

INVESTIGATION QUESTION

How does carbon dioxide gas production demonstrate the way volcanic activity during the Permian triggered a mass extinction?

HYPOTHESIS

Hint: try writing it as "If ____, then ____, because ____."

MATERIALS

baking soda, vinegar, small plastic bottle, balloon, funnel

PROCEDURE

Summarize what you did in your own words.

Observation Table

Variable	Your Observation
Amount of CO ₂ produced (balloon size)	
Speed of reaction	
What happened when you increased baking soda	

PhET: Greenhouse Effect (phet.colorado.edu)

Atmosphere Setting	Temperature Result
No greenhouse gases	
Current atmosphere (today)	
High greenhouse gases (Great Dying model)	

ANALYSIS

How does the balloon in your experiment model what happened to Earth's atmosphere during the Great Dying?

CONCLUSION

The Permian extinction wiped out 96% of marine species and 70% of land species. Based on what you know about CO₂ and temperature, explain the chain of events that caused this.

CONNECT IT

Look up the Siberian Traps. How long did they erupt, and what does the scale of that eruption tell you about how much CO₂ was released?

THINK FURTHER

Some scientists compare the Permian extinction to potential future scenarios driven by modern climate change. What is similar? What is different?

ADDITIONAL NOTES
