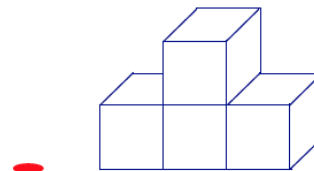# Lesson 19: Understanding Three-Dimensional Figures
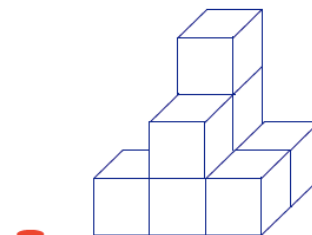
Classwork

Example 1

If slices parallel to the tabletop (with height a whole number of units from the tabletop) were taken of this figure, then what would each slice look like?

Example 2

If slices parallel to the tabletop were taken of this figure, then what would each slice look like?
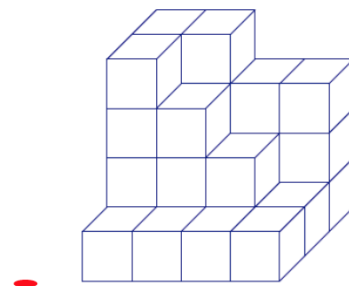
Exercise 1

Based on the level slices you determined in Example 2, how many unit cubes are in the figure?

Exercise 2
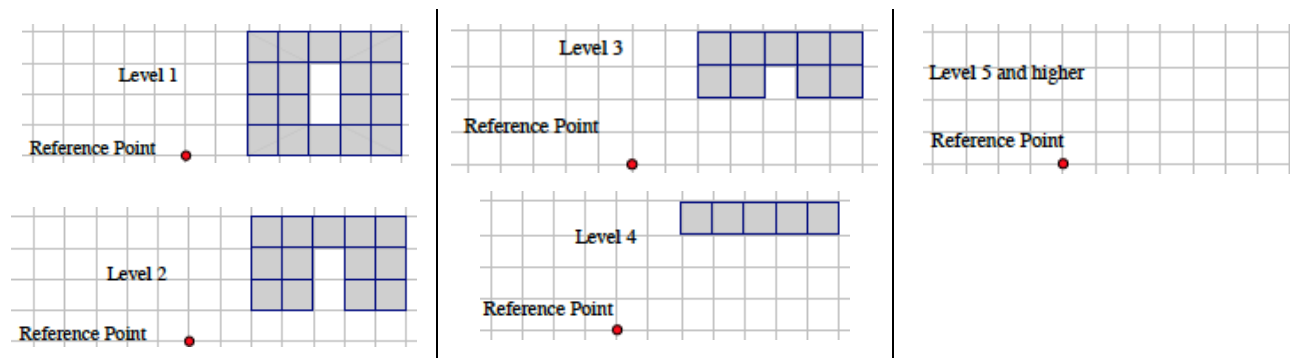
    a.   If slices parallel to the tabletop were taken of this figure, then what would each slice look like?

    b.   Given the level slices in the figure, how many unit cubes are in the figure?

Example 3

Given the level slices in the figure, how many unit cubes are in the figure?
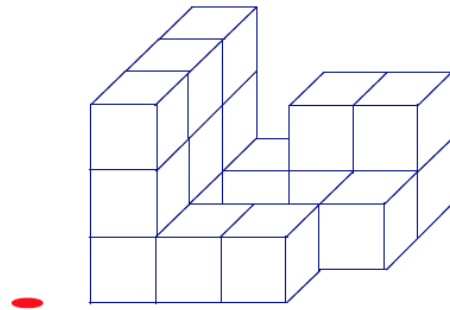
Exercise 3

Sketch your own three dimensional figure made from cubes and the slices of your figure. Explain how the slices relate to the figure.

Problem Set

In the given three-dimensional figures, unit cubes are stacked exactly on top of each other on a tabletop. Each block is either visible or below a visible block.
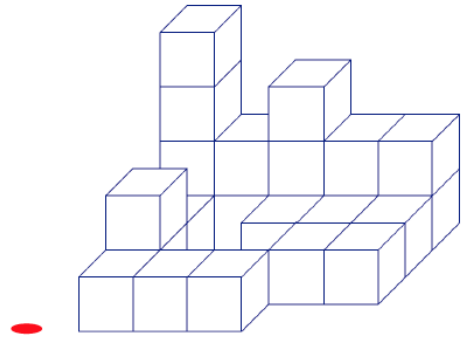
1.

    a.   The following three-dimensional figure is built on a tabletop. If slices parallel to the tabletop are taken of this figure, then what would each slice look like?

    b.   Given the level slices in the figure, how many cubes are in the figure?

2.

    a.   The following three-dimensional figure is built on a tabletop. If slices parallel to the tabletop are taken of this figure, then what would each slice look like?

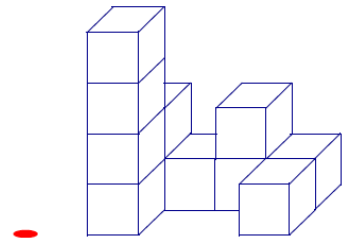   b.   Given the level slices in the figure, how many cubes are in the figure?

3.

    a.   The following three-dimensional figure is built on a tabletop. If slices parallel to the tabletop are taken of this figure, then what would each slice look like?

    b.   Given the level slices in the figure, how many cubes are in the figure?

4.   John says that we should be including the Level 0 slice when mapping slices. Naya disagrees, saying it is correct to start counting cubes from the Level 1 slice. Who is right?

5.   Draw a three-dimensional figure made from cubes so that each successive layer further away from the tabletop has one less cube than the layer below it. Use a minimum of three layers. Then draw the slices and explain the connection between the two.