Publisher: Twig Education

Program Title: Twig Science

Components: Twig Science Teacher Editions (TE) , Twig Science Student Twig Books (TB), Leveled Readers (LR) (On-Level, Above, Below and English Learners), www.twigscience.com, www.twigsciencetools.com, www.twigsciencereporter.com

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Standards Map for Kindergarten Through Grade Eight
Grade 6 Preferred Integrated – Next Generation Science Standards

MS-LS1 From Molecules to Organisms: Structures and Processes

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Planning and Carrying Out Investigations** Planning and carrying out investigations in 6–8 builds on K–5 experiences and progresses to include investigations that use *multiple variables* and provide evidence to support explanations or solutions. ▪ Conduct an investigation to produce data to serve as the basis for evidence that meet the goals of an investigation. (MS-LS1-1)	**KEY:** **M = Module** **DQ = Driving Question** **L = Lesson** **TE = Teacher Edition** **TB = Student Edition known as the Twig Book** **LR = Leveled Reader** **EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L6 (TE pp.260-269, TB pp.131-134) L7 (TE pp.270-275, TB pp.135-138) Key Resources L1, L3 **Virtual Microscope** interactive	**MS-LS1-1.** **Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.** [Clarification Statement: Emphasis is on developing evidence that living things **(**including Bacteria, Archaea, and Eukarya)** are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells. ****Viruses, while not cells, have features that are both common with, and distinct from, cellular life.]**	**KEY:** **M = Module** **DQ = Driving Question** **L = Lesson** **TE = Teacher Edition** **TB = Student Edition known as the Twig Book** **LR = Leveled Reader** **EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L4 (TE pp.244-251, TB pp.117-125) L5 (TE pp.252-259, TB pp.126-130) L6 (TE pp.260-269, TB pp.131-134) L7 (TE pp.270-275, TB pp.135-138) Key Resources L1 **Microscopes** video L1, L3 **Virtual Microscope** interactive L3 **Different Types of Cells** video; **The History of the Microscope** video L4 **What is a Cell?** video

DCI	**LS1.A: Structure and Function** ▪ All living things are made up of cells. A cell is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L4 (TE pp.244-251, TB pp.117-125) L5 (TE pp.252-259, TB pp.126-130) L6 (TE pp.260-269, TB pp.131-134) L7 (TE pp.270-275, TB pp.135-138) Key Resources L1, L3 **Virtual Microscope** interactive L3 **Different Types of Cells** video L4 **What is a Cell?** video		
CCC	**Scale, Proportion, and Quantity** ▪ Phenomena that can be observed at one scale may not be observable at another scale. (MS-LS1-1)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) Key Resources L1 **Microscopes** video L1, L3 **Virtual Microscope** interactive L4 **What is a Cell?** video		
CCC	***Connections to Engineering, Technology, and Applications of Science*** **Interdependence of Science, Engineering, and Technology**	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L4 (TE pp.244-251, TB pp.117-125) L6 (TE pp.260-269, TB pp.131-134)		

	▪ Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems. (MS-LS1-1)	Key Resources L3 **The History of the Microscope** video		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Developing and Using Models** Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. ▪ Develop and use a model to describe phenomena. (MS-LS1-2)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L4 (TE pp.244-251, TB pp.117-125) L5 (TE pp.252-259, TB pp.126-130) L7 (TE pp.270-275, TB pp.135-138) Key Resources L5 **Modeling Cells** activity	**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.** [Clarification Statement: Emphasis is on the cell functioning as a whole system and the primary role of identified parts of the cell, specifically the nucleus, chloroplasts, mitochondria, cell membrane, and cell wall.] [*Assessment Boundary: Assessment of organelle structure/function relationships is limited to the cell wall and cell membrane. Assessment of the function of the other organelles is limited to their relationship to the whole cell. Assessment does not include the biochemical function of cells or cell parts.*]	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L4 (TE pp.244-251, TB pp.117-125) L5 (TE pp.252-259, TB pp.126-130) L6 (TE pp.260-269, TB pp.131-134) L7 (TE pp.270-275, TB pp.135-138) Key Resources L1, L3 **Virtual Microscope** interactive L4 **What is a Cell?** video
DCI	**LS1.A: Structure and Function** ▪ Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L4 (TE pp.244-251, TB pp.117-125) L5 (TE pp.252-259, TB pp.126-130) L7 (TE pp.270-275, TB pp.135-138) Key Resources L4 **What is a Cell?** video		
CCC	**Structure and Function**	**EXAMPLES**		

	▪ Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural and designed structures/systems can be analyzed to determine how they function. (MS-LS1-2)	**Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L4 (TE pp.244-251, TB pp.117-125) L5 (TE pp.252-259, TB pp.126-130) L6 (TE pp.260-269, TB pp.131-134) L7 (TE pp.270-275, TB pp.135-138) Key Resources L1 **Microscopes** video L1, L3 **Virtual Microscope** interactive L4 **What is a Cell?** video		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Engaging in Argument from Evidence** Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s). ▪ Use an oral and written argument supported by evidence to support or refute an explanation or a model for a phenomenon. (MS-LS1-3)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L2 (TE pp.62-69, TB pp.18-21) L3 (TE pp.70-77, TB pp.22-26) L4 (TE pp.78-87, TB pp.27-33) L9 (TE pp.118-127, TB pp.51-55) L13 (TE pp.150-157, TB pp.65–68) L14 (TE pp.158-164, TB pp.69-72) **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L3 (TE pp.236-243, TB pp.113-116) L6 (TE pp.260-269, TB pp.131-134) L7 (TE pp.270-275, TB pp.135-138) **Grade 6 Module 1** **BioTech Systems Worldwide**	**MS-LS1-3.** **Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.** [Clarification Statement: Emphasis is on the conceptual understanding that cells form tissues and tissues form organs specialized for particular body functions. Examples could include the interaction of subsystems within a system and the normal functioning of those systems.] [*Assessment Boundary: Assessment does not include the mechanism of one body system independent of others.*	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L1 (TE pp.54-61, TB pp.15-17) L2 (TE pp.62-69, TB pp.18-21) L3 (TE pp.70-77, TB pp.22-26) L4 (TE pp.78-87, TB pp.27-33) L5 (TE pp.88-93, TB pp.34-36) L6 (TE pp.94-101, TB pp.37-38) L7 (TE pp.102-109, TB pp.39-45) L8 (TE pp.110-117, TB pp.46-50) L9 (TE pp.118-127, TB pp.51-55) L10 (TE pp.128-135, TB pp.56-59) L11 (TE pp.136-141, TB p.60) L12 (TE pp.142-149, TB pp.61-64) L13 (TE pp.150-157, TB pp.65–68) L14 (TE pp.158-164, TB pp.69-72) Key Resources L3 **Food's Incredible Journey** video

		M1_DQ4 L5 (TE pp.314-318, TB p.154) **Grade 6 Module 1** **Benchmark Assessment: Systems and Subsystems** (TE pp.276-279) **Grade 6 Module 1** **Leveled Reader: It's Alive!** Chapter 2 (LR pp.18-23) Chapter 3 (LR pp.24-32)	*Assessment is limited to the circulatory, excretory, digestive, respiratory, muscular, and nervous systems.*]	L4 **Amazing Muscles** video L6 **Nervous System** video L9 **Follow a Human Breath** video L10 **The Heart** video L13 **Climbing Systems** video **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ2 L1 (TE pp.172-179, TB pp.75-78) L2 (TE pp.180-185, TB pp.79-80) L3 (TE pp.186-193, TB pp.81-90) L4 (TE pp.194-201, TB pp.91-100) L5 (TE pp.202-207, TB pp.101-103) L6 (TE pp.208-212, TB pp.104-106) Key Resources L1 **Research: Heart** video; **Research: Lungs** video; **Research: Kidneys** video; **Research: Liver** video; **Research: Brain** video; **Research: Stomach** video; **Research: Intestines** video; **Research: Skin and Touch** video; **Research: Skin and Temperature** video **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L4 (TE pp.244-251, TB pp.117-125) L5 (TE pp.252-259, TB pp.126-130) L6 (TE pp.260-269, TB pp.131-134) L7 (TE pp.270-275, TB pp.135-138) Key Resources L3 **Different Types of Cells** video **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4 L1 (TE pp.288-295, TB pp.141-143) L5 (TE pp.314-318, TB p.154)
DCI **LS1.A: Structure and Function** ▪ In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions. (MS-LS1-3)		**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L2 (TE pp.62-69, TB pp.18-21) L3 (TE pp.70-77, TB pp.22-26) L4 (TE pp.78-87, TB pp.27-33) L5 (TE pp.88-93, TB pp.34-36) L6 (TE pp.94-101, TB pp.37-38) L7 (TE pp.102-109, TB pp.39-45) L9 (TE pp.118-127, TB pp.51-55) L10 (TE pp.128-135, TB pp.56-59) L11 (TE pp.136-141, TB p.60) L12 (TE pp.142-149, TB pp.61-64) L13 (TE pp.150-157, TB pp.65–68) L14 (TE pp.158-164, TB pp.69-72) Key Resources L3 **Food's Incredible Journey** video L4 **Amazing Muscles** video L6 **Nervous System** video L9 **Follow a Human Breath** video L10 **The Heart** video L13 **Climbing Systems** video **Grade 6 Module 1** **BioTech Systems Worldwide**		

