MENTOS AND SODA GEYSER

NAME

CLASS / DATE

01 QUESTION

How does the number of Mentos dropped into a bottle of soda change the height of the eruption?

02 PREDICT BEFORE YOU MEASURE

AS THE NUMBER OF MENTOS INCREASES, WHAT MAY HAPPEN TO ERUPTION HEIGHT?

○ increase ○ stay similar ○ show no clear pattern yet

More candies can provide more bubble-starting sites, but use the measured trials rather than treating the prediction as guaranteed.

03 VARIABLES

I CHANGE (INDEPENDENT)	I MEASURE (DEPENDENT)

I KEEP THE SAME (CONTROLLED) · CHANGED: NUMBER OF MENTOS (2, 4 OR 6). MEASURED: PEAK PLUME HEIGHT IN INCHES. KEEP SODA BRAND, BOTTLE SIZE AND TEMPERATURE AND DROP METHOD MATCHED.

04 MATERIALS

- ☐ Outdoor level, hoseable location only
- ☐ Eye protection and clear area around the opening
- ☐ Fresh matched soda bottles for each trial
- ☐ 2, 4 and 6 Mentos portions and drop tube
- ☐ Marked height backdrop, record sheet and cleanup hose

05 PROCEDURE

SAFETY Perform the activity outdoors only on level grass or pavement that can be hosed off, well away from anyone's face. Wear eye protection and stand back immediately after dropping candies; the plume starts within about a second. Keep everyone away from the bottle opening and plume. Do not lean over, hold down or recap the bottle; release the candies and step back without delay.

1 **SET UP OUTDOORS** Use a level, open, hoseable area away from people, buildings, windows, overhangs and wires. Set a low freestanding scale before release; keep observers behind the boundary. ☐

2 **MATCH CONDITIONS** Use the same soda brand, bottle size and temperature. Prepare 2, 4 or 6 candies for each run. ☐

3 **RELEASE SAFELY** An adult opens the fresh bottle at the test point, drops candies together and steps back immediately. Everyone wears eye protection; never lean over, hold down or recap the bottle. ☐

4 **MEASURE AND REPEAT** From the fixed safe viewing point, record peak height in inches. Repeat with a second fresh bottle for that candy amount, then continue with the other counts. ☐

5 **AVERAGE AND CLEAN** Average the two heights for each amount; add a third bottle if time and supplies permit. Hose the spill and confirm the surface is not slippery. ☐

DATA AND EXPLANATION

NAME

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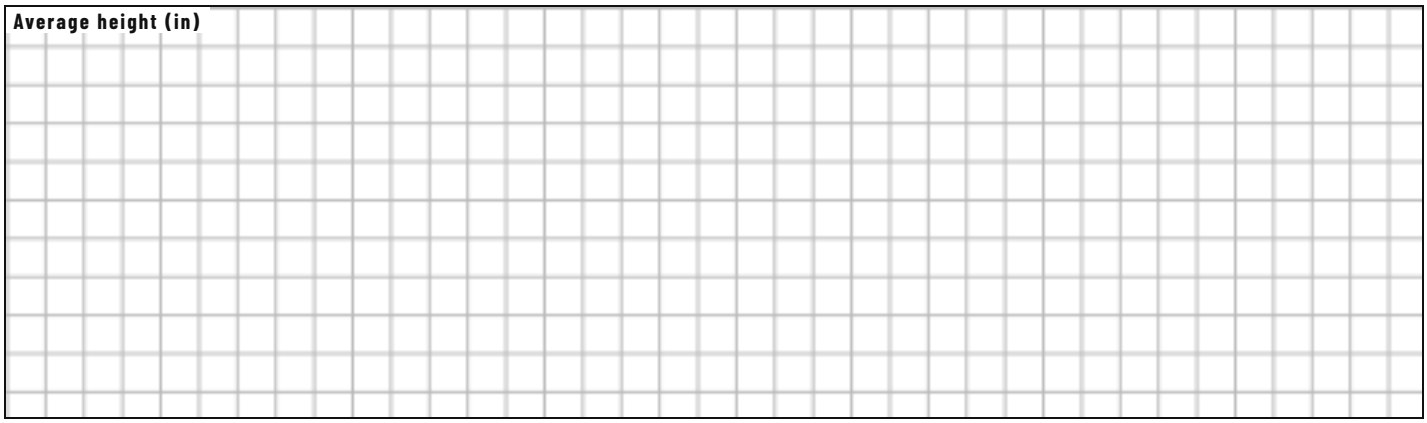
06 RECORD YOUR OBSERVATIONS

NUMBER OF MENTOS	TRIAL 1 / TRIAL 2 HEIGHT (IN)	MEAN HEIGHT (IN)
2 candies		
4 candies		
6 candies		

Mean height = (Trial 1 + Trial 2) ÷ 2. Keep the individual readings visible so the variation remains clear.

SHOW ONE CALCULATION

07 MEAN ERUPTION HEIGHT BY CANDY COUNT



Plot the average from each row at 2, 4 and 6 candies. Keep the original two trial values in the table.

X: Number of Mentos

08 EXPLAIN IT WITH EVIDENCE

CLAIM

EVIDENCE

REASONING

Reasoning must use: Mentos count · peak height · mean · dissolved carbon dioxide · nucleation

09 THINK FURTHER

What would you keep constant to test soda temperature as the changed variable, and which outdoor safety steps would remain essential?