**Standards addressed by this lesson:**

* 5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
* 5.MD.3a A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
* 5.MD.3b A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
* 5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

**Materials Needed:**

* 2 cm wooden cubes
* Crayons or markers
* Task pages

**Goal:** Students will determine how 3D figures are formed and measured.

**Lesson:**

1. Tell students that today they will build some 3D figures and determine how many blocks it will take to build it.
2. Give the students the Slice it and Build It Task pages along with some 2 cm wooden cubes. Have them build each figure and then “slice” it into the number of equal parts indicated on the task sheets. Have them color each figure to show the equal parts.
3. Monitor students as they build and slice each 3D figure. Make notes about the ways students divide the figures and what misconceptions and difficulties they are having.
4. After students have completed their tasks, bring students together for discussion. Ask students what they noticed about the task. Pick one of the figures to discuss in depth. Ask students, “What does this tell us about how to build that prism? What does it tell you about the equal parts? What do you know about the prism you built that you can’t see in the picture?”

At the end of this discussion pose the problem on the last page. Have students work independently and then share their strategies for solving the problem. Give them the cubes if necessary. You can save this discussion for the next day or use this as assessment task.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Build It and Slice It Task

Build each of the following rectangular prisms with wooden cubes. “Slice” each building into equal parts. Show the equal parts on the drawing by coloring them with different colors.

**Two equal parts Two equal parts in a different way**

**Two equal parts in another different way Three equal parts**

**Two equal parts Two equal parts**

More Build It and Slice It Tasks

Continue building and slicing into equal parts. Show the equal parts on drawing by coloring the parts with different colors.

**Three equal parts Three equal parts in a different way**

**Four equal parts Two equal parts**

**Two equal parts Five equal parts**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

[](http://www.google.com/imgres?q=apartment+building&um=1&hl=en&sa=X&rls=com.microsoft:en-us&biw=1280&bih=648&tbs=itp:clipart&tbm=isch&tbnid=sg4IOavWsPigGM:&imgrefurl=http://www.clker.com/clipart-building-with-trees.html&docid=1oODCOeJ-C9LLM&imgurl=http://www.clker.com/cliparts/0/a/6/b/12065771771975582164reporter_flat.svg.med.png&w=300&h=268&ei=wFm-T6DuNMOssQLBrPgX&zoom=1&iact=hc&vpx=785&vpy=175&dur=921&hovh=212&hovw=238&tx=132&ty=114&sig=116450071549210404206&page=1&tbnh=106&tbnw=119&start=0&ndsp=23&ved=1t:429,r:4,s:0,i:149)

An apartment developer created plans for a one story apartment house. She was planning on building 21 apartments. All of the apartments will be the same size. After talking to her friend, Vicki, she decided it would be better to make it at least two stories high. How many apartments could she have on the second floor? How could you help her know how many apartments she could have if she added extra floors?

* She ended up designing this simple apartment house. If each cube represents an apartment, how many apartments are in her apartment house? Explain or illustrate your thinking.