		M1_DQ2 L1 (TE pp.172-179, TB pp.75-78) L2 (TE pp.180-185, TB pp.79-80) L3 (TE pp.186-193, TB pp.81-90) L4 (TE pp.194-201, TB pp.91-100) L5 (TE pp.202-207, TB pp.101-103) L6 (TE pp.208-212, TB pp.104-106) Key Resources L1 **Research: Heart** video; **Research: Lungs** video; **Research: Kidneys** video; **Research: Liver** video; **Research: Brain** video; **Research: Stomach** video; **Research: Intestines** video; **Research: Skin and Touch** video; **Research: Skin and Temperature** video **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L3 (TE pp.236-243, TB pp.113-116) L6 (TE pp.260-269, TB pp.131-134) L7 (TE pp.270-275, TB pp.135-138) Key Resources L3 **Different Types of Cells** video **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4 L1 (TE pp.288-295, TB pp.141-143) L5 (TE pp.314-318, TB p.154) **Grade 6 Module 1** **Benchmark Assessment: Systems and Subsystems** (TE pp.276-279) **Grade 6 Module 1** **Leveled Reader: It's Alive!** All chapters (LR pp.4-32)		Key Resources L1 **Human Hands** video **Grade 6 Module 1** **Benchmark Assessment: Systems and Subsystems** (TE pp.276-279) **Grade 6 Module 1** **Leveled Reader: It's Alive!** Chapter 1 (LR pp.4-17) Chapter 2 (LR pp.18-23)

CCC	**Systems and System Models** ▪ Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems. (MS-LS1-3)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L1 (TE pp.54-61, TB pp.15-17) L2 (TE pp.62-69, TB pp.18-21) L3 (TE pp.70-77, TB pp.22-26) L4 ((TE pp.78-87, TB pp.27-33) L5 (TE pp.88-93, TB pp.34-36) L6 (TE pp.94-101, TB pp.37-38) L7 (TE pp.102-109, TB pp.39-45) L8 (TE pp.110-117, TB pp.46-50) L9 (TE pp.118-127, TB pp.51-55) L10 (TE pp.128-135, TB pp.56-59) L11 (TE pp.136-141, TB p.60) L12 (TE pp.142-149, TB pp.61-64) L13 (TE pp.150-157, TB pp.65–68) L14 (TE pp.158-164, TB pp.69-72) Key Resources L3 **Food's Incredible Journey** video L13 **Climbing Systems** video **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ2 L2 (TE pp.180-185, TB pp.79-80) **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L1 (TE pp.220-227, TB pp.109-110) L2 (TE pp.228-235, TB pp.111-112) L4 (TE pp.244-251, TB pp.117-125) L5 (TE pp.252-259, TB pp.126-130) L6 (TE pp.260-269, TB pp.131-134) **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4		

		L1 (TE pp.288-295, TB pp.141-143) **Grade 6 Module 1** **Benchmark Assessment: Systems and Subsystems** (TE pp.276-279) **Grade 6 Module 1** **Leveled Reader: It's Alive!** Chapter 2 (LR pp.18-23) Chapter 3 (LR pp.24-32)		
CCC	***Connections to Nature of Science*** **Science is a Human Endeavor** ▪ Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas. (MS-LS1-3)	**Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L7 (TE pp.102-109, TB pp.39-45) **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ3 L3 (TE pp.236-243, TB pp.113-116) L6 (TE pp.260-269, TB pp.131-134) Key Resources L6 **Stem Cells** video		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Engaging in Argument from Evidence** Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ1 L2 (TE pp.18-23, TB pp.5-7) L3 (TE pp.24-31, TB pp.8-11) L4 (TE pp.32-39, TB pp.12-16) L5 (TE pp.40-47, TB pp.17-22) L6 (TE pp.48-55, TB pp.23-24) L7 (TE pp.56-63, TB pp.25-33)	**MS-LS1-4.** **Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of**	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ1 L2 (TE pp.18-23, TB pp.5-7) L3 (TE pp.24-31, TB pp.8-11) L4 (TE pp.32-39, TB pp.12-16) L5 (TE pp.40-47, TB pp.17-22) L6 (TE pp.48-55, TB pp.23-24) L7 (TE pp.56-63, TB pp.25-33)

	or solutions about the natural and designed world(s). ▪ Use 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. (MS-LS1-4)	L8 (TE pp.64-71, TB pp.34-36) L9 (TE pp.72-79, TB pp.37-44) L10 (TE pp.80-86, TB pp.45-48) Key Resources L3 **Courtship Rituals: Alligator** video L7 **Giant Otter** video Throughout: **Claim- Evidence-Reasoning** Chart **Grade 6 Module 3** **The Red List** M3_DQ4 L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)	**animals and plants respectively.** [Clarification Statement: Examples of behaviors that affect the probability of animal reproduction could include nest building to protect young from cold, herding of animals to protect young from predators, and vocalization of animals and colorful plumage to attract mates for breeding. Examples of animal behaviors that affect the probability of plant reproduction could include transferring pollen or seeds; and, creating conditions for seed germination and growth. Examples of plant structures could include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.]	L8 (TE pp.64-71, TB pp.34-36) L9 (TE pp.72-79, TB pp.37-44) L10 (TE pp.80-86, TB pp.45-48) Key Resources L3 **Courtship Rituals: Alligator** video L7 **Giant Otter** video Throughout: **Claim- Evidence-Reasoning** Chart **Grade 6 Module 3** **The Red List** M3_DQ2 L1 (TE pp.98-103, TB pp.51-54) L2 (TE pp.104-111, TB p.55) Key Resources L1 **Parts of the Plant: Flowers** video **Grade 6 Module 3** **The Red List** M3_DQ4 L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L4 (TE pp.200-207, TB pp.111-115) L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)
DCI	**LS1.B: Growth and Development of Organisms** ▪ Animals engage in characteristic behaviors that increase the odds of reproduction. (MS-LS1-4) ▪ Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ1 L3 (TE pp.18-23, TB pp.5-7) L4 (TE pp.32-39, TB pp.12-16) L5 (TE pp.40-47, TB pp.17-22) L6 (TE pp.48-55, TB pp.23-24) L7 (TE pp.56-63, TB pp.25-33) L8 (TE pp.64-71, TB pp.34-36) L9 (TE pp.72-79, TB pp.37-44) L10 (TE pp.80-86, TB pp.45-48) Key Resources L4 **Courtship Rituals: Widowbirds** video L5 **Penguin Parents** video		

	features for reproduction. (MS-LS1-4)	L8 **Picky Pollinating** video L9 **Whitebark Pine Tree** video **Grade 6 Module 3** **The Red List** M3_DQ2 L1 (TE pp.98-103, TB pp.51-54) L2 (TE pp.104-111, TB p.55) Key Resources L1 **Parts of the Plant: Flowers** video **Grade 6 Module 3** **The Red List** M3_DQ4 L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)		
CCC	**Cause and Effect** ▪ Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. (MS-LS1-4)	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ1 L1 (TE pp.8-17, TB pp.3-4) L2 (TE pp.18-23, TB pp.5-7) L3 (TE pp.24-31, TB pp.8-11) L4 (TE pp.32-39, TB pp.12-16) L5 (TE pp.40-47, TB pp.17-22) L6 (TE pp.48-55, TB pp.23-24)		

