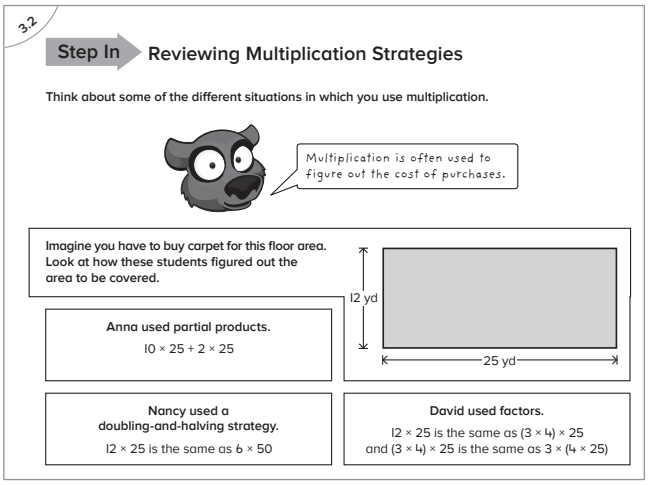
ORIGO STEPPING STONES TEXAS

Core Focus

- Using the standard algorithm for multi-digit multiplication
- Solving word problems involving multiplication
- Building conceptual understanding of volume
- Working with the formula for calculating volume of prisms

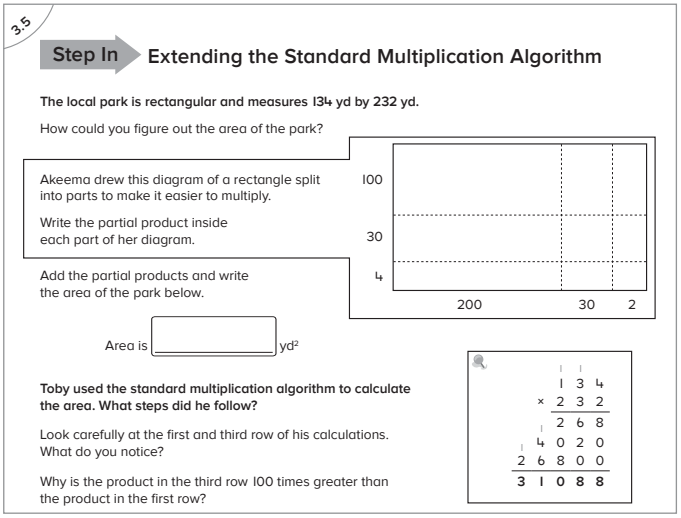
Multiplication

- The standard algorithm provides a method for performing multi-digit multiplications that are difficult to do mentally, such as 42 × 34.



In this lesson, students choose a familiar multiplication strategy to calculate multiplication problems.

- The standard algorithm is built on the same idea of multiplying part by part, using place value, and then adding all the separate parts together.



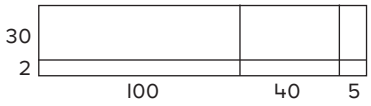
In this lesson, students connect the partial products strategy to the standard algorithm for multiplication.

Ideas for Home

- Work with your child on basic multiplication facts for a few minutes at a time, several days every week.
- Help your child identify the facts they just know, the facts they can figure out using a strategy ("I know 5 × 7 is 35, so 6 × 7 is seven more, or 42"), and those facts that are still challenging.
- If your child is making mistakes with the standard algorithm, ask them to solve the problem first by using the partial products strategy (rectangle model), or any method they prefer. Then work with them step by step to connect their answer to the algorithm.

Glossary

- The end result of multiplication is called the **product**.
- Students use an area model (rectangle) to find the **partial products** of a multiplication problem, such as 32 × 145. Each partial product is then added together to find the product, in this case, 4,640.



