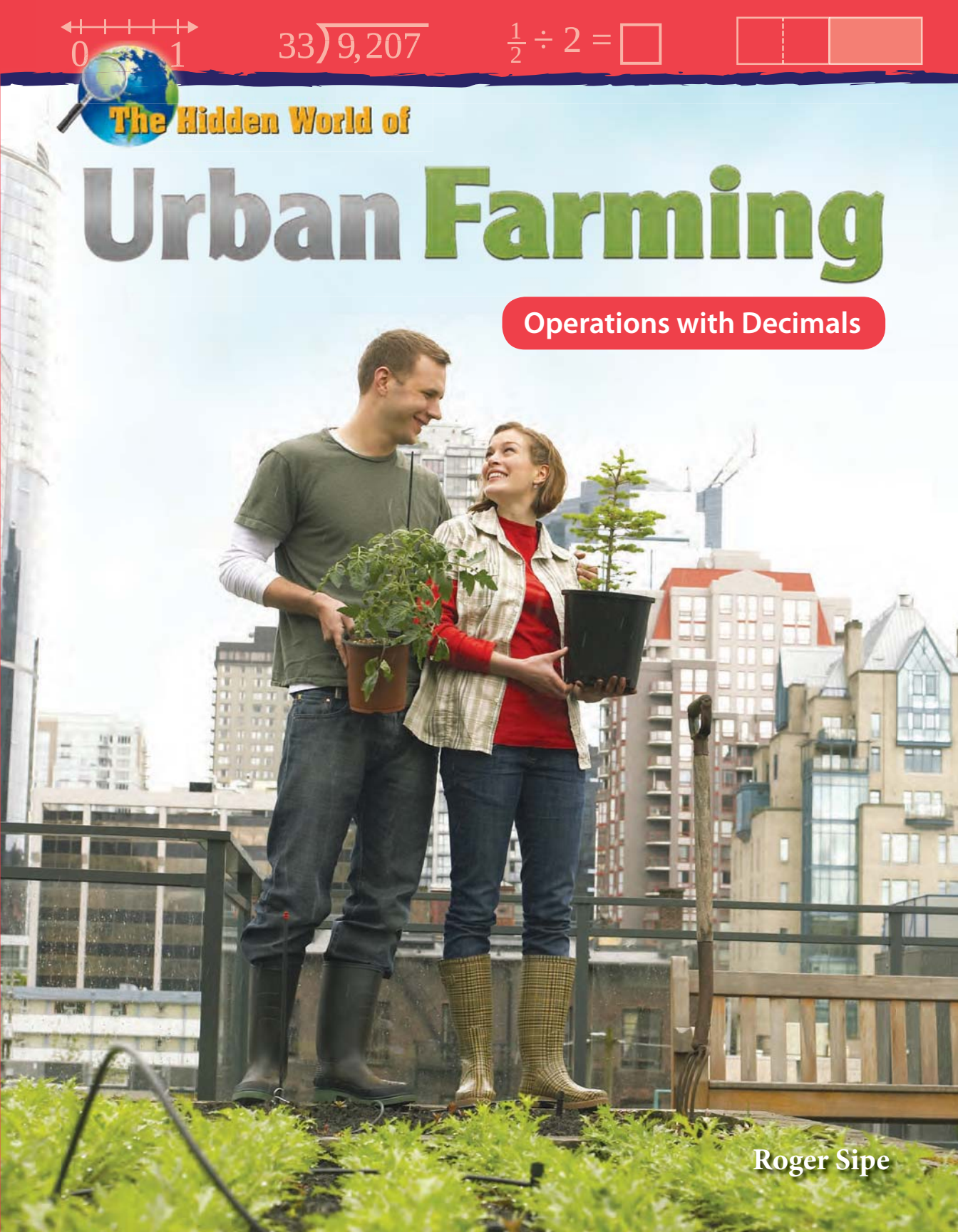

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The Hidden World of
Urban Farming
Operations with Decimals
Roger Sipe

