LESSON MAKER PRO

Scale It Up

Use matching ratios to model real systems.

GRADE 4 · TEKS 4.5.C

4.5.C "use scale, proportion, and quantity to describe, compare, or model different systems;"

NAME _____ DATE _____

MATCH THE SCALE

A scale connects a model quantity to a real quantity. Find the amount for one equal part, then multiply to find a matching amount in the same system.

WORKED EXAMPLE

A model bridge is 5 centimeters long and represents a real bridge that is 30 meters long. How many meters does a 4-centimeter model bridge represent?

1. 30 ÷ 5 = 6, so each centimeter represents 6 meters.
2. 4 × 6 = 24.
3. The 4-centimeter model bridge represents 24 meters.

Answer: 24 meters

PRACTICE 6 problems

1 A river model uses 3 centimeters to represent 9 kilometers. How many kilometers does 7 centimeters represent?

ANSWER _____

2 In a food-web model, 2 owl symbols represent 18 real owls. How many real owls do 8 owl symbols represent?

ANSWER _____

3 A weather map uses 10 centimeters to represent 50 kilometers. How many kilometers does 3 centimeters represent?

ANSWER _____

4 In a terrarium model, there are 3 lizard tokens for every 12 beetle tokens. If the model has 48 beetle tokens, how many lizard tokens should it have?

ANSWER _____

5 A water-filtration model uses 15 blue tiles to show 3 wetlands. At the same scale, how many blue tiles are needed to show 20 wetlands?

ANSWER _____

6 A virtual garden model shows that 8 plants support 56 insects. At the same rate, how many insects would 11 plants support?

ANSWER _____

APPLY IT Show your work

1 You are planning a trip to a nature center. On the trail map, 1 centimeter represents 7 kilometers. The trail to the center measures 9 centimeters on the map. How far is the real trail?

WORK SPACE

ANSWER _____

2 In a wildlife video game, a pond system has 3 frogs for every 18 dragonflies. Your new pond has 8 frogs and keeps the same ratio. How many dragonflies should it have?

WORK SPACE

ANSWER _____

CHALLENGE One step up

At a science museum, a model road system uses 9 centimeters to represent 27 kilometers. Route A is 13 centimeters long, and Route B is 20 centimeters long. How many kilometers farther is Route B? Explain your reasoning.

WORK SPACE AND ANSWER

ANSWER KEY

Scale It Up

GRADE 4 · TEKS 4.5.C

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A river model uses 3 centimeters to represent 9 kilometers. How many kilometers does 7 centimeters represent?	**21 kilometers**
2	In a food-web model, 2 owl symbols represent 18 real owls. How many real owls do 8 owl symbols represent?	**72 owls**
3	A weather map uses 10 centimeters to represent 50 kilometers. How many kilometers does 3 centimeters represent?	**15 kilometers**
4	In a terrarium model, there are 3 lizard tokens for every 12 beetle tokens. If the model has 48 beetle tokens, how many lizard tokens should it have?	**12 lizard tokens**
5	A water-filtration model uses 15 blue tiles to show 3 wetlands. At the same scale, how many blue tiles are needed to show 20 wetlands?	**100 blue tiles**
6	A virtual garden model shows that 8 plants support 56 insects. At the same rate, how many insects would 11 plants support?	**77 insects**

PART 2 · APPLY IT

1. **63 kilometers** Multiply 9 map centimeters by 7 kilometers per centimeter. 9 × 7 = 63.
2. **48 dragonflies** Each frog matches 6 dragonflies because 18 ÷ 3 = 6. Then 8 × 6 = 48.

CHALLENGE

Route B is 21 kilometers farther. It is 7 centimeters longer on the model, and each centimeter represents 3 kilometers. 7 × 3 = 21.

Accept correct answers with matching units. For the challenge, accept any clear explanation that finds the 7-centimeter difference and scales it to 21 kilometers.