Data Visualization Activity

Begin exploration of maps and data to better understand earthquakes and volcanic activity.

Grade Level	3rd-5th Grade
Activity Length	20-30 Minutes
Materials	Volcano-Earthquake Map Blank piece of paper Two colors of pens or pencils

Disciplinary Core Ideas
(ESS2) Earth's Systems

SEEd Standards:

Strand 5.1: CHARACTERISTICS AND INTERACTIONS OF EARTH'S SYSTEMS Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). Within these systems, the location of Earth's land and water can be described. Also, these systems interact in multiple ways. Weathering and erosion are examples of interactions between Earth's systems. Some interactions cause landslides, earthquakes, and volcanic eruptions that impact humans and other organisms. Humans cannot eliminate natural hazards, but solutions can be designed to reduce their impact.

Standard 5.1.1 Analyze and interpret data to describe patterns of Earth's features. Emphasize most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans while major mountain chains may be found inside continents or near their edges. Examples of data could include maps showing locations of mountains on continents and the ocean floor or the locations of volcanoes and earthquakes. (ESS2.B)

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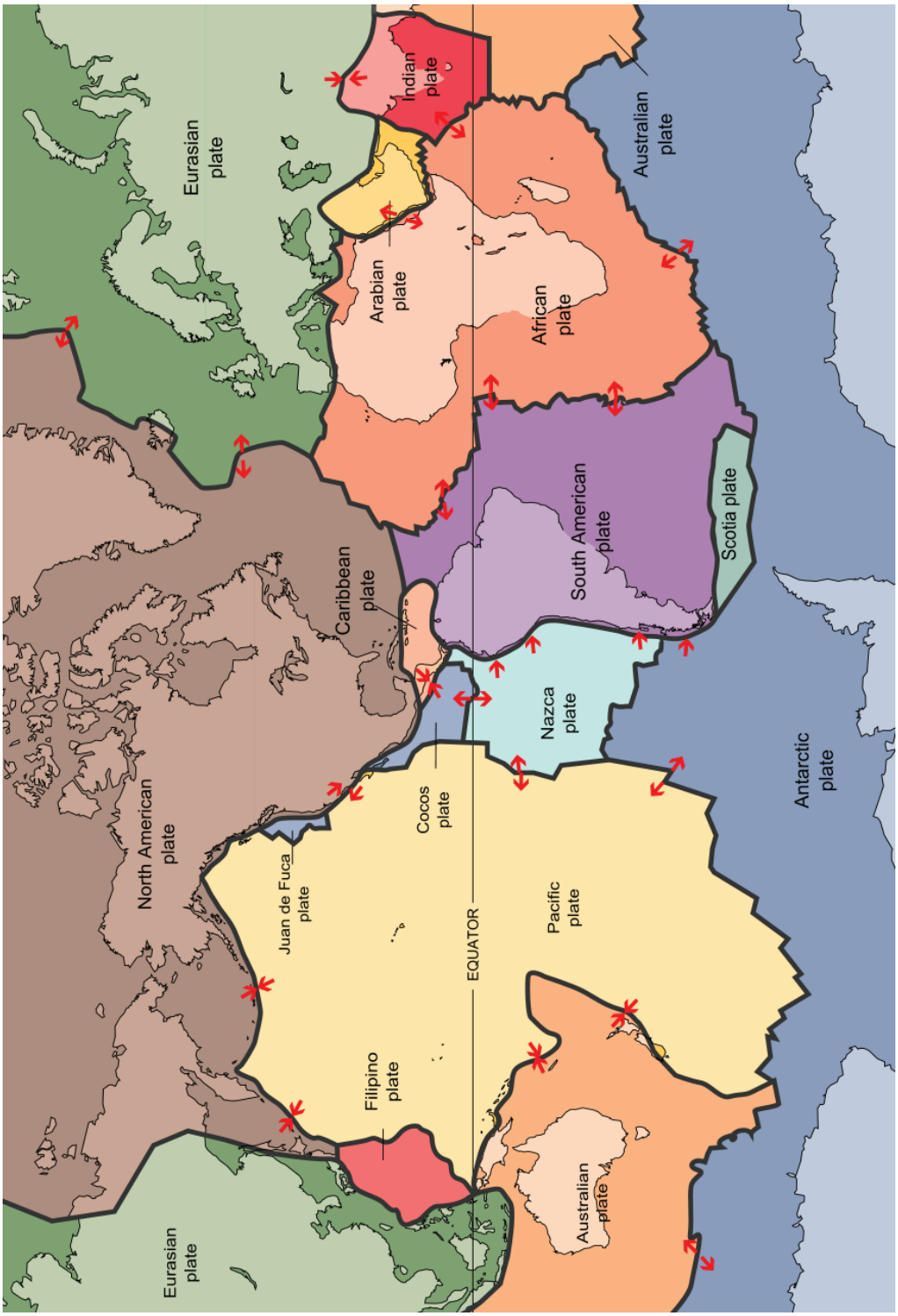
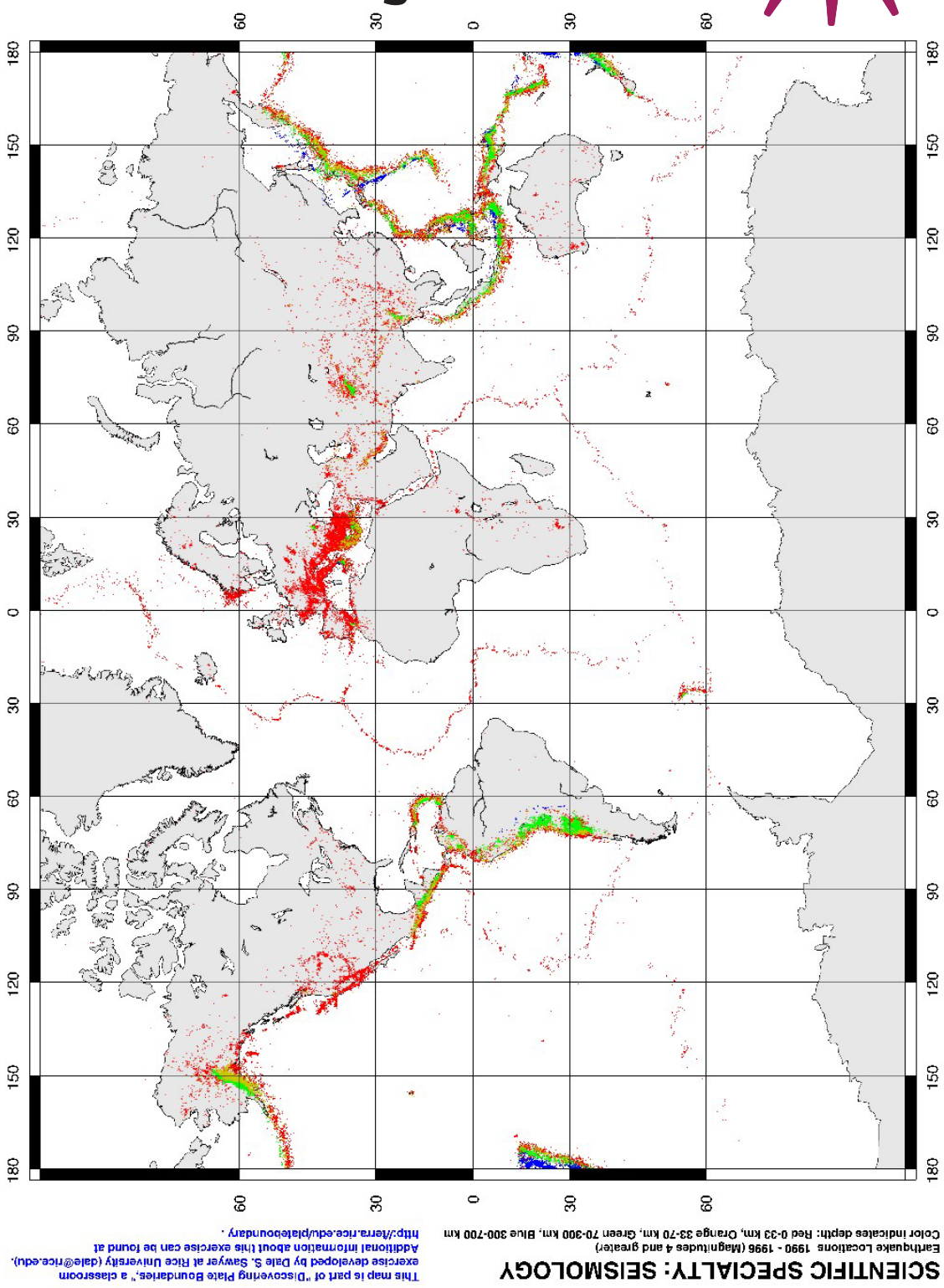


