

Project VICTORY Virtually-Infused Collaborations for Teaching and Learning Opportunities for Rural Youth:

Implementation and Evaluation of Online and Face-to-Face Delivery in High-Needs Schools









OFFICE OF Elementary & Secondary Education Education Innovation and Research



Over the past years, I know you will agree with us that we have had one of the most widespread uncontrolled experiments in online learning in education's history.

We owe it to our children to "know" what is "good" and what is "not" in a controlled environment when we find ourselves in this situation again. We have some qualitative data -- but we need to check online learning against face-to-face learning with quantitative data as well. We owe it the children and ourselves to add critical information to our knowledge base.

Project VICTORY goals

- support grades 3-5 teachers with enrichment program to help build instructional capacity to integrate literacy into science instruction
- cultivate student interest in STEM, particularly in science
- reduce disparities between rural and non-rural students
- examine impact of standards-aligned literacy-infused science lessons (lessons and curriculum materials provided)
- compare traditional face-to-face instruction and online instruction
- determine influence of additional science supports including family involvement in science and science mentors
- utilize technology to bring innovations to high-needs students in rural areas

Benefits

- No-cost, professional development support to build instructional capacity to integrate literacy into science instruction (including teacher laptop to be used for virtual training, virtual observations, and virtual mentoring and coaching)
- Science curricular innovations (science manipulatives, student tablets, university science mentors, family take-home science activities)
- Expected improvement in students' science and reading/writing literacy achievement on local, standardized, and state science assessments
- Teachers, district IT support, and district data-retrieval receive stipend
- Participating parents/family receive incentive for supporting in-home learning (FIS, attendance and engagement of online students)

VICTORY contributions per campus

Technology \$4705

Teacher laptop, Bluetooth earbuds, webcam (\$1000); Student tablets (\$120 x 25 consented students = \$3000); Nearpod access (\$175); LogMeIn license (\$530) NOTE: Technology moves through grade levels w/students **Curriculum \$2675**

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Family Involvement in Science booklets (\$5/booklet x 9 booklets x 25 students = \$1125); Science manipulatives, classroom materials (\$1000); Science undergraduate mentor (\$500)

Professional development \$1125

Real-time online coaching sessions; online professional development sessions

Stipends between \$1700 - \$2375 depending on instructional mode

Teacher stipend online (\$1575 per teacher/year based on participation); Teacher stipend face-to-face (\$900 per teacher/year based on participation); District/campus technology support (\$400/year); District data retriever (\$400/year)

Wireless support for online instructional mode \$550

MiFi device (for families w/o internet - \$40 x 5 devices = \$200)

MiFi internet service/3 months (for families w/o internet -- \$35/month x 3 months x 5 devices = \$525)

4th grade total = approximately \$10,755 3 year project total approximately: \$32,265



Campus Roles



- Year 2: Grade 4 science teachers, Fall 2022 implementation
 - 9 weeks of literacy-infused science instruction by teacher
 - two 45 minute sessions per week
 - 9 weeks of Family Involvement in Science at-home activities
- Participating campuses will be **randomly assigned** to implement literacy-infused science instruction special opportunity for science enrichment
 - *either face-to-face* literacy-infused science instruction during school hours, or
 - **online instruction** outside of school hours
 - **NOTE:** Once randomly assigned either F2F or online instruction the campus maintains that assignment throughout the project.
- Teacher stipends based on participation
 - Face-to-face up to \$900
 - Online up to \$1575
 - Stipends are paid directly to teachers from the university

Project VICTORY components



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Literacy-Infused Science

- Standards-aligned science lessons that facilitate student
 - reading comprehension
 - academic science concepts
 - scaffolded vocabulary instruction
 - scaffolded science reading text
 - before, during, and after reading supports
 - writing opportunities

LIS: Enrichment Curriculum

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- Standards-aligned science lessons with components to facilitate student reading, comprehension, and development of academic science concepts
- Strategic opportunities for students to listen, speak, read, and write
- Integrated hands-on science activities



Day 1: Hands-on exploration



LIS: Enrichment Curriculum



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weathering (noun) - the process of wearing down or breaking down rock

Day 2: Explicit vocabulary instruction



How do you think this rock arch was made?

I think this rock arch was

"

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made when _____.

LIS: Enrichment Curriculum TEXAS A&M ÅΜ NIVERSITY Weathering of Rock Helps Form Soil Support Decoding: Preview Reading Guide: Weathering of Rocks Helps Form Soil Did you know it takes hundreds of years for new soil to form? Soil formation is an ocabulary mathering - slow wearing away of rock example of a slow change to the Earth's surface. We learned that soil is made up of many Review the vocabulary words aphic Organizer: Sequence e words in this passage can help you figure out the sequence or order of events me of these clue words are: first, second, next, then, after. Complete these materials. Soil is made of tiny particles of decomposed plants and animals. Soil also and definitions. contains tiny pieces of rock. Have you ever wondered how nature weathers, or breaks for ma tion 9 Wind Weathers Rock - 90 rocks into smaller pieces? • Preview the web organizer. Small pieces of What is Weathering? rock become part of the soil par ti cles • When you read the passage, Over time, wind and water break down, or wear away rocks. This process is called weathering. One way soil is made is by think about the steps weathering of rock.

de com pose

Wind causes weathering of rock. First, wind blows bits of sand and dust against rocks. Then, the small pieces of worn rock break into even smaller pieces. Wind also causes the small pieces of rock to move. Slowly over time, the small broken pieces of rock help to form new soil.

