

Trail Model Mission

Use a scale model to estimate distances along a route.

6.1.e.i “developing and using models use scale models to represent and estimate distance”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each scale statement and circle every measurement given in centimeters. Write a 1 beside each place where a model length is changed into a real distance.

Planning a Reserve Trail

- ① A scale model keeps the same proportional relationship as the real object or place. If a trail is 1,000 meters long and a model uses 1 centimeter for every 100 meters, the trail should measure 10 centimeters on the model. A scale must include units, such as 1 centimeter = 100 meters. Without units, a measurement cannot show a real distance clearly. Scientists use such models to plan routes and compare distances safely before traveling there.
- ② At Pine Ridge Reserve, a planning team made a trail model with the scale 1 centimeter = 2 kilometers. On the model, Base Camp to Rock Arch measures 3.5 centimeters. Rock Arch to Dry Creek measures 4 centimeters. Dry Creek is 8 kilometers beyond Rock Arch on the same route, so the model measurement and the stated real distance agree. The team can estimate the route from Base Camp to Dry Creek by adding the two model lengths before converting the total to kilometers.
- ③ Model measurements are estimates, not exact promises. A ruler reading may be slightly different if a line is thick or a path curves. To make a useful estimate, measure along the route, use the printed scale, and write the correct unit. If a route curves, divide it into short sections and add them. A scale model does not tell whether a path is steep, muddy, or closed. Teams check those conditions separately before choosing a route.

2 ANSWER WITH EVIDENCE Use the passage

1 On the Pine Ridge model, what real distance does 1 centimeter represent?

2 Base Camp to Rock Arch measures 3.5 centimeters on the model. Estimate the real distance in kilometers.

3 What are the model distance and the real distance from Base Camp to Dry Creek along the route through Rock Arch?

4 A side path on the same model measures 2.5 centimeters. Estimate its real distance.

3 YOUR TURN Your own words

In the box, create a scale model of a two-part route. Use the scale 1 centimeter = 2 kilometers, choose two route distances from 4 to 10 kilometers that are multiples of 2, and draw correctly sized connected segments with labels. Below the model, write the scale, both real distances, and the total route distance.

PART 1 • READ AND MARK

Underline each scale statement and circle every measurement given in centimeters. Write a 1 beside each place where a model length is changed into a real distance. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	On the Pine Ridge model, what real distance does 1 centimeter represent?	1 centimeter represents 2 kilometers.
2	Base Camp to Rock Arch measures 3.5 centimeters on the model. Estimate the real distance in kilometers.	7 kilometers.
3	What are the model distance and the real distance from Base Camp to Dry Creek along the route through Rock Arch?	The model distance is 7.5 centimeters. The real distance is 15 kilometers.
4	A side path on the same model measures 2.5 centimeters. Estimate its real distance.	5 kilometers.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Scale: 1 centimeter = 2 kilometers. Draw a 3-centimeter segment from Camp to Lookout and a connected 4-centimeter segment from Lookout to Pond. Camp to Lookout is 6 kilometers. Lookout to Pond is 8 kilometers. The total route distance is 14 kilometers.

Accept equivalent calculations with correct units. For the open task, accept any two chosen distances that meet the stated limits, as long as each drawn segment is proportional to the scale and the total is correct.