

WHY DO THINGS FLY?

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 5-PS1-1

Develop a model to describe that matter is made of particles too small to be seen.

MS-PS1-1

This fifth-grade performance expectation requires lots of experiences for students to fully grasp. Even after that grade, students need to keep working on the concept. While examining these phenomena is a great time for students to engage in the Science and Engineering Practices of Developing and Using Models, and Constructing Explanations, it is also an opportunity to consider the Crosscutting Concept of Scale, Proportion, and Quantity. This is also a good step on the way to meeting the middle school performance expectations about the atomic nature of matter.

NAME:

DATE:

WHY DO THINGS FLY?

Four friends are hanging out in a backyard on the weekend. They are making paper airplanes and tossing them.

“Why do planes fly? I mean, what keeps them up in the air?” asks Anna.

“They go fast so that gravity can’t pull them down,” says Stefan. “See how when the plane goes slow it starts falling down?”

“But helicopters can hold still and stay in the air,” says Clara. “So can bees and hummingbirds. I think they push against the air with their wings.”

“I think it has to do with the shape of their wings,” says Anna.

“Some airplanes fly better than others, and I think it is because of how their wings are shaped,” says Tommy. “They are light and that’s why they fly. After all, elephants and rhinos don’t fly. Only light animals like pigeons and butterflies can fly.”



B-17s flying in formation over the Mediterranean Sea. (*The National WWII Museum, 2011.160.030*)

What do you think? Do you agree or disagree with the ideas of the four friends? Explain how you think things are able to fly.