		L7 (TE pp.56-63, TB pp.25-33) L8 (TE pp.64-71, TB pp.34-36) L9 (TE pp.72-79, TB pp.37-44) L10 (TE pp.80-86, TB pp.45-48) **Grade 6 Module 3** **The Red List** M3_DQ4 L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L4 (TE pp.200-207, TB pp.111-115) L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Constructing Explanations and Designing Solutions** Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L3 (TE pp.112-119, TB pp.56-60) L4 (TE pp.120-129, TB pp.61-63) L5 (TE pp.130-137, TB pp.64-66) L6 (TE pp.138-152, TB pp.67-69) L7 (TE pp.146-153, TB pp.70-71) Key Resources L4-8 **Butterfly Genes Modeling** activity	**MS-LS1-5.** **Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.** [Clarification Statement: Examples of local environmental conditions could include availability of food, light, space, and water. Examples	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L3 (TE pp.112-119, TB pp.56-60) L4 (TE pp.120-129, TB pp.61-63) L5 (TE pp.130-137, TB pp.64-66) L6 (TE pp.138-152, TB pp.67-69) L7 (TE pp.146-153, TB pp.70-71) L8 (TE pp.154-161, TB pp.72-73) Key Resources L4-8 **Butterfly Genes Modeling** activity

	consistent with scientific knowledge, principles, and theories. ▪ Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (MS-LS1-5)	**Grade 6 Module 3** **The Red List** M3_DQ3 L1 (TE pp.190-195, TB pp.87-90) L2 (TE pp.196-203, TB pp.91-94) L3 (TE pp.204-209, TB pp.95-100) L4 (TE pp.210-215, TB pp.101-108) L5 (TE pp.216-221, TB pp.109-114) L6 (TE pp.222-227, TB pp.115-122) L7 (TE pp.228-235, TB pp.123-128) **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)	of genetic factors could include large breed cattle and species of grass affecting growth of organisms. Examples of evidence could include drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, and fish growing larger in large ponds than they do in small ponds.] [*Assessment Boundary: Assessment does not include genetic mechanisms, gene regulation, or biochemical processes*.]	**Grade 6 Module 3** **The Red List** M3_DQ3 L1 (TE pp.190-195, TB pp.87-90) L2 (TE pp.196-203, TB pp.91-94) L3 (TE pp.204-209, TB pp.95-100) L4 (TE pp.210-215, TB pp.101-108) L5 (TE pp.216-221, TB pp.109-114) L6 (TE pp.222-227, TB pp.115-122) L7 (TE pp.228-235, TB pp.123-128) **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L1 (TE pp.174-183, TB pp.97-103) L2 (TE pp.184-191, TB pp.104-106) L4 (TE pp.200-207, TB pp.111-115) L5 (TE pp.208-215, TB pp.116-121) L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243) **Grade 6 Module 3** **Leveled Reader: Biomes** All chapters (LR pp.4-32)
DCI	**LS1.B: Growth and Development of Organisms** • Genetic factors as well as local conditions affect the growth of the adult plant.	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L3 (TE pp.112-119, TB pp.56-60) L6 (TE pp.138-152, TB pp.67-69) L8 (TE pp.154-161, TB pp.72-73) Key Resources L3 **Modeling Pea Plants** activity		

		Grade 6 Module 3 **The Red List** M3_DQ3 L2 (TE pp.196-203, TB pp.91-94) **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L1 (TE pp.174-183, TB pp.97-103) L2 (TE pp.184-191, TB pp.104-106) L4 (TE pp.200-207, TB pp.111-115) L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243) **Grade 6 Module 3** **Leveled Reader: Biomes** All chapters (LR pp.4-32)		
CCC	**Cause and Effect** ▪ Phenomena may have more than one cause, and some cause and effect relationships in systems	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L3 (TE pp.112-119, TB pp.56-60) L4 (TE pp.120-129, TB pp.61-63) L5 (TE pp.130-137, TB pp.64-66) L6 (TE pp.138-152, TB pp.67-69)		

	can only be described using probability. (MS-LS1-5)	L7 (TE pp.146-153, TB pp.70-71) L8 (TE pp.154-161, TB pp.72-73) **Grade 6 Module 3** **The Red List** M3_DQ3 L1 (TE pp.190-195, TB pp.87-90) L2 (TE pp.196-203, TB pp.91-94) L3 (TE pp.204-209, TB pp.95-100) L4 (TE pp.210-215, TB pp.101-108) L5 (TE pp.216-221, TB pp.109-114) L6 (TE pp.222-227, TB pp.115-122) L7 (TE pp.228-235, TB pp.123-128) **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L1 (TE pp.174-183, TB pp.97-103) L2 (TE pp.184-191, TB pp.104-106) L3 (TE pp.192-199, TB pp.107-110) L4 (TE pp.200-207, TB pp.111-115) L5 (TE pp.208-215, TB pp.116-121) L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)		

Publisher: Twig Education

Program Title: Twig Science

Components: Twig Science Teacher Editions (TE pp.) , Twig Science Student Twig Books (TB pp.), Leveled Readers (LR) (On-Level, Above, Below and English Learners), www.twigscience.com, www.twigsciencetools.com, www.twigsciencereporter.com

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Obtaining, Evaluating, and Communicating Information** Obtaining, evaluating, and communicating information in 6–8 builds on K–5 experiences and progresses to evaluating the merit and validity of ideas and methods. ▪ Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence. (MS-LS1-8)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L5 (TE pp.88-93, TB pp.34-36) L6 (TE pp.94-101, TB pp.37-38) L7 (TE pp.102-109, TB pp.39-45) L8 (TE pp.110-117, TB pp.46-50) L11 (TE pp.136-141, TB p.60) L12 (TE pp.142-149, TB pp.61-64) L13 (TE pp.150-157, TB pp.65–68) Key Resources L5 **Animal Senses** Prior-Knowledge Read-Aloud text L6 **Nervous System** video	**MS-LS1-8.** **Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.** [*Assessment Boundary: Assessment does not include mechanisms for the transmission of this information.*]	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L5 (TE pp.88-93, TB pp.34-36) L6 (TE pp.94-101, TB pp.37-38) L7 (TE pp.102-109, TB pp.39-45) L8 (TE pp.110-117, TB pp.46-50) L11 (TE pp.136-141, TB p.60) L12 (TE pp.142-149, TB pp.61-64) L13 (TE pp.150-157, TB pp.65–68) Key Resources L5 **Animal Senses** Prior-Knowledge Read-Aloud text L6 **Nervous System** video
DCI	**LS1.D: Information Processing** ▪ Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories. (MS-LS1-8)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L5 (TE pp.88-93, TB pp.34-36) L6 (TE pp.94-101, TB pp.37-38) L7 (TE pp.102-109, TB pp.39-45) L8 (TE pp.110-117, TB pp.46-50) L12 (TE pp.142-149, TB pp.61-64) L13 (TE pp.150-157, TB pp.65–68) Key Resources L5 **Animal Senses** Prior-Knowledge Read-Aloud text L6 **Nervous System** video		

CCC	**Cause and Effect** ▪ Cause and effect relationships may be used to predict phenomena in natural systems. (MS-LS1-8)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ1 L6 (TE pp.94-101, TB pp.37-38) L8 (TE pp.110-117, TB pp.46-50)		

MS-LS3 Heredity: Inheritance and Variation of Traits

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Developing and Using Models** Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. ▪ Develop and use a model to describe phenomena. (MS-LS3-2)	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L3 (TE pp.112-119, TB pp.56-60) L4 (TE pp.120-129, TB pp.61-63) L5 (TE pp.130-137, TB pp.64-66) L6 (TE pp.138-152, TB pp.67-69) L7 (TE pp.146-153, TB pp.70-71) L8 (TE pp.154-161, TB pp.72-73) L9 (TE pp.162-169, TB pp.74-77) Key Resources L2 **Sexual Reproduction in Animals** video L3 **Pea Plant Modeling** activity L4-8 **Butterfly Genes Modeling** activity L9 **Cactus Modeling** activity; **Asexual Reproduction in Animals** video; **Asexual Reproduction in Plants** video **Grade 6 Module 3** **The Red List** M3_DQ3 L4 (TE pp.210-215, TB pp.101-108) L5 (TE pp.216-221, TB pp.109-114)	**MS-LS3-2.** **Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.** [Clarification Statement: Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause and effect relationship of gene transmission from parent(s) to offspring and resulting genetic variation.]	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L1 (TE pp.98-103, TB pp.51-54) L2 (TE pp.104-111, TB p.55) L3 (TE pp.112-119, TB pp.56-60) L4 (TE pp.120-129, TB pp.61-63) L5 (TE pp.130-137, TB pp.64-66) L6 (TE pp.138-152, TB pp.67-69) L7 (TE pp.146-153, TB pp.70-71) L8 (TE pp.154-161, TB pp.72-73) L9 (TE pp.162-169, TB pp.74-77) L10 (TE pp.170-175, TB pp.78-81) L11 (TE pp.176-182, TB pp.82-84) Key Resources L2 **Sexual Reproduction in Animals** video L3 **Pea Plant Modeling** activity L4-8 **Butterfly Genes Modeling** activity L9 **Cactus Modeling** activity; **Asexual Reproduction in Animals** video; **Asexual Reproduction in Plants** video **Grade 6 Module 3** **The Red List** M3_DQ3

