94-97
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Strand 7: Scientific Inquiry

1. Science understanding is developed through the use of science process skills and scientific knowledge in combination with scientific investigation, reasoning, and critical thinking

A. Scientific inquiry includes the ability of students to formulate a testable question and explanation and to select appropriate investigative methods in order to obtain evidence relevant to the explanation

7.1.A.a	Formulate testable questions and hypotheses	HST A	SE	14-15, 38-39
		HST B	SE	18-19, 50-51, 80-81, 116-117
		HST C	SE	46-47, 76-77, 126-127, 154-155
		HST D	SE	70-71, 122-123, 144-445, 180
		HST E	SE	92-93, 122-123, 134, 135
		HST F	SE	18-19, 120-121, 146-147, 182-184, 186-188
		HST G	SE	22-23, 52-53, 92-93, 94, 96
		HST H	SE	100-101, 112-113
		HST I	SE	28-29, 64-65, 106-107, 112-113 115-117
		HST J	SE	54-55, 84-85, 124-125, 156-157, 164-165, 166-167, 168-169, 172-173
		HST K	SE	72-73, 133, 134, 136
		HST L	SE	48-49, 111, 114-115,
		HST M	SE	114-115, 148-149, 184-185, 194-195, 196, 200, 201, 202-203, 204, 206

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Strand 7: Scientific Inquiry (Cont.)

A. Scientific inquiry includes the ability of students to formulate a testable question and explanation and to select appropriate investigative methods in order to obtain evidence relevant to the explanation (Cont.)

7.1.A.a	Formulate testable questions and hypotheses (Cont.)	HST N	SE	100, 102, 103, 104-107
		HST O	SE	20-21, 52-53, 116-117, 130
		HST P	SE	9-10, 26-27, 43-44, 56-57, 73-77, 76, 88, 98
7.1.A.b	Recognize the importance of the independent variable, dependent variables, control of constants, and multiple trials to the design of a valid experiment	HST A	SE	38-39
		HST B	SE	18-19
		HST C	SE	46-47, 126-127, 154-155
		HST D	SE	180
		HST E	SE	92-93, 134
		HST F	SE	146-147
		HST H	SE	113
		HST I	SE	64-65
		HST J	SE	124-125, 156-157
		HST K	SE	139
		HST M	SE	192, 206
HST O	SE	139		
HST P	SE	12, 76, 100-101		

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Strand 7: Scientific Inquiry (Cont.)

A. Scientific inquiry includes the ability of students to formulate a testable question and explanation and to select appropriate investigative methods in order to obtain evidence relevant to the explanation (Cont.)

7.1.A.c Design and conduct a valid experiment

HST A	SE	38-39
HST B	SE	18-19
HST C	SE	46-47, 126-127, 154-155
HST D	SE	180
HST E	SE	92-93, 134
HST F	SE	146-147
HST H	SE	113
HST I	SE	64-65
HST J	SE	124-125, 156-157
HST K	SE	139
HST M	SE	192, 206
HST O	SE	139
HST P	SE	12

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Strand 7: Scientific Inquiry (Cont.)

A. Scientific inquiry includes the ability of students to formulate a testable question and explanation and to select appropriate investigative methods in order to obtain evidence relevant to the explanation (Cont.)

7.1.A.d Evaluate the design of an experiment and make suggestions for reasonable improvements or extensions of an experiment	HST A	SE	38-39
	HST B	SE	18-19
	HST C	SE	46-47, 126-127, 154-155
	HST D	SE	180
	HST E	SE	92-93, 134
	HST F	SE	146-147
	HST H	SE	113
	HST I	SE	64-65
	HST J	SE	124-125, 156-157
	HST K	SE	139
	HST M	SE	192, 206
HST O	SE	139	

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Strand 7: Scientific Inquiry (Cont.)

1. Science understanding is developed through the use of science process skills and scientific knowledge in combination with scientific investigation, reasoning, and critical thinking (Cont.)

A. Scientific inquiry includes the ability of students to formulate a testable question and explanation and to select appropriate investigative methods in order to obtain evidence relevant to the explanation (Cont.)

