

Geometry Lesson Plan: Introduction to Area, Surface Area and Volume

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Theoretical Foundation

a) *Bruner's theory of cognitive growth* emphasizes the importance of teaching in the development of students' ability to understand and apply new concepts (Schunk, 2008, p. 343). Educators have the challenging task of helping students to retrieve information previously learned and introduce them gradually to more complex applications. Schunk (2008) presents an example of how educators can communicate with peers from different academic levels to ensure the continuity of academic curriculum and the proper students' cognitive development (p. 344). However, this scenario is rarely encountered in local school districts where students are exposed to "isolated" concepts that are not properly related to previous knowledge. This geometry lesson aims to develop the meaning of two dimensional areas and relate them with three dimensional concepts such as surface area and volume.

b) *Forward-reaching transfer* techniques are commonly praised by specialists in cognitive information processes because it encourages individuals to think about potential uses of skills and knowledge (Schunk, 2008, p. 213). This lesson expose students to activities that are related to daily task such as selecting an apartment floor plan, packingunpacking and gift wrapping.

c) *Constructivism* is present in this lesson since mathematical knowledge will be constructed by the students as a consequence of class interaction via learning activities such as selecting an appropriate floor plan and teaming up to compete in the packing competition.

Reference:

Schunk, D. H. (2008). Learning theories: an educational perspective (5th ed.). Upper Saddle River, N.J.: Pearson/Merrill Prentice Hall.

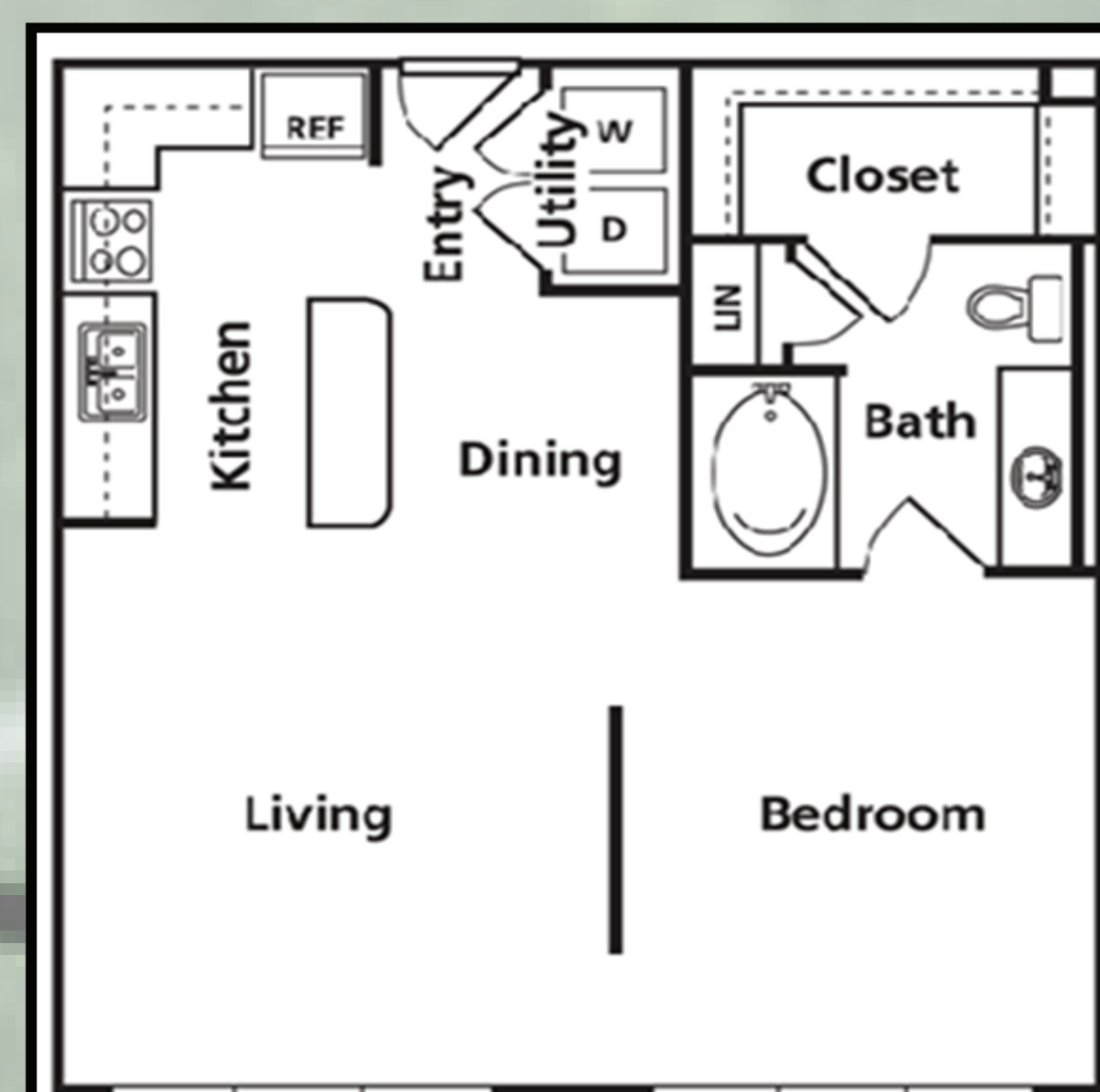
Overall Goal

a) The overall goal is for students to demonstrate the relationship among area, surface area, volume, and the world around us.