		Grade 6 Module 3 **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)		L4 (TE pp.210-215, TB pp.101-108) L5 (TE pp.216-221, TB pp.109-114) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)
DCI	**LS1.B: Growth and Development of Organisms** ▪ Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring. (secondary to MS-LS3-2)	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L1 (TE pp.98-103, TB pp.51-54) L2 (TE pp.104-111, TB p.55) L3 (TE pp.112-119, TB pp.56-60) L4 (TE pp.120-129, TB pp.61-63) L7 (TE pp.146-153, TB pp.70-71) L8 (TE pp.154-161, TB pp.72-73) L9 (TE pp.162-169, TB pp.74-77) L10 (TE pp.170-175, TB pp.78-81) L11 (TE pp.176-182, TB pp.82-84) Key Resources L2 **Sexual Reproduction in Animals** video L9 **Asexual Reproduction in Animals** video; **Asexual Reproduction in Plants** video **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)		
DCI	**LS3.A: Inheritance of Traits** ▪ Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited. (MS-LS3-2)	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L3 (TE pp.112-119, TB pp.56-60) L4 (TE pp.120-129, TB pp.61-63) L5 (TE pp.130-137, TB pp.64-66) L6 (TE pp.138-152, TB pp.67-69) L7 (TE pp.146-153, TB pp.70-71) L8 (TE pp.154-161, TB pp.72-73) L9 (TE pp.162-169, TB pp.74-77)		

		L10 (TE pp.170-175, TB pp.78-81) L11 (TE pp.176-182, TB pp.82-84) Key Resources L3 **Pea Plant Modeling** activity L4-8 **Butterfly Genes Modeling** activity L9 **Cactus Modeling** activity **Grade 6 Module 3** **The Red List** M3_DQ3 L4 (TE pp.210-215, TB pp.101-108) L5 (TE pp.216-221, TB pp.109-114) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)		
DCI	**LS3.B: Variation of Traits** ▪ In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other. (MS-LS3-2)	**EXAMPLES** **Grade 6 Module 3** **The Red List** M3_DQ2 L3 (TE pp.112-119, TB pp.56-60) L5 (TE pp.130-137, TB pp.64-66) L6 (TE pp.138-152, TB pp.67-69) L7 (TE pp.146-153, TB pp.70-71) L8 (TE pp.154-161, TB pp.72-73) L10 (TE pp.170-175, TB pp.78-81) L11 (TE pp.176-182, TB pp.82-84) Key Resources L3 **Pea Plant Modeling** activity L4-8 **Butterfly Genes Modeling** activity **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)		
CCC	**Cause and Effect**	**EXAMPLES** **Grade 6 Module 3**		

	▪ Cause and effect relationships may be used to predict phenomena in natural systems. (MS-LS3-2)	**The Red List** M3_DQ2 L5 (TE pp.130-137, TB pp.64-66) L6 (TE pp.138-152, TB pp.67-69) L7 (TE pp.146-153, TB pp.70-71) L8 (TE pp.154-161, TB pp.72-73) L9 (TE pp.162-169, TB pp.74-77) L10 (TE pp.170-175, TB pp.78-81) **Grade 6 Module 3** **The Red List** M3_DQ3 L4 (TE pp.210-215, TB pp.101-108) L5 (TE pp.216-221, TB pp.109-114) **Grade 6 Module 3** **Benchmark Assessment: Survival of the Fittest Flower** (TE pp.236-243)		

MS-ESS2 Earth's Systems

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Developing and Using Models** Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L5 (TE pp.34-39, TB pp.21-23) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50)	**MS-ESS2-4.** **Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.** [Clarification Statement: Emphasis is on the ways water changes its state as it	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L5 (TE pp.34-39, TB pp.21-23) L6 (TE pp.40-45, TB pp.24-35) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2

	▪ Develop a model to describe unobservable mechanisms. (MS-ESS2-4)	L3 (TE pp.88-93, TB pp.55-56) L4 (TE pp.94-99, TB pp.57-59) L10 (TE pp.130-137, TB pp.77-80) L16 (TE pp.170-174, TB pp.117-122) Key Resources L1 **Where Does the Water Go?** video L3 **Changing States of Matter** video L4 **The Water Cycle** video	moves through the multiple pathways of the hydrologic cycle. Examples of models can be conceptual or physical.] [*Assessment Boundary: A quantitative understanding of the latent heats of vaporization and fusion is not assessed.*]	L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L4 (TE pp.94-99, TB pp.57-59) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) L14 (TE pp.158-163, TB pp.105-113) L16 (TE pp.170-174, TB pp.117-122) Key Resources L1 **Where Does the Water Go?** video L3 **Changing States of Matter** video L4 **The Water Cycle** video
DCI	**ESS2.C: The Roles of Water in Earth's Surface Processes** ▪ Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land. (MS-ESS2-4) ▪ Global movements of water and its changes in form are propelled by sunlight and gravity. (MS-ESS2-4)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** L6 (TE pp.40-46, TB pp.24-35) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L4 (TE pp.94-99, TB pp.57-59) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) L14 (TE pp.158-163, TB pp.105-113) L16 (TE pp.170-174, TB pp.117-122) Key Resources L1 **Where Does the Water Go?** video L3 **Changing States of Matter** video L4 **The Water Cycle** video		
CCC	**Energy and Matter** ▪ Within a natural or designed system, the transfer of energy drives the motion and/or cycling of matter. (MS-ESS2-4)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L5 (TE pp.34-39, TB pp.21-23) M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L4 (TE pp.94-99, TB pp.57-59)		

		L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) L7 (TE pp.112-117, TB pp.67-70) L8 (TE pp.118-123, TB pp.71-74) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) L12 (TE pp.144-151, TB pp.94-96) L13 (TE pp.152-157, TB pp.97-104) L16 (TE pp.170-174, TB pp.117-122) Key Resources L1 **Where Does the Water Go?** video L3 **Changing States of Matter** video		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Planning and Carrying Out Investigations** Planning and carrying out investigations in 6–8 builds on K–5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or solutions. ▪ 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. (MS-ESS2-5)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L5 (TE pp.100-105, TB pp.60-63) L7 (TE pp.112-117, TB pp.67-70) L8 (TE pp.118-123, TB pp.71-74) L14 (TE pp.158-163, TB pp.105-113) Key Resources L4 **Cloud in a Bottle** video L8 **Mountain Top** video L10 **Temperature and Density: Explanation** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ4 L2 (TE pp.250-257, TB pp.161-165) L3 (TE pp.258-263, TB pp.166-170) L5 (TE pp.272-277, TB pp.180-181)	**MS-ESS2-5.** **Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.** [Clarification Statement: Emphasis is on how air masses flow from regions of high pressure to low pressure, causing weather (defined by temperature, pressure, humidity, precipitation, and wind) at a fixed location to change over time, and how sudden changes in weather can result when different air masses collide. Emphasis is on how weather can be predicted within probabilistic ranges.	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L6 (TE pp.40-45, TB pp.24-35) L7 (TE pp.46-51, TB pp.36-38) L8 (TE pp.52-57, TB pp.39-41) Key Resources L8 **Prevailing Winds** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L5 (TE pp.100-105, TB pp.60-63) L7 (TE pp.112-117, TB pp.67-70) L8 (TE pp.118-123, TB pp.71-74) L9 (TE pp.124-129, TB pp.75-76) L13 (TE pp.152-157, TB pp.97-104) L14 (TE pp.158-163, TB pp.105-113) L15 (TE pp.164-169, TB pp.114-116)

		Key Resources L3 **Weather Systems** video L4 **Origin of Wind** text (TB) L5 **Air Mass** demonstration L6 **Weather Fronts** video	Examples of data can be provided to students (such as weather maps, diagrams, and visualizations) or obtained through laboratory experiments (such as with condensation).] [*Assessment Boundary: Assessment does not include recalling the names of cloud types or weather symbols used on weather maps or the reported diagrams from weather stations*.]	L16 (TE pp.170-174, TB pp.117-122) Key Resources L4 **Cloud in a Bottle** video L8 **Mountain Top** video L10 **Temperature and Density: Explanation** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ4 L1 (TE pp.244-249, TB pp.157-160) L2 (TE pp.250-257, TB pp.161-165) L3 (TE pp.258-263, TB pp.166-170) L4 (TE pp.264-270, TB pp.171-179) L5 (TE pp.272-277, TB pp.180-181) L6 (TE pp.278-283, TB pp.182-183) L8 (TE pp.290-295, TB pp.188-190) L9 (TE pp.296-299, TB pp.191-192) L10 (TE pp.300-303, TB pp.193-196) Key Resources L3 **Weather Systems** video L4 **Origin of Wind** text (TB) L5 **Air Mass** demonstration L6 **Weather Fronts** video **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** Chapter 1 (LR pp.2-13)
DCI	**ESS2.C: The Roles of Water in Earth's Surface Processes** ▪ The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns. (MS-ESS2-5)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L6 (TE pp.40-45, TB pp.24-35) L8 (TE pp.52-57, TB pp.39-41) Key Resources L8 **Prevailing Winds** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L3 (TE pp.88-93, TB pp.55-56) L5 (TE pp.100-105, TB pp.60-63) L7 (TE pp.112-117, TB pp.67-70) L9 (TE pp.124-129, TB pp.75-76) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) L13 (TE pp.152-157, TB pp.97-104) L14 (TE pp.158-163, TB pp.105-113) L15 (TE pp.164-169, TB pp.114-116) L16 (TE pp.170-174, TB pp.117-122) Key Resources L4 **Cloud in a Bottle** video L8 **Mountain Top** video L10 **Temperature and Density: Explanation** video L11 **Ocean Conveyor** video **Grade 6 Module 2** **Destination Everywhere!**		

