

Grade 3 Science Common Core Pacing Guide

Target Standard	“I Can” Statement	Vocabulary	Time Frame
Unit 1: Forces and Interactions			
3-PS2-1 Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.	I can plan and conduct an investigation to learn the effects of balanced and unbalanced forces on the motion of an object.	Force(s) Motion Balanced force Unbalanced force	Trimester 1
3-PS2-2 Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.	I can make observations and/or measurements of an object’s motion to show that a pattern can be used to predict future motion.	Gravity Friction Incline Weight Distance Work Speed Mass Measure	Trimester 1
3-PS2-3 Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.	I can ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects that are not touching.	Magnet Magnetic poles Repel Attract Charge Static electricity	Trimester 1
3-PS2-4 Define a simple design problem that can be solved by applying scientific ideas about magnets.	I can define a simple design problem that can be solved by using scientific ideas about magnets.		Trimester 1
Engineering Design 3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	*I can plan and conduct a well-designed investigation and use scientific skills to help me learn and problem solve like a scientist and an engineer. (summary) *I can define a simple design problem reflecting a need or a want. (3-5-ETS1-1) *I can generate and compare multiple possible solutions to a problem. (3-5-ETS1-2) *I can plan and carry out fair tests to identify parts of a model or prototype that can be improved. (3-5-ETS1-3)	Investigation Methods Observation Hypothesis Variable(s) -independent, dependent, controlled variable	Trimester 1, 2, 3
<u>The 8 Scientific and Engineering Practices</u> Scientists observe something they want to study and use scientific inquiry to plan and conduct their study. They use science process skills as tools to help them gather, organize, analyze, and present their information like an engineer does.	<u>8 Practices</u> <u>1-Asking questions (scientist) and defining problems (engineer):</u> *Ask questions about what would happen if a variable is changed. *Identify testable and non-testable questions. *Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect. <u>2-Developing and using models:</u> *Build and revise simple models to represent, describe, or predict events and design solution. <u>3-Planning and carrying out investigations:</u> *Design and conduct investigations collaboratively that control variables and provide evidence, in the form of observations and/or data, to support explanations or design solutions. *Evaluate appropriate methods and/or tools for collecting data. <u>4-Analyze and Interpret Data:</u>	Procedure Materials Test/experiment Reasonable Outcomes Models Solution(s) Data (gather and record) Argument from evidence: -Citing relevant evidenced and posing specific questions Conclusion	Trimester 1, 2, 3

	<p>*Participate in quantitative approaches to collecting data and conduct multiple trials of qualitative observations, in order to make sense of phenomena, as well as evaluate and refine design solutions.</p> <p>5- Use mathematics and computational thinking:</p> <p>*Decide if qualitative or quantitative data are best to determine whether a proposed object or tool meets criteria for success.</p> <ul style="list-style-type: none"> • Create and/or use graphs and/or charts generated from simple algorithms to compare alternative solutions to an engineering problem. <p>6-Constructing explanations (scientist) and designing solutions (engineer)</p> <p>*Identify and use appropriate evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.</p> <p>* Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.</p> <p>7-Engaging in argument from evidence</p> <p>*Construct, compare, and refine arguments based on an evaluation of the evidence and data presented</p> <ul style="list-style-type: none"> • Respectfully provide and receive critiques from peers by citing relevant evidence and posing specific questions. <p>8-Obtaining, evaluating, and communicating information</p> <p>*Evaluate the merit and accuracy of ideas and methods.</p> <ul style="list-style-type: none"> • Read and comprehend grade-appropriate complex texts and/or other reliable media in order to obtain and combine information from books and/or other reliable media to form written and/or oral explanations of phenomena or solutions to a design problem. <p>Source: NGSS Appendix F (2013)-Science and Engineering Practices</p>		
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Assessments/Projects	Resources
<p><u>Pre/Post Test</u></p> <p><u>Project:</u> Invention</p> <p> How to get your books home easier (no backpacks)? Design a solution for a problem using magnets.</p>	<p><u>Books</u></p> <p>*Harcourt Science Textbook (published 2000)</p> <p>*Tradebooks:</p> <ul style="list-style-type: none"> -Forces and Motion -Using Force and Motion -The Extreme Zone -The Mystery of Magnets <p><u>Movies</u></p> <ul style="list-style-type: none"> -Magic School Bus Plays Ball -Bill Nye Motion <p><u>Websites/Apps</u></p> <ul style="list-style-type: none"> -<u>Brainpop Jr</u>: Forces and Motion; Pushes and Pulls; Simple Machines; Forces; Gravity; Magnets