7.1.A.e	Recognize that different kinds of questions suggest different kinds of scientific investigations (e.g., some involve observing and describing objects organisms, or events; some involve collecting specimens; some involve experiments; some involve making observations in nature; some involve discovery of new objects and phenomena; and some involve making models)	HST A	SE	38-39
		HST B	SE	18-19
		HST C	SE	46-47, 126-127, 154-155
		HST D	SE	180
		HST E	SE	92-93, 134
		HST F	SE	146-147
		HST H	SE	113
		HST I	SE	64-65
		HST J	SE	124-125, 156-157
		HST K	SE	139
		HST M	SE	192, 206
		HST O	SE	139
		HST P	SE	9, 26-27, 43, 56-57, 73-74, 76, 98

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Strand 7: Scientific Inquiry (Cont.)

A. Scientific inquiry includes the ability of students to formulate a testable question and explanation and to select appropriate investigative methods in order to obtain evidence relevant to the explanation (Cont.)

7.1.A.f	Acknowledge that there is no fixed procedure called “the scientific method”, but that some investigations involve systematic observations, carefully collected, relevant evidence, logical reasoning, and some imagination in developing hypotheses and other explanations	HST A	SE	38-39
		HST B	SE	18-19
		HST C	SE	46-47, 126-127, 154-155
		HST D	SE	180
		HST E	SE	92-93, 134
		HST F	SE	146-147
		HST H	SE	113
		HST I	SE	64-65
		HST J	SE	124-125, 156-157
		HST K	SE	139
		HST M	SE	192, 206
		HST O	SE	139
		HST P	SE	8-15, 42-47, 72-79

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Strand 7: Scientific Inquiry (Cont.)

B. Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations

7.1.B.a	Make qualitative observations using the five senses	HST A	SE	14-15, 25, 38-39, 47, 68-69, 82, 122-123, 130-131, 137-138
		HST B	SE	3, 11, 18-19, 50-51, 62, 124-125, 126-128
		HST C	SE	3, 8, 24-25, 33, 85, 90-91, 92-93, 126-127, 139, 154-155, 184, 185-186
		HST D	SE	20-21, 29, 48-49, 70-71, 98-99, 122-123, 172-173, 180, 181, 182-183
		HST E	SE	22-23, 40-41, 65, 68-69, 92-93, 122-123, 134, 136-137
		HST F	SE	18-19, 50-51, 120-121, 129, 180-181, 182-184
		HST G	SE	69, 82-83, 95, 96
		HST H	SE	3, 23, 61, 70-71, 100-101, 108-110, 112-113
		HST I	SE	64-65, 77, 106-107, 112-113, 115-117
		HST J	SE	3, 22-23, 54-55, 84-85, 113, 124-125, 156-157
		HST K	SE	46-47, 57, 72-73, 122-123, 130-131, 132, 133, 134-135, 136, 137, 138-139
		HST L	SE	48-49, 66, 78-79, 102-103, 111, 112-113, 114-115
		HST M	SE	56-57, 84-85, 97, 114-115, 148-149, 157, 166, 184-185, 192, 193, 194-195, 196, 201, 202-203, 204, 206, 207

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Strand 7: Scientific Inquiry (Cont.)

B. Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations (Cont.)

7.1.B.a	Make qualitative observations using the five senses (Cont.)	HST N	SE	26-27, 30-31, 39, 45, 50, 60-61, 85, 92-93, 101, 102, 103, 104-105
		HST O	SE	20-21, 31, 52-53, 77, 88-89, 97, 113, 116-117, 124-125, 126, 127, 128-129, 131, 132-133
		HST P	SE	3, 24, 26-27, 35, 37, 56-57, 65, 76, 88-89, 96, 97, 98-99, 100-101
7.1.B.b	Determine the appropriate tools and techniques to collect data	HST A	SE	3, 11, 14-15, 23, 25, 38-39, 47, 62, 64, 68-69, 77, 83, 87, 100-101, 109, 116, 122-123, 130-131, 132, 133, 134-135, 136, 137-138
		HST B	SE	3, 11, 18-19, 27, 43, 50-51, 59, 62, 80-81, 89, 101, 116-117, 124-125, 126-128, 129-130
		HST C	SE	3, 8, 24-25, 33, 35, 46-47, 55, 63, 64, 76-77, 85, 88, 98-99, 107, 119, 126-127, 135, 139, 154-155, 163, 165, 184-186, 187-188, 189, 190-191
		HST D	SE	3, 9, 20-21, 29, 47, 48-49, 57, 59, 70-71, 79, 86, 91, 98-99, 107, 120, 122-123, 131, 137, 144-145, 153, 157, 172-173, 180, 181, 182-183, 184, 185-186, 187
		HST E	SE	3, 5, 22-23, 31, 34, 40-41, 49, 65, 68-69, 77, 92-93, 101, 109, 122-123, 130-131, 132-133, 134, 135, 136-137
		HST F	SE	3, 10, 18-19, 27, 45, 50-51, 59, 77, 86-87, 95, 101, 115, 120-121, 129, 134, 146-147, 155, 160, 167, 172-173, 180-181, 182-184, 185, 186-188, 189-190, 191-192

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Strand 7: Scientific Inquiry (Cont.)

B. Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations (Cont.)

7.1.B.b	Determine the appropriate tools and techniques to collect data (Cont.)	HST G	SE	3, 6, 22-23, 31, 36, 52-53, 61, 69, 82-83, 90-91, 92-93, 94, 95, 96
		HST H	SE	3, 23, 28-29, 37, 61, 70-71, 79, 92, 108-111, 112-113, 114-115
		HST I	SE	3, 23, 28-29, 37, 41, 64-65, 73, 77, 98-99, 106-107, 108-110, 111, 112-113, 114, 115-117
		HST J	SE	3, 15, 22-23, 31, 37, 54-55, 63, 82, 84-85, 93, 113, 124-125, 133, 139
		HST K	SE	3, 5, 18, 20, 22-23, 31, 44, 46-47, 55, 57, 61, 72-73, 81, 96-97, 105, 110, 122-123, 130-131, 132, 133, 134, 135, 136, 137, 138-139
		HST L	SE	3, 16, 18-19, 27, 31, 37, 43, 45, 48-49, 57, 66, 69, 75, 78-79, 87, 99, 102-103, 110, 111, 112-113, 114-115
		HST M	SE	3, 15, 18, 26-27, 35, 42, 45, 46, 56-57, 65, 70, 76, 84-85, 93, 97, 114-115, 123, 129, 148-149, 157, 159, 166, 184-185, 192-193, 194-195, 196, 197, 198-199, 200-201, 202-203, 204, 205, 206, 207
		HST N	SE	3, 7, 26, 27, 30-31, 39, 45, 50, 60-61, 69, 85, 92-93, 100, 101, 102-103, 104-107
		HST O	SE	3, 11, 20-21, 29, 31, 39, 52-53, 61, 77, 79, 86, 88-89, 97, 113, 116-117, 124-125, 126, 127, 128-129, 130, 131, 132-133
		HST P	SE	3, 24, 26-27, 35, 37, 56-57, 65, 76, 88-89, 96, 97, 98-99, 100-101

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Strand 7: Scientific Inquiry (Cont.)

B. Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations (Cont.)

7.1.B.c	Use a variety of tools and equipment to gather data (e.g., microscopes, thermometers, analog and digital meters, computers, spring scales, balances, metric rulers, graduated cylinders, stopwatches)	HST A	SE	14-15, 25, 38-39, 47, 68-69, 82, 122-123, 130-131, 137-138
		HST B	SE	3, 11, 18-19, 50-51, 62, 124-125, 126-128
		HST C	SE	3, 8, 24-25, 33, 85, 90-91, 92-93, 126-127, 139, 154-155, 184, 185-186
		HST D	SE	20-21, 29, 48-49, 70-71, 98-99, 122-123, 172-173, 180, 181, 182-183
		HST E	SE	22-23, 40-41, 65, 68-69, 92-93, 122-123, 134, 136-137
		HST F	SE	18-19, 50-51, 120-121, 129, 180-181, 182-184
		HST G	SE	69, 82-83, 95, 96
		HST H	SE	3, 23, 61, 70-71, 100-101, 108-110, 112-113
		HST I	SE	64-65, 77, 106-107, 112-113, 115-117
		HST J	SE	3, 22-23, 54-55, 84-85, 113, 124-125, 156-157
		HST K	SE	46-47, 57, 72-73, 122-123, 130-131, 132, 133, 134-135, 136, 137, 138-139
		HST L	SE	48-49, 66, 78-79, 102-103, 111, 112-113, 114-115
		HST M	SE	56-57, 84-85, 97, 114-115, 148-149, 157, 166, 184-185, 192, 193, 194-195, 196, 201, 202-203, 204, 206
		HST P	SE	24, 26-27, 37, 56-57, 88-89, 96, 99, 100-101

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Strand 7: Scientific Inquiry (Cont.)

B. Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations (Cont.)

