Venus Pudding Volcanos

Like Earth, Venus has different types of volcanos.

Some are like the volcanos of Hawaii – gently sloping volcanos made of lava layer stacked on lava layer stacked on lava layer. These lava layers are thin and flat – by piling up, they make a "shield volcano." (Note: The images we see of volcanos on Venus often are vertically exaggerated, so the volcanos appear steep sided)

Other volcanos on Venus are weird. These look like stacks of pancakes – circular, flat-topped, and with sharp edges. Volcanos like these do not occur on Earth and scientists debate what causes this shape to form.

Invite your child to experiment with different types of "pudding lava" to see if they can come up with a possible reason for the different types of volcanic features.

What You Need:

- 1 small package chocolate pudding mix
- 1 small package vanilla pudding mix
- 1 ½ cups of water
- 2 sandwich-size sealable bags
- Scissors
- 2 thick paper plates
- Trash can, trash bag or 2 additional plates (for the "messy" version)
- Lots of wet wipes or paper towels

What to Do:

Pour the chocolate pudding mix into the baggie. Add 1 ¼ cups of water to make a runny mixture. Carefully knead the baggie with your hands until mixed.

- Pour vanilla pudding mix into a baggie. Add ¼ cups of water to make a thick, stiff mixture. Carefully knead the baggie with your hands until mixed.
- Option 1 (very messy):
  - Punch a small hole, about a pencil width across, in the center of a paper plate.
  - Cut the corner off the chocolate pudding baggie, making a hole about a quarter inch long.
  - Push this corner of the baggie through the hole in the plate. Squeeze the pudding out of the "magma chamber" onto one of the paper plates and watch the "lava" flow across the surface of Venus. Be sure to do this over a trash can, trash bag or another plate.
  - Repeat with the second plate and the vanilla pudding "lava".

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- Try to make volcanos with low gentle slopes, and volcanos with steeper slopes or sides.

- Option 2 (less messy):
  - Cut the corner off the chocolate pudding baggie, making a hole about a quarter inch long.
  - Squeeze the pudding out of the “magma chamber” onto one of the paper plates and watch the “lava” flow across the surface of Venus.
  - Repeat with the second plate and the vanilla pudding “lava”.
  - Try to make volcanos with low gentle slopes, and volcanos with steeper slopes or sides.

Parent Prompts:

Which pudding “lava” is thinner or runnier? Which is thicker?

Do the different pudding lavas make different features?

Which pudding may be more like the lava that makes up the gentle flat surfaces of the shield volcanos on Venus?

Which pudding may be more like the lava that makes up the steep-sided pancake-like volcanos on Venus?

The runny pudding is more like the runny lava that builds the low shield volcanos we see on Venus and Earth. This type of lava makes basalt when it cools and crystallizes. The volcanic islands of Hawaii are made of this type of rock.

The thick pudding is more like the thick (viscous) lava that builds steep-sided volcanos like Mount St. Helens. (For parents: this type of lava is thicker because it has more silica and gases like water vapor). Some planetary scientists suggest that thicker lava made the pancake volcanos we see on Venus.

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