

Lesson 9: The Birds

- Let's solve multiplication problems.

Warm-up: Notice and Wonder: For the Birds

What do you notice? What do you wonder?



9.1: Home is Where the Bird Lives

Different types of birds use different types of houses. The table gives you the recommended side lengths for birdhouses of various species.

| type of bird | side lengths of floor | height | volume estimate |
|-----------------------|-----------------------|-------------|-----------------|
| chickadee | 4 in by 4 in | 6 to 10 in | |
| wood duck | 10 in by 18 in | 10 to 24 in | |
| barn owl | 10 in by 18 in | 15 to 18 in | |
| red-headed woodpecker | 6 in by 6 in | 12 to 15 in | |
| bluebird | 5 in by 5 in | 6 to 12 in | |
| swallow | 6 in by 6 in | 6 to 8 in | |

Estimate a possible volume for each birdhouse. Be prepared to explain your reasoning.

9.2: What is the Volume?

Use the criteria from the table to determine the recommended range of volumes for each type of birdhouse.

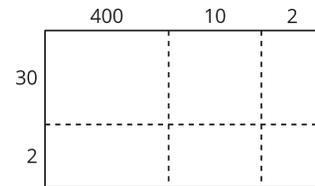
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Section Summary

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In this unit we found products of a three-digit number and a two-digit number. We first represented the products with diagrams that help us break down the product by place value.

This diagram breaks up the product 412×32 by place value. If we find and add up all of the partial products, we will get the product of 412×32 .



Then we learned a new algorithm to multiply numbers, the standard algorithm for multiplication.

We can see the partial products are organized in a different way. 824 represents the partial product for 2×412 and 12,360 represents the partial product for 30×412 .

$$\begin{array}{r}
 412 \\
 \times 32 \\
 \hline
 824 \\
 + 12,360 \\
 \hline
 13,184
 \end{array}$$

We noticed that sometimes we need to compose a new unit when we use the standard algorithm, and we represent that unit with notation. Sometimes, we may have to compose more than one new unit.

The 1 above the 1 in 216 represents the ten from the product 3×6 and the 2 represents 2 hundreds from the product 40×6 .

$$\begin{array}{r}
 216 \\
 \times 43 \\
 \hline
 648 \\
 + 8,640 \\
 \hline
 9,288
 \end{array}$$