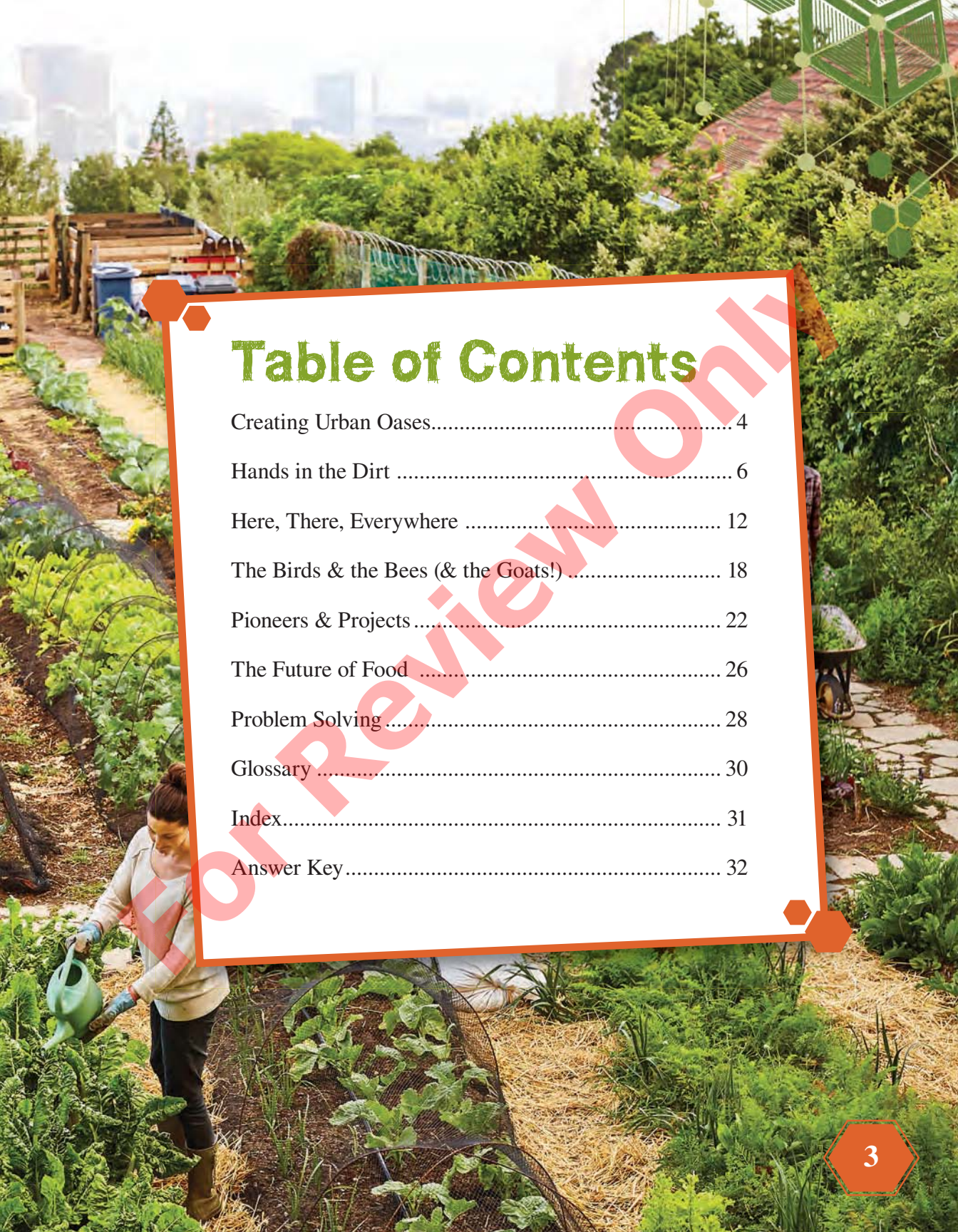


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For Review Only

Creating Urban Oases

Earth's population has doubled since 1970. Today, more than half the people in the world live in cities. That is a lot of mouths to feed in areas that do not have much space in which to grow food. Traditional farming methods can't continue to feed everyone. In fact, many people currently suffer from hunger. Plus, traditional farming methods are expensive. They use limited natural resources, such as oil, to move the harvest from the country to the cities. These are big problems. One solution might be urban farming.