7.1.B.c	Use a variety of tools and equipment to gather data (e.g., microscopes, thermometers, analog and digital meters, computers, spring scales, balances, metric rulers, graduated cylinders, stopwatches) (Cont.)	HST N	SE	26-27, 30-31, 39, 45, 50, 60-61, 85, 92-93, 101, 102, 103, 104-105
		HST O	SE	20-21, 31, 52-53, 77, 88-89, 97, 113, 116-117, 124-125, 126, 127, 128-129, 131, 132-133
7.1.B.d	Measure length to the nearest millimeter, mass to the nearest gram, volume to the nearest milliliter, force (weight) to the nearest Newton, temperature to the nearest degree Celsius, time to the nearest second	HST A	SE	83, 122-123, 137-138
		HST B	SE	50-51, 62, 134
		HST C	SE	24-25, 33
		HST D	SE	20-21, 70-71, 180
		HST E	SE	40-41, 68-69
		HST F	SE	18-19
		HST G	SE	82-83
		HST H	SE	61
		HST J	SE	22-23, 84-85
		HST K	SE	130-131, 132, 133, 138-139
HST M	SE	114-115, 148-149, 184-185, 193, 194-195, 201, 202-203		
HST P	SE	24, 26-27, 37, 96, 100-101		

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Strand 7: Scientific Inquiry (Cont.)

B. Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations (Cont.)

7.1.B.e	Compare amounts/measurements	HST A	SE	83, 122-123, 137-138
		HST B	SE	50-51, 62, 134
		HST C	SE	24-25, 33
		HST D	SE	20-21, 70-71, 180
		HST E	SE	40-41, 68-69
		HST F	SE	18-19
		HST G	SE	82-83
		HST H	SE	61
		HST J	SE	22-23, 84-85
		HST K	SE	130-131, 132, 133, 138-139
		HST M	SE	114-115, 148-149, 184-185, 193, 194-195, 201, 202
		HST P	SE	24, 26-27, 37, 96, 100-101
7.1.B.f	Judge whether measurements and computation of quantities are reasonable	HST A	SE	83, 122-123, 137-138
		HST B	SE	50-51, 62, 134
		HST C	SE	24-25, 33
		HST D	SE	20-21, 70-71, 180

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Strand 7: Scientific Inquiry (Cont.)

B. Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations (Cont.)

7.1.B.f	Judge whether measurements and computation of quantities are reasonable (Cont.)	HST E	SE	40-41, 68-69
		HST F	SE	18-19
		HST G	SE	82-83
		HST H	SE	61
		HST J	SE	22-23, 84-85
		HST K	SE	130-131, 132, 133, 138-139
		HST M	SE	114-115, 148-149, 184-185, 193, 194-195, 201, 202-203
		HST P	SE	24, 26-27, 37, 96, 100-101
7.1.B.g	Calculate the range and average/mean of a set of data	HST C	SE	24-25, 76-77, 144-145
		HST I	SE	110-111
		HST M	SE	148-149, 192, 202-203, 206
		HST O	SE	52-53, 124-125

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Strand 7: Scientific Inquiry (Cont.)

C. Evidence is used to formulate explanations

7.1.C.a	Use quantitative and qualitative data to construct reasonable explanations (conclusions)	HST A	SE	15, 39, 69, 101, 123, 131, 132, 133, 135, 136, 138
		HST B	SE	19, 51, 81, 117, 125, 128, 130
		HST C	SE	25, 47, 77, 99, 127, 155, 186, 188, 189, 191
		HST D	SE	21, 49, 71, 99, 123, 145, 173, 180, 181, 183, 184, 186, 187
		HST E	SE	23, 41, 69, 93, 123, 131, 133, 134, 135, 137
		HST F	SE	19, 51, 87, 121, 147, 173, 181, 184, 185, 188, 190, 192
		HST G	SE	23, 53, 83, 91, 93, 94, 95
		HST H	SE	29, 71, 111, 113, 115
		HST I	SE	29, 65, 99, 107, 110, 111, 113, 114, 117
		HST J	SE	23, 55, 85, 113, 125
		HST K	SE	23, 47, 73, 97, 123, 131, 132, 133, 134, 135, 136, 137, 139
		HST L	SE	19, 49, 79, 103, 110, 111, 113, 115
		HST M	SE	27, 57, 85, 115, 149, 185, 193, 195, 196, 197, 199, 201, 203, 204, 205, 206, 207

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Strand 7: Scientific Inquiry (Cont.)

