ProPhone and the Environment Summer Bridge: Unit and NGSS Alignment

Unit 1: Introduction and Initial Set-Up	
Introduction to Program	*Disciplinary Core Ideas and Performance Expectations*
Learning Style Inventory	PS1.B: Chemical Reactions (PE: MS-PS1-2, HS-PS1-6)
Team-Builder: Group Juggle	*Science and Engineering Practices*
Interactive Notebook Set-Up	Asking questions
Introduction to Scientific Observations	Analyzing and interpreting data
Observation vs. Inference: Candle Demonstration	Constructing explanations
Graph Analysis: 4-3-2-1	Obtaining, evaluating, and communicating information
Interactive Notebook Reflection	
Unit 2: Tools of a Scientist	
Team-Builder: Real Scientists – Please Stand Up!	*Disciplinary Core Ideas and Performance Expectations*
Costa's Levels of Thinking	ETS1.A: Defining and Delimiting Engineering Problems (PE: MS-ETS1-1 and HS-ETS1-2)
Circular Madness: Linear Functions	ETS1.B: Developing Possible Solutions (PE: MS-ETS1.2)
The Rope Problem	*Science and Engineering Practices*
Designing an Experiment: Mealworms, Part 1	Asking Questions and Defining Problems
Interactive Notebook Reflection, Unit 2	Planning and Carrying Out Investigations
	Analyzing and Interpreting Data
	Using Mathematics and Computational Thinking
	Constructing Explanations
	Obtaining, Evaluating, and Communicating Information
Unit 3: Project Introduction and Ecology	
Designing an Experiment: Mealworms, Part 2	*Disciplinary Core Ideas and Performance Expectations*
Measuring with My Feet	ETS1.B: Developing Possible Solutions (PE: MS-ETS1-3)
Brain Break: Show Me Your Groove	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-1)
Dimensional Analysis Problems	*Science and Engineering Practices*
Let the Game Begin	Planning and Carrying Out Investigations
	Analyzing and Interpreting Data
	Using Mathematics and Computational Thinking
	Obtaining, Evaluating, and Communicating Information
Unit 4: Biomes and Biodiversity	
Ecology Vocabulary Memory Game	*Disciplinary Core Ideas and Performance Expectations*
Biomes of the World	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-1, MS-LS2-2, HS-LS-2)
Brain Break: Would You Rather…?	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-5, HS-LS2-6)
Biodiversity Activity for Different Biomes	LS2.D: Social Interactions and Group Behavior (PE: HS-LS2-8)
Building a Food Web, Part 1	LS4.D: Biodiversity and Humans (PE: MS-LS2-5)
Interactive Notebook Reflection, Unit 4	*Science and Engineering Practices*
	Asking questions (for science) and defining problems (for engineering)
	Developing and using models
	Analyzing and interpreting data
	Constructing explanations
	Obtaining, evaluating, and communicating information

Unit 5: Biotic Components of an Ecosystem	
Ecosystem Relationships	*Disciplinary Core Ideas and Performance Expectations*
Building a Food Web, Part 2	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-1, MS-LS2-2, HS-LS2-1, HS-LS2-2)
Brain Break: Making Words with Friends	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: HS-LS2-2, HS-LS2-6
Population Cycles	*Science and Engineering Practices*
Biological Magnification Simulation	Developing and using models
Interactive Notebook Reflection, Unit 5	Analyzing and interpreting data
	Using mathematics and computational thinking
	Constructing explanations
	Engaging in argument from evidence
Unit 6: Soil Testing and Abiotic Cycles	
Vocabulary Charades	*Disciplinary Core Ideas and Performance Expectations*
Soil Testing	LS2.B: Cycles of Matter and Energy Transfer in Ecosystems (PE: MS-LS2-3)
Team Builder: Stand and Choose	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-4)
Biogeochemical Cycles	ESS3.C: Human Impacts on Earth Systems (PE: MS-ESS3-3, MS-ESS3-4, HS-ESS3-4)
Interactive Notebook Reflection, Unit 6	*Science and Engineering Practices*
	Analyzing and Interpreting Data
	Constructing Explanations
	Obtaining, Evaluating, and Communicating Information
Unit 7: Topography and Water Testing	
Team Builder: Pyramid Challenge	*Disciplinary Core Ideas and Performance Expectations*
Topographic Maps and Models	MS-LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-4)
Characteristics of Water: Cornell Notes	MS-ESS3.C: Human Impacts on Earth Systems (PE: MS-ESS3-4)
Brain Break: Stand Up and Spell	HS-LS4.C: Adaptation (PE: HS-LS4-6)
Water Testing	HS-LS4.D: Biodiversity and Humans (PE: HS-ESS3-4)
Interactive Notebook Reflection, Unit 7	HS-ETS1.A: Defining and Delimiting Engineering (PE: HS-ETS1-2)
	Science and Engineering Practices
	Planning and carrying out investigations
	Analyzing and interpreting data
	Using mathematics and computational thinking
	Constructing explanations (for science)and designing solutions (for engineering)
Unit 8: Population Patterns and Dispersal	
Estimation Station	*Disciplinary Core Ideas and Performance Expectations*
So Many Species in Danger of Extinction	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-2, HS-LS2-2)
There Has to Be an Easier Way Than Counting: Random Sampling	*Science and Engineering Practices*
Team Builder: Human Knot	Developing and using models
There Has to Be an Easier Way Than Counting: Mark and Recapture	Analyzing and interpreting data
Building in the Desert: Part 1	Obtaining, evaluating, and communicating information
Interactive Notebook Reflection, Unit 8	

