ANSWER KEY

DO NOT HAND OUT

A PREDICTIONS THAT EARN FULL MARKS

Farthest travel	Accept a reasoned prediction. A fuller balloon often travels farther, but compare measured trials because leaks and string friction matter.

B VARIABLES

Independent	Approximate air amount: small (~5 breaths), medium (~8 breaths), full (~12 breaths).
Dependent	Travel distance in meters for two trials and the average distance.
Controlled	Balloon type/shape, straw and string, track length and angle, start point, release method, breath counter and track tension.

C SAMPLE DATA

Illustrative estimates, not guaranteed outcomes. Values fit a low, taut track around three meters long and show a possible increase with inflation; real travel varies with breath size, leakage, balloon shape and straw-string friction.

AIR AMOUNT	TRIAL 1 DISTANCE (M)	TRIAL 2 DISTANCE (M)	AVERAGE DISTANCE (M)
Small (~5 breaths)	1.1	**1.3**	**1.2**
Medium (~8 breaths)	1.9	**2.1**	**2.0**
Full (~12 breaths)	2.6	**2.8**	**2.7**

Arithmetic: small (1.1+1.3)/2 = 1.2 m; medium (1.9+2.1)/2 = 2.0 m; full (2.6+2.8)/2 = 2.7 m. All table distances and averages use meters, are nonnegative and graph with zeroLine false.

D MODEL CLAIM, EVIDENCE, REASONING

Claim: In these illustrative trials, the balloon with the full inflation traveled farthest on the string track.
Evidence: The small, medium and full conditions averaged 1.2 m, 2.0 m and 2.7 m, respectively, from two trials each.
Reasoning: Escaping air moves backward while an opposite force moves the balloon forward. More air may sustain motion longer, but the short track, leaks and straw-string friction limit this comparison.

E THINK FURTHER

Measure each balloon's circumference before launch and compare it with distance using the same track and breath-count conditions.

F QUICK GRADING GUIDE

Require accurate two-trial averages in meters and conclusions from actual group data. Sample distances are illustrative and not target values; note any snag, leak or changing track tension.