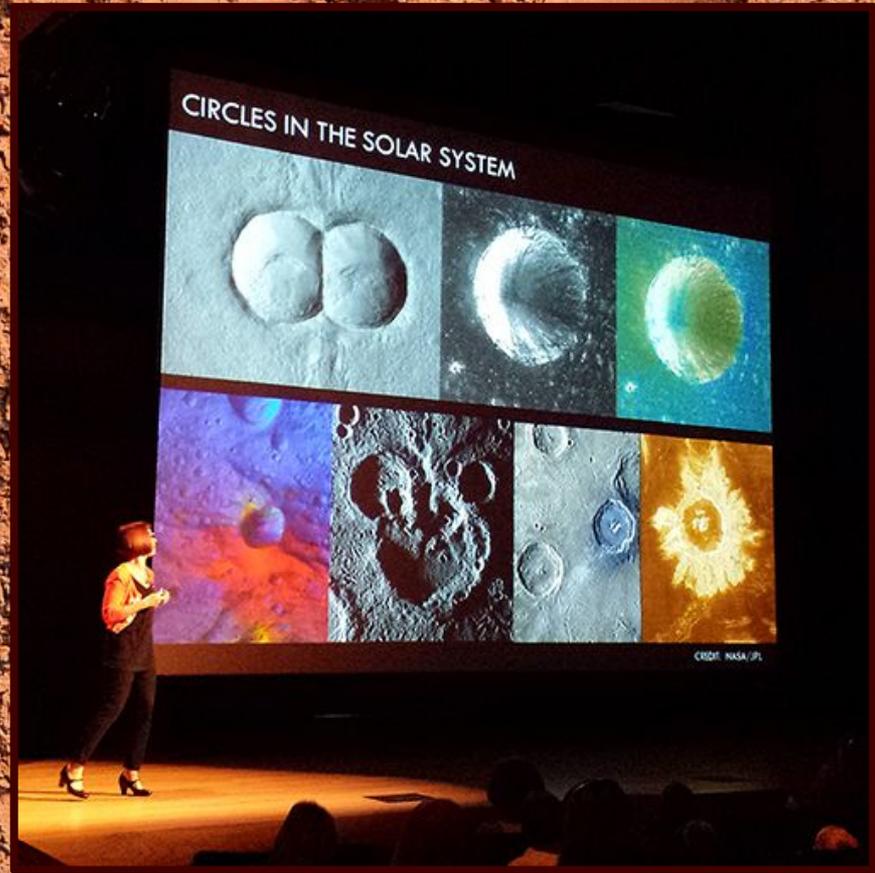


Making a Transdisciplinary Curriculum Action Based and Hands-On

By Lily Rutledge-Ellison

Inspiration and
materials from Monica
Aiello's presentation:
Art and the Cosmic
Connection 



Why are we here today?

In a transdisciplinary curriculum, traditional subjects are absorbed through **projects** or learning centers that teachers plan with **input from children**.

