

Lesson 19: Trash Talk

Standards Alignments

Building On	4.MD.A.1
Addressing	5.NBT.B.5
Building Towards	5.NBT.B.5

Teacher-facing Learning Goals

- Use multiplication to solve problems about the area of the Great Garbage Patch.

Student-facing Learning Goals

- Let's multiply to solve problems about the area of the Great Garbage Patch.

Lesson Purpose

The purpose of this lesson is to find areas by multiplying side lengths in situations where the side lengths are two- or three-digit numbers.

In previous lessons, students have learned to use the standard algorithm to multiply whole numbers including a three-digit and a two-digit number. The purpose of this lesson is to apply those techniques to a situation involving areas related to the Great Garbage Patch. The measurements are given in kilometers so students review, in the first activity, how long a kilometer is. Then, students calculate the area of states to get a sense for the size of the Great Garbage Patch. One of these calculations is a product of two three-digit numbers. After this brief interlude solving problems about area, students return to volume for the final two lessons. The area calculations for the states showed the importance of estimation since finding the exact products requires careful calculations whereas a quick estimate shows that the area of New Mexico is less than the area of the Great Garbage Patch. This estimation builds on student learning from the previous activity and then next two lessons combine estimation, volume, and trash.

Access for:



Students with Disabilities

- Representation (Activity 1)



English Learners

- MLR8 (Activity 2)

Instructional Routines

Notice and Wonder (Warm-up)

Materials to Gather

- Metersticks: Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	10 min
Activity 2	25 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

In what ways did students extend and apply their understanding of multiplication and area throughout the lesson?

Cool-down (to be completed at the end of the lesson)

 5 min

Wyoming

Standards Alignments

Addressing 5.NBT.B.5

Student-facing Task Statement

Wyoming is 600 km wide and 452 km long. What is the area of Wyoming?

Student Responses

271,200 square kilometers. Sample response: I found $452 \times 6 = 2,712$. Then since the 6 is 6 hundreds, that means I need to multiply 2,712 by 100 and $2,712 \times 100 = 271,200$ square km.

$$\begin{array}{r}
 3 \ 1 \\
 4 \ 5 \ 2 \\
 \times \quad 6 \\
 \hline
 2, \ 7 \ 1 \ 2
 \end{array}$$