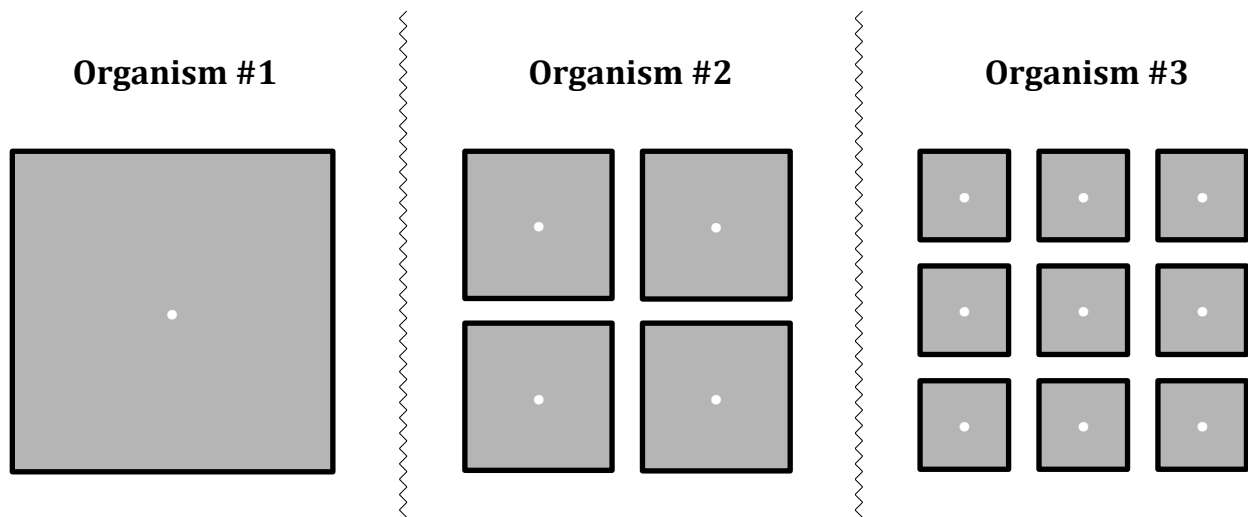


MODELING CELL CUBES

BACKGROUND INFORMATION:

Each of the following organisms is made of cells (cubes) that have the **same total size and shape**. However, each of the three organisms is made up of a different number of cells. For simplicity, the cells are shown in two dimensions, but they are really three-dimensional.



THOUGHT QUESTIONS:

1. Suppose that each of the three organisms contains a toxic particle (such as a poison) in its cells. Which organism would be best suited to eliminate it? Explain your reasoning.

2. Now suppose that each of the cells in the three organisms needs to absorb a nutrient. Which organism would be best suited to absorb it? Explain your reasoning.

Name _____ Date _____ Period _____

MODELING CELL CUBES

3. Rank the organisms from lowest total volume to highest total volume.
4. Rank the organisms from lowest surface area to greatest surface area.
5. Rank the organisms from lowest **surface area to volume ratio** to highest **surface area to volume ratio**.
6. Make a claim as to why cells are so small.
7. Draw a picture to model an organism that would be even more efficient at absorbing nutrients or eliminating waste than any of the 3 organisms shown on this worksheet.