C. Evidence is used to formulate explanations (Cont.)

7.1.C.a	Use quantitative and qualitative data to construct reasonable explanations (conclusions) (Cont.)	HST N	SE	31, 61, 93, 100, 101, 103, 107
		HST O	SE	21, 53, 89, 117, 125, 126, 127, 129, 130, 131, 133
		HST P	SE	26-27, 56-57, 88-89, 96, 97, 99, 100-101
7.1.C.b	Use data to describe relationships and make predictions to be tested	HST A	SE	62, 83
		HST C	SE	126-127
		HST D	SE	48-49
		HST F	SE	50-51
		HST G	SE	52-53
		HST H	SE	28-29
		HST I	SE	28-29
		HST J	SE	156-157
		HST K	SE	72-73, 122-123
		HST L	SE	18-19, 48-49
		HST M	SE	84-85, 184-185
		HST O	SE	116-117
HST P	SE	75, 76, 26-27		

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Strand 7: Scientific Inquiry (Cont.)

C. Evidence is used to formulate explanations

7.1.C.c	Recognize the possible effects of errors in observations, measurements, and calculations on the formulation of explanations (conclusions)	HST C	SE*	127
		HST E	SE	137
		HST G	SE	23
		HST J	SE	85
		HST K	SE	131
		HST M	SE	195
		HST O	SE	126

D. Scientific inquiry includes evaluation of explanations (hypotheses, laws, theories) in light of scientific principles (understandings)

7.1.D.a	Evaluate the reasonableness of an explanation (conclusion)	HST A	SE	14-15, 38-39, 68-69, 100-101, 122-123, 130-131, 132, 133, 134-135, 136,137-138
		HST B	SE	18-19, 50-51, 80-81, 116-117, 124-125, 126-128, 129-130
		HST C	SE	24-25, 46-47, 76-77, 98-99, 126-127, 154-155, 184-186, 187-188, 189, 190-191
		HST D	SE	20-21, 48-49, 70-71, 98-99, 122-123, 144-145, 172-173, 180, 181, 182-183, 184, 185-186, 187
		HST E	SE	22-23, 40-41, 68-69, 92-93, 122-123, 130-131, 132-133, 134, 135, 136-137

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Strand 7: Scientific Inquiry (Cont.)

D. Scientific inquiry includes evaluation of explanations (hypotheses, laws, theories) in light of scientific principles (understandings) (Cont.)

7.1.D.a	Evaluate the reasonableness of an explanation (conclusion) (cont.)	HST F	SE	18-19, 50-51, 86-87, 120-121, 146-147, 172-173, 180-181, 182-184, 185, 186-188, 189-190, 191-192
		HST G	SE	22-23, 52-53, 82-83, 90-91, 92-93, 94, 95
		HST H	SE	28-29, 70-71, 108-111, 112-113, 114-115
		HST I	SE	28-29, 64-65, 98-99, 106-107, 108-110, 111, 112-113, 114, 115-117
		HST J	SE	22-23, 54-55, 84-85, 113, 124-125
		HST K	SE	22-23, 46-47, 72-73, 96-97, 122-123, 130-131, 132, 133, 134, 135, 136, 137, 138-139
		HST L	SE	18-19, 48-49, 78-79, 102-103, 110, 111, 112-113, 114-115
		HST M	SE	26-27, 56-57, 84-85, 114-115, 148-149, 184-185, 192-193, 194-195, 196, 197, 198-199, 200-201, 202-203, 204, 205, 206, 207
		HST N	SE	30-31, 60-61, 92-93, 100, 101, 102-103, 104-107
		HST O	SE	20-21, 52-53, 88-89, 116-117, 124-125, 126, 127, 128-129, 130, 131, 132-133
		HST P	SE	26-27, 56-57, 88-89, 96, 97, 99, 100-101

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Strand 7: Scientific Inquiry (Cont.)

D. Scientific inquiry includes evaluation of explanations (hypotheses, laws, theories) in light of scientific principles (understandings) (Cont.)

