VISTA

VIRGINIA INITIATIVE FOR SCIENCE TEACHING AND ACHIEVEMENT

VISTA

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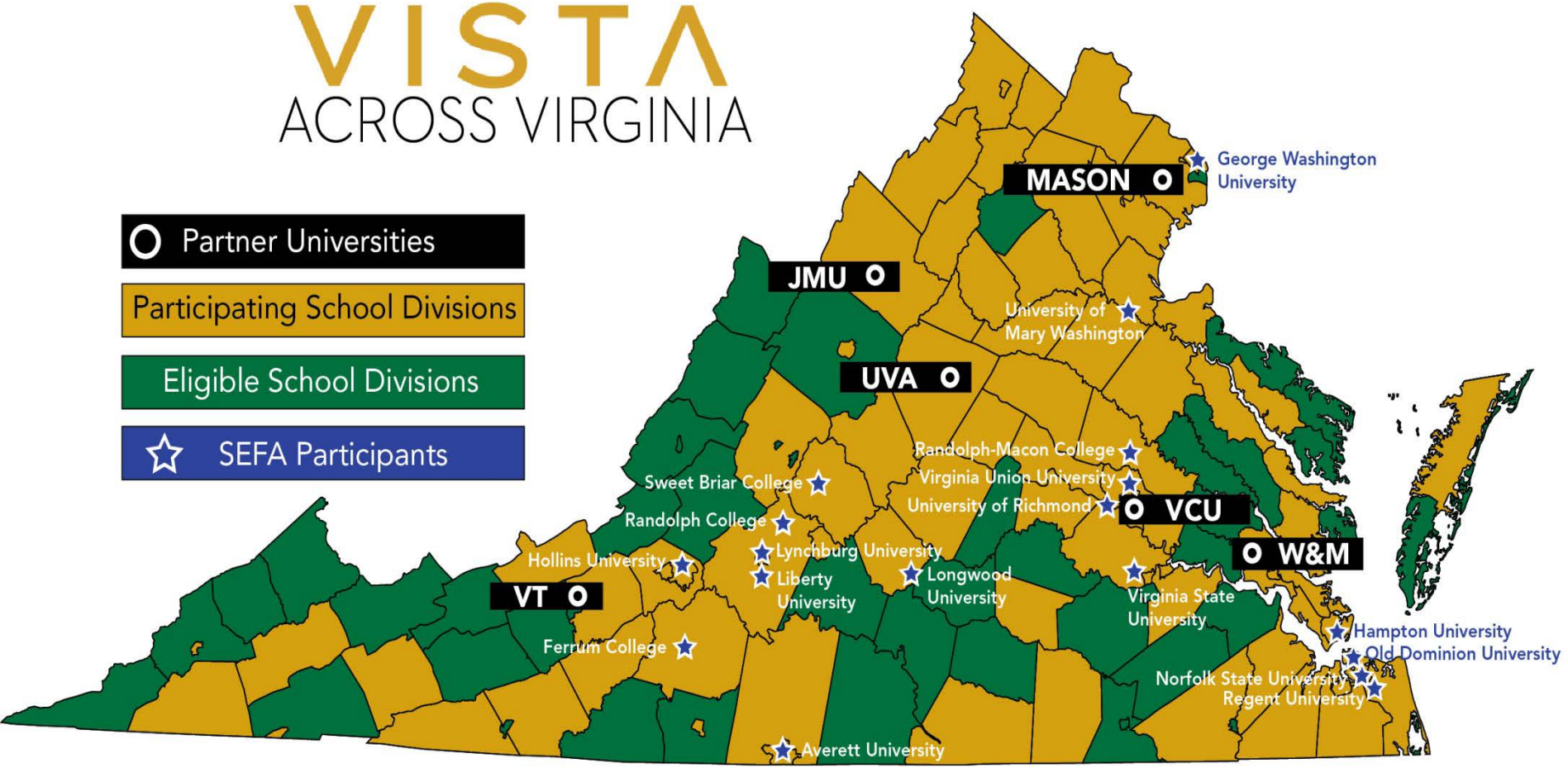
Mid-Atlantic Environmental Literacy Summit

