

Geology on Mars

Unit 1 - Chapter 2-3

Using Models
as Evidence

3

2.3: Gathering Additional Evidence from Models



1

WARM-UP
Warm-Up



2

HANDS-ON
Testing an Idea with the
Flowing Water Model



3

MEDIA
Observing a Flowing Lava
Model



4

HOMEWORK
Homework





Warm-Up – 2.3.1

HAND IN

Warm-Up

Marta observed a flowing stream in a sandy area. She developed a claim that water flowing over sand will create a curved and winding channel.

1. How can she test this idea in the Flowing Water Model?

2. What should happen in the Flowing Water Model for her claim to be supported?





Warm-Up – 2.3.1

HAND IN

Warm-Up

Marta observed a flowing stream in a sandy area. She developed a claim that water flowing over sand will create a curved and winding channel.

1. How can she test this idea in the Flowing Water Model?

She could set up a stream table with sand and run water over the sand.

2. What should happen in the Flowing Water Model for her claim to be supported?

If her claim is supported, when the water flows over the sand, it will create a channel that is curved and winding.





Testing an Idea with the Flowing Water Model

Review the Chapter 2 Question. Remind students that they are investigating the question: *How can we gather more evidence about whether lava or water formed the channel on Mars?*

- In the previous lesson, we used a Flowing Water Model to get more evidence about what formed the channel on Mars. We gathered evidence about the claim that landforms formed by flowing water remain after the water stops flowing. We observed that landforms do remain.
- That means that the channel on Mars could have been formed by flowing water even though there is no water flowing there now.





Key Concept

Models represent the natural processes being investigated in important ways, but they are not exactly the same.

When scientists use a model to understand a geologic process, they often have new questions afterward. Let students know that they will use the Flowing Water Model again today to look at how steep hillsides might affect how channels form.





Flowing Water Model

When water flows down a hill, how do you think the steepness of the hill might affect the channel the water forms?

Stream Table Observations: Testing an Idea

1. The scientific idea we are testing is _____

2. Describe how the two stream tables are set up in order to test this idea.

Stream Table Observations

3. During the Flowing Water Model demonstration, observe one stream table while water is flowing through it. What do you notice? Record your observations on the lines below. You can use the Word Bank to help you describe what you see.

Word Bank

straight	wide	branching	triangular
curved	narrow	merging	square
gnarled	spread out	loopy	circular





Observing a Flowing Lava Model

You will watch a video of a new model to get evidence about whether flowing lava could have formed the channel on Mars.

The Flowing Water Model used flowing water and sand to represent flowing water in the natural world, actual lava cannot be used to represent flowing lava. This Flowing Lava Model uses wax to represent flowing lava.





Observing a Flowing Lava Model

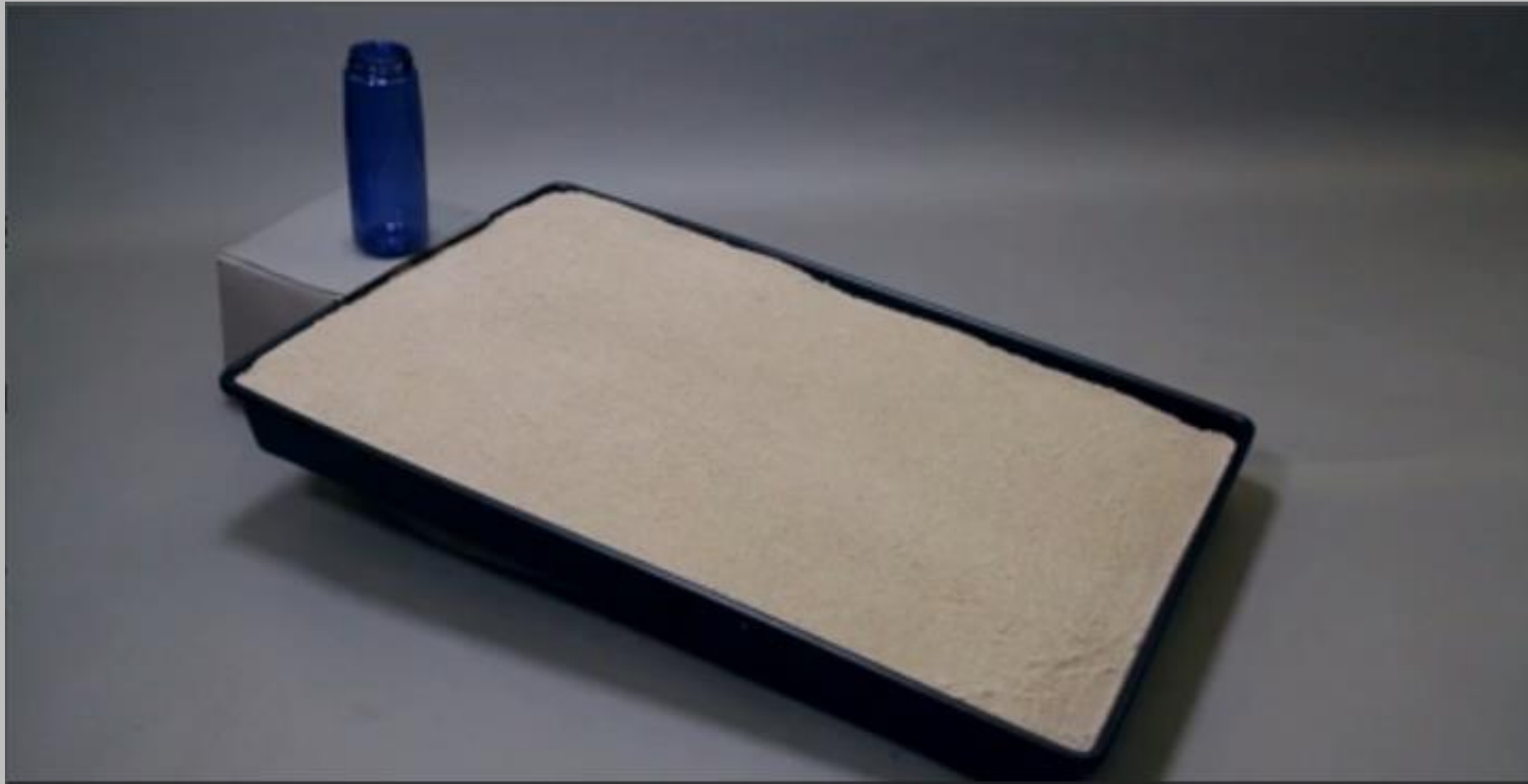
Wax and lava are both thick melted substances, you can use the Flowing Lava Model to learn about the landforms that flowing lava might form in the natural world.