7.1.D.b	Analyze whether evidence (data) supports proposed explanations (hypotheses, laws, theories)	HST A	SE	15, 39, 69, 101, 123, 131, 132, 133, 135, 136, 138
		HST B	SE	19, 51, 81, 117, 125, 128, 130
		HST C	SE	25, 47, 77, 99, 127, 155, 186, 188, 189, 191
		HST D	SE	21, 49, 71, 99, 123, 145, 173, 180, 181, 183, 184, 186, 187
		HST E	SE	23, 41, 69, 93, 123, 131, 133, 134, 135, 137
		HST F	SE	19, 51, 87, 121, 147, 173, 181, 184, 185, 188, 190, 192
		HST G	SE	23, 53, 83, 91, 93, 94, 95
		HST H	SE	29, 71, 111, 113, 115
		HST I	SE	29, 65, 99, 107, 110, 111, 113, 114, 117
		HST J	SE	23, 55, 85, 113, 125
		HST K	SE	23, 47, 73, 97, 123, 131, 132, 133, 134, 135, 136, 137, 139
		HST L	SE	19, 49, 79, 103, 110, 111, 113, 115
		HST M	SE	27, 57, 85, 115, 149, 185, 193, 195, 196, 197, 199, 201, 203, 204, 205, 206, 207

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Strand 7: Scientific Inquiry (Cont.)

D. Scientific inquiry includes evaluation of explanations (hypotheses, laws, theories) in light of scientific principles (understandings) (Cont.)

7.1.D.b Analyze whether evidence (data) supports proposed explanations (hypotheses, laws, theories) (cont.)	HST N	SE	31, 61, 93, 100, 101, 103, 107
	HST O	SE	21, 53, 89, 117, 125, 126, 127, 129, 130, 131, 133
	HST P	SE	18-19, 27, 57, 82-83, 89, 96, 97, 99, 101

E. The nature of science relies upon communication of results and justification of explanations

7.1.E.a Communicate the procedures and results of investigations and explanations through: oral presentations drawings and maps data tables graphs (bar, single line, pictographs) writings	HST A	SE	14-15, 38-39, 68-69, 100-101, 122-123, 130-131, 132, 133, 134-135, 136,137-138
	HST B	SE	18-19, 50-51, 80-81, 116-117, 124-125, 126-128, 129-130
	HST C	SE	24-25, 46-47, 76-77, 98-99, 126-127, 154-155, 184-186, 187-188, 189, 190-191
	HST D	SE	20-21, 48-49, 70-71, 98-99, 122-123, 144-145, 172-173, 180, 181, 182-183, 184, 185-186, 187
	HST E	SE	22-23, 40-41, 68-69, 92-93, 122-123, 130-131, 132-133, 134, 135, 136-137
	HST F	SE	18-19, 50-51, 86-87, 120-121, 146-147, 172-173, 180-181, 182-184, 185, 186-188, 189-190, 191-192
	HST G	SE	22-23, 52-53, 82-83, 90-91, 92-93, 94, 95
	HST H	SE	28-29, 70-71, 108-111, 112-113, 114-115

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Strand 7: Scientific Inquiry (Cont.)

E. The nature of science relies upon communication of results and justification of explanations (Cont.)

7.1.E.a	Communicate the procedures and results of investigations and explanations through: oral presentations drawings and maps data tables graphs (bar, single line, pictographs) writings (cont.)	HST I	SE	28-29, 64-65, 98-99, 106-107, 108-110, 111, 112-113, 114, 115-117
		HST J	SE	22-23, 54-55, 84-85, 113, 124-125
		HST K	SE	22-23, 46-47, 72-73, 96-97, 122-123, 130-131, 132, 133, 134, 135, 136, 137, 138-139
		HST L	SE	18-19, 48-49, 78-79, 102-103, 110, 111, 112-113, 114-115
		HST M	SE	26-27, 56-57, 84-85, 114-115, 148-149, 184-185, 192-193, 194-195, 196, 197, 198-199, 200-201, 202-203, 204, 205, 206, 207
		HST N	SE	30-31, 60-61, 92-93, 100, 101, 102-103, 104-107
		HST O	SE	20-21, 52-53, 88-89, 116-117, 124-125, 126, 127, 128-129, 130, 131, 132-133
		HST P	SE	14, 26-27, 46, 56-57, 78, 88-89, 96, 97, 99, 100-101

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Strand 8: Impact of Science, Technology and Human Activity

1. The nature of technology is advanced by and can advance science as it seeks to apply scientific knowledge in ways that meet human needs

A. Designed objects are used to do things better or more easily and to do some things that could not otherwise be done at all

8.1.A.a	Explain how technological improvements such as those developed for use in space exploration or by the military have led to the invention of new products that may improve our lives here on Earth (e.g., materials, freeze-dried foods, infrared goggles, Velcro, satellite imagery, robotics)	HST A	SE	31-32, 44
		HST B	SE	56
		HST C	SE	82, 96
		HST D	SE	54, 76, 104, 128
		HST E	SE	46, 98, 128
		HST J	SE	28
		HST L	SE	94, 108
		HST N	SE	70-75, 76-83, 84-91
		HST P	SE	41

