

Wright City Science Curriculum

Unit 1 - 2nd Grade

Grade	2
Unit of Study	Landforms and Bodies of Water
Length of Unit	20 days; 30 minutes per day
Sample Essential Questions can be 1, more if necessary	Sample Corresponding Big Ideas
What makes Earth change? How does Earth change quickly (or slowly)?	Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land; Wind and water can change the shape of the land (2- ESS2-1)
How can a model show landforms and bodies of water?	Maps show where things are located. One can map the shapes and kinds of land and water in any area (2-ESS2- 2)
Where is water found on Earth as a solid or liquid?	Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form (2.ESS2.C.1)
	Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary to 2.ESS2.A.1)

Missouri Learning Standards	
Priority Standards	Supporting Standards
2.ESS2.B.1 Develop a model to represent the shapes and kinds of land and bodies of water in an area	2.ETS1.C.1 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs
2.ESS2.C.1 Obtain information to identify where water is found on Earth and that it can be solid or liquid	2.R.3.A Text Features: Develop and apply skills and strategies to comprehend, analyze, and evaluate nonfiction (e.g., narrative, information/explanatory, opinion, persuasive, argumentative) from a variety of cultures and times. Read, infer, and draw conclusions. (ESS1.C.1 and ESS2.A.1)

2.ETS1.B.1 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem	2.R.3.C Text Structures: Develop and apply skills and strategies to comprehend, analyze, and evaluate nonfiction (e.g., narrative, information/explanatory, opinion, persuasive, argumentative) from a variety of cultures and times. Read, infer, and draw conclusions.(ESS2.A.1)

Unit 1 Sequence			
MLS	Topic(s)	Learning Targets	Academic Vocabulary
			landform, body of water, hill, mountain, valley, plains, desert, plateau, peninsula, coast, waterfall, island, ocean, river, canyon, lake, volcano, iceberg

MLS	Learning Activities	
	Ada Twist, Scientist	Must Do
2.ESS2.B.1 Develop a model to represent the shapes and kinds of land and bodies of water in an area	Key Experiments and Activities (2.ESS2.B.1) • Beach Erosion Experiment (Sand & Water Tray): Students build a slope of sand and use a spray bottle or watering can to simulate rain, observing how sand washes away. They then introduce "solutions" like toothpicks (trees), rocks, or plastic barriers to protect the sand. • Soil Erosion Test with Plants: Place soil in two containers, one with plants (or grass grown in it) and one without. Tilt them and pour water, comparing the amount of soil eroded. • Designing Windbreaks: Use a fan or hair dryer to blow air across a sand tray, demonstrating wind erosion. Test materials like small walls, cardboard, or toy trees to see which design best prevents sand from blowing away. • Forming Canyons and Arches with Water: Use wet sand packed into large containers to create landforms. Pour water to observe how water creates canyons, arches, and sea stacks, and discuss how to stop the erosion.	Option Level
2.ESS2.C.1 Obtain information to identify where water is found on Earth and that it can be solid or liquid	Top Erosion Mitigation Experiments for 2.ESS2.C.1 • Soil Erosion Simulation (The "Plant" Test): Use a tray filled with soil and create a slope. Pour water (simulating rain) on it to show erosion. Compare the results with a second tray where vegetation (grass or moss) or small rocks have been added to hold the soil in place. • Controlling Erosion Design Challenge: Students act as engineers to design a solution that prevents a sandy hillside from being washed away. They can test various materials, including, ○ Shrubs/Grass: Using plastic plants or real sod to anchor the soil. ○ Rocks/Walls: Using pebbles to build a retaining wall.	Option Level

	● Windbreak Experiment: Use a fan to represent wind against a pile of sand. Students can test different materials (small sticks, thin barriers) to see which design best prevents the sand from blowing away. ● Data Collection and Improvement: After testing their prototypes, students analyze how much sand was washed away, and improve their design for a second trial.	
2.ETS1.B.1 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem	Recommended Experiments for 2.ETS1.B.1 ● Marshmallow Tower Challenge: Students design and build the tallest tower possible using marshmallows and spaghetti, then test and improve their designs. ● Mitten Insulation Station: Students test different materials (foil, cotton, wool) to see which keeps a "hand" (bag of ice water) warmest, designing the best insulating mitten. ● Aluminum Foil Boat Challenge: Students design a boat that can hold the most weight (pennies) without sinking, forcing them to test and refine their design shapes. ● Parachute Engineering: Students create parachutes for small toys using plastic bags, string, and cups, testing which design allows for the slowest descent. ● Tornado in a Jar/Water Filtration: Simple models that allow students to visualize a problem and test potential solutions for cleaning or managing water.	Option Level
		Option Level
		Option Level
		Option Level

Assessments		
MLS	Description or Location	Rubric/Location