ASTRONAUT TRAINING EXPERIENCE

GRADES 4-6 NEXT GENERATION SCIENCE STANDARDS	Activity 1	Activity 2
GRADE 4 4-LS1-1 From Molecules to Organisms: Structures and Processes Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-PS3-3 Energy Ask questions and predict outcomes about the changes in energy that occur when objects collide.	 X	 X
GRADE 5 5-LS1-1 From Molecules to Organisms: Structures and Processes Support an argument that plants get the materials they need for growth chiefly from air and water. 5-ESS2-1 Earth's Systems Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	 	 X X
GRADE 6 MS-PS2-2 Motion and Stability: Forces and Interactions Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. MS-PS3-5 Energy 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. MS-LS1-5 From Molecules to Organisms: Structures and Processes Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. MS-LS2-5 Ecosystems: Interactions, Energy, and Dynamics Evaluate competing design solutions for maintaining biodiversity and ecosystem services.	 X X X	 X
GRADES 4-5 3-5 ETS1-1 Engineering Design 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 Engineering Design 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 Engineering Design 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.	 X X X	 X X X
GRADE 6 MS-ETS1-1 Engineering Design Define the criteria and constraints of a design problem 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. MS-ETS1-2 Engineering Design Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	 X X	 X X

ASTRONAUT TRAINING EXPERIENCE

GRADES 7-12 NEXT GENERATION SCIENCE STANDARDS	Activity 1	Activity 2
GRADES 7-8 MS-PS2-2 Motion and Stability: Forces and Interactions Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	X	
MS-PS3-5 Energy 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.	X	
MS-LS1-5 From Molecules to Organisms: Structures and Processes Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.		X
MS-LS2-5 Ecosystems: Interactions, Energy, and Dynamics Evaluate competing design solutions for maintaining biodiversity and ecosystem services.		X
GRADES 9-12 HS-LS2-6 Ecosystems: Interactions, Energy, and Dynamics Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.		X
GRADES 7-8 MS-ETS1-1 Engineering Design Define the criteria and constraints of a design problem 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.	X	X
MS-ETS1-2 Engineering Design Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	X	X
GRADES 9-12 HS-ETS1-2 Engineering Design Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.	X	X
HS-ETS1-3 Engineering Design Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.	X	X

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