VISTA is Collaborative

- 6 Virginia Universities + Oregon State University
- 80+ Virginia School Divisions
- Virginia Department of Education
- US Dept of Education “Investing in Innovation” (i3) Program
  - 1 of 49 awards out of nearly 1,700 submissions
  - $34M including $5.7M Private Sector Matching Requirement
  - (Exemplary Project and Validation Project)

VISTA ACROSS VIRGINIA



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VISTA Participants

- 82 of 132 school divisions in Virginia
- 19 of 35 colleges with education programs

- 603 elementary and secondary teachers
- 20,220 students taught by VISTA teachers

- 62 school division science coordinators
- 635,000 students served by science coordinators

Four Main Programmatic Elements

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In-depth professional development programs for elementary science teachers

Graduate-level academic certification and support for provisionally licensed middle and high school science teachers

New science coordinator professional development

Collegiate-level professional development for science education faculty

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540 elementary teachers who teach 37,000 elementary students will receive:

Month-long immersion "Institute"	Year of coaching	Professional development	Online and in-class resources
•More science content •Problem-based learning •Teach students in camp •Curriculum planning	•VISTA coach	•Annual conference	•ExploreLearning •Real science equipment

Validating research: Each teacher is evaluated six different ways throughout the year to validate the impact of "inquiry based" teaching.

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300 <u>secondary</u> (middle and high) school teachers will teach 112,000 middle and high school students. Each will receive:

- Two graduate science methods courses
- 2 years of coaching
- Professional development
- Online and in-class resources

Validating research: Each teacher is evaluated six different ways throughout 2 years to validate the impact of “inquiry based” teaching.

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VISTA *Logic* Model

Context

oGlobal and local economic competition

o Shortage of secondary school certified science teachers in US and VA

o Lack of support for elementary school science teaching

o Increased demand for STEM workforce

o Need for increased scientific literacy for US

o Needs of children in elementary and secondary grades to investigate science

Inputs

Funding
-Philanthropic
-State
-Federal

Science Standards
-Inquiry
-Rigor & relevance
-Interdisciplinary content
-Standards SOL and NSES

Leadership
-commitment
-Policies

Partnerships between state, universities and school districts
-shared resources
-defined roles

Community of Practice and Continuous Improvement

Elementary Teacher Intervention

Summer Institute
- Learning community
- Integrated school teams
- Exemplary learning experiences
- Problem –solving focus
- Supports to implement inquiry-based learning with students
- Differentiated instruction

Follow-up Support
- Student work analysis to inform practice

Coaching
- In-class support from *master* science teacher

Family Engagement
- Participation in learning experiences at university
- Mediated learning experiences

Secondary Teacher Intervention

Science Methods Courses
- Sequence from basic to advanced
- Focused on teaching inquiry
- Utilizing differential instructional strategies
- Technology integrated to support instruction
- Diagnostic, formative, summative, confirmatory student work to inform practice

Coaching
- "just-in-time" science teacher
- Co-planning and teaching
- Problem-solving focus
- In-class support from master classroom science teacher

Leader Intervention

School District Science Coordinators
- Learning, sharing and leading community
- Network of support
- Problem solving community

College Science Educators
- learning, sharing and leading community
- Network of support
- Problem solving community
- research-based practice

Principals
- Familiarity with inquiry-based science teaching

Outcomes

Teachers
-improve science teaching and collaboration
-increased rates of certification in science
-stronger professional community

Students
-increased scores on Science SOLs
-favorable student attitudes towards science content
-increased student engagement

Leaders
-informed support
-cheerleaders with a vision
-stronger professional network
-facilitators of learning

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Innovating Science Education Across Virginia

