ANSWER KEY

DO NOT HAND OUT

A PREDICTIONS THAT EARN FULL MARKS

Sink/float predictions	Accept testable predictions and reasons; evaluate them against the actual classification rather than requiring a particular prediction.

B VARIABLES

Independent	Object tested: wooden block, metal spoon, plastic bottle cap, rubber eraser or orange with peel.
Dependent	Actual sink/float result; optional calculated density for objects measured.
Controlled	Same water and basin, room-temperature water and gentle lowering method.

C SAMPLE DATA

Illustrative classifications only. Materials, hollow shapes and trapped air vary; any density examples are broad comparisons with water, not measurements for every sample. Use the class objects' actual results.

OBJECT	PREDICTION	ACTUAL RESULT	DENSITY (G/ML), IF MEASURED
Wooden block	Float	**Floats**	**<1 (example)**
Metal spoon	Sink	**Sinks**	**>1 (example)**
Plastic bottle cap	Float	**Floats**	**Not measured**
Rubber eraser	Sink	**Sinks**	**>1 (example)**
Orange with peel	Float	**Floats**	**<1 (example)**

Confirm predictions were written before the test, actual results use the settled observation, and density values appear only where mass and volume were measured.

D MODEL CLAIM, EVIDENCE, REASONING

Claim: In the illustrative observations, the wooden block and orange with peel floated while the metal spoon and eraser sank.
Evidence: The sample table records the block and orange with peel as floating and the spoon and eraser as sinking; students should use the actual result for their own bottle cap.
Reasoning: Objects less dense on average than water can float, while denser objects tend to sink. Trapped air and shape affect average density, so total weight alone is not enough.

E THINK FURTHER

Compare the same orange with and without its peel, using the same water and gentle placement, then describe how trapped air may affect average density.

F QUICK GRADING GUIDE

Give credit for predictions recorded before testing, separate actual classifications and an explanation based on density. Do not require optional density numbers when students did not measure mass and volume.