If the process shown in the Flowing Lava Model forms landforms similar to the channel on Mars, this would provide evidence that the channel on Mars could have been formed by flowing lava.





Observing a Flowing Lava Model





Observing a Flowing Lava Model



“Flowing Lava Model”

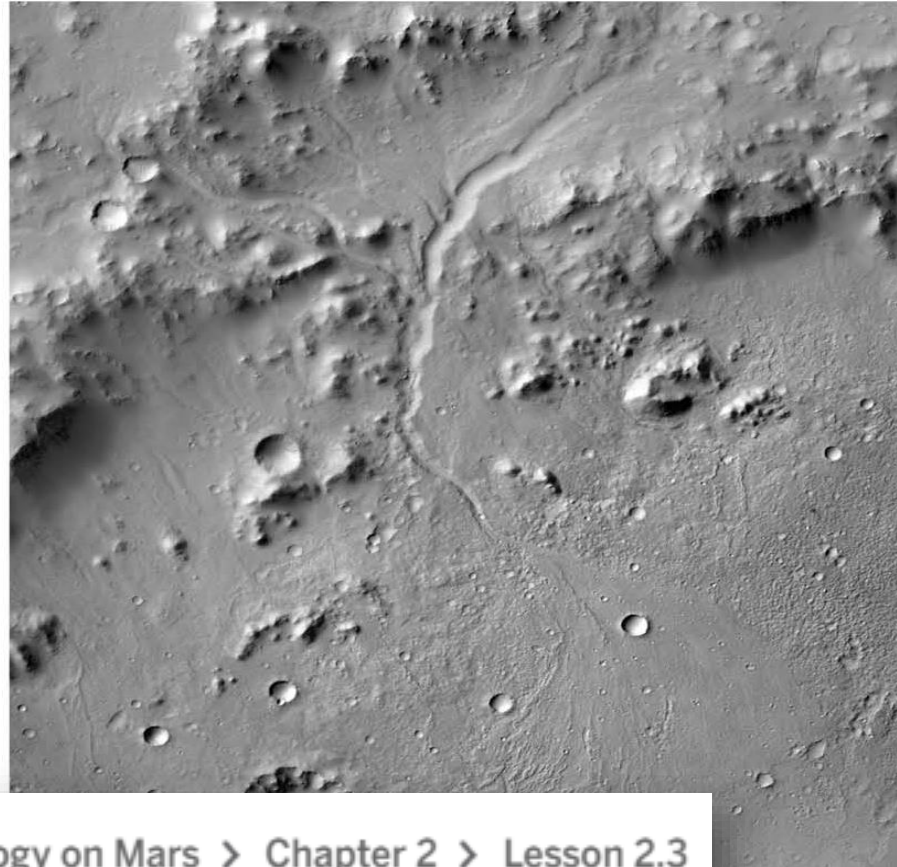




Observing a Flowing Lava Model

1. Record your observations about the landforms that remain after the wax has stopped flowing.

2. Based on your observations, do you think lava could have formed the channel on Mars? Why or why not?



HAND IN





Observing a Flowing Lava Model

1. Record your observations about the landforms that remain after the wax has stopped flowing.

The lava formed a channel that had a triangle shape at the bottom.