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Target Standard	“I Can” Statement	Vocabulary	Time Frame
Unit 2: Animals and Plants: Life Cycles and Traits			
3-LS1-1 Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	I can develop models to describe that organisms have unique and diverse life cycles but all have birth, growth, reproduction, and death in common.	Organism(s) Traits Physical traits Behavioral traits Inherited traits Environment Characteristics Life cycle	Trimester 2
3-LS3-1 Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	I can study and understand data to give evidence that plants and animals have traits inherited from parents and that there are differences in these traits in a group of similar organisms.	Variation Migration Increase Decrease	Trimester 2
3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.	I can use evidence to support the explanation that traits can be influenced by the environment.	Impact	Trimester 2
3-LS4-2 Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.	I can use evidence to give an explanation for how the differences in characteristics among individuals of the same species may help them to survive, find mates, and reproduce.	Advantages Disadvantages Survival	Trimester 2
Engineering Design 3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	*I can plan and conduct a well-designed investigation and use scientific skills to help me learn and problem solve like a scientist and an engineer. (summary) *I can define a simple design problem reflecting a need or a want. (3-5-ETSI-1) *I can generate and compare multiple possible solutions to a problem. (3-5-ETSI-2) *I can plan and carry out fair tests to identify parts of a model or prototype that can be improved. (3-5-ETSI-3)	Investigation Methods Observation Hypothesis Variable(s) -independent, dependent, controlled variable	Trimester 1, 2, 3
<u>The 8 Scientific and Engineering Practices</u> Scientists observe something they want to study and use scientific inquiry to plan and conduct their study. They use science process skills as tools to help them gather, organize, analyze, and present their information like an engineer does.	<u>8 Practices</u> <u>1-Asking questions (scientist) and defining problems (engineer):</u> *Ask questions about what would happen if a variable is changed. *Identify testable and non-testable questions. *Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect. <u>2-Developing and using models:</u> *Build and revise simple models to represent, describe, or predict events and design solution. <u>3-Planning and carrying out investigations:</u> *Design and conduct investigations collaboratively that control variables and provide evidence, in the form of observations and/or data, to support	Procedure Materials Test/experiment Reasonable Outcomes Models Solution(s) Data (gather and record) Argument from evidence: -Citing relevant evidenced and posing specific questions	Trimester 1, 2, 3

	<p>explanations or design solutions.</p> <p>*Evaluate appropriate methods and/or tools for collecting data.</p> <p><u>4-Analyze and Interpret Data:</u></p> <p>*Participate in quantitative approaches to collecting data and conduct multiple trials of qualitative observations, in order to make sense of phenomena, as well as evaluate and refine design solutions.</p> <p><u>5- Use mathematics and computational thinking:</u></p> <p>*Decide if qualitative or quantitative data are best to determine whether a proposed object or tool meets criteria for success.</p> <ul style="list-style-type: none"> • Create and/or use graphs and/or charts generated from simple algorithms to compare alternative solutions to an engineering problem. <p><u>6-Constructing explanations (scientist) and designing solutions (engineer)</u></p> <p>*Identify and use appropriate evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.</p> <p>* Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.</p> <p><u>7-Engaging in argument from evidence</u></p> <p>*Construct, compare, and refine arguments based on an evaluation of the evidence and data presented</p> <ul style="list-style-type: none"> • Respectfully provide and receive critiques from peers by citing relevant evidence and posing specific questions. <p><u>8-Obtaining, evaluating, and communicating information</u></p> <p>*Evaluate the merit and accuracy of ideas and methods.</p> <ul style="list-style-type: none"> • Read and comprehend grade-appropriate complex texts and/or other reliable media in order to obtain and combine information from books and/or other reliable media to form written and/or oral explanations of phenomena or solutions to a design problem. <p>Source: NGSS Appendix F (2013)-Science and Engineering Practices</p>	Conclusion	
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Assessments	Resources
Pre/Post Test	<u>Book</u> *Harcourt Science Textbook (published 2000)