B. Advances in technology often result in improved data collection and an increase in scientific information

8.1.B.a	Identify the link between technological developments and the scientific discoveries made possible through their development (e.g., Hubble telescope and stellar evolution, composition and structure of the universe; the electron microscope and cell organelles; sonar and the composition of the Earth; manned and unmanned space missions and space exploration; Doppler radar and weather conditions; MRI and CAT-scans and brain activity)	HST A	SE	20, 44, 74, 106
		HST B	SE	24, 56, 122
		HST C	SE	82, 132, 160
		HST D	SE	26, 54, 76, 104, 128, 150, 178
		HST E	SE	46, 98, 128

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Strand 8: Impact of Science, Technology and Human Activity (Cont.)

B. Advances in technology often result in improved data collection and an increase in scientific information (Cont.)

8.1.B.a Identify the link between technological developments and the scientific discoveries made possible through their development (e.g., Hubble telescope and stellar evolution, composition and structure of the universe; the electron microscope and cell organelles; sonar and the composition of the Earth; manned and unmanned space missions and space exploration; Doppler radar and weather conditions; MRI and CAT-scans and brain activity) (cont.)	HST F	SE	56, 92, 126, 152, 178
	HST G	SE	28, 58
	HST H	SE	76, 106
	HST I	SE	34, 104
	HST J	SE	28, 90, 162
	HST K	SE	28, 52, 78, 128
	HST L	SE	24, 54, 108
	HST M	SE	32, 62, 90, 120, 154, 190
	HST N	SE	66, 98
	HST O	SE	26, 94, 122
HST P	SE	6, 39, 41	

C. Technological solutions to problems often have drawbacks as well as benefits

8.1.C.a Describe how technological solutions to problems can have both benefits and drawbacks (e.g., storm water runoff, fiber optics, windmills, efficient car design, electronic trains without conductors, sonar, robotics, Hubble telescope) (ASSESS LOCALLY)	HST A	SE	20, 32, 37, 44, 74, 106
	HST B	SE	24, 56, 122, 150, 178
	HST C	SE	30, 52, 82, 96, 132, 160, 165
	HST D	SE	26, 54, 76, 104, 128, 134

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Strand 8: Impact of Science, Technology and Human Activity (Cont.)

C. Technological solutions to problems often have drawbacks as well as benefits (Cont.)

8.1.C.a Describe how technological solutions to problems can have both benefits and drawbacks (e.g., storm water runoff, fiber optics, windmills, efficient car design, electronic trains without conductors, sonar, robotics, Hubble telescope) (ASSESS LOCALLY) (cont.)	HST E	SE	46, 78-83, 84-90, 98, 111-112, 113-120, 128
	HST F	SE	14-15, 56, 72-73, 92, 111, 126, 136, 152, 171, 178
	HST H	SE	62-63, 64-69, 76, 106
	HST I	SE	20-26, 34, 60-62, 104
	HST J	SE	8-13, 28, 33-34, 90, 136, 138-143, 144-149, 151, 153-155, 162
	HST K	SE	20, 28, 52, 78, 128
	HST L	SE	24, 54, 70, 84, 98-99, 108
	HST M	SE	32, 62, 120, 146, 154, 176-183, 190
	HST N	SE	66, 98
	HST O	SE	26, 94, 108-114, 122

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Strand 8: Impact of Science, Technology and Human Activity (Cont.)

2. A historical perspective of scientific explanations helps to improve understanding of the nature of science and how science knowledge and technology evolve over time

A. People from various cultures, races, and of different gender have contributed to scientific discoveries and the invention of technological innovations

8.2.A.a	Describe how the contributions of scientists and inventors have contributed to science, technology and human activity (e.g., George Washington Carver, Thomas Edison, Thomas Jefferson, Isaac Newton, Marie Curie, Galileo, Albert Einstein, Mae Jemison, Edwin Hubble, Charles Darwin, Jonas Salk, Louis Pasteur, Jane Goodall, Tom Akers, John Wesley Powell) (ASSESS LOCALLY)	HST C	SE	4-5, 17, 56-61, 69, 72, 87-88, 116-117, 136, 140, 158, 161
		HST D	SE	134
		HST F	SE	60-61, 63, 104-105, 127
		HST G	SE	12, 51
		HST H	SE	77
		HST I	SE	93
		HST J	SE	5-7, 18, 20, 70, 80-82, 87, 94, 134
		HST K	SE	38, 82, 106-107, 129
		HST L	SE	35, 84, 88, 109
		HST M	SE	21, 36, 44, 78, 82
		HST N	SE	10,45, 48-49, 54-55
		HST O	SE	36, 94, 95
		HST P	SE	17, 39

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Strand 8: Impact of Science, Technology and Human Activity (Cont.)