HAND IN

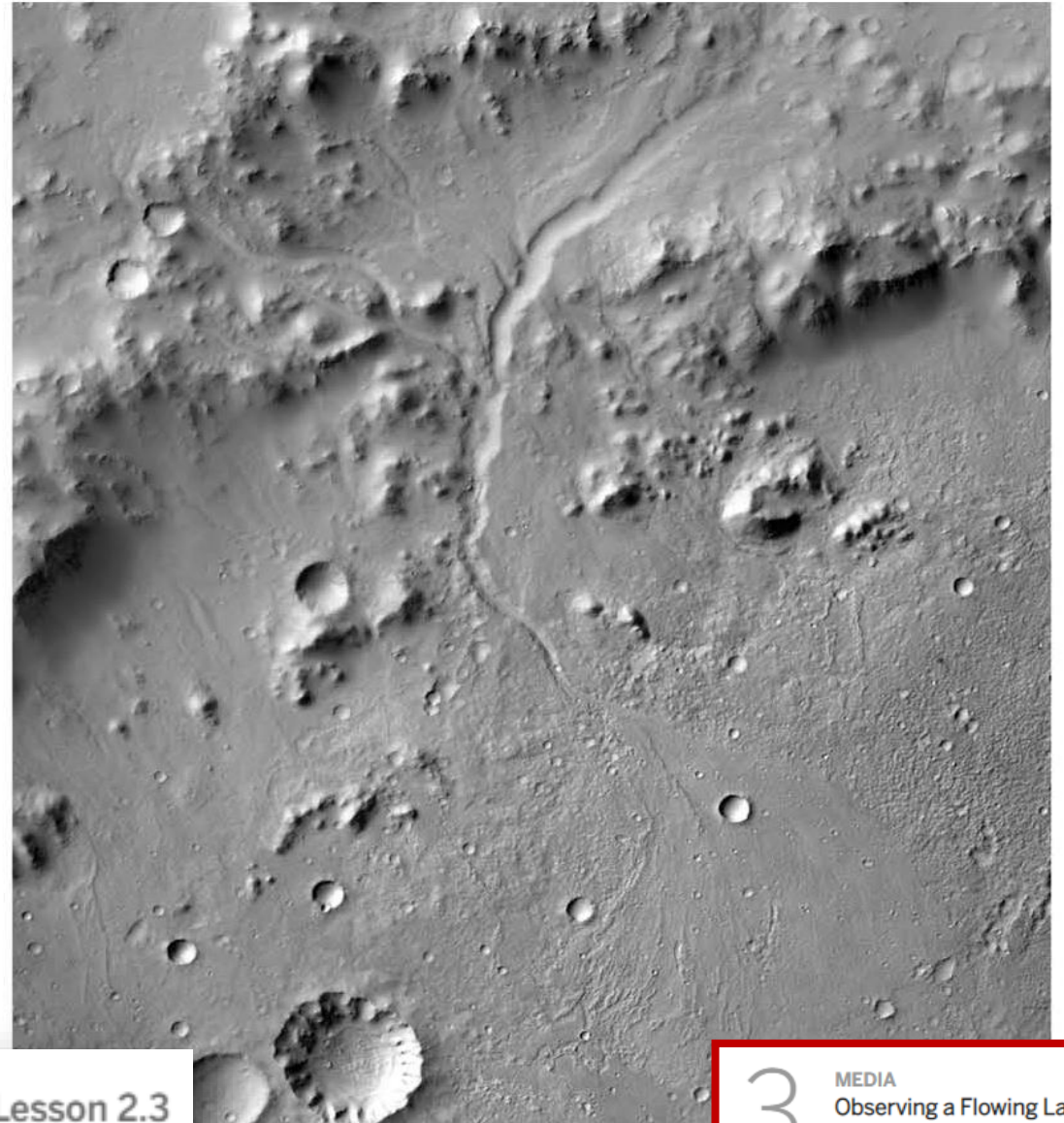
2. Based on your observations, do you think lava could have formed the channel on Mars? Why or why not?

Based on what I saw, I think flowing lava could have created the channel. The model showed a channel with a triangle at the bottom and that is what the channel on Mars looks like.



Observing a Flowing Lava Model

By now, you probably have an idea of which claim you think is more convincing. In the next few lessons, you will consider new evidence from NASA about which geologic process formed the channel on Mars.





Homework - Thinking About Modeling Flowing Lava

In this lesson, you observed a scientific model to learn more about the geologic process of flowing lava. Think about how the Flowing Lava Model was similar to and different than real flowing lava and the landforms it forms on Earth.

1. How was the Flowing Lava Model similar to flowing lava on Earth?

2. How was the Flowing Lava Model different than flowing lava on Earth?

3. How would you change the Flowing Lava Model to make it more like the actual geologic process on Earth?

