

# Geographic Concepts and STEM Learning: using geography and spatial thinking to attract diverse students to STEM disciplines

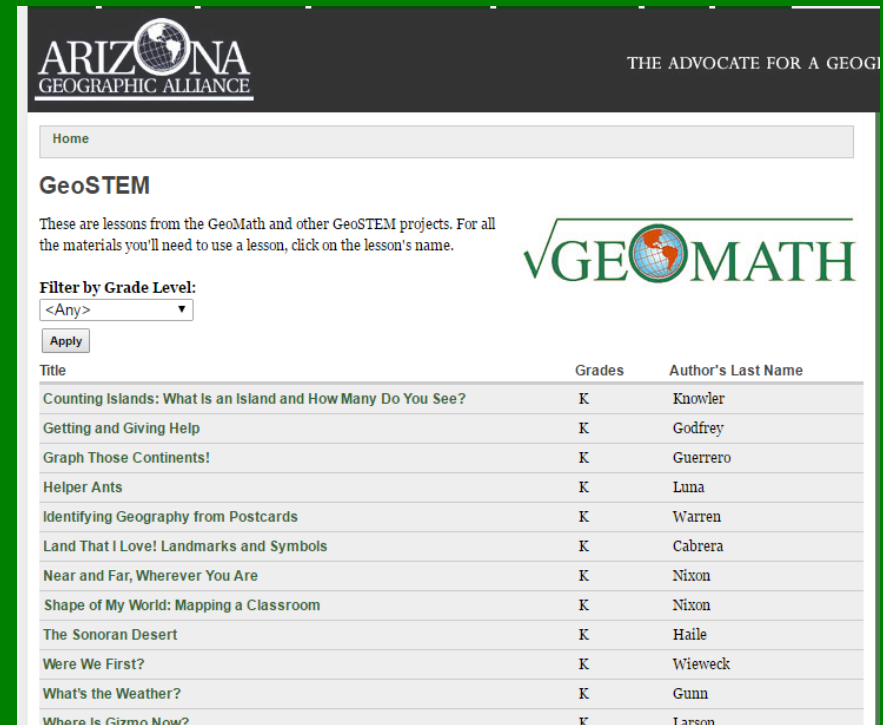
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# Research to Date

- Using geographic concepts of scale, space and connection to teach complex math and science concepts is not new
- Arizona GeoSTEM and GeoMath



The screenshot shows the website for the Arizona Geographic Alliance. The header includes the logo for the Arizona Geographic Alliance and the tagline "THE ADVOCATE FOR A GEOGRAPHIC EDUCATION". Below the header is a navigation bar with a "Home" link. The main content area is titled "GeoSTEM" and includes a brief description: "These are lessons from the GeoMath and other GeoSTEM projects. For all the materials you'll need to use a lesson, click on the lesson's name." To the right of this text is the "GeoMATH" logo, which features a stylized globe and the text "GeoMATH". Below the description is a "Filter by Grade Level:" section with a dropdown menu set to "<Any>" and an "Apply" button. The main content is a table listing various lessons.

Title	Grades	Author's Last Name
Counting Islands: What Is an Island and How Many Do You See?	K	Knowler
Getting and Giving Help	K	Godfrey
Graph Those Continents!	K	Guerrero
Helper Ants	K	Luna
Identifying Geography from Postcards	K	Warren
Land That I Love! Landmarks and Symbols	K	Cabrera
Near and Far, Wherever You Are	K	Nixon
Shape of My World: Mapping a Classroom	K	Nixon
The Sonoran Desert	K	Haile
Were We First?	K	Wieweck
What's the Weather?	K	Gunn
Where Is Gizmo Now?	K	Larson

# Research question

- Will the integration of geographic concepts, coupled with place-based problems appeal to a larger body of students, and lead to additional recruitment and attainment of underrepresented minorities and women in STEM related disciplines?
- Started at the elementary school level
  - 4th & 5th grades
- Curriculum is adaptable to middle and high school learners



# Methods

- Pilot tested geography based math and science curriculum in a 5<sup>th</sup> grade science class
- Held a workshop with 15 elementary, middle and high school teachers
- Teachers were encouraged to take the curriculum back to their classrooms and implement it



# Results

# Conclusions

# Discussion/Questions