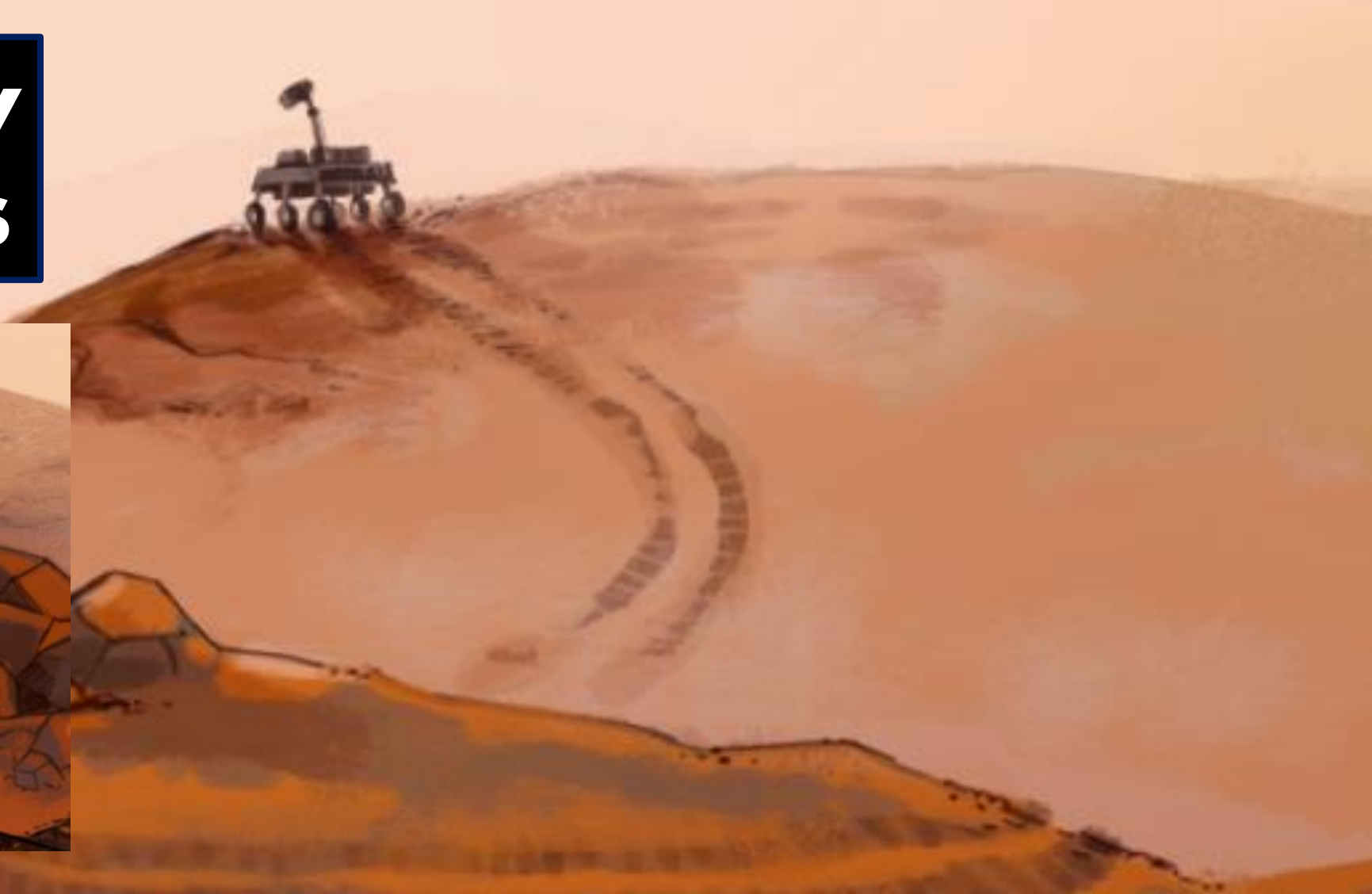
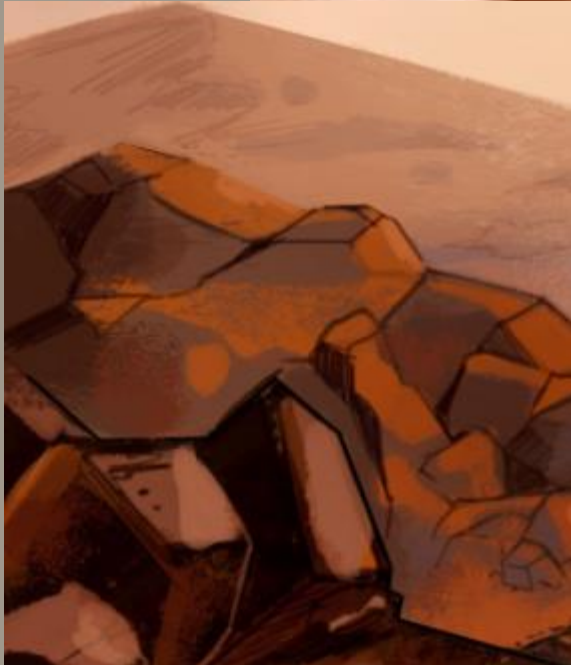


