WHAT'S IN THE AIR?

INTRODUCTION

This is a formative assessment probe that can be used with the activities around flight. You can use it in your Engage, or in later stages of the lesson cycle. You can also use it repetitively, having students revise and improve their responses.

STANDARDS

NGSS 3-PS2-1
Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

NGSS 5-PS2-1
Support an argument that the gravitational force exerted by Earth on objects is directed down.

NGSS MS-PS2-2
Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

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This series of performance expectations will require students to engage in many experiences trying to explain the behavior of objects due to forces acting upon them. This formative assessment requires them to express their understanding of forces acting upon objects, and also to address the atomic nature of objects. It is an experience that will engage them in the Science and Engineering practices of Developing and Using Models, and Engaging in Argument from Evidence, and to explore the Crosscutting Concepts of Scale, Proportion and Quantity, Cause and Effect.

NAME: DATE:

WHAT'S IN THE AIR?

Your cousin is confused about something that happened when she flew to visit her grandmother. She took a bottle of water on the flight with her, drank about half of it on the plane, then closed the bottle. When the plane landed and she gathered all her belongings, she noticed that the bottle was all squished and crushed. When she opened the cap, she heard a whoosh, and the bottle expanded and looked normal again.

How might you explain what your cousin saw happen with the bottle?

If you turn an empty glass upside-down and hold it in a bowl of water, will the water fill the glass? Predict what you think will happen and draw a diagram.