		M2_DQ4 L1 (TE pp.244-249, TB pp.157-160) L2 (TE pp.250-257, TB pp.161-165) L3 (TE pp.258-263, TB pp.166-170) L4 (TE pp.264-270, TB pp.171-179) L5 (TE pp.272-277, TB pp.180-181) L6 (TE pp.278-283, TB pp.182-183) L8 (TE pp.290-295, TB pp.188-190) L9 (TE pp.296-299, TB pp.191-192) L10 (TE pp.300-303, TB pp.193-196) Key Resources L3 **Weather Systems** video L4 **Origin of Wind** text (TB) L5 **Air Mass** demonstration L6 **Weather Fronts** video **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** Chapter 1 (LR pp.2-13) Chapter 2 (LR pp.14-21)		
DCI	**ESS2.D: Weather and Climate** ▪ Because these patterns are so complex, weather can only be predicted probabilistically. (MS-ESS2-5)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ4 L1 (TE pp.244-249, TB pp.157-160) L2 (TE pp.250-257, TB pp.161-165) Key Resources L3 **Weather Systems** video		
CCC	**Cause and Effect** ▪ Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-ESS2-5)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L5 (TE pp.100-105, TB pp.60-63) L7 (TE pp.112-117, TB pp.67-70) L8 (TE pp.118-123, TB pp.71-74) L9 (TE pp.124-129, TB pp.75-76)		

Publisher: Twig Education

Program Title: Twig Science

Components: Twig Science Teacher Editions (TE pp.) , Twig Science Student Twig Books (TB pp.), Leveled Readers (LR) (On-Level, Above, Below and English Learners), www.twigscience.com, www.twigsciencetools.com, www.twigsciencereporter.com

		Grade 6 Module 2 **Destination Everywhere!** M2_DQ4 L1 (TE pp.244-249, TB pp.157-160) L2 (TE pp.250-257, TB pp.161-165) L3 TE pp.258-263, TB pp.166-170) L4 (TE pp.264-270, TB pp.171-179) L5 (TE pp.272-277, TB pp.180-181) L6 (TE pp.278-283, TB pp.182-183) L8 (TE pp.290-295, TB pp.188-190) L9 (TE pp.296-299, TB pp.191-192) L10 (TE pp.300-303, TB pp.193-196) Key Resources L3 **Weather Systems** video L4 **Origin of Wind** text (TB) L5 **Air Mass** demonstration L6 **Weather Fronts** video **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** All chapters (LR pp.2-30)		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Developing and Using Models** Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. ▪ Develop and use a model to describe phenomena. (MS-ESS2-6)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L6 (TE pp.40-45, TB pp.24-35) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L3 (TE pp.88-93, TB pp.55-56) L4 (TE pp.94-99, TB pp.57-59) L5 (TE pp.100-105, TB pp.60-63)	**MS-ESS2-6.** **Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.** [Clarification Statement: Emphasis is on how patterns vary by latitude, altitude, and geographic land distribution.	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L1 (TE pp.8-13, TB pp.3-4) L2 (TE.pp.14-19, TB pp.5-7) L5 (TE pp.34-39, TB pp.21-23) L6 (TE pp.40-45, TB pp.24-35) L7 (TE pp.46-51, TB pp.36-38) L8 (TE pp.52-57, TB pp.39-41) L9 (TE pp.58-62, TB pp.42-44) Key Resources L6 **Climate Zones** video; **Climate Zones** text (TB)

		L6 (TE pp.106-111, TB pp.64-66) L7 (TE pp.112-117, TB pp.67-70) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) L12 (TE pp.144-151, TB pp.94-96) L13 (TE pp.152-157, TB pp.97-104) L14 (TE pp.158-163, TB pp.105-113) L15 (TE pp.164-169, TB pp.114-116) L16 (TE pp.170-174, TB pp.117-122) Key Resources L1-4 **Water Cycle Model** L5-6 **Land and Water Model** L10 **Convection Current Model** L12 **Unequal Heating Model**	Emphasis of atmospheric circulation is on the sunlight - driven latitudinal banding, the Coriolis effect, and resulting prevailing winds; emphasis of ocean circulation is on the transfer of heat by the global ocean convection cycle, which is constrained by the Coriolis effect and the outlines of continents. Examples of models can be diagrams, maps and globes, or digital representations.] [*Assessment Boundary: Assessment does not include the dynamics of the Coriolis effect.*]	L7 **Ocean Patterns** video L8 **Prevailing Winds** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L4 (TE pp.94-99, TB pp.57-59) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) L7 (TE pp.112-117, TB pp.67-70) L8 (TE pp.118-123, TB pp.71-74) L9 (TE pp.124-129, TB pp.75-76) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) L12 (TE pp.144-151, TB pp.94-96) L13 (TE pp.152-157, TB pp.97-104) L14 (TE pp.158-163, TB pp.105-113) L15 (TE pp.164-169, TB pp.114-116) L16 (TE pp.170-174, TB pp.117-122) Key Resources L11 **Ocean Conveyor** video; **Ocean Currents** text (TB) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ4 L4 (TE pp.264-270, TB pp.171-179) L5 (TE pp.272-277, TB pp.180-181) L6 (TE pp.278-283, TB pp.182-183) L7 (TE pp.284-289, TB pp.184-187) **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** Chapter 1 (LR pp.2-13)
DCI	**ESS2.C: The Roles of Water in Earth's Surface Processes** ▪ Variations in density due to variations in temperature and salinity drive a global pattern of interconnected ocean currents. (MS-ESS2-6)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L7 (TE pp.46-51, TB pp.36-38) Key Resources L7 **Ocean Patterns** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) Key Resources L11 **Ocean Conveyor** video; **Ocean Currents** text (TB) **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** Chapter 1 (LR pp.2-13)		
DCI	**ESS2.D: Weather and Climate** ▪ Weather and climate are influenced by interactions	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1		

	involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns. (MS-ESS2-6) ▪ The ocean exerts a major influence on weather and climate by absorbing energy from the sun, releasing it over time, and globally redistributing it through ocean currents. (MS-ESS2-6)	L1 (TE pp.8-13, TB pp.3-4) L2 (TE.pp.14-19, TB pp.5-7) L3 (TE pp.20-27, TB pp.8-16) L4 (TE pp.28-33, TB pp.17-20) L5 (TE pp.34-39, TB pp.21-23) L6 (TE pp.40-45, TB pp.24-35) L7 (TE pp.46-51, TB pp.36-39) L8 (TE pp.52-57, TB pp.39-41) L9 (TE pp.58-62, TB pp.42-44) Key Resources Throughout: **Climate Explorer** interactive L7 **Ocean Patterns** video L8 **Prevailing Winds** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L4 (TE pp.94-99, TB pp.57-59) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) L7 (TE pp.112-117, TB pp.67-70) L9 (TE pp.124-129, TB pp.75-76) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) L12 (TE pp.144-151, TB pp.94-96) L13 (TE pp.152-157, TB pp.97-104) L14 (TE pp.158-163, TB pp.105-113) L15 (TE pp.164-169, TB pp.114-116) L16 (TE pp.170-174, TB pp.117-122) Key Resources L11 **Ocean Conveyor** video; **Ocean Currents** text (TB) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ4 L1 (TE pp.244-249, TB pp.157-160)		