> Water also causes weathering of rock. One example is when strong ocean waves pound on rocks near the shore Over time, the force of the water breaks away small pieces of rock. Then, the moving water carries the small pieces to

Figure 2 Over time waves break away small pieces of rock

Weathering can also take place when water freezes inside of rocks. To start, rain water seeps into cracks in rocks. Then, the water gets cold enough to freeze inside the rock. Next, frozen water expands and starts to break the rock apart. This process happens over and over breaking the rocks into smaller and smaller pieces. These small pieces of rock can become part of the soil over time

another location.



Figure 1. Thousands of years of

weathering formed this rock arch in

over and over, it can cause rock to crack and break into smaller pieces.

VICTORY G3 Geology Explorers

Weathering W2D2 Explain

Weathering of Rocks Helps Form Soil

- 1. Work with your assigned reading partner to use the R.A.P. strategy Read the first paragraph aloud. Stop. Read it again. Ask yourself what you read. Think about it in your head. Put it in your own words. Tell your partner about what you read.
 - **Partner A:** Read the first paragraph and follow the R.A.P. strategy
 - Partner B: Read the next paragraph and follow the R.A.P. strategy
- 2. When you come to a new paragraph, switch roles.
- Help each other sound out and read tricky words. 3.
- 4. Discuss text features (headings, bold words, pictures, captions).

Day 2: Strategic reading supports (decoding and comprehension)

(sequence) of how wind and water weather rock.



Reading Partners:



LIS: Scientists as Role Models and Mentors

 Connects TAMU university science majors as mentors to teachers, classrooms, and students (teacher facilitated)



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 Designed to motivate and engage students about STEM learning and science-related careers



Matthew Dorsey, VICTORY SRM²



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Makeda Mills, VICTORY SRM²

LIS: Family Involvement in Science

Family Involvement in Science (FIS)

booklets contain short take-home activities for families to explore and review science concepts. Available in English and Spanish.

Research shows that family and parent involvement helps increase a student's confidence and achievement in science. FIS is designed to support language development, vocabulary, and science knowledge, while helping improve students' attitudes toward learning science.





Target

Student

word art

vocabulary:

definitions and

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Hands-on science activities:

For families to have fun exploring science concepts. Materials are commonly found at home or are provided.



The Importance of So Vhat is Soil? Soil is all around us. Soil is a thin layer of material that wers the Earth's surface. It can be found all around he world. Soil is more than just dirt. Soil is made up Soil is made of tiny particles from the ants and animals. Soil is also made up of air, water, nd small pieces of rock. Rock is a solid material that i und on the Earth's surface. Rocks form when two re minerals combine together. Some nerals are iron and salt Why is Soil Important? oil helps plants grow. The roots of a plant soak ater and minerals from soil. Without soil we would able to grow plants. We use plants for food, clothes edicine, and materials we use to build. Huma Soil is also home for many living things. Insec thworms, mushrooms, and mold live in soil. The ing things help decompose, or break down the nains of dead plants and animals. After a long t e remains become part of the soil. The remains ar e minerals and nutrients into the soil. Soil is

Related reading passage: For families to take turns reading together

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Y1 Data Collection



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- Quantitative Data (numerical)
- Teacher administered group student assessments before/after 9 week teacher implementation (only three short group assessments)
- \$400 annual stipend provided for district 'data retriever' to provide student level data for STAAR science, reading, and writing
- Analysis of classroom observations coded
 using
 - Science Teacher Observation Record (STOR)
 - Pedagógical Observation Protocol (POP)

- Teacher surveys
- Teacher focus group interviews
- Teacher reflections
- Principal surveys/interviews
- Student science interest survey
- Student work samples
- Family involvement in science recordings

Y1 Teacher Participation

- Teacher participation typically one year only (4th grade 2022-23; 5th grade 2023-24)
- Participate in 10 hours of online professional learning outside of school hours
- Implement Literacy-infused science lessons (two 45 minute sessions per week for 9 wks)
- Participate in **VMC** virtual real-time coaching and mentoring sessions
- Encourage parent participation in **Family involvement in Science** activities
- Support the interactions between **university science majors** and students
- Facilitate distribution and collection of student/parent **consent forms**
- Self-record virtual classroom observations
- Administer group **student testing** before and after the 9 weeks (3 assessments)
- Participate in surveys and focus group interview
- Stipend paid based on participation (face-to-face = \$900; online = \$1575)



Principal Participation

- Support participating teachers as they implement literacy-infused science lessons for 9 weeks
- Communicate with project personnel (reach out with any questions/concerns, respond to email requests)
- Attend/assign campus administrator/instructional support person to engage in VPD along with teachers to help support the fidelity of implementation
- Support campus/district IT in providing technology support as needed to assist teachers to conduct recorded classroom observations (IT support receives \$400/year)

Family/Parent Participation

- Support student attendance and participation of online instruction (if applicable)
- Participate in at-home Family Involvement in Science (FIS) activities during the 8 weeks

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- Technology will be provided to record family interactions with the FIS activities
- Complete a survey based on their perceptions of FIS
- Participate in online/phone interview related to participation
- Gift card incentive

Timeline (Tentative)

Summer

- June-August: Recruitment of campuses and teachers
- For new schools -
 - (Goal) Week of August 8: Randomization announced/assignment to online or face-to-face instruction, MOU sent to district
 - August ship out technology (teacher laptop, student tablets) shipped to district

Fall

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- Week of Aug 22: Online teacher PD starts (1 hour session/week)
- Aug. 29 Sept. 7: Parent/student recruitment
- **Sept. 12-16:** Student pre-assessment window
- Sept. 19: Start implementation of VICTORY
 - 9 weeks of literacy-infused instruction (two 45-minute lessons) through Nov. 19
- Nov 29-Dec 7: Student post-assessment window



FOR MORE INFORMATION, PLEASE CONTACT



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