3.2: EVALUATING CLAIMS ABOUT THE CHANNEL ON MARS

Geology on Mars





Warm-Up – 3.2.1

HAND IN

The information we have about the channel on Mars has mostly come from satellite images and scientific models. However, rovers and landers developed by NASA have made it possible to collect information directly from the surface of Mars.

Think about the channel on Mars. What information would you want to collect from the surface of Mars to help you determine whether the channel was formed by flowing lava or flowing water?

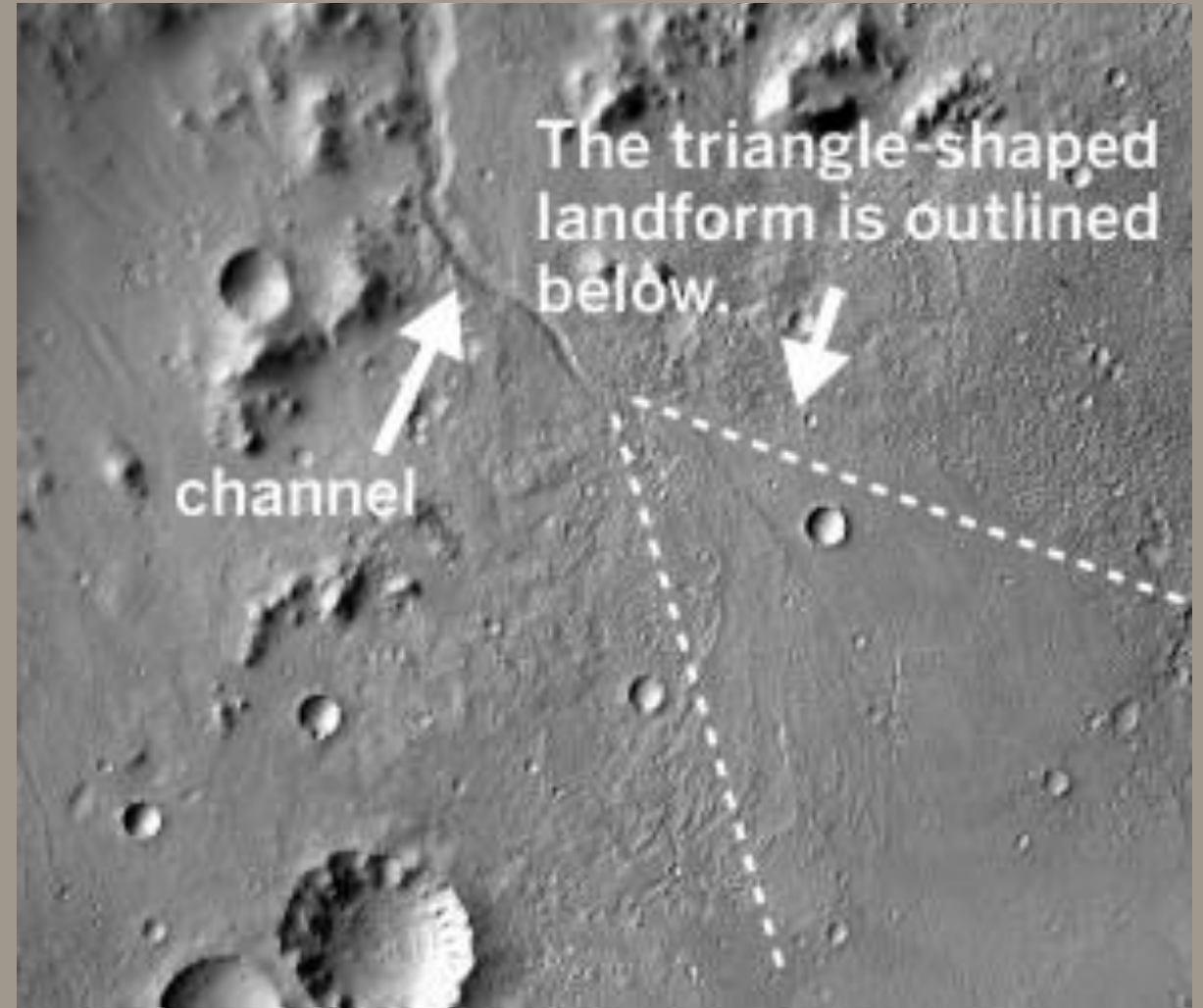




Evaluating New Rock Information– 3.2.2

Consider new information collected by the *Curiosity* rover near the channel on Mars.