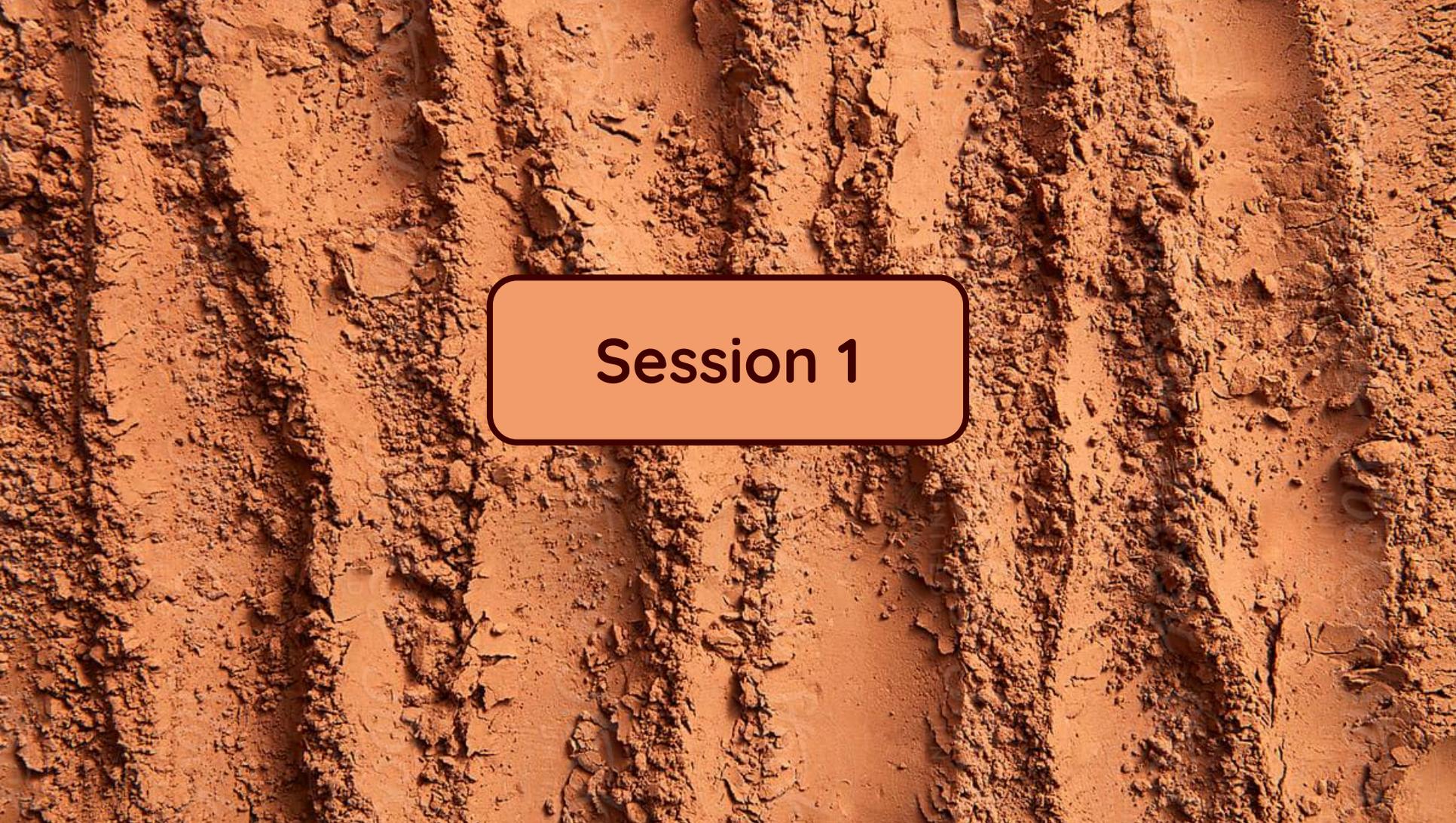
The **learning experiences** should give teachers the opportunity to extend ideas, respond to questions, engage students in conversation, and challenge their thinking.

Why are we here today?

Rose Stein International Elementary, is a **newly accredited** IB World school.

Following the initial authorization, all schools must undergo regular re-evaluations to ensure ongoing quality and **adherence to IB** ethos.

A large part of that ethos is **Transdisciplinary teaching and learning**.

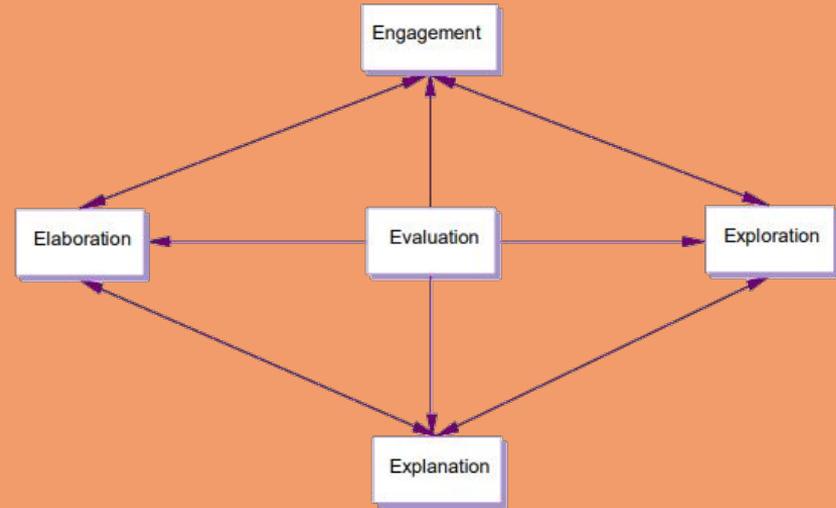


Session 1

What is a “5E” lesson?

