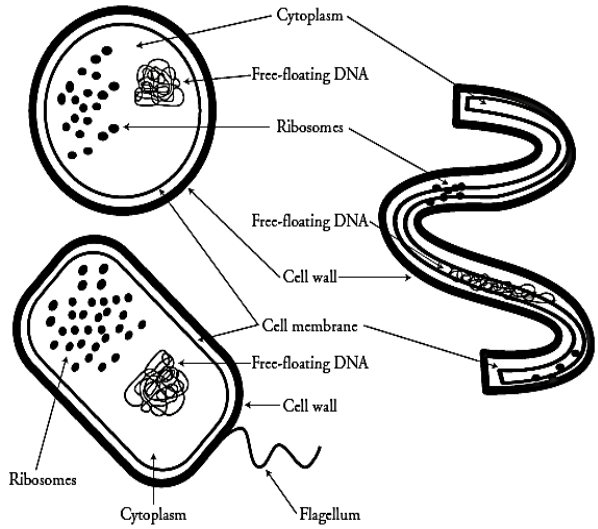
Prokaryotic & Eukaryotic Cells Extension

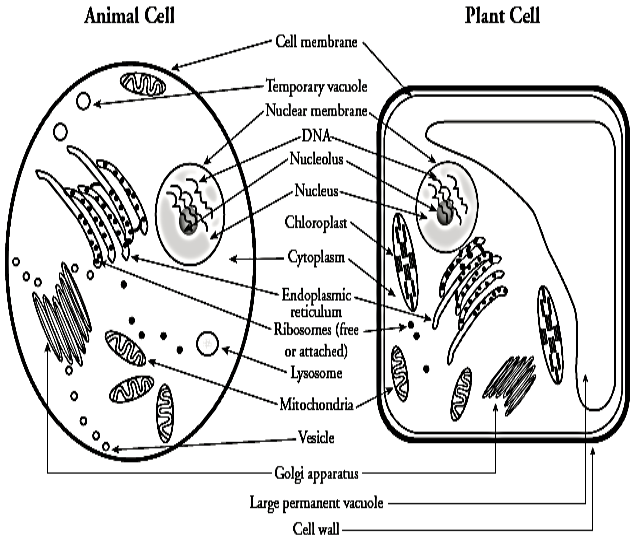
Why?

An efficiency apartment is a one-room apartment. This one room is where you sleep, eat, shower, and entertain your guests. It all happens in one room. It is a simple way of living in a small space. A mansion is a large, complex living space with many separate rooms. There are rooms for cooking, eating, sleeping, bathing, reading, watching TV, entertaining guests, exercising, and storage. The rooms in a mansion are constructed for the specific things you would like to be able to do. You can live in simple efficiency or complexity. In this activity we will be looking at cells that are as simple as a one-room efficiency apartment or as complex as a mansion.

Model 1 – Three Types of Bacterial Cells



Model 2 – Animal and Plant Cells



The three bacterial shapes in Model 1 are referred to as *coccus* (sphere), *spirillum,* and *bacillus* (rod). Label the diagrams in Model 1 with the correct descriptions.

1. What is represented by the small dots found in each of the bacteria cells?

2. What is the name of the outermost layer that forms a boundary around the outside of each cell?

3. How is the DNA described and what does this mean?

4. All the internal structures are suspended (floating) in what substance?

5. One of the bacteria in Model 1 has a tail-like structure.
   a. What is this structure called?

   b. What might be the purpose of this structure?

6. Looking at Model 2, list at least three structural differences (other than shape) between an animal and a plant cell.

7. Where do you find the DNA in each cell in Model 2?

8. List the structure(s) that form the boundary between the inside and the outside of each cell in Model 2.

9. What is different about the outermost boundary in a plant cell compared to an animal cell?

10. Decide as a group whether the cells in Model 1 or 2 are more complex and list at least three supporting reasons for your choice.

Model 3 – Structural Comparisons

Word Part	Meaning
pro	before
karyon	nucleus or kernel
eu	true

11. Use the chart in Model 3 to determine the meaning of the word prokaryote.

12. What does the word eukaryote mean?

13. Based on the above word definitions, label the cells in Model 1 and Model 2 as prokaryotic or eukaryotic.

14. List at least 3 ways prokaryotic cells are DIFFERENT from eukaryotic cells.

15. As a group, discuss the opening analogy of an efficiency apartment and a mansion as it relates to cells. Record your final consensus of how this analogy applies to cell structure.