Remind students of the evidence from the previous lesson. Point out that the triangle-shaped landform evidence on Evidence Card E was collected by instruments on spacecraft above the surface of Mars.





Evaluating New Rock Information— 3.2.2

NASA's *Curiosity* rover and highlight that students will be learning more about the channel on Mars from a new perspective—from the surface of Mars—using images from the rover. Point out the following:

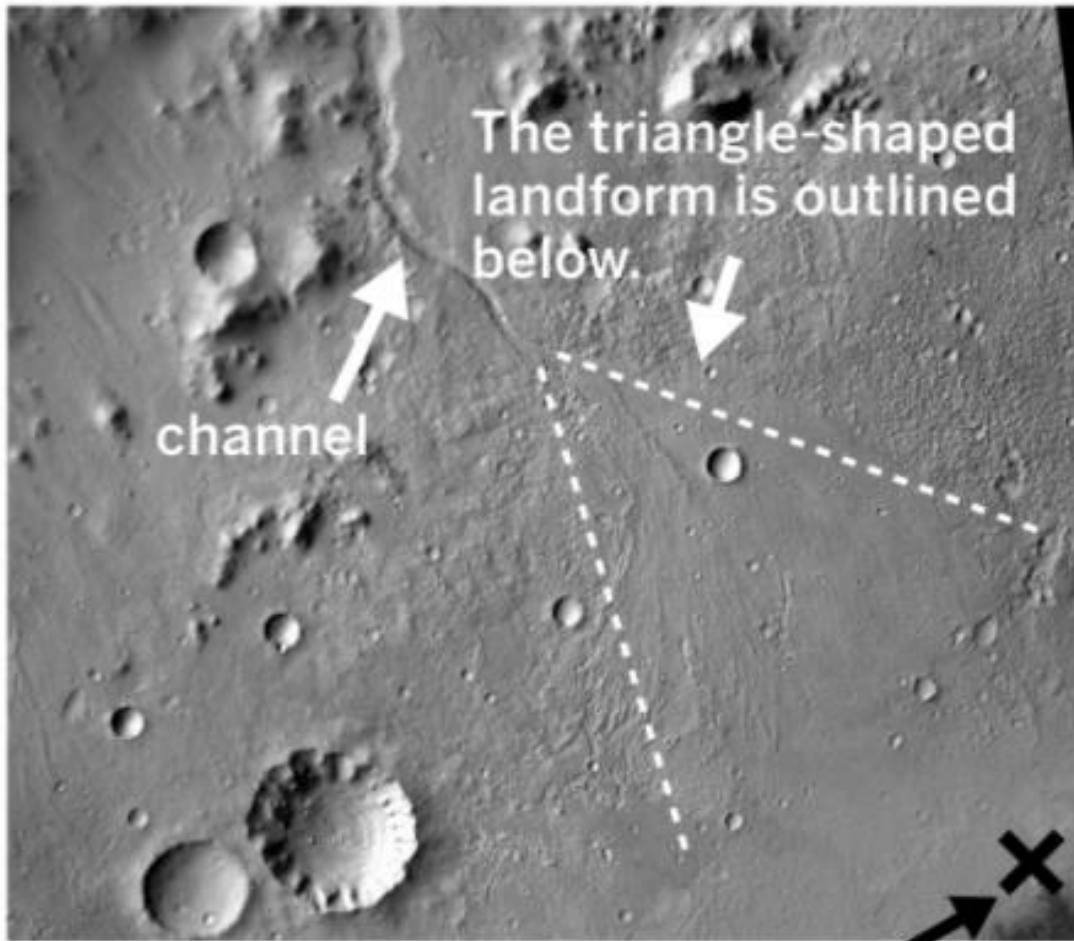
- *Curiosity* has many different kinds of scientific instruments on board, including a camera that takes high-quality images of Mars's surface.
- Since NASA scientists were interested in this channel on Mars, they sent *Curiosity* to explore the surface near the channel.
- Students will look at an image of rock found near the base of the channel. Explain that *Curiosity* sent this image back to Earth.