B Scientific theories are developed based on the body of knowledge that exists at any particular time and must be rigorously questioned and tested for validity

8.2.B.a	Recognize the difficulty scientists (e.g., Darwin, Copernicus, Newton) experienced as they attempted to break through the accepted ideas (hypotheses, laws, theories) of their time to establish theories that are now considered to be common knowledge	HST C	SE	4-5, 17, 56-61, 69, 72, 87-88, 116-117, 136, 140, 158, 161
		HST D	SE	134
		HST F	SE	60-61, 63, 104-105, 127
		HST G	SE	12, 51
		HST H	SE	77
		HST I	SE	93
		HST J	SE	5-7, 18, 20, 70, 80-82, 87, 94, 134
		HST K	SE	38, 82, 106-107, 129
		HST L	SE	35, 84, 88, 109
		HST M	SE	21, 36, 44, 78, 82
		HST N	SE	10,45, 48-49, 54-55
		HST O	SE	36, 94, 95

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Strand 8: Impact of Science, Technology and Human Activity (Cont.)

B Scientific theories are developed based on the body of knowledge that exists at any particular time and must be rigorously questioned and tested for validity (Cont.)

8.2.B.b	Recognize that explanations have changed over time as a result of new evidence	HST C	SE	4-5, 17, 56-61, 69, 72, 87-88, 116-117, 136, 140, 158, 161
		HST D	SE	134
		HST F	SE	60-61, 63, 104-105, 127
		HST G	SE	12, 51
		HST H	SE	77
		HST I	SE	93
		HST J	SE	5-7, 18, 20, 70, 80-82, 87, 94, 134
		HST K	SE	38, 82, 106-107, 129
		HST L	SE	35, 84, 88, 109
		HST M	SE	21, 36, 44, 78, 82
		HST N	SE	10,45, 48-49, 54-55
		HST O	SE	36, 94, 95
		HST P	SE	18-19, 82

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Strand 8: Impact of Science, Technology and Human Activity (Cont.)

3. Science is a Human Endeavor

B. Social, political, economic, ethical, and environmental factors strongly influence and are influenced by the direction of progress of science and technology

8.3.B.a	Describe ways in which science and society influence one another (e.g., scientific knowledge and the procedures used by scientists influence the way many individuals in society think about themselves, others, and the environment; societal challenges often inspire questions for scientific research; social priorities often influence research priorities through the availability of funding for research)	HST A	SE	20, 32, 37, 44, 74, 106
		HST B	SE	24, 56, 122, 150, 178
		HST C	SE	30, 52, 82, 96, 132, 160, 165
		HST D	SE	26, 54, 76, 104, 128, 134
		HST E	SE	46, 78-83, 84-90, 98, 111-112, 113-120, 128
		HST F	SE	14-15, 56, 72-73, 92, 111, 126, 136, 152, 171, 178
		HST G	SE	15-16, 28, 58
		HST H	SE	62-63, 64-69, 76, 106
		HST J	SE	8-13, 28, 33-34, 90, 136, 138-143, 144-149, 151, 153-155, 162
		HST K	SE	20, 28, 52, 78, 128
		HST L	SE	24, 54, 70, 84, 98-99, 108
		HST M	SE	32, 62, 120, 146, 154, 176-183, 190
		HST N	SE	66, 98
		HST O	SE	26, 94, 108-114, 122

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Strand 8: Impact of Science, Technology and Human Activity (Cont.)

B. Social, political, economic, ethical, and environmental factors strongly influence and are influenced by the direction of progress of science and technology (Cont.)

8.3.B.b Identify the physical, social, economic, and/or environmental problems that may be overcome using science and technology (e.g., the need for alternative fuels, human travel in space, AIDS) and analyze the advantages and/or disadvantages of that use	HST A	SE	31-32, 44
	HST B	SE	56
	HST C	SE	82, 96
	HST D	SE	54, 76, 104, 128
	HST E	SE	46, 98, 128
	HST J	SE	28
	HST N	SE	70-75, 76-83, 84-91
	HST P	SE	6-7