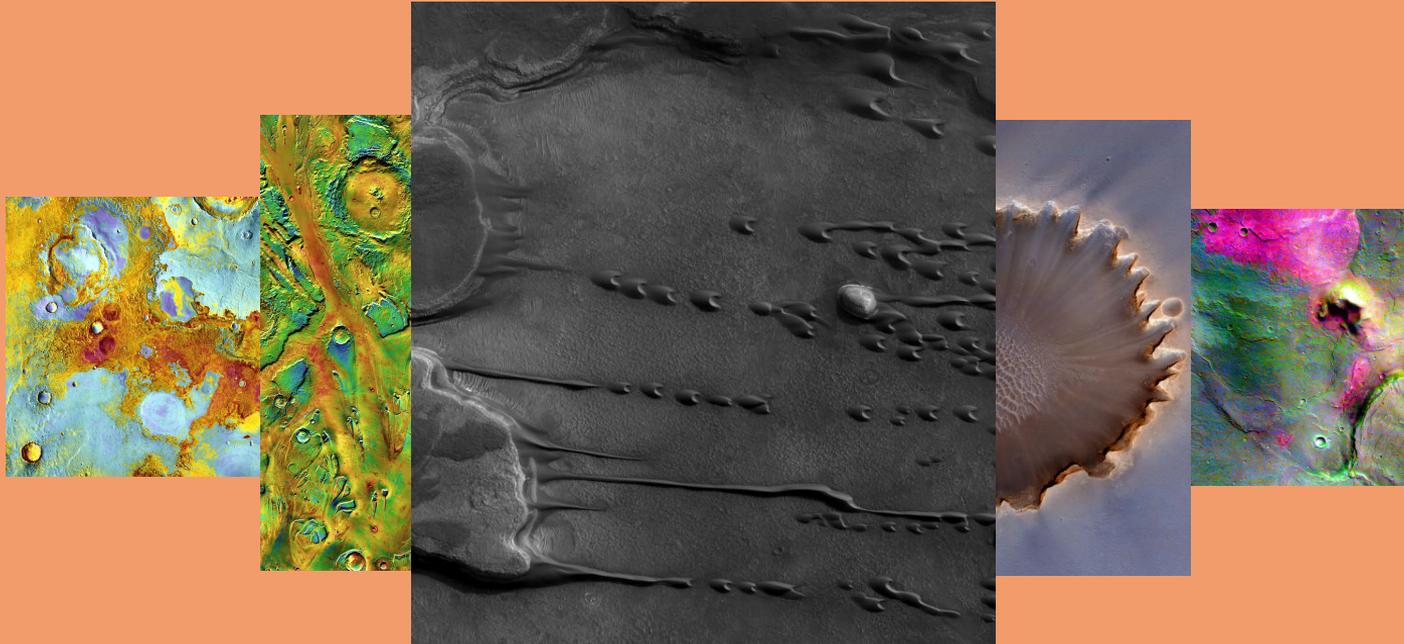
The 5E Model is based on the constructivist theory to learning, which suggests that people construct knowledge and meaning from **experiences**.

By understanding and **reflecting on activities**, students are able to reconcile new knowledge with previous ideas.



Engaging phenomena:

High Quality photographs of the surface of Mars



<https://www.jpl.nasa.gov/edu/teach/activity/art-the-cosmic-connection/>

Explore:

Participants will take part in a mini-lab before exploring leveled texts

Mini-Lab materials:

flour, cocoa, water, rocks, basin



Recording Observations:

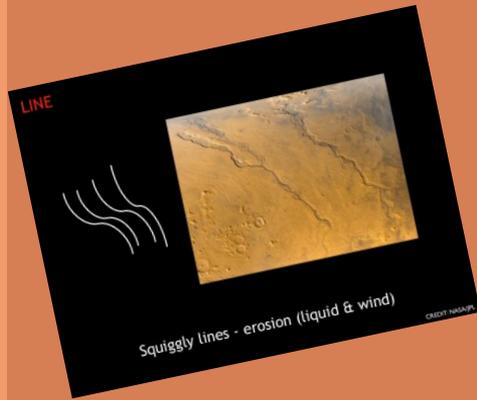
Consider how these could be made more rigorous for different grade levels-
Could you ask for more detailed adjectives? etc.

