2nd Grade QUESTs
Guam Solution-based STEM Design Challenges

Design Challenge, Anchor Question	NGSS Performance Expectation	Description
QUEST: Model pollination or seed dispersal by animals How can you model the way a specific animal helps disperse seeds or pollinates a flower?	2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.* NGSS 2-LS2-2 page	Some native plants on Guam rely on specific animals to help with pollination and/or seed dispersal. However, many pollinators and seed eaters no longer exist on the island, and some plant populations are decreasing. *Create a model (physical or picture) that mimics how pollination or seed dispersal by animals happens on Guam. Choose between a model of the flower and structure of the animal that helps pollinate the flower OR a model of the seed and how the animals disperse it.
QUEST design challenge description is in the 2nd grade folder.		

Resources for more Guam-STEM design challenge ideas you could try on your own

Design Challenge	NGSS Performance Expectation*	Lesson Resources
Compare different types of packing beads and other packing materials (plastic and biodegradable cellulose from plants). How can families and businesses reduce the waste from packing materials in packages shipped to and from Guam? Talk with the postal shipping service or trash company.	**2nd grade** 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.* NGSS 2-PS1-2 page	• Video of lesson: Eco-friendly packing peanuts- Steve Spangler Sick Science. https://www.youtube.com/watch?v=PNz198hMboQ • Here is a Slide deck for teaching

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Design Challenge	NGSS Performance Expectation*	Lesson Resources
Create a model of Guam with its coral reef or shoreline mangroves that can be tested to determine how they protect the shoreline in severe storms and strong waves.	2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.* NGSS 2-ESS2-1 page	● Modify this model by putting objects in water as coral: Water barrier to hold back water (surge) Learning the Engineering Design Process: Just Add Mud and Sticks http://elemngss.blogspot.com/2014/12/learning-engineering-design-process-in.html ● How do coral reef help protect coastlines from erosion? (text and video demo) https://www.sidmartinbio.org/how-do-coral-reefs-help-protect-coasts-from-erosion/ ● Ocean Wave video explanation NOAA http://oceanexplorer.noaa.gov/edu/learning/player/lesson09.html ● Coastal erosion for kids https://littlebinsforlittlehands.com/coastal-erosion/ ● Save Our Shore http://teachers.egfi-k12.org/save-our-shore/ ● Build coral polyp https://www.calacademy.org/educators/lesson-plans/build-a-coral-polyp ● Edible coral model https://lemonlimeadventures.com/super-simple-edible-coral-reef/