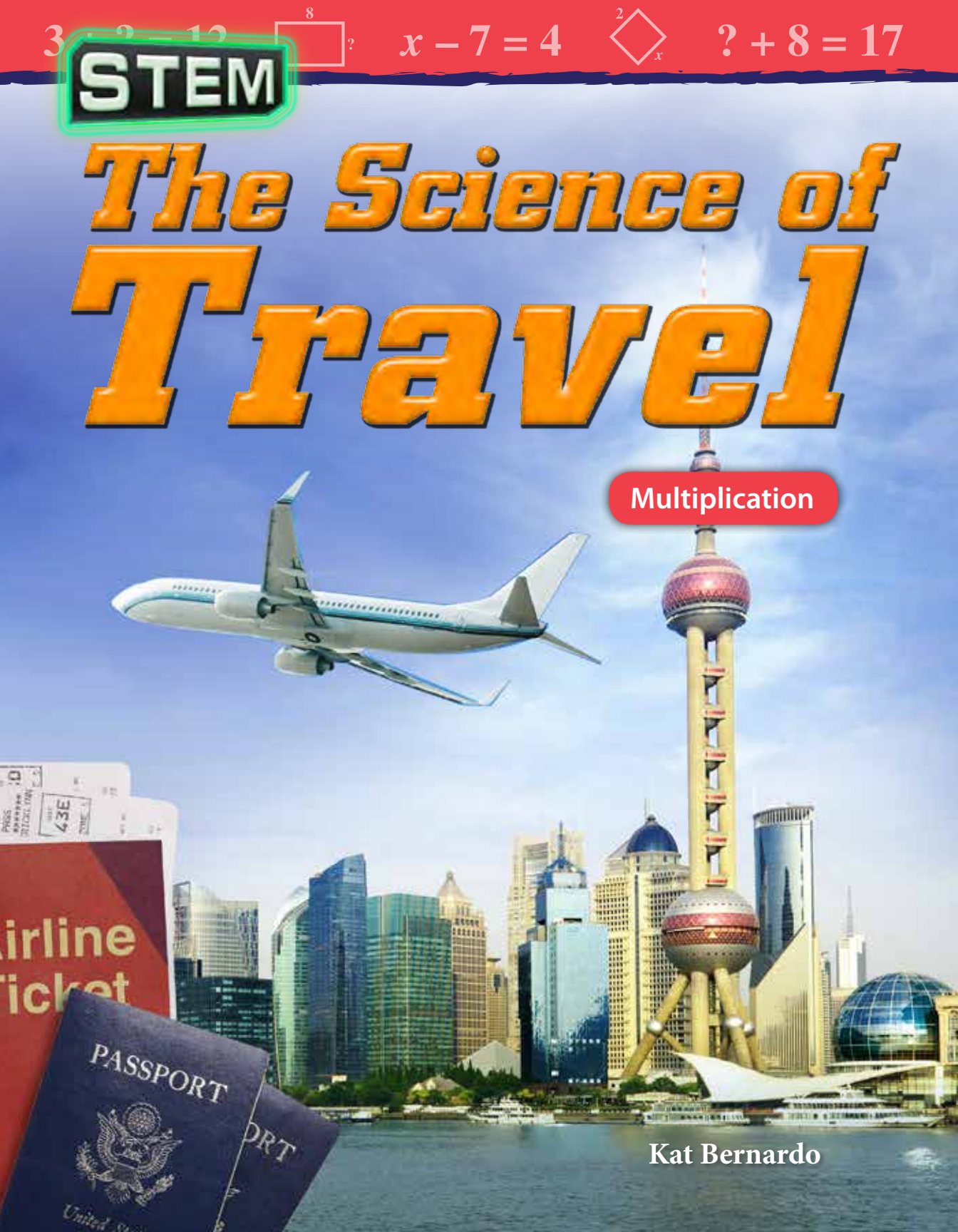
STEM

The Science of Travel

Multiplication



Kat Bernardo

For teachers' inspection ONLY

Table of Contents

Let's Take a Trip! 4

Airplane to Hawaii 6

Chopper over Oahu 13

Maglev in Motion 17

Double-Decker Delight 22

Underground Travel 24

Where Will You Go? 27

Problem Solving 28

Glossary 30

Index 31

Answer Key 32

Note to the reader: The Hawaiian language includes a letter that looks like this: ʻ. It is called an ʻokina. It signifies a stop between two sounds. Another Hawaiian mark is the kahakō and signifies a long vowel sound. For ease of reading, this story uses standard English spelling.