Action (example: shaking)	Prediction "I predict _____ will make a _____ shape."	Observations Draw the shape

Explore:

Leveled texts for differentiation

Printed Cards



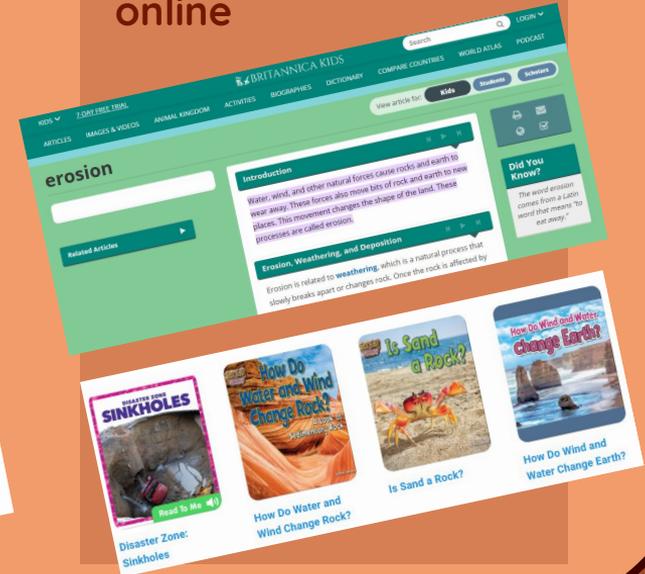
Short Edited Text

Shapes From Above

Information from the Jet Propulsion Laboratory at the California Institute of Technology
Adapted by Ms. Elison

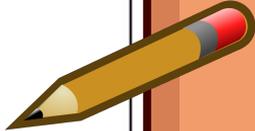
- **Circle** - When circles are viewed on a planetary image, it is most likely a crater. The size, shape, rings, and number of craters give important clues about the history of a **planetary body**. Sometimes circular features are volcanic, such as the pancake domes found on Venus, for example.
- **Blobs** - Organic shapes, or blobs, can often be interpreted in two ways. Blobs frequently mean that one is viewing volcanic processes and lava flows. Blobby shapes can also indicate eroding bodies of surface liquid (rivers and seas) or ancient bodies of liquid that left remnants of dried beds.
- **Straight Lines** - Seeing straight lines on a planetary body often means there is **tectonic** activity like earthquakes. This could include faults, ridges, cracks and mountains. On Earth, tectonic activity is thought of as just occurring on land, it can also be present in icy worlds.
- **Squiggly Lines** - The presence of squiggly lines on the surface often tells us forces of **erosion** are at work, including that of liquid and wind.

Independent research in books or online



Explain:

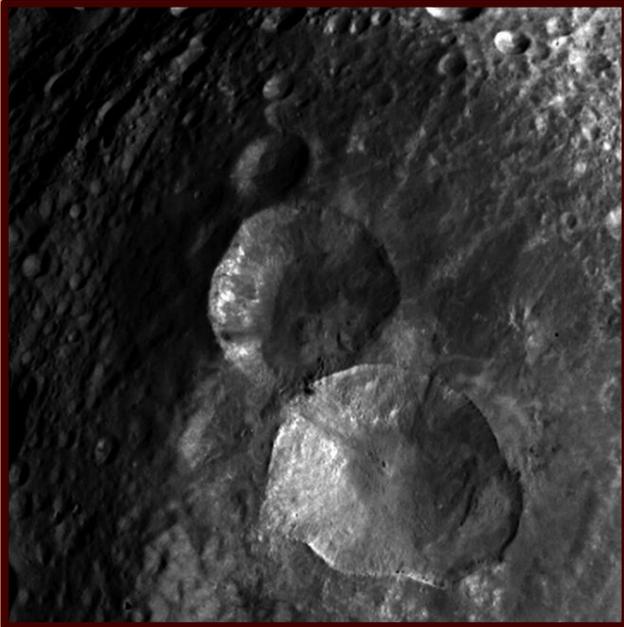
Current understanding

Prompt for explanation	Participant's thinking
<i>Why are there so many different shapes on the surface of Mars?</i>	

b. This prompt could require many levels of rigor. A sentence frame could be provided to help them get started, or you could make it more difficult by requiring citations from the text.

