



Mars Inside and Out!

GEOLOGIC SCENE
INVESTIGATOR JOURNAL

MARS INSIDE AND OUT

Explore! Mars Inside and Out



www.lpi.usra.edu/education

Investigator Name

PART I:
SCRATCHING THE SURFACE

GSI: INSIDE MARS – COOLING CUPCAKES AND PLANETS

Both of these cupcakes were **HOT** when they came out of the oven!! Which one do you think **COOLED** faster?
(circle one)

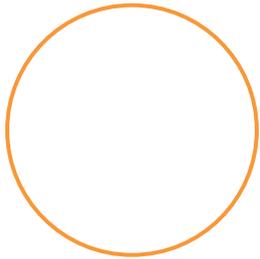


The **BIG** one, or

the **SMALL** one?



Both of these planets were **SOUPER HOT** when they formed!!
Which one do you think **COOLED** faster?
(circle one)



The **BIG** one, or

the **SMALL** one?



Why?

Which circle do you think represents Earth?

Which circle represents Mars?

Which is hotter inside today, Earth or Mars?
(Hint: Which planet still has lots and lots of active volcanos?)

What I know about Mars.



What I want to learn about Mars.

As a Geologic Scene Investigator, your mission is to find clues that will help you solve mysteries on Mars!
This investigator journal will help you keep track of the clues that you uncover.

What's happening on Mars right now?

How has Mars changed over time?

How are Mars and Earth similar? Different?

GSI: MARS – SETTING THE SCENE

Feature 1. Shape (draw it!):



Other things I observed:

Where it occurs (circle the planet):



How I think it forms:

Feature Name:

GSI: INSIDE MARS – DIFFERENTIATION DEMONSTRATION

What happens when you fill a bottle with the gravel, syrup, and beads and shake it? After everything has settled, color and label the layers you observe (crust, mantle, core).



What happened after the bottle was shaken?

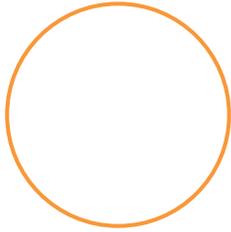
Why?

How might Mars have gotten its layers?

GSI: INSIDE MARS – RECIPE FOR A PLANET

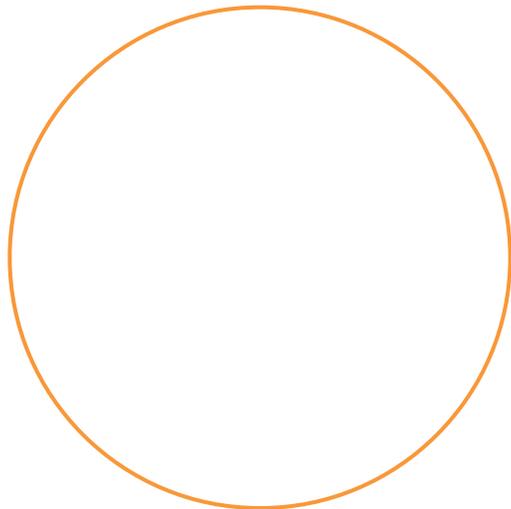
What does Mars look like on the inside?

What layers does it have?



What does Earth look like on the inside?

What layers does it have?



Feature 2. Shape (draw it!):

Other things I observed:

Where it occurs (circle the planet):



How I think it forms:

Feature Name:

Feature 3. – Shape (draw it!):

Other things I observed:

Where it occurs (circle the planet):



How I think it forms:

Feature Name:

GSI: INSIDE MARS – ICING ON THE PLATE

Why is Olympus Mons on Mars soooooo much taller than Earth's tallest volcano, Mauna Kea?

GSI: INSIDE MARS – POZZLING PATTERNS

What I observe about volcanos on Mars:



They are bigger / smaller than volcanos on Earth.
(circle one)

There are more / fewer volcanos on Mars than on Earth.
(circle one)

They do / do not form chains.
(circle one)

What might cause the differences in volcanos on Mars and volcanos on Earth?

GSI: MARS – CARVING CHANNELS



Draw it! What did the surface of the stream table look like when water was poured onto it?

(Bricks)



(Stream Table)

(Holes)



What are the names of the features you made?

How did they form?

On which planet – or planets – do we see these features?

(circle the planet)



If these features are present on a planet, what does this tell you about its history?

GSI: MARS – VOLCANOS: GO WITH THE FLOW!

On which planet – or planets –
do we see volcanos?



Are volcanos erupting today on Earth?

Are they erupting today on Mars?

If a planet has volcanos, what does this tell you about
its history?

GSI: INSIDE MARS – SUMMIT UP

One of these pictures represents the tallest volcano on Earth.
The other represents the tallest volcano on Mars.



This represents the tallest volcano on

_____.



And THIS represents the tallest volcano on

_____.

It's also the tallest volcano in the

_____ !

PART II: INSIDE MARS

GSI: MARS – CRATER CREATIONS

Draw one!

What did your craters look like? What features did they have?

On which planet – or planets – do we see craters?



If a planet has craters, what does this tell you about its history?

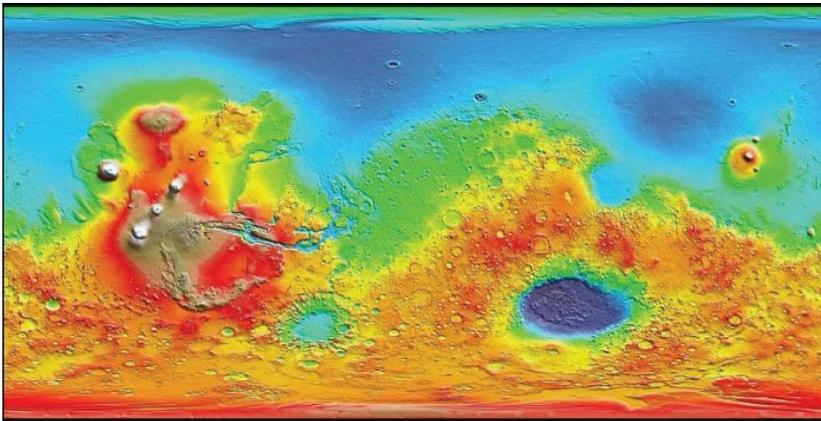
GSI: MARS – THE FEATURE STORY

What features do you observe on the map of Mars? (circle one)

Volcanos Yes No

Craters Yes No

Channels that may have
held flowing water Yes No



Put the story of Mars' features in order. Start with 1 for the oldest (first) thing that happened, 2 for the next oldest, and then 3, and then 4, and then 5 for the youngest (last) thing that happened. Just like planetary scientists, you might not be able to decide about them all without more information! Discuss the answers with your team.

_____ Water flooded across the surface of Mars, carving big channels into the land, and flowing into the lower area to the north.

_____ Volcanos on Mars covered some of the craters.

_____ Big and small asteroids and comets smashed into Mars, making big and small craters all over its surface!

_____ Something happened to cover the craters on the "top half" (north) of Mars. Perhaps an ocean or lots of lava filled it.

_____ Asteroids and comets still smash into Mars, but these are smaller and make smaller craters.