

# Curriculum Parent Overview (Grade 5)

## MATHEMATICS

### UNIT #2: PRISMS AND SOLIDS (3-D Geometry and Measurement)

#### CONTENT FOCUS:

Students study the volume of rectangular prisms by looking at patterns of boxes and by building rectangular prisms from connecting cubes. They use strategies and volume formulas for finding the volume of any rectangular prism. They find the volume of solids composed of regular prisms by combining volumes. Students measure the volume of a small rectangular prism using cubic centimeters. They build models of standard cubic units of volume (cubic inches and feet and cubic centimeters and meters).

#### UNIT FOCUS:

- Translating between two-dimensional and three-dimensional shapes: Throughout the unit, students develop their visualization skills and their understanding of relationships between 2-D pictures and the 3-D objects they represent. They create and determine the volume of boxes made from 2-D patterns and create box patterns to hold a certain number of cubes.
- Structuring rectangular prisms and determining their volume: Volume is an essential concept in students' learning of 3-D geometry. The work in this unit helps students to see that the volume of a solid (3-D figure) is the space that the solid takes up. Students develop this concept by mentally organizing cubes as stacks of rectangles, by building boxes and predicting then figuring out the number of cubes that will fit inside, and finally, applying those understandings to determine formulas for volume ( $L \times W \times H$  and areas of base  $\times$  height).  
Students also find the volume of solids that are made up of separate rectangular prisms. They use the breaking apart strategy or seeing the solid as smaller parts of a whole to determine each part's individual volume before adding them together.
- Analyzing and interpreting data: Data are used to answer a question, to investigate an issue, or to provide information about something in the world that is of interest. After data have been collected, represented, and summarized, we have to decide what the data tells us.

#### MATHEMATICAL PRACTICES:

MP4: Model with mathematics.

MP5: Use appropriate tools strategically.

#### CONNECTIONS TO PREVIOUS CONTENT:

In earlier grades, students worked with 2-D and 3-D shapes-identifying shapes as being two-dimensional or three-dimensional; describing, identifying, comparing, and defining attributes of shapes; and composing and decomposing these shapes. In grades 3-4, student work in measurement focused on measuring accurately and finding perimeter and area. The work in this unit assumes students can measure accurately to the nearest half inch and have a generalized method for finding area

#### CONNECTIONS TO FUTURE CONTENT:

In future years, students continue to develop their understanding of the relationship between the linear measurements used to determine the dimensions of a solid and the volume of that

solid. Students' ideas about volume from this unit include the strategies they developed for determining the volume of rectangular prisms and their understanding of volume as being additive. These ideas serve as building blocks for understanding formulas for calculating the volume of a variety of shapes.

**MATH AT HOME:**

- Using some type of building cube or block, try to build different solid shapes using the same number of cubes, then write the dimensions into the volume formula.
- Choose solid shapes (that are shaped like boxes) around the house and determine their volume using the volume formula. You'll need a ruler, yard stick, or measuring tape.
- Review the Math Words and Ideas videos for this unit on Savvas Site.