For teachers' inspection ONLY

Let's Take a Trip!

Many people love to vacation with family. Luckily, you don't have to go far to have a good time. There are adventures close to home. You can spend the day visiting museums and parks right in your own neighborhood.

But what if you want to take a trip farther from home? Maybe you want to visit family and friends who live far away. Or, perhaps you want to see as many sights as you can in a new place.



For teachers' inspection ONLY

No matter what you choose, you will probably need some sort of transportation to get you where you want to go. Whether in the air or on land, far away or in your own backyard, getting there can be part of the fun. Pack your bags and buckle up! It is time to take a family vacation!





For teachers' instruction ONLY

Airplane to Hawaii

Shawn and Catie Burke are taking their first trip on an airplane. They are so excited! Their family is going on a vacation to Hawaii. They have their tickets, and a hotel room is waiting. The only thing left to do is fly!

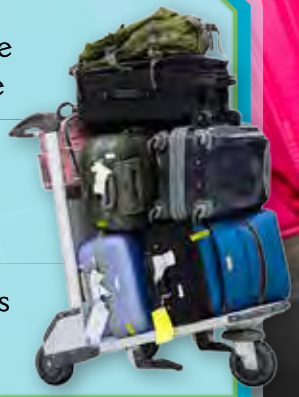
The Burkes drive to the airport. Once there, they wheel their heavy bags to the gate agent. Because the bags are so big, they need to be stored in the cargo hold of the airplane. The agent sticks a special tag to their suitcases. Then, the agent places the bags on a long **conveyor belt** behind the desk. Shawn gets worried when he sees his bag roll out of sight. The agent tells him that the luggage tag has a bar code on it. A computer will scan the bar code. Then, workers will load the bag onto the correct airplane.

For teachers' inspection ONLY

A family waits for an airport agent to tag their luggage.