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Unit 3: Interdependent Relationships in Ecosystems (Animals and Plants)			
3-LS2-1 Construct an argument that some animals form groups that help members survive.	I can construct an argument that some animals form groups that help members survive.	Ecosystem Habitat Species Organism(s) Fossil Characteristics	Classify Groups Trimester 2
3-LS4-1 Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	I can study and understand data from fossils to give evidence of the organisms and the environments in which they lived long ago.	Impact Diversity Inherit Community Population	Trimester 2
3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	I can give an argument with evidence that in a certain habitat some organisms can survive well, some survive less well, and some cannot survive at all.	Survival Shelter Plants and their needs Photosynthesis Animals and their needs	Trimester 2
3-LS4-4 Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change	I can make a statement about the quality of solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	Resources Interact Predator/Prey Producer, consumer, decomposer Environment Food chain/food webs Energy pyramid	Trimester 2
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<p>use science process skills as tools to help them gather, organize, analyze, and present their information like an engineer does.</p>	<p><u>2-Developing and using models:</u> *Build and revise simple models to represent, describe, or predict events and design solution.</p> <p><u>3-Planning and carrying out investigations:</u> *Design and conduct investigations collaboratively that control variables and provide evidence, in the form of observations and/or data, to support explanations or design solutions. *Evaluate appropriate methods and/or tools for collecting data.</p> <p><u>4-Analyze and Interpret Data:</u> *Participate in quantitative approaches to collecting data and conduct multiple trials of qualitative observations, in order to make sense of phenomena, as well as evaluate and refine design solutions.</p> <p><u>5- Use mathematics and computational thinking:</u> *Decide if qualitative or quantitative data are best to determine whether a proposed object or tool meets criteria for success. • Create and/or use graphs and/or charts generated from simple algorithms to compare alternative solutions to an engineering problem.</p> <p><u>6-Constructing explanations (scientist) and designing solutions (engineer)</u> *Identify and use appropriate evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem. * Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.</p> <p><u>7-Engaging in argument from evidence</u> *Construct, compare, and refine arguments based on an evaluation of the evidence and data presented • Respectfully provide and receive critiques from peers by citing relevant evidence and posing specific questions.</p> <p><u>8-Obtaining, evaluating, and communicating information</u> *Evaluate the merit and accuracy of ideas and methods. • Read and comprehend grade-appropriate complex texts and/or other reliable media in order to obtain and combine information from books and/or other reliable media to form written and/or oral explanations of phenomena or solutions to a design problem.</p> <p>Source: NGSS Appendix F (2013)-Science and Engineering Practices</p>	<p>Models Solution(s) Data (gather and record) Argument from evidence: -Citing relevant evidenced and posing specific questions Conclusion</p>	
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Unit 4: Weather and Climate			
3-ESS2-1 Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	I can represent data in tables and graphical displays to describe typical weather conditions during a particular season.	Weather Meteorologist Temperature Precipitation Tropical Temperate Polar Bar graph Pictograph Thermometer	climate(s) pattern prediction benefit disadvantage wind vane anemometer rain gauge
3-ESS2-2 Obtain and combine information to describe climates in different regions of the world.	I can obtain and combine information to describe climates in different regions of the world.	Climate(s) Weather conditions	Trimester 3
3-ESS3-1 Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.	I can make a statement about the quality of a design solution that reduces the impact of a weather-related hazard.	Hazard Solution Reduces the impacts of	Trimester 3
Engineering Design			
3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	*I can plan and conduct a well-designed investigation and use scientific skills to help me learn and problem solve like a scientist and an engineer. (summary) *I can define a simple design problem reflecting a need or a want. (3-5-ETS1-1) *I can generate and compare multiple possible solutions to a problem. (3-5-ETS1-2) *I can plan and carry out fair tests to identify parts of a model or prototype that can be improved. (3-5-ETS1-3)	Investigation Methods Observation Hypothesis Variable(s) -independent, dependent, controlled variable	Trimester 1, 2, 3
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