Activating Prior Knowledge

The use of pictures showing daily activities are used to activate prior knowledge.

Floor Plan (Area)



Box Packing (Volume)



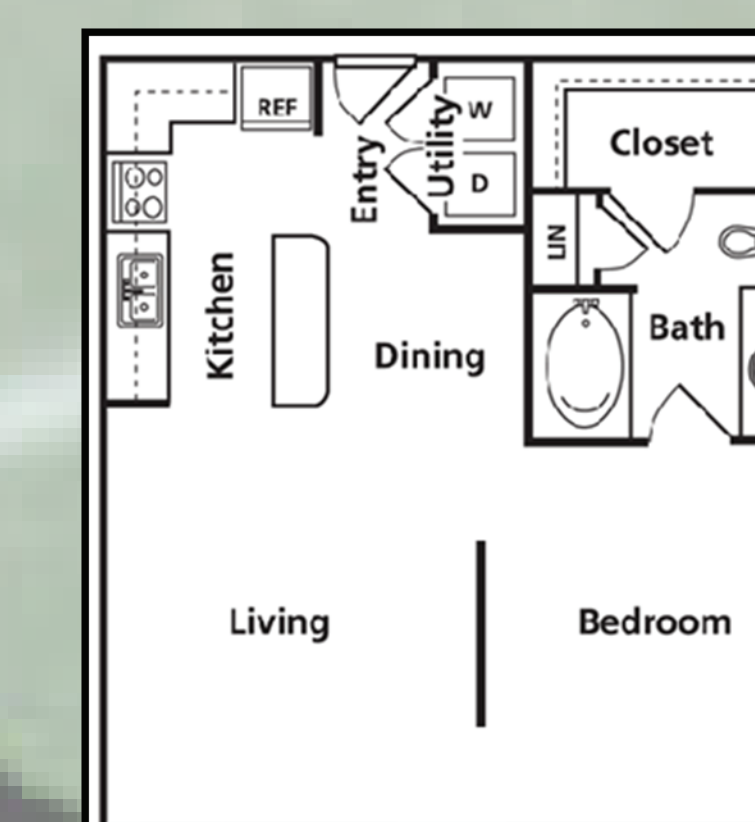
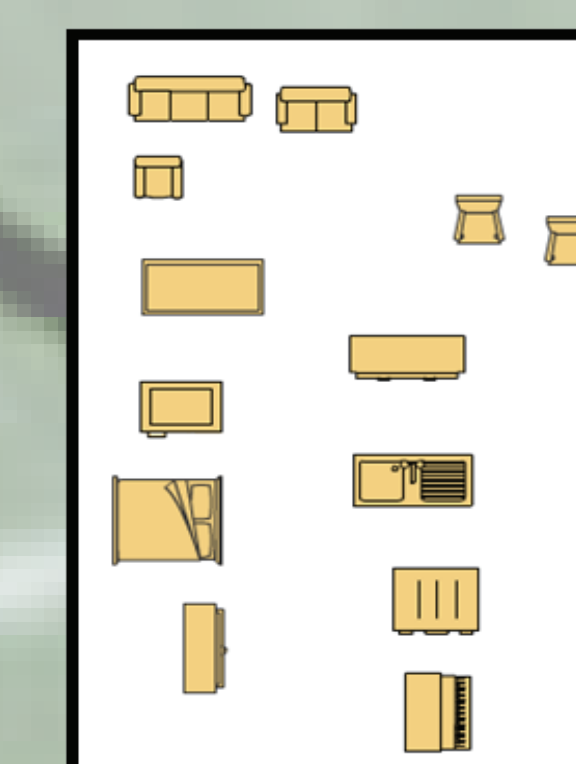
Gift Wrapping (Surface Area)



Enrichment/Extension

Activity #1- Interactive Floor Plan

- Imagine that you are a college student who is about to rent a studio apartment.
- “Villa de la Palma Real Boulevard” apartments has an online décor planner that can be used to correctly choose a floor plan.
- Determine the items that will fit in the studio apartment.



Activity #2- Packing Competition

- Imagine that you are a salary worker for a moving/packing company.
- Pack as many things as possible in one minute.
- Use the box provided as a storage container.



Activity #3- Last Minute Wrapping

- You forgot your best friend's birthday and you only have a couple of minutes before the party starts.
- Use the color-paper squares to wrap the box provided.
- Count the number of color-paper squares to determine the surface area.