Example 1: Measurement of Human Impact on the Environment

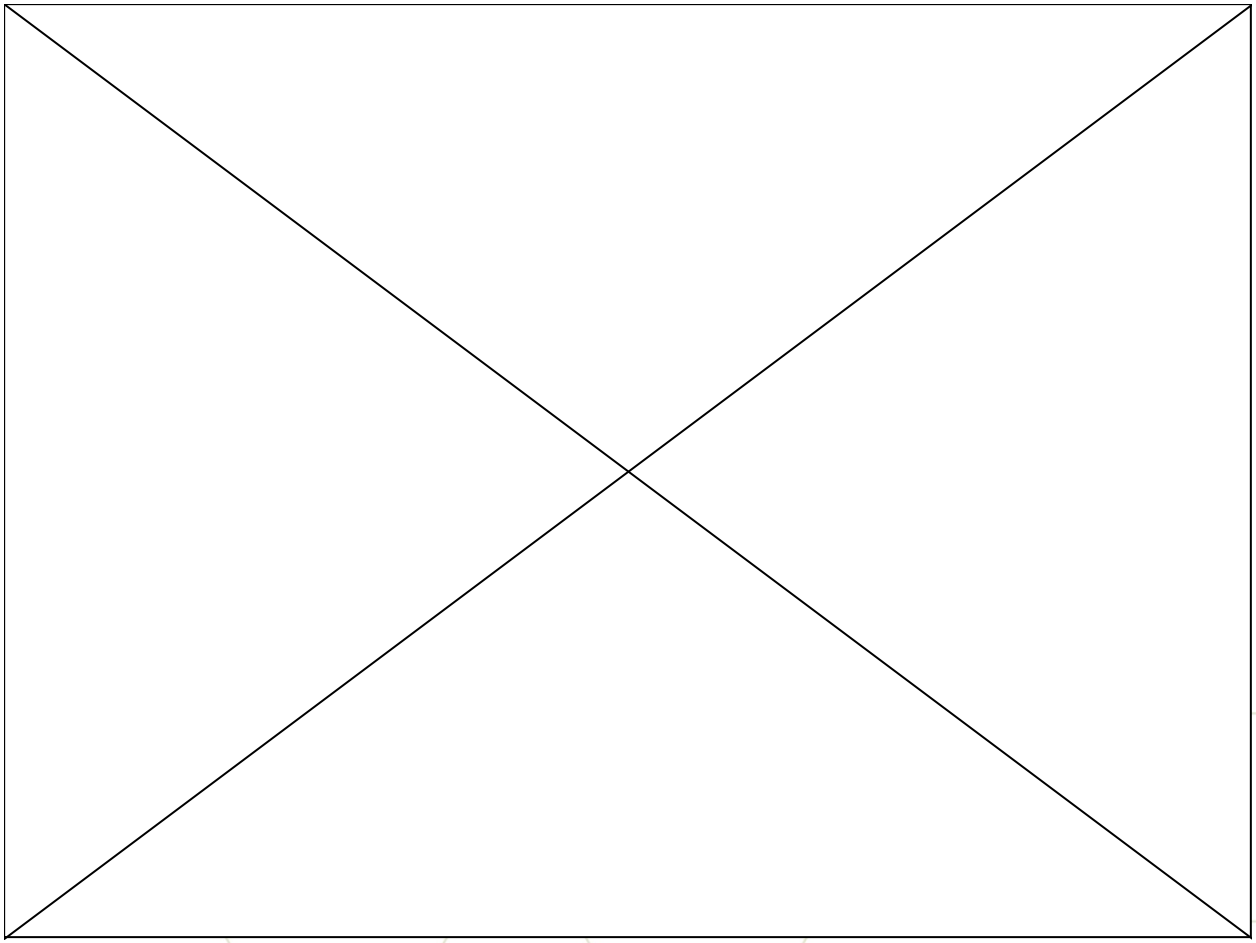
- Problem: How does George Mason University impact the local ecosystem?
- Scenario: Mason is trying to earn the highest level STARS rating. STARS has hired you to go undercover and evaluate the campus. You are to final ecological issues and make recommendations for improvement to Mason.
- Student Role: Junior Ecological Experts (undercover name: SEA Team [secret ecological agents])
- Culminating Project: Report and presentation to STARS committee

What is VISTA?

VCU: Energy

- Problem: What alternative forms of energy are available to us in VA and what are the environmental impacts?
- Scenario: The head of Dominion VA Power needs our help! The National Weather Service has predicted that this will be a particularly bad hurricane season for VA. Dominion is very concerned that our current energy supply is not adequate due to recent extended power outages after severe storms. Dominion wants us to find alternative ways to provide energy to our community during these outages. Dominion plans to evaluate your plan as a potential long-term alternative energy plan.
- Student Role: Power Up SEGway
- Culminating Project: 3-D model; present alternative energy sources

VISTA Kids Camp - VCU



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