Elaborate:

opportunities to apply new understanding



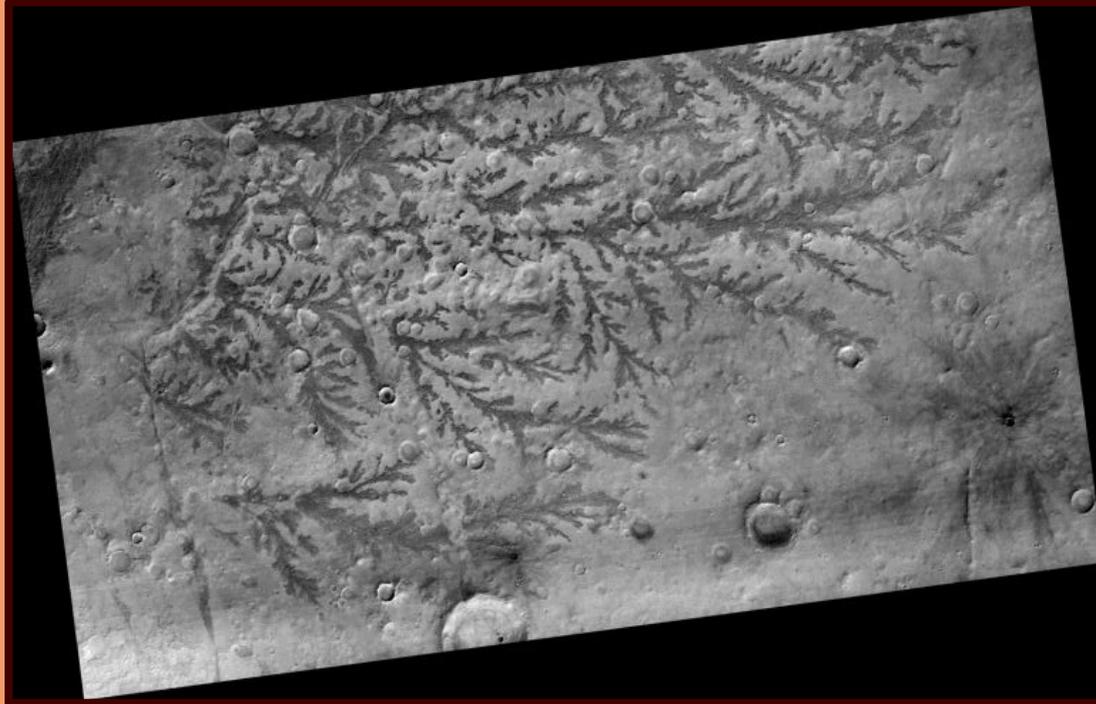
Compare
and
Contrast



Elaborate:

opportunities to apply new understanding

Which crater is the youngest?

