ANSWER KEY

DO NOT HAND OUT

A PREDICTIONS THAT EARN FULL MARKS

Yeast amount	Accept a supported prediction that more yeast may speed foam formation or increase height, and accept uncertainty because the result depends on setup and available peroxide.

B VARIABLES

Independent	Yeast amount: 1, 2 or 3 teaspoons.
Dependent	Maximum foam height in centimeters and time to plateau in seconds, checked every 10 seconds.
Controlled	3% hydrogen peroxide amount and concentration, soap, bottle size and warm-water temperature for the yeast mixture.

C SAMPLE DATA

Illustrative readings, not measured results or a target. Heights of 10–14 cm are a modest fraction of a typical classroom bottle's height; plateau times are reported at the procedure's 10-second checks. The similar heights at 2 and 3 teaspoons illustrate that a fixed peroxide amount can limit further oxygen production. Actual foam depends on bottle and ingredient amounts.

YEAST	HEIGHT REACHED (CM)	TIME TO PLATEAU (S)
1 teaspoon	10	20
2 teaspoons	14	10
3 teaspoons	14	10

Confirm all three rows use the specified yeast amounts, centimeters and seconds. Plateau times should reflect 10-second checks, and a similar final height at 2 and 3 teaspoons is allowed when peroxide limits the reaction.

D MODEL CLAIM, EVIDENCE, REASONING

Claim: In these illustrative readings, increasing yeast from 1 to 2 teaspoons was associated with a faster plateau and a higher foam column, while 3 teaspoons did not raise the maximum further.
Evidence: The 1 teaspoon trial reached 10 cm at 20 seconds; the 2 and 3 teaspoon trials reached 14 cm at 10 seconds.
Reasoning: Yeast catalase speeds hydrogen peroxide breakdown, producing oxygen that forms foam; more catalyst can increase rate, but a fixed amount of peroxide limits total product. Foam and warmth support a reaction explanation but do not establish every substance property in MS-PS1-2.

E THINK FURTHER

A teacher-approved follow-up could keep yeast amount fixed and compare matched amounts of 3% peroxide to test whether more reactant changes the plateau height.

F QUICK GRADING GUIDE

Credit conclusions that match a student's recorded heights and times, use the 10-second observation resolution and recognize that results may level off when peroxide is limiting. Require 3% peroxide and the listed safety precautions; do not treat illustrative key values as a required outcome.