Name _____ Date _____

Prokaryotic and Eukaryotic Cells Quick Check: What All Cells Share and How They Differ

Directions: Answer each question about prokaryotic and eukaryotic cells; one group of questions uses a table comparing four cells.

1. Which three structures are shared by nearly all cells, prokaryotic and eukaryotic alike?

☐ A. Ribosomes ☐ B. DNA ☐ C. Mitochondria
☐ D. Nucleus ☐ E. Cell membrane ☐ F. Cell wall

2. Use the word bank to complete these sentences about where a cell keeps its DNA.

Word bank

cell wall • vacuole • ribosome • nucleoid • nucleus

In a prokaryotic cell, the DNA sits in a region of the cytoplasm called the _____, which has no membrane around it. In a eukaryotic cell, most of the DNA is kept inside the _____, which is surrounded by a double membrane.

3. As a cell grows larger, its volume increases faster than the area of its cell membrane. Why does this limit how large a cell can become?

A. The membrane becomes too small to move materials in and out fast enough for the whole cell.
B. The membrane stops letting any materials cross once the cell reaches a certain size.
C. A larger cell has more membrane for each unit of volume, which slows diffusion.
D. A larger cell needs less food and oxygen, so its membrane stops working.

4. Which of these organisms is made of prokaryotic cells rather than eukaryotic cells?

A. A moss, a small plant
B. Baker's yeast, a single-celled fungus
C. An amoeba, a single-celled protist
D. The bacterium *Escherichia coli*

Classifying Four Unknown Cells

In an investigation, four unknown cells were examined, and the features found in each are listed in the table. Each cell's width was measured across its widest part.

Features found in four unknown cells

Cell	Nucleus	Membrane-bound organelles	Ribosomes	Cell wall	Width (micrometers)
Cell 1	No	None	Yes	Yes	2
Cell 2	Yes	Yes, including mitochondria	Yes	No	20
Cell 3	Yes	Yes, including mitochondria and chloroplasts	Yes	Yes	50

Cell	Nucleus	Membrane-bound organelles	Ribosomes	Cell wall	Width (micrometers)
Cell 4	No	None	Yes	No	0.3

5. Judging by the features in the table, which of the four cells are prokaryotic?

A. Cells 2 and 3 B. Cells 1 and 3 C. Cells 1 and 4 D. Cell 1 only

6. Based on the features listed in the table, which kind of organism did Cell 3 most likely come from?

A. A fungus B. An animal C. A plant D. A bacterium

7. According to the table, about how many times wider is Cell 3 than Cell 1?

A. About 48 times B. About 25 times C. About 2.5 times D. About 100 times

8. Penicillin kills many bacteria by blocking them from building cell walls made of peptidoglycan. Based on the table, which cell could be a bacterium with this kind of wall?

A. Cell 1 B. Cell 4 C. Cell 2 D. Cell 3