Curiosity Rover





Evaluating New Rock Information— 3.2.2



This is the location of the rock
that *Curiosity* photographed.

New Information from NASA About the Channel: Rock Found Near the Triangle-Shaped Landform

Partners will review new information from NASA, along with some background information. Explain that the Universal Space Agency has also sent rock samples (from Earth) to help students better understand how rock types are related to landforms formed by flowing water and landforms formed by flowing lava.



Evaluating New Rock Information– 3.2.2



Students will soon examine these two types of rock using a hand lens. Explain that the type of rock found near a channel can provide evidence about how the channel was formed.

- **Conglomerate**. Point to the image of conglomerate on the projection and hold up a sample. Explain that this is a sample of a type of rock that can form near channels formed by flowing water.

- **Basalt**. Point to the image of basalt on the projection and hold up a sample. Explain that this is a sample of a type of rock that can form during a volcanic eruption and is often found near channels formed by flowing lava.



Evaluating New Rock Information— 3.2.2

Discussing Initial Ideas

With a partner, discuss your initial ideas about the following questions.

1. Which rock type do you think the *Curiosity* rover found? Why do you think this?
2. How can this information from *Curiosity* help us to be more confident about whether water or lava formed the channel on Mars?



Evaluating New Rock Information— 3.2.2

HAND IN

Comparing Rock Types

1. Read and analyze Background Information: Rock Types Card.
2. Observe the basalt and conglomerate rock samples with your hand lens.
3. Read and analyze Channel on Mars Evidence Card F.
4. Discuss and answer the questions below.

Channel on Mars

1. What did you learn about the channel on Mars from the new NASA data about the rock *Curiosity* found?

Channel on Earth Formed by Flowing Water

2. What did you learn from the background information about rock types?

Channel on Earth Formed by Flowing Lava

3. What did you learn from the background information about rock types?

5. Explain how the evidence supports the claim you selected.

4. Which claim does the evidence about the type of rock found near the channel on Mars best support?

Flowing water formed the channel on Mars.

Flowing lava formed the channel on Mars.

Both claims.

3 STUDENT TO STUDENT DISCUSSION
Using the Evidence Gradient
to Consider New Evidence



Use the Evidence Gradient to evaluate the Channel on Mars Evidence Cards, prompted by the new evidence about the rock found near the channel on Mars.



**Image of Rock Found
Near the Triangle-
Shaped Landform.**

3 STUDENT TO STUDENT DISCUSSION
Using the Evidence Gradient
to Consider New Evidence



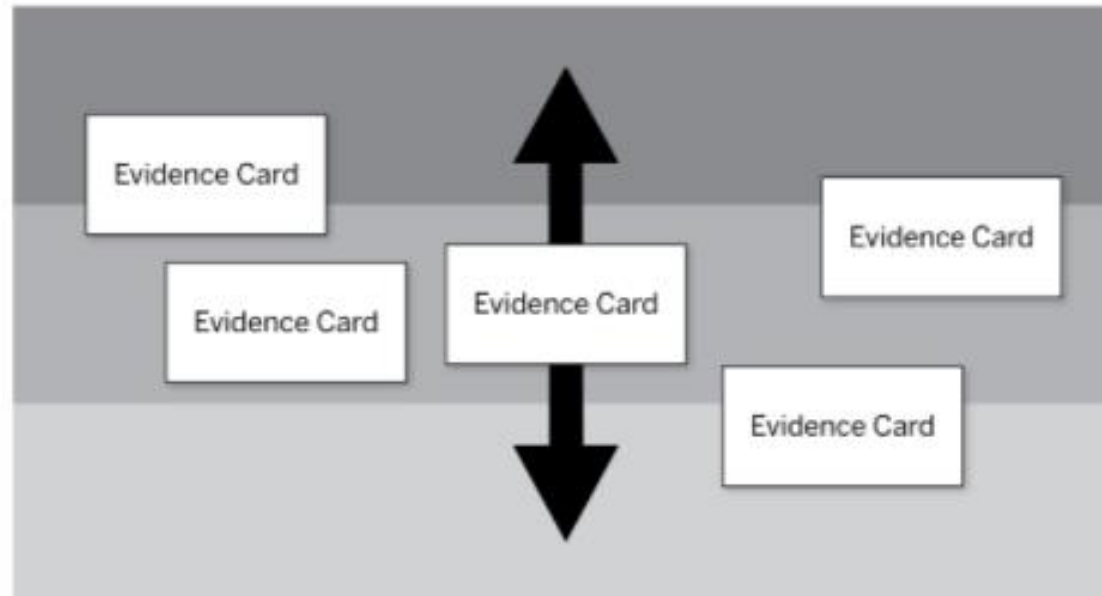
Channel on Mars Evidence Gradient Instructions.

