



DATA PUZZLES

Analyzing authentic data with inquiry-based instructional practices

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WHAT IS A DATA PUZZLE?

- Free classroom resources that combine authentic and relevant scientific data datasets with research-backed instructional practices (see “Intellectual Engagement” figure below)
- Co-developed with CIRES scientists and education and outreach team members
- Tool to increase the reach, impact, and value of CIRES scientists’ research



DATA PUZZLE EXAMPLE

Title: To Reflect Or Not To Reflect

Scientific Question: Does the measurement of the Arctic’s albedo relate to the observed decline in sea ice?

Featured Scientist: For this lesson, CIRES scientist Dr. Jen Kay, queried and organized shortwave energy data from CERES instruments and Arctic sea ice data from microwave radiometers to help students make sense of the Arctic’s changing energy budget.



Dr. Jen Kay

View the full Data Puzzle collection: <https://datapuzzles.org>

BROADEN THE IMPACT OF YOUR SCIENCE!

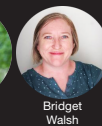
Calling all CIRES scientists! Do you have an interesting dataset that could be turned into a Data Puzzle?

Contact jonathan.griffith@colorado.edu if you are interested in working with our team to translate your data into an educational resource!

DATA PUZZLE TEAM MEMBERS



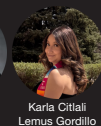
Jon Griffith



Bridget Walsh



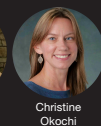
Anne Gold



Karla Citlali Lemus Gordillo



Ami Nacu-Schmidt



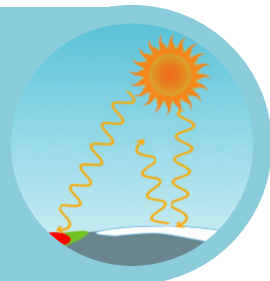
Christine Okochi



Kerri Wingert

EXPLANATORY MODEL CONSTRUCTION

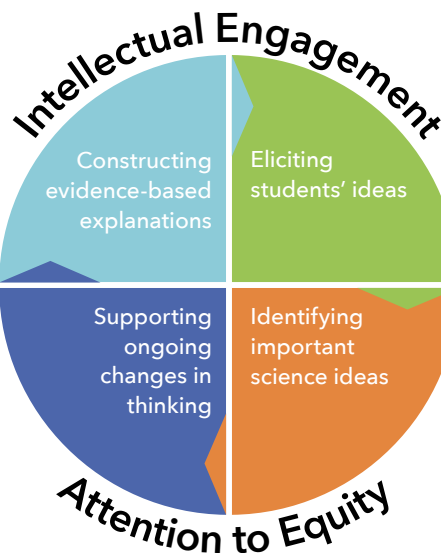
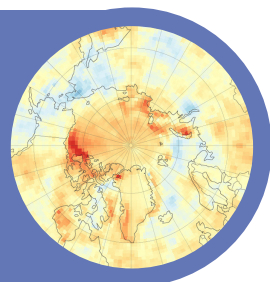
Students communicate new science ideas via the construction of a conceptual model to explain/answer the scientific question.



SUPPORTING ONGOING CHANGES IN THINKING

Students *analyze and interpret authentic data to confirm or refute their predictions for the scientific question.

*Ask us about new data sensemaking strategies!

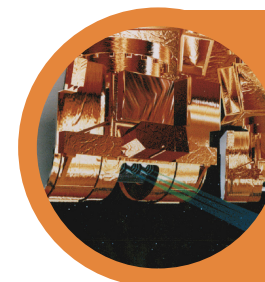


Research-backed instructional practices.
Figure modified from Ambitious Science Teaching.



ELICITING STUDENTS' IDEAS

Help students connect to the scientists’ research by eliciting students’ ideas about similar/related events or scenarios.



IDENTIFY IMPORTANT SCIENCE IDEAS

Connect students to the scientist and their work via an interactive reading complete with visuals, guided questions, and student predictions related to an established scientific question.