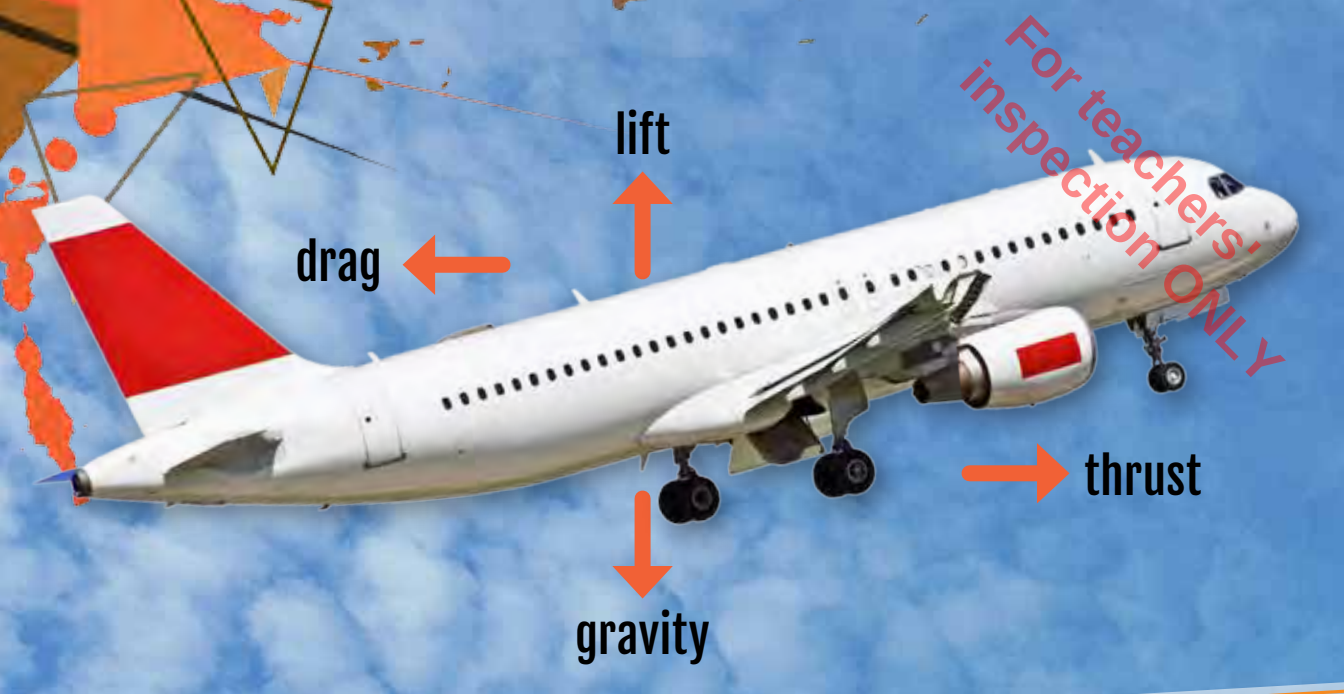
LET'S EXPLORE MATH

Uh-oh! The gate agent is running behind. A lot of people came to the counter at the same time to check in. There are now 4 carts loaded with luggage waiting to be tagged. Each cart has 6 pieces of luggage.



1. How many pieces of luggage are there total?
2. The luggage belongs to 8 people. If each person brought the same number of bags, how many bags did each person bring?

For teachers' inspection ONLY





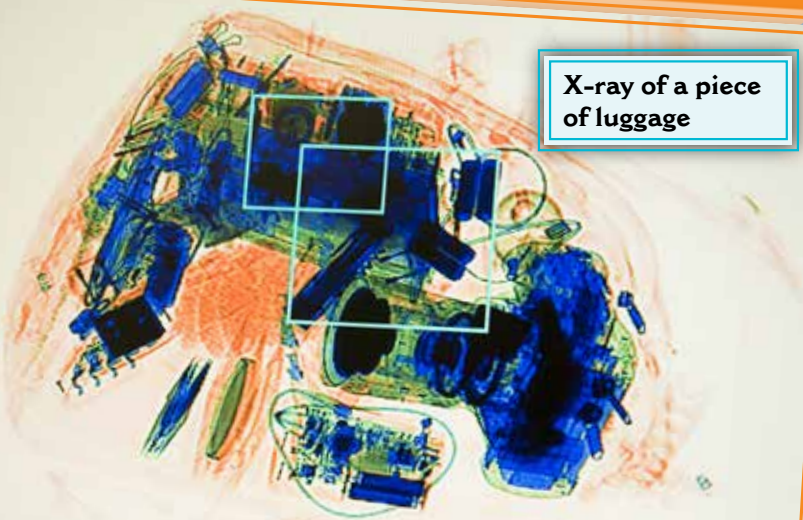
A safety inspector checks X-rays of bags to keep everyone safe.

For teacher's inspection ONLY

Four Forces

Before the Burkes can board the airplane, they need to go through security. Catie takes off her shoes. She places them on a conveyor belt with her small carry-on bag. The items move under a metal box as an agent inspects a screen. Catie sees an X-ray of her shoes and bag! The agent tells her that she checks to make sure people are following the rules. She wants to keep the airport safe.

The Burkes arrive at the gate and wait to board their plane. Shawn asks his dad how something so big can fly. His dad explains that it has to do with four **forces**. **Gravity** pulls the airplane toward the ground. **Lift** from the forward motion of the plane pushes it up. The lift of an airplane must be stronger than gravity for it to take off. **Drag** from the size and shape of the plane slows it down. But, **thrust** from the engines pushes the plane forward. The pilot makes sure the airplane's thrust is stronger than the drag. All four of these forces work together to keep the plane moving forward.



X-ray of a piece of luggage