3. Now think about the evidence for the other claim. Continue to work with your partner to decide where each Evidence Card should go on the Gradient. More convincing evidence goes near the top, and less convincing evidence goes near the middle or the bottom.

Channel on Mars Evidence Gradient

Claim 1:
Flowing water formed the
channel on Mars.

Claim 2:
Flowing lava formed the
channel on Mars.



- 3 **STUDENT TO STUDENT DISCUSSION**
Using the Evidence Gradient
to Consider New Evidence

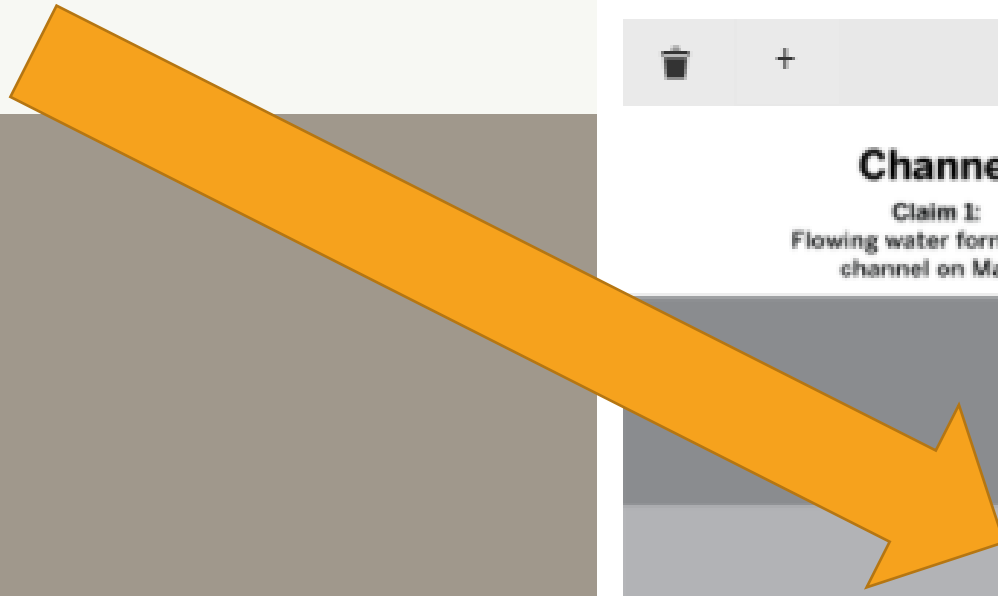


Channel on Mars Evidence Gradient Instructions.

HAND IN

Recording Your Completed Evidence Gradient

1. On the Channel on Mars Evidence Gradient below, place an annotation that says "Card A" in the same location you placed that card on your student sheet.
2. Repeat this process for Cards B–F.



Channel on Mars Evidence Gradient

Claim 1:
Flowing water formed the channel on Mars.

Claim 2:
Flowing lava formed the channel on Mars.

EVIDENCE



Reflecting on the Claims About the Channel on Mars.

Reflect on the claims about the channel on Mars based on their work with the Evidence Gradient, and they consider the implications for habitability on Mars.



Habitability of Mars in the Past





Could Mars Have Been Habitable?

We learned about **two** of the characteristics that make Earth habitable:

- **liquid water**
- **an energy source (such as the sun)**

HAND IN

In this lesson, you considered all the evidence about the channel on Mars.

Based on what you've learned about this channel, do you think space agencies should continue to explore Mars for evidence of past habitability? Why or why not? Explain your thinking.