		L4 (TE pp.264-270, TB pp.171-179) L7 (TE pp.284-289, TB pp.184-187) **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** All chapters (LR pp.2-30)		
CCC	**Systems and System Models** ▪ Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy, matter, and information flows within systems. (MS-ESS2-6)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L1 (TE pp.8-13, TB pp.3-4) L2 (TE.pp.14-19, TB pp.5-7) L3 (TE pp.20-27, TB pp.8-16) L4 (TE pp.28-33, TB pp.17-20) L5 (TE pp.34-39, TB pp.21-23) L7 (TE pp.46-51, TB pp.36-38) L8 (TE pp.52-57, TB pp.39-41) L9 (TE pp.58-62, TB pp.42-44) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L4 (TE pp.94-99, TB pp.57-59) L9 (TE pp.124-129, TB pp.75-76) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) L12 (TE pp.144-151, TB pp.94-96) L14 (TE pp.158-163, TB pp.105-113) L15 (TE pp.164-169, TB pp.114-116) L16 (TE pp.170-174, TB pp.117-122) Key Resources L1-4 **Water Cycle Model** L-5-6 **Land and Water Model** L10 **Convection Current Model; Temperature and Density: Demonstration** video; **Demonstration** video; **Temperature and Density: Explanation** video L12 **Unequal Heating Model**		

		Grade 6 Module 2 **Destination Everywhere!** M2_DQ4 L3 (TE pp.258-263, TB pp.166-170) L4 (TE pp.264-270, TB pp.171-179) L5 (TE pp.272-277, TB pp.180-181) L6 (TE pp.278-283, TB pp.182-183) Key Resources L5-6 **Weather Fronts Model** L6 **Weather Fronts** video **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** All chapters (LR pp.2-30)		

MS-ESS3 Earth and Human Activity

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Constructing Explanations and Designing Solutions** Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. ▪ Apply scientific principles to design an object, tool, process or system. (MS-ESS3-3)	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ1 L6 (TE pp.48-58, TB pp.25-28) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L2 (TE pp.242-249, TB pp.130-141) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178)	**MS-ESS3-3.** **Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*** [Clarification Statement: Examples of the design process include examining human environmental impacts, assessing the kinds of solutions that are feasible, and designing and evaluating solutions that could reduce that impact. Examples of human impacts can	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ1 L4 (TE pp.30-39, TB pp.16-20) L5 (TE pp.40-47, TB pp.21-24) L6 (TE pp.48-58, TB pp.25-28) Key Resource L4 **Monitoring Amphibians** video L5 **Water Pollution** investigation **Grade 6 Module 4** **Cities of the Future** M4_DQ2 L2 (TE pp.78-89, TB pp.37-42) L3 (TE pp.90-98, TB pp.43-46)

		L10 (TE pp.304-309, TB pp.179-180)	include water usage (such as the withdrawal of water from streams and aquifers or the construction of dams and levees), land usage (such as urban development, agriculture, or the removal of wetlands), and pollution (such as of the air, water, or land).]	L4 (TE pp.100-109, TB pp.47-58) L6 (TE pp.118-126, TB pp.64-77) L8 (TE pp.136-141, TB pp.80-81) L9 (TE pp.142-151, TB pp.82-89) L10 (TE pp.152-161, TB pp.90-94) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L1 (TE pp.174-183, TB pp.97-103) L2 (TE pp.184-191, TB pp.104-106) L3 (TE pp.192-199, TB pp.107-110) L4 (TE pp.200-207, TB pp.111-115) L5 (TE pp.208-215, TB pp.116-121) L6 (TE pp.216-224, TB pp.122-124) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L2 (TE pp.242-249, TB pp.130-141) L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180) Key Resources L4 **Eco-Cities: Indoor Farming** video; **Eco-Cities: Food Waste** video L5 **Eco-Cities: Transportation** video; **Eco-Cities: Energy** video L6 **What Is Land Used For?** video **Grade 6 Module 4** **Leveled Reader: Global Warming** All chapters (LR pp.2-30)
DCI	**ESS3.C: Human Impacts on Earth Systems** ▪ Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. (MS-ESS3-3)	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ1 L1 (TE pp.8-15, TB pp.3-9) L2 (TE pp.16-21, TB pp.10-11) L3 (TE pp.22-28, TB pp.12-15) L4 (TE pp.30-39, TB pp.16-20) L5 (TE pp.40-47, TB pp.21-24) L6 (TE pp.48-58, TB pp.25-28) Key Resources L2 **Environmental Topic: Oil Spills** video and text; **Environmental Topic: Deforestation** video and text; **Environmental Topic: Land Management** video and text; **Environmental Topic: Overfishing** video and text **Grade 6 Module 4** **Cities of the Future** M4_DQ2 L8 (TE pp.136-141, TB pp.80-81) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L1 (TE pp.174-183, TB pp.97-103) L2 (TE pp.184-191, TB pp.104-106) L3 (TE pp.192-199, TB pp.107-110) L4 (TE pp.200-207, TB pp.111-115) L5 (TE pp.208-215, TB pp.116-121) L6 (TE pp.216-224, TB pp.122-124) Key Resources L2 **Where Will Plants Migrate as It Gets Warmer?** text L3 **The Plight of the Pika** video L4 **Phenology Project** text **Grade 6 Module 4**		

		Cities of the Future M4_DQ4 L1 (TE pp.232-241, TB pp.127-129) L2 (TE pp.242-249, TB pp.130-141) L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180) **Grade 6 Module 4** **Leveled Reader: Global Warming** All chapters (LR pp.2-30)		
CCC	**Cause and Effect** ▪ Relationships can be classified as causal or correlational, and correlation does not necessarily imply causation. (MS-ESS3-3)	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ1 L1 (TE pp.8-15, TB pp.3-9) L2 (TE pp.16-21, TB pp.10-11) L3 (TE pp.22-28, TB pp.12-15) L5 (TE pp.40-47, TB pp.21-24) L6 (TE pp.48-58, TB pp.25-28) **Grade 6 Module 4** **Cities of the Future** M4_DQ2 L2 (TE pp.78-89, TB pp.37-42) L3 (TE pp.90-98, TB pp.43-46) L4 (TE pp.100-109, TB pp.47-58) L6 (TE pp.118-126, TB pp.64-77) L7 (TE pp.128-135, TB pp.78-79) L8 (TE pp.136-141, TB pp.80-81) L9 (TE pp.142-151, TB pp.82-89) L10 (TE pp.152-161, TB pp.90-94) **Grade 6 Module 4**		

		Cities of the Future M4_DQ4 L1 (TE pp.232-241, TB pp.127-129) L2 (TE pp.242-249, TB pp.130-141) L3 (TE pp.250-257, TB pp.142-154)		
CCC	***Connections to Engineering, Technology, and Applications of Science*** **Influence of Science, Engineering, and Technology on Society and the Natural World** ▪ The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time. (MS-ESS3-3)	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L1 (TE pp.232-241, TB pp.127-129) L2 (TE pp.242-249, TB pp.130-141) L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180) Key Resources L4 **Eco-Cities: Indoor Farming** video; **Eco-Cities: Food Waste** video L5 **Eco-Cities: Transportation** video; **Eco-Cities: Energy** video L6 **What Is Land Used For?** video		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Asking Questions and Defining Problems** Asking questions and defining problems in grades 6–8 builds on grades K–5 experiences and progresses to specifying relationships	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ2 L1 (TE pp.68-77, TB pp.31-36) L2 (TE pp.78-89, TB pp.37-42) L4 (TE pp.100-109, TB pp.47-58) L10 (TE pp.152-161, TB pp.90-94)	**MS-ESS3–5.** **Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.** [Clarification Statement: Examples of factors include	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ2 L1 (TE pp.68-77, TB pp.31-36) L2 (TE pp.78-89, TB pp.37-42) L3 (TE pp.90-98, TB pp.43-46) L4 (TE pp.100-109, TB pp.47-58)

	between variables, clarifying arguments and models. ▪ Ask questions to identify and clarify evidence of an argument. (MS-ESS3–5)	**Grade 6 Module 4** **Benchmark Assessment: Global Warming** (TE pp.162-165)	human activities (such as fossil fuel combustion, cement production, and agricultural activity) and natural processes (such as changes in incoming solar radiation or volcanic activity). Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major role that human activities play in causing the rise in global temperatures.]	L5 (TE pp.110-117, TB pp.59-63) L6 (TE pp.118-126, TB pp.64-77) L7 (TE pp.128-135, TB pp.78-79) L8 (TE pp.136-141, TB pp.80-81) L9 (TE pp.142-151, TB pp.82-89) L10 (TE pp.152-161, TB pp.90-94) **Grade 6 Module 4** **Benchmark Assessment: Global Warming** (TE pp.162-165) **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** Chapter 3 (LR pp.22-30)
DCI	**ESS3.D: Global Climate Change** ▪ Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing the level of climate change and reducing human vulnerability to whatever climate changes do occur depend on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior and on applying that knowledge wisely in decisions and activities. (MS-ESS3–5)	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ2 L1 (TE pp.68-77, TB pp.31-36) L2 (TE pp.78-89, TB pp.37-42) L3 (TE pp.90-98, TB pp.43-46) L4 (TE pp.100-109, TB pp.47-58) L5 (TE pp.110-117, TB pp.59-63) L6 (TE pp.118-126, TB pp.64-77) L7 (TE pp.128-135, TB pp.78-79) L8 (TE pp.136-141, TB pp.80-81) L9 (TE pp.142-151, TB pp.82-89) L10 (TE pp.152-161, TB pp.90-94) Key Resources L3 **The Greenhouse Effect** video L5 **Climate Change (Part 1)** video; **Climate Change (Part 2)** video **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L1 (TE pp.174-183, TB pp.97-103) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L1 (TE pp.232-241, TB pp.127-129) L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173)		