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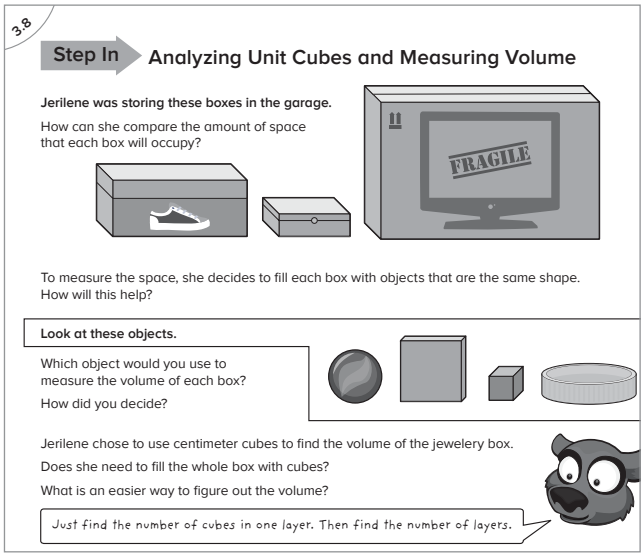
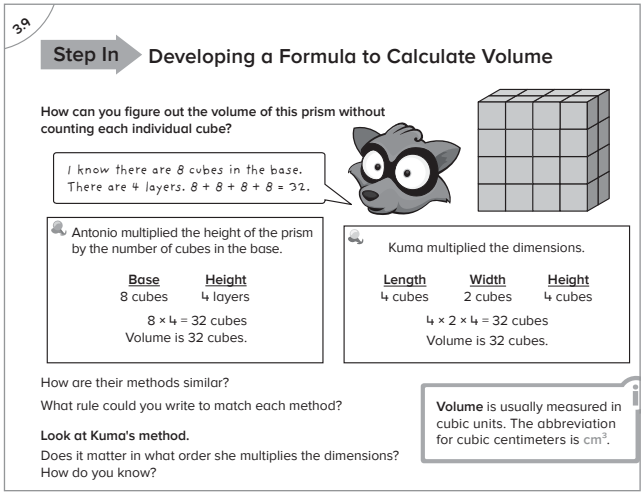
Volume

- The focus of this module is on the concept of volume (the amount of space that an object occupies).
- To think about the volume of an object (e.g. a box), students visualize filling it up with small cubes. The volume of the box is the number of cubes needed to fill it.
- Students visualize covering the base of an object with a single layer of small cubes, and then think about how many layers of cubes would be needed to fill up the shape.



In this lesson, students investigate the volume of different boxes.

- Students eventually find the volume of prisms (boxes) by multiplying the area of the base by the height, which is the same as length × width × height.
- Students then work in reverse by starting with the volume of a prism and thinking about what its dimensions might be (i.e. three numbers that multiply to give the volume). E.g. if the volume of a prism is 30, possible dimensions include: 2 × 3 × 5, and 1 × 6 × 5.
- Students use what they have learned about the volume of prisms to solve a variety of real-world problems.



In this lesson, students use small blocks to find the volume of rectangular prisms.

Ideas for Home

- Have your child collect different sized boxes from around your home (e.g. shoe boxes, cereal boxes, and gift boxes). Have your child measure the dimensions of the boxes (length, width, and height) to the nearest inch and then find the volume.
- Choose a small box from the activity above and ask, "What are the possible dimensions of a box large enough to fit 12 of these smaller boxes?" Encourage your child to draw a picture or diagram to help solve the problem.
- Ask your child to compare the volumes of the different boxes. Boxes that look very different can have similar volumes.
- Tell your child the volume of a rectangular prism (a box), and ask them to find the possible dimensions. E.g. if the volume is 36 cubic units, the dimensions could be 3 × 3 × 4, or 2 × 2 × 9. See how many solutions your child can find.

Glossary

- **Volume** is usually measured in cubic units.

  cubic inches = in^3
  cubic centimeters = cm^3

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