Unit 9: Population Growth Characteristics	
Habitat Destruction	*Disciplinary Core Ideas and Performance Expectations*
Modeling Exponential Growth	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-1, HS-LS2-1)
Team-Builder: Team Huddle	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-4, HS-LS2-6)
Exponential and Logistic Growth	LS4.C: Adaptation (PE: HS-LS4-6)
Hunting Dilemma: Philosophical Chairs	LS4.D: Biodiversity and Humans (PE: HS-LS4-6)
Building in the Desert: Part 2	ETS1.B: Developing Possible Solutions (PE: HS-LS4-6)
Interactive Notebook Reflection, Unit 9	*Science and Engineering Practices*
	Developing and using models
	Analyzing and interpreting data
	Using mathematics and computational thinking
	Engaging in argument from evidence
Unit 10: Human Impact	
Tragedy of the Commons	*Disciplinary Core Ideas and Performance Expectations*
Vocabulary Activity: Back Me Up	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-4, MS-LS2-5, HS-LS2-7)
Human Impact on Extinction	LS2.D: Social Interactions and Group Behavior (PE: HS-LS-8)
Cell Phone Life Cycle	LS4.C: Adaptation (HS-LS4-6)
Interactive Notebook Reflection, Unit 10	LS4.D: Biodiversity and Humans (PE: MS-LS2-5, HS-LS2-7, HS-LS4-6)
	ESS3.A: Natural Resources (PE: HS-ESS3-2)
	ESS3.C: Human Impacts on Earth Systems (PE: MS-ESS3-3, MS-ESS3-4)
	ETS1.B: Developing Possible Solutions (PE: MS-LS2-5, HS-LS2-7, HS-LS4-6)
	Science and Engineering Practices
	Asking questions (for science) and defining problems (for engineering)
	Developing and using models
	Analyzing and interpreting data
	Using mathematics and computational thinking
Unit 11: Using Resources Wisely	
Team-Builder: Your Choice	*Disciplinary Core Ideas and Performance Expectations*
Ecological Footprint	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-1)
Setting SMART Goals	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-4, MS-LS2-5, HS-LS2-7)
Pyramid Challenge with Words	LS4.D: Biodiversity and Humans (PE: MS-LS2-5, HS-LS2-7)
Tally the Money	ESS3.A: Natural Resources (PE: HS-ESS3-2)
Interactive Notebook Reflection, Unit 11	ESS3.C: Human Impacts on Earth Systems (PE: MS-ESS3-3, MS-ESS3-4)
	ETS1.B: Developing Possible Solutions (PE: MS-LS2-5, HS-LS2-7)
	Science and Engineering Practices
	Asking questions (for science) and defining problems (for engineering)
	Analyzing and interpreting data
	Constructing explanations (for science) and designing solutions (for engineering)

Unit 12: Processing the Grassland Data	
Team-Builder: Make It So!	*Disciplinary Core Ideas and Performance Expectations*
Ecosystem Concept Map	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-1, MS-LS2-2)
Introduction of Final Project	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-4, MS-LS2-5, HS-LS2-6)
Grassland Site: Data Sale	LS2.D: Social Interactions and Group Behavior (PE: HS-LS2-8)
Grassland Site: Processing the Data (Interactive Notebook Reflection	LS4.D: Biodiversity and Humans (PE: MS-LS2-5)
	ESS3.C: Human Impacts on Earth Systems (PE: MS-ESS3-3, MS-ESS3-4, HS-ESS3-4)
	ETS1.A: Defining and Delimiting Engineering Problems (PE: HS-ETS1-2)
	ETS1.B: Developing Possible Solutions (PE: MS-LS2-5)
Unit 13: Processing the Deciduous Site and Making a Final Decision	
Glows and Grows	*Disciplinary Core Ideas and Performance Expectations*
Deciduous Site: Data Sale	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-1, MS-LS2-2)
Team-Builder: Deserted Island	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-4, MS-LS2-5, HS-LS2-6)
Deciduous Site: Processing the Data	LS2.D: Social Interactions and Group Behavior (PE: HS-LS2-8)
Developing a Rubric	LS4.C: Adaptation (PE: HS-LS4-6)
Making a Final Decision and Job Assignments	LS4.D: Biodiversity and Humans (PE: MS-LS2-5, HS-LS4-6)
	ESS3.C: Human Impacts on Earth Systems (PE: MS-ESS3-3, MS-ESS3-4, HS-ESS3-4)
	ETS1.A: Defining and Delimiting Engineering Problems (PE: HS-ETS1-2)
	ETS1.B: Developing Possible Solutions (PE: MS-LS2-5)
	Science and Engineering Practices
	Asking questions (for science) and defining problems (for engineering)
	Developing and using models
	Analyzing and interpreting data
	Constructing explanations (for science) and designing solutions (for engineering)
	Engaging in argument from evidence
	Obtaining, evaluating, and communicating information
Units 14: Preparation for Presentation and Unit 15: Presentation	
Team-Builder: Musical Chairs	*Disciplinary Core Ideas and Performance Expectations*
Preparation for Presentation	LS2.A: Interdependent Relationships in Ecosystems (PE: MS-LS2-1, MS-LS2-2)
Completion of KWL	LS2.C: Ecosystem Dynamics, Functioning, and Resilience (PE: MS-LS2-5, HS-LS2-6
Presentation	LS4.D: Biodiversity and Humans (MS-LS2-5, HS-LS2-6)
	ETS1.B: Developing Possible Solutions (MS-LS2-5, HS-LS2-6)
	LS4.C: Adaptation (HS-LS2-6)
	Science and Engineering Practices
	Asking questions (for science) and defining problems (for engineering)
	Developing and using models
	Analyzing and interpreting data
	Constructing explanations (for science) and designing solutions (for engineering)
	Engaging in argument from evidence
	Obtaining, evaluating, and communicating information