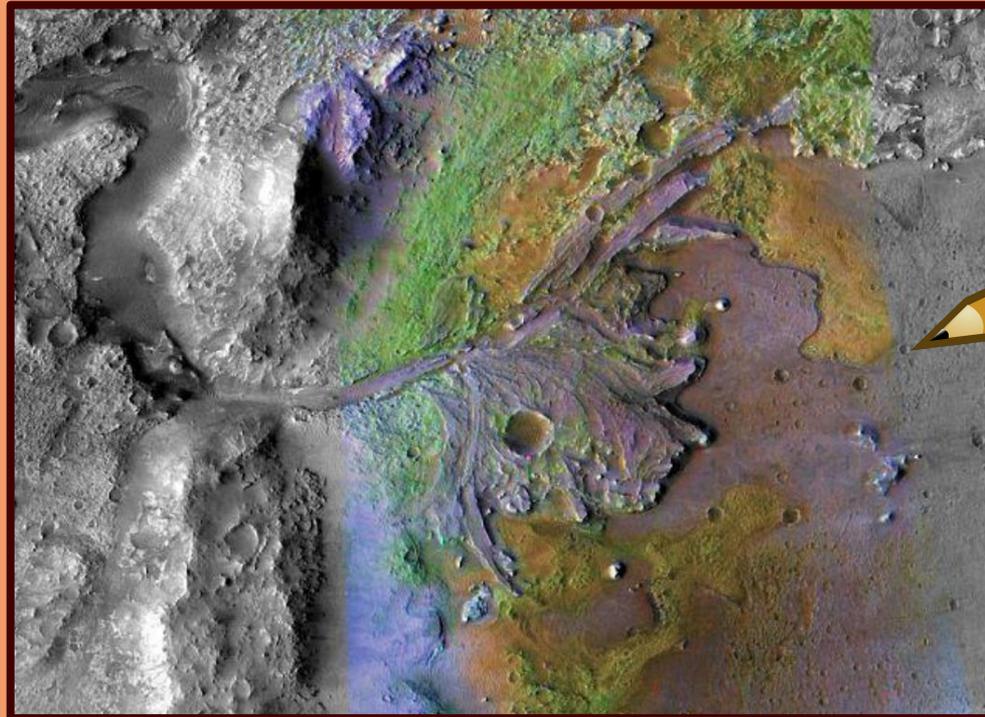


Which is the oldest?

Antoniadi Crater Branched Features on the Floor of Mars

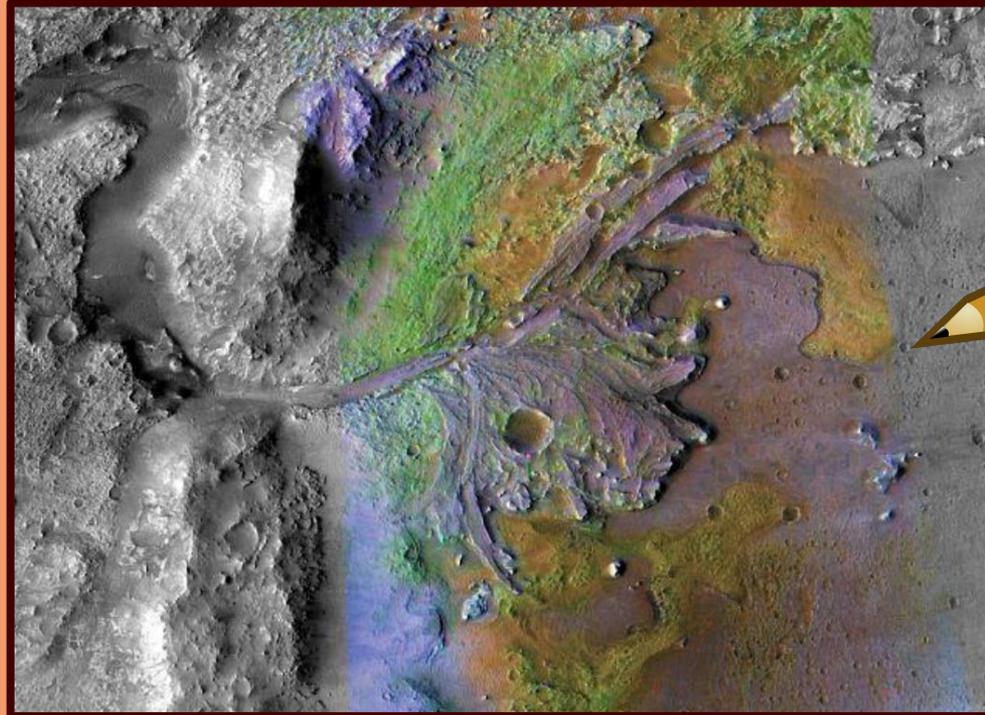
Evaluation:

assessment of understanding



Evaluation:

assessment of understanding





Session 2

Why are we here today?

This session is for **reflection**.

Together, we will metacognitively analyze the transdisciplinary nature of the lesson(s).

- 1) How did I incorporate ELA, Math, and Social Studies?

- 2) How could I have incorporated more of those disciplines?