Growing and harvesting food within city limits is the future of farming. It's already happening around the world. And urban farmers are producing *better* food. They are **composting** to make healthier soil and are using organic means to grow fruits and vegetables. These urban farmers are also planting on top of buildings instead of in fields. And they reuse and recycle materials to save money and resources.

Urban farming is more than just planting some seeds and reaping a harvest, though. It is a way of life. It helps urban dwellers be healthier and feel closer to nature while still being able to live and work in the city. While few people make a living as urban farmers, any **urbanite** can get involved. All they need are good soil, a few seeds, and a little bit of space.



A traditional farmer checks his crops.

For Review Only



Urban farmers check their crops.

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Hands in the Dirt

Urban farming does not mean going to the local grocery and "harvesting" fruits and veggies by filling a shopping cart. People have to get their hands dirty and grow their food. Before they can plant any seeds though, they have to make sure the soil is healthy.

From the Ground Up

To begin a garden, the soil needs to be tested. Urban soil is not as healthy as the soil found in a country field. A vacant city lot that looks ideal for growing a garden might have previously had a home or building on top of it. That well-worked soil can contain high levels of lead and other **pollutants**.

A soil sample is taken and sent to a lab to see if it is safe to grow food. At the lab, scientists test the soil for its **acidity level**, the amount of **nutrients** it has, and any unsafe metals, such as lead. If the results are in the safe zone, the soil can be used to grow crops. The farmer will then prepare the garden by adding organic matter to the soil. If the results of the soil sample are not in the safe zone, the soil must be removed. This removal process can be costly, as the dirt has to be disposed of safely.



For Review Only



A person collects soil samples.

For Preview Only

Let's Explore Math

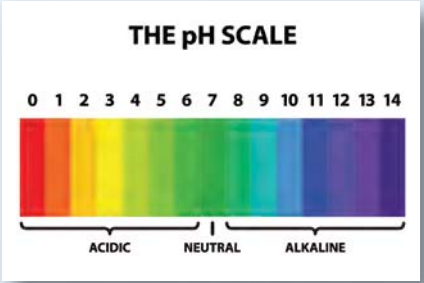
Scientists use the pH scale to measure acidity levels. If soil has a pH level above 6.5, any food grown in it absorbs very little lead. Imagine that you are a scientist testing pH levels of samples from different possible gardens. Which gardens would you recommend to planners and why?

Garden A: 6.55

Garden B: 6.15

Garden C: 6.49

Garden D: 6.62



Raising Their Game

Many urban farmers choose not to use urban soil at all. Instead, they build their gardens in boxes placed on top of the vacant lots. These raised-bed gardens are rectangular and made of wood or other sturdy materials. A protective layer is put on the bottom of the box, and new, healthy dirt is dumped in. Urban farmers also use other types of containers to grow plants. Pots, crates, and other small containers are perfect for urban gardens because they are light, portable, flexible, and inexpensive.







For Review Only

Feeding the Soil

All soil used for farming must be healthy. Certain nutrients help produce healthy plants. Urban farmers can keep their soil healthy by feeding it with compost. This natural addition is made of organic matter, which has been labeled as either *browns* or *greens*. Browns provide carbon. They include dead leaves, branches, and twigs. Greens provide nitrogen. They include grass clippings, vegetable and fruit scraps, and coffee grounds. Urban farmers add browns and greens to piles in equal amounts. They also add water to provide moisture. With proper upkeep, the compost will break down into a rich, dark, dirt-like substance in a matter of months.



This cross-section of a compost bin shows browns and greens breaking down.

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LET'S EXPLORE MATH

Urban farmers are happy to receive donated compost! Imagine that a landscaping company donates 12.2 kilograms of brown compost and a restaurant donates 17.66 kilograms of green compost to an urban garden.

1. How can you tell whether the total donation is greater or less than 30 kilograms?
2. What is the exact total weight of the donation?