		L8 (TE pp.292-297, TB pp.174-176) Key Resources L3 **Deforestation Solutions** text (TB pp.) L4 **Eco-Cities: Indoor Farming** video; **Eco-Cities: Food Waste** video L5 **Eco-Cities: Transportation** video; **Eco-Cities: Energy** video **Grade 6 Module 4** **Benchmark Assessment: Global Warming** (TE pp.162-165) **Grade 6 Module 4** **Leveled Reader: Global Warming** All chapters (LR pp.2-30) **Grade 6 Module 2** **Leveled Reader: What Causes Weather?** Chapter 2 (LR pp.14-21) Chapter 3 (LR pp.22-30)		
CCC	**Stability and Change** ▪ Stability might be disturbed either by sudden events or gradual changes that accumulate over time. (MS-ESS3-5)	**EXAMPLES** **Grade 6 Module 4** **Cities of the Future** M4_DQ2 L5 (TE pp.110-117, TB pp.59-63) L6 (TE pp.118-126, TB pp.64-77) L7 (TE pp.128-135, TB pp.78-79) L8 (TE pp.136-141, TB pp.80-81) L10 (TE pp.152-161, TB pp.90-94) **Grade 6 Module 4** **Cities of the Future** M4_DQ3 L1 (TE pp.174-183, TB pp.97-103) L3 (TE pp.192-199, TB pp.107-110) L4 (TE pp.200-207, TB pp.111-115) L5 (TE pp.208-215, TB pp.116-121) **Grade 6 Module 4** **Leveled Reader: Global Warming**		

		All chapters (LR pp.2-30)		

MS-PS3 Energy

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Constructing Explanations and Designing Solutions** Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. ▪ Apply scientific ideas or principles to design, construct, and test a design of an object, tool, process or system. (MS-PS3-3)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235)	**MS-PS3-3.** **Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.*** [Clarification Statement: Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.] [*Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred.*]	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L1 (TE pp.8-13, TB pp.3-4) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) Key Resources L3 **Insulation** video; **Case Study: Vacuum Flask** video **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge**
DCI	**PS3.A: Definitions of Energy** ▪ Temperature is a measure of the average kinetic energy of particles of matter. The relationship between the temperature and the total energy of a system depends on the types, states, and amounts of matter present. (MS-PS3-3), (MS-PS3-4)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L1 (TE pp.8-13, TB pp.3-4) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L5 (TE pp.100-105, TB pp.60-63)		

		L6 (TE pp.106-111, TB pp.64-66) Key Resources L3 **Changing States of Matter** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) Key Resources L6 **Particle Model** video		(TE pp.232-235)
DCI	**PS3.B: Conservation of Energy and Energy Transfer** ▪ Energy is spontaneously transferred out of hotter regions or objects and into colder ones. (MS-PS3-3)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L6 (TE pp.212-217, TB pp.144-146) L8 (TE pp.224-227, TB pp.149-152) Key Resources L3 **Insulation** video; **Case Study: Vacuum Flask** video		
DCI	**ETS1.A: Defining and Delimiting an Engineering Problem** ▪ The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141)		

	successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that is likely to limit possible solutions. (secondary to MS-PS3-3)	L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) Key Resources L1 **Criteria and Constraints** visual L9 **Passive Solar Home Rubric**		
DCI	**ETS1.B: Developing Possible Solutions** ▪ A solution needs to be tested, and then modified on the basis of the test results in order to improve it. There are systematic processes for evaluating solutions with respect to how well they meet criteria and constraints of a problem. (secondary to MS-PS3-3)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) Key Resources L2 **Design Cycle** visual **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235)		
CCC	**Energy and Matter** ▪ The transfer of energy can be tracked as energy flows through a designed or natural system. (MS-PS3-3)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L4 (TE pp.200-205, TB pp.136-141)		

		L6 (TE pp.212-217, TB pp.144-146) L8 (TE pp.224-227, TB pp.149-152) Key Resources L3 **Case Study: Vacuum Flask** video		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Planning and Carrying Out Investigations** Planning and carrying out investigations to answer questions or test solutions to problems in 6–8 builds on K–5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or design solutions. ▪ 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. (MS-PS3-4)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148)	**MS-PS3-4.** **Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.** [Clarification Statement: Examples of experiments could include comparing final water temperatures after different masses of ice melted in the same volume of water with the same initial temperature, the temperature change of samples of different materials with the same mass as they cool or heat in the environment, or the same material with different masses when a specific amount of energy is added.] [*Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred.*]	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) L10 (TE pp.130-137, TB pp.77-80) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148)
SEP	***Connections to Nature of Science*** **Scientific Knowledge is Based on Empirical Evidence**	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146)		

	▪ Science knowledge is based upon logical and conceptual connections between evidence and explanations. (MS-PS3-4)	L7 (TE pp.218-223, TB pp.147-148)		
DCI	**PS3.A: Definitions of Energy** ▪ Temperature is a measure of the average kinetic energy of particles of matter. The relationship between the temperature and the total energy of a system depends on the types, states, and amounts of matter present. (MS-PS3-4)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L1 (TE pp.74-80, TB pp.47-50) L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) Key Resources L1 **Where Does the Water Go?** video L3 **Changing States of Matter** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) Key Resources L6 **Particle Model** video		
DCI	**PS3.B: Conservation of Energy and Energy Transfer** ▪ The amount of energy transfer needed to change the temperature of a matter sample by a given amount depends on the nature of the matter, the size of the sample, and the environment. (MS-PS3-4)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148)		

Publisher: Twig Education

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CCC	**Scale, Proportion, and Quantity** ▪ Proportional relationships (e.g., speed as the ratio of distance traveled to time taken) among different types of quantities provide information about the magnitude of properties and processes. (MS-PS3-4)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L7 (TE pp.218-223, TB pp.147-148)		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Engaging in Argument from Evidence** Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed worlds. ▪ Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon. (MS-PS3–5)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L1 (TE pp.8-13, TB pp.3-4) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 4** **Cities of the Future**	**MS-PS3–5.** **Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.** [Clarification Statement: Examples of empirical evidence used in arguments could include an inventory or other representation of the energy before and after the transfer in the form of temperature changes or motion of object.] [*Assessment Boundary: Assessment does not include calculations of energy.*]	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L1 (TE pp.8-13, TB pp.3-4) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) L10 (TE pp.130-137, TB pp.77-80) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L6 (TE pp.212-217, TB pp.144-146) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154)

		M4_DQ2 L3 (TE pp.90-98, TB pp.43-46)		**Grade 6 Module 4** **Cities of the Future** M4_DQ2 L3 (TE pp.90-98, TB pp.43-46)
SEP	***Connections to Nature of Science*** **Scientific Knowledge is Based on Empirical Evidence** ▪ Science knowledge is based upon logical and conceptual connections between evidence and explanations. (MS-PS3–5)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L3 (TE pp.88-93, TB pp.55-56) L6 (TE pp.106-111, TB pp.64-66) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 4** **Cities of the Future** M4_DQ2 L3 (TE pp.90-98, TB pp.43-46)		
DCI	**PS3.B: Conservation of Energy and Energy Transfer** ▪ When the motion energy of an object changes, there is inevitably some other change in energy at the same time. (MS-PS3–5)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) L7 (TE pp.112-117, TB pp.67-70) L10 (TE pp.130-137, TB pp.77-80) L11 (TE pp.138-143, TB pp.81-93) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L6 (TE pp.212-217, TB pp.144-146) L8 (TE pp.224-227, TB pp.149-152) Key Resources L6 **Particle Model** video		

