Sonoran Desert K-8 STEAM & Maker Lesson Plan Compendium

Place-Based Engineering, Desert Ecology & Low-Cost Maker Inquiry

Clearwater School of Education - Phoenix, Arizona

PHILOSOPHY OF ACCESSIBLE MAKER PEDAGOGY

Inquiry-based STEM must be accessible to every school regardless of capital budget. This compendium contains 20 tested classroom engineering challenges utilizing cardboard, recyclable plastics, simple micro-motors, and native Sonoran desert materials to teach NGSS crosscutting concepts.

FEATURED LESSON 1: SAGUARO CACTUS WATER RETENTION MODELS

Students in grades 3-5 investigate internal accordion pleating and mucilage properties of the Saguaro cactus, engineering tactile models that compare evaporation rates between pleated and flat storage reservoirs.

FEATURED LESSON 2: SOLAR CONVECTION FOOD DRYERS

Upper elementary students build cardboard parabolic solar dehydrators to study thermal radiation and heat transfer, examining traditional Indigenous and Sonoran food preservation methods.