Data Visualization Activity



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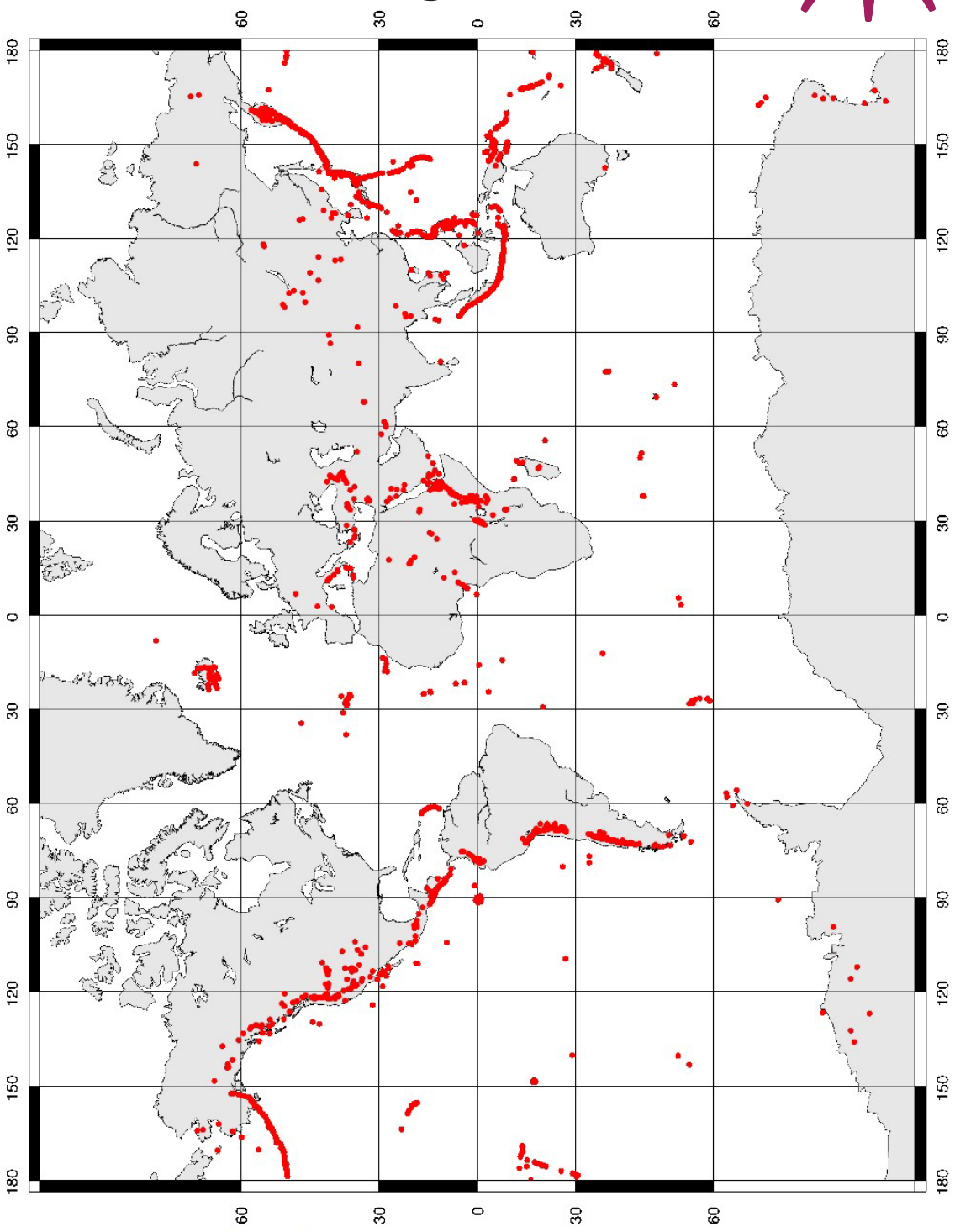

SCIENTIFIC SPECIALTY: VOLCANOLOGY

Red dots indicate currently or historically active volcanic features
This list obtained from the Smithsonian Institution

This map is part of "Discovering Plate Boundaries," a classroom exercise developed by Dale S. Sawyer at Rice University (dale@rice.edu). Additional information about this exercise can be found at http://terra.rice.edu/plateboundary .

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Activity Instructions

STEP ONE: Identify what you see. For example, what colors are on the maps, do any of the colors overlap, is there more of one symbol than another? Draw arrows and label your observations on the image itself. Write your observations in the same color of pen or pencil.

- These do not have to be long or detailed observations. They are just quick notes on what you observed.
- Do not add any explanations to your observations. We are just focusing on identifying pieces of this map.

STEP TWO: Compare your observations with those of your classmates. Did anyone notice things that you did not?

STEP THREE: Interpret what your observations mean. For each observation, you should have a sentence explaining what it means. For instance, what does a certain color on the map mean? Use a different color of pen or pencil to write down your interpretations of the data.

- You are just interpreting each individual observation by themselves. Do not try to interpret the whole map yet.

STEP FOUR: Compare your interpretations with those of your classmates. Do your interpretations match what your classmates have noted? Did they have different explanations than you did?

STEP FIVE: Based on your interpretation, write a one-paragraph caption that explains what the visual means as a whole. Write this paragraph on a separate piece of paper.

- Start with a topic sentence that describes what the figure shows (e.g., This figure shows _____).
- Join each observation (step one) with its interpretation (step three) into two sentences that provide support for your topic sentence (e.g., The color _____ means _____). Each observation from step one should be represented by one sentence for the final paragraph.
- Build a unified paragraph from these sentences. Try to make sure that each sentence connects to the sentence before it.

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Extension Activities

Explore these interactive digital maps with your classrooms or encourage your students to explore them at their own pace.

Interactive Map of Active Volcanoes and Recent Earthquakes World-Wide

Global Earthquakes and Volanos Map

These two maps show roughly the same types of data. What characteristics are the same or similar between the two maps?

What characteristics are different between these two maps?

Why do you think it's important to look at more than one infographic when trying to understand something?