CCC	**Energy and Matter** ▪ Energy may take different forms (e.g., energy in fields, thermal energy, energy of motion). (MS-PS3–5)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ1 L1 (TE pp.8-13, TB pp.3-4) Key Resources L1 **Energy** Prior-Knowledge Read-Aloud text **Grade 6 Module 2** **Destination Everywhere!** M2_DQ2 L2 (TE pp.82-87, TB pp.51-54) L3 (TE pp.88-93, TB pp.55-56) L5 (TE pp.100-105, TB pp.60-63) L6 (TE pp.106-111, TB pp.64-66) L10 (TE pp.130-137, TB pp.77-80) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L6 (TE pp.212-217, TB pp.144-146) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154)		

MS-ETS1 Engineering Design

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		Publisher Citations	Performance Expectation	Publisher Citations
SEP	**Asking Questions and Defining Problems** Asking questions and defining problems	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4	**MS-ETS1-1.** **Define the criteria and constraints of a design problem**	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4

	in grades 6–8 builds on grades K–5 experiences and progresses to specifying relationships between variables, clarifying arguments and models. ▪ Define a design problem that can be solved through the development of an object, tool, process or system and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions. (MS-ETS1-1)	L1 (TE pp.288-295, TB pp.141-143) L2 (TE pp.296-303, TB pp.144-150) L3 (TE pp.304-307, TB p.151) L4 (TE pp.308-313, TB pp.152-153) L5 (TE pp.314-318, TB p.154) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 3** **The Red List** M3_DQ1 L1 (TE pp.8-17, TB pp.3-4) L2 (TE pp.18-23, TB pp.5-7) **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162)	**with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.**	L1 (TE pp.288-295, TB pp.141-143) L2 (TE pp.296-303, TB pp.144-150) L3 (TE pp.304-307, TB p.151) L4 (TE pp.308-313, TB pp.152-153) L5 (TE pp.314-318, TB p.154) Key Resources L1 **Bioengineering Project** video L2 **Advanced Prosthetic Arm: Design Requirements** video **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 3** **The Red List** M3_DQ1 L1 (TE pp.8-17, TB pp.3-4) L2 (TE pp.18-23, TB pp.5-7) **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ1

		L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176)		L1 (TE pp.8-15, TB pp.3-9) L2 (TE pp.16-21, TB pp.10-11) L3 (TE pp.22-28, TB pp.12-15) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) **Grade 6 Module 1** **Leveled Reader: It's Alive!** Chapter 2 (LR pp.18-23) Chapter 3 (LR pp.24-32)
DCI	**ETS1.A: Defining and Delimiting Engineering Problems** ▪ The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions. (MS-ETS1-1)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4 L1 (TE pp.288-295, TB pp.141-143) L2 (TE pp.296-303, TB pp.144-150) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 3** **The Red List** M3_DQ1 L1 (TE pp.8-17, TB pp.3-4) L2 (TE pp.18-23, TB pp.5-7) **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4**		

		Cities of the Future M4_DQ4 L1 (TE pp.232-241, TB pp.127-129) L2 (TE pp.242-249, TB pp.130-141) L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) **Grade 6 Module 1** **Leveled Reader: It's Alive!** Chapter 2 (LR pp.18-23) Chapter 3 (LR pp.24-32)		
CCC	**Influence of Science, Engineering, and Technology on Society and the Natural World** ▪ All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment. (MS-ETS1-1) ▪ The uses of technologies and limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. (MS-ETS1-1)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4 L1 (TE pp.288-295, TB pp.141-143) L2 (TE pp.296-303, TB pp.144-150) L3 (TE pp.304-307, TB p.151) L4 (TE pp.308-313, TB pp.152-153) L5 (TE pp.314-318, TB p.154) Key Resources L1 **Bioengineering Project** video L2 **Advanced Prosthetic Arm: Design Requirements** video **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) L2 **Star Cactus Conservation Plan** text; **California Condor Conservation Plan** text; **Corals of the Great Barrier Reef Conservation Plan** text; **Rusty Patched Bumble Bee Conservation Plan** text **Grade 6 Module 4**		

		Cities of the Future M4_DQ1 L1 (TE pp.8-15, TB pp.3-9) L2 (TE pp.16-21, TB pp.10-11) L3 (TE pp.22-28, TB pp.12-15) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L1 (TE pp.232-241, TB pp.127-129) L2 (TE pp.242-249, TB pp.130-141) L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) **Grade 6 Module 4** **Leveled Reader: Global Warming** All chapters (LR pp.2-30)		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Engaging in Argument from Evidence** Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world. ▪ Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. (MS-ETS1-2)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4 L2 (TE pp.296-303, TB pp.144-150) L4 (TE pp.308-313, TB pp.152-153) L5 (TE pp.314-318, TB p.154) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146)	**MS-ETS1-2.** **Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.**	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4 L1 (TE pp.288-295, TB pp.141-143) L2 (TE pp.296-303, TB pp.144-150) L3 (TE pp.304-307, TB p.151) L4 (TE pp.308-313, TB pp.152-153) L5 (TE pp.314-318, TB p.154) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141)

		L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 3** **The Red List** M3_DQ4 L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L3 (TE pp.250-257, TB pp.142-154) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180) **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235)		L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 3** **The Red List** M3_DQ4 L1 (TE pp.250-257, TB pp.131-136) L2 (TE pp.258-265, TB pp.137-139) L3 (TE pp.270-271, TB pp.140-143) L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L3 (TE pp.250-257, TB pp.142-154) L4 (TE pp.258-265, TB pp.155-158) L5 (TE pp.266-273, TB pp.159-162) L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180) **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235) **Grade 6 Module 1** **Leveled Reader: It's Alive!** Chapter 3 (LR pp.24-32)
DCI	**ETS1.B: Developing Possible Solutions** ▪ There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (MS-ETS1-2)	**EXAMPLES** **Grade 6 Module 1** **BioTech Systems Worldwide** M1_DQ4 L2 (TE pp.296-303, TB pp.144-150) L4 (TE pp.308-313, TB pp.152-153) L5 (TE pp.314-318, TB p.154) **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 3**		

		The Red List M3_DQ4 L4 (TE pp.272-275, TB pp.144-146) L5 (TE pp.276-280, TB pp.147-148) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L3 (TE pp.250-257, TB pp.142-154) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180) **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235) **Grade 6 Module 1** **Leveled Reader: It's Alive!** Chapter 2 (LR pp.18-23) Chapter 3 (LR pp.24-32)		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Analyzing and Interpreting Data** Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. ▪ Analyze and interpret data to determine similarities and	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154)	**MS-ETS1-3.** **Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.**	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154)

	differences in findings. (MS-ETS1-3)	**Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180)		**Grade 6 Module 4** **Cities of the Future** M4_DQ4 L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180) **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235)
DCI	**ETS1.B: Developing Possible Solutions** ▪ There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (MS-ETS1-3) ▪ Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. (MS-ETS1-3)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180)		

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DCI	**ETS1.C: Optimizing the Design Solution** ▪ Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design. (MS-ETS1-3)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180) **Grade 6 Module 2** **Benchmark Assessment: Solar Cooker Design Challenge** (TE pp.232-235)		

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts		**Publisher Citations**	**Performance Expectation**	**Publisher Citations**
SEP	**Developing and Using Models** Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. ▪ Develop a model to generate data to test ideas about designed systems, including	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154)	**MS-ETS1-4.** **Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.**	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154)

	those representing inputs and outputs. (MS-ETS1-4)	**Grade 6 Module 4** **Cities of the Future** M4_DQ4 L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180)		**Grade 6 Module 4** **Cities of the Future** M4_DQ4 L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180)
DCI	**ETS1.B: Developing Possible Solutions** ▪ A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. (MS-ETS1-4) ▪ Models of all kinds are important for testing solutions. (MS-ETS1-4)	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127) L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180)		
DCI	**ETS1.C: Optimizing the Design Solution** ▪ The iterative process of testing the most promising solutions	**EXAMPLES** **Grade 6 Module 2** **Destination Everywhere!** M2_DQ3 L1 (TE pp.182-187, TB pp.125-127)		

	and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution. (MS-ETS1-4)	L2 (TE pp.188-193, TB pp.128-130) L3 (TE pp.194-199, TB pp.131-135) L4 (TE pp.200-205, TB pp.136-141) L5 (TE pp.206-211, TB pp.142-143) L6 (TE pp.212-217, TB pp.144-146) L7 (TE pp.218-223, TB pp.147-148) L8 (TE pp.224-227, TB pp.149-152) L9 (TE pp.228-231, TB pp.153-154) **Grade 6 Module 4** **Cities of the Future** M4_DQ4 L6 (TE pp.274-281, TB pp.163-167) L7 (TE pp.282-291, TB pp.168-173) L8 (TE pp.292-297, TB pp.174-176) L9 (TE pp.298-303, TB pp.177-178) L10 (TE pp.304-309, TB pp.179-180)		