

Title:

Earth's Surface Features

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The features found on the surface of a planet gives clues about that planet. For example, it is impossible to see wind, but it creates sand dunes.

### Part 1: Features

1) How did these sand dunes form?

2) Would it be possible for these sand dunes to form on a planet:

a) with no atmosphere? Yes or No

b) with no liquid water? Yes or No

Explain.



3) How did this impact crater form?

4) Would it be possible for an impact crater to form on a planet:

a) with an atmosphere? Yes or No

b) with a hot, molten interior? Yes or No

Explain.



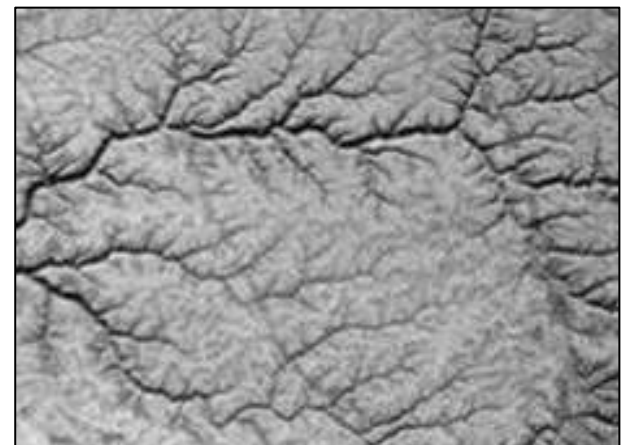
5) How did these stream beds form?

6) Would it be possible for stream beds to form on a planet:

a) with no hot, molten interior? Yes or No

b) with no liquid? Yes or No

Explain.



7) How did this volcano and its lava flows form?

8) Would it be possible for volcanoes and lava flows to form on a planet:

- a) with no liquid water? Yes or No
- b) with no hot, molten interior? Yes or No
- c) with no atmosphere? Yes or No

Explain.

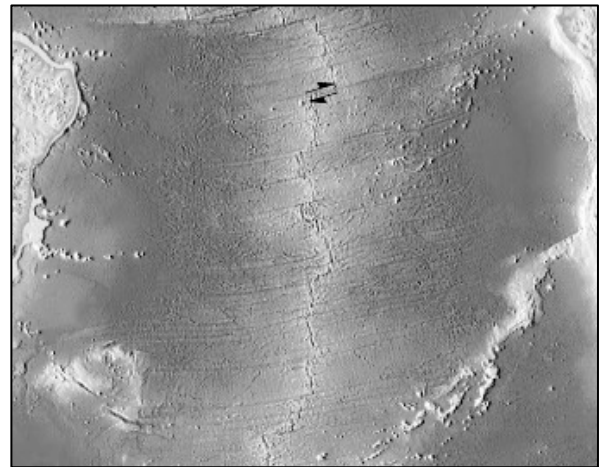


9) How did this divergent ridge form?

10) Would it be possible for this divergent ridge to form on a planet:

- a) with no hot, molten interior? Yes or No
- b) with no liquid water? Yes or No

Explain.



11) Two students are discussing their answer to the previous question.

**Student 1:** *A divergent ridge is formed by two tectonic plates moving apart. You need a hot, molten interior in order to form the convection currents that cause plate tectonics.*

**Student 2:** *But I thought divergent ridges form in oceans. Without an ocean, the plates can't move apart, so you need both a hot, molten interior and liquid water.*

Do you agree or disagree with one or both students? Explain your reasoning.

12) Imagine a new planet is discovered that has sand dunes, impact craters, stream beds, volcanoes and plate tectonics. Circle what we can figure out about that planet:

It has an atmosphere

It has liquid

It has a hot molten interior

Explain.