- 3) How are IB Approaches to learning being implemented?
 - a) Thinking skills, research skills, communication skills, social skills, self-management skills

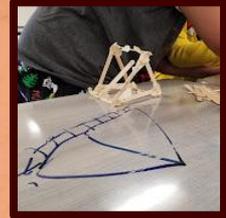
What is next?

Resource Sharing

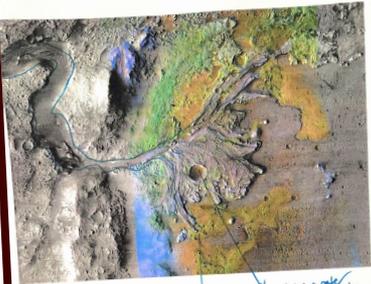
Co-planning

Taking Risks

Getting Messy



Reflection



Mars
River Dells on
Jezero Crater
Image credit: NASA/JPL-Caltech/University of Arizona

Did this make the water stay? I am not sure.
This looks like erosion, because the lines are spungy and follow in a somewhat predictable way as seen on earth.

Making a Transdisciplinary Curriculum Action Based and Hands-On
By Lily Rutledge-Elliott

Why are we here today?
Rose State International Elementary, is a newly accredited IB World school. Following the initial authorization, all schools must undergo regular re-evaluations to ensure ongoing quality and adherence to IB ethics. A large part of that ethics is Transdisciplinary teaching and learning.

In a transdisciplinary curriculum, traditional subjects are absorbed through projects or learning centers that teachers plan with input from children. The learning experiences should give teachers the opportunity to extend ideas, respond to questions, engage students in conversation, and challenge their thinking.

What is a "5E" lesson?
The 5E Model is based on the constructivist theory to learning, which suggests that people construct knowledge and meaning from experiences. By understanding and reflecting on activities, students are able to reconcode new knowledge with previous ideas.

Engagement (Connect a student's day)
 - Churn paper
 - Write 2 (cell)
 - Videos w/o narration

Evaluation
 - math lesson
 - 1) safe
 - 2) materials
 - 3) made/flat
 - 4) measurement to self
 - 5) data tables

Exploration (mini lab)
 - Flat water
 - Fall water
 - while not going away
 - measure (whole lesson)

Elaboration
 - debate
 - use art words/
 - integrate vocab.
 - type of lines
 - written prompt

Engagement (mini lab)
 - Flat water
 - Fall water
 - while not going away
 - measure (whole lesson)

Evaluation
 - math lesson
 - 1) safe
 - 2) materials
 - 3) made/flat
 - 4) measurement to self
 - 5) data tables

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What will we be doing during this session?
This session is for reflection. Together, we will metacognitively analyze the transdisciplinary nature of the lessons.

- How did I incorporate ELA, Math, and Social Studies?
 leveled reading
 maps, measurement, data
 debate
 art
 sound, composers
- How could I have incorporated more of those disciplines?
 art - adding music to show the lines of the
 plants/formations, 3D Art/sculpting (fishes/
 PA - root woods, language/collab previous? **Parables**
 my - historical lens (HAPPY) **Mars-angle of Impact**
 photography
- How are IB Approaches to learning being implemented?
 a) Thinking skills, research skills, communication skills, social skills;
 self-management skills
 drawing, social awareness,
 organizing data, cooperating,
 analysis, dialectical thought,
 recording data.

PRE

How confident do you feel making lessons transdisciplinary with science?
 Not at all Confident 1 2 3 4 5 6 7 Extremely Confident

How confident do you feel incorporating engineering into your classroom?
 Not at all Confident 1 2 3 4 5 6 7 Extremely Confident

How confident do you feel incorporating planetary science into your classroom?
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How confident do you feel incorporating math into subjects like science and social studies?
 Not at all Confident 1 2 3 4 5 6 7 Extremely Confident

POST

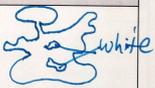
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 Not at all Confident 1 2 3 4 5 6 7 Extremely Confident

b. Recording Observations.
Consider how these could be made more rigorous for different grade levels.
Could you ask for more detailed adjectives? etc.

Action (example: shaking)	Prediction "I predict _____ will make a _____ shape."	Observations Draw the shape
Poured water	I predict water will make round shapes, and cut through (canyon)	 white
Shaking (tectonic activity)	I think it will flatten the powder's	