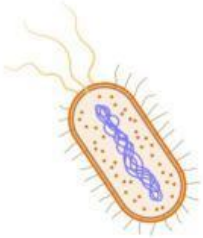
 Name_____

Prokaryotic Cells and Eukaryotic Cells

All cells on Earth can be divided into two types: prokaryotic cells and eukaryotic cells. Organisms that are made of a prokaryotic cell are known as prokaryotes. Organisms that are made of eukaryotic cells are known as eukaryotes. Prokaryotes are always unicellular (one-celled) organisms and may be bacteria or archaea. Eukaryotes may be unicellular or multicellular (many-celled) and include plants, animals, fungi, and protists.

Eukaryotic cells are much larger and more complex than prokaryotic cells. Eukaryotic cells contain several cell structures and organelles that are missing from prokaryotic cells. For example, eukaryotic cells contain a nucleus, mitochondria, Golgi bodies, lysosomes, chloroplasts, and endoplasmic reticulum. The smaller and simpler prokaryotic cells do not contain these membrane-bound organelles. Both prokaryotic and eukaryotic cells contain cytoplasm and ribosomes.

Both prokaryotic and eukaryotic cells contain DNA. However, eukaryotic cells store DNA in their nucleus, but prokaryotic cells have their DNA free-floating in the cytoplasm in an area called the nucleoid. Prokaryotic DNA is contained in a single, circular chromosome. In eukaryotic cells, the DNA is contained in the nucleus. Eukaryotic DNA is organized into linear chromosomes made up of DNA tightly wound around proteins called histones.



Prokaryotic Cell (bacteria)

Major Characteristics of Prokaryotic Cells

- Has a cell membrane
- Contains cytoplasm
- DNA is in a single circular chromosome
- DNA located in cytoplasm
- Contains ribosomes
- Does not contain membrane-bound organelles
- Smaller in size
- Includes bacteria and archaebacteria
- Organisms with prokaryotic cells are always unicellular
- Evolved earlier

Major Characteristics of Eukaryotic Cells

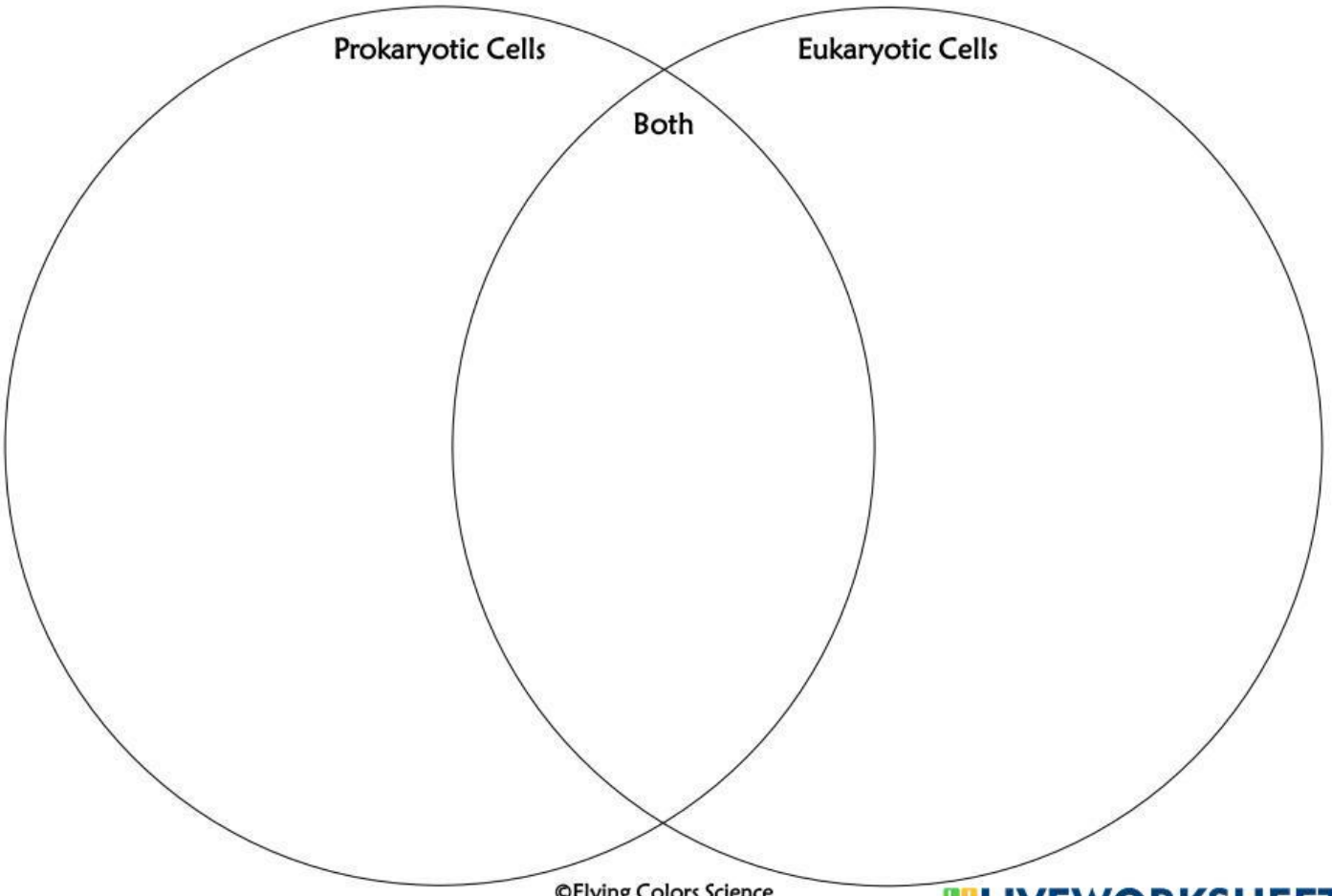
- Has a cell membrane
- Contains cytoplasm
- DNA in linear chromosomes
- DNA is in the nucleus
- Contains ribosomes
- Contains membrane-bound organelles
- Larger in size
- Includes plant, animal, fungi, and protists
- Organisms with eukaryotic cells can be multicellular or unicellular
- Evolved later

Eukaryotic Cell (plant cell)

©Flying Colors Science

LIVEWORKSHEETS

Directions: In the "Prokaryotic Cells" circle, write down characteristics that are unique to prokaryotic cells. In the "Eukaryotic Cells" circle, write down characteristics that are unique to eukaryotic cells. In the middle, overlapping area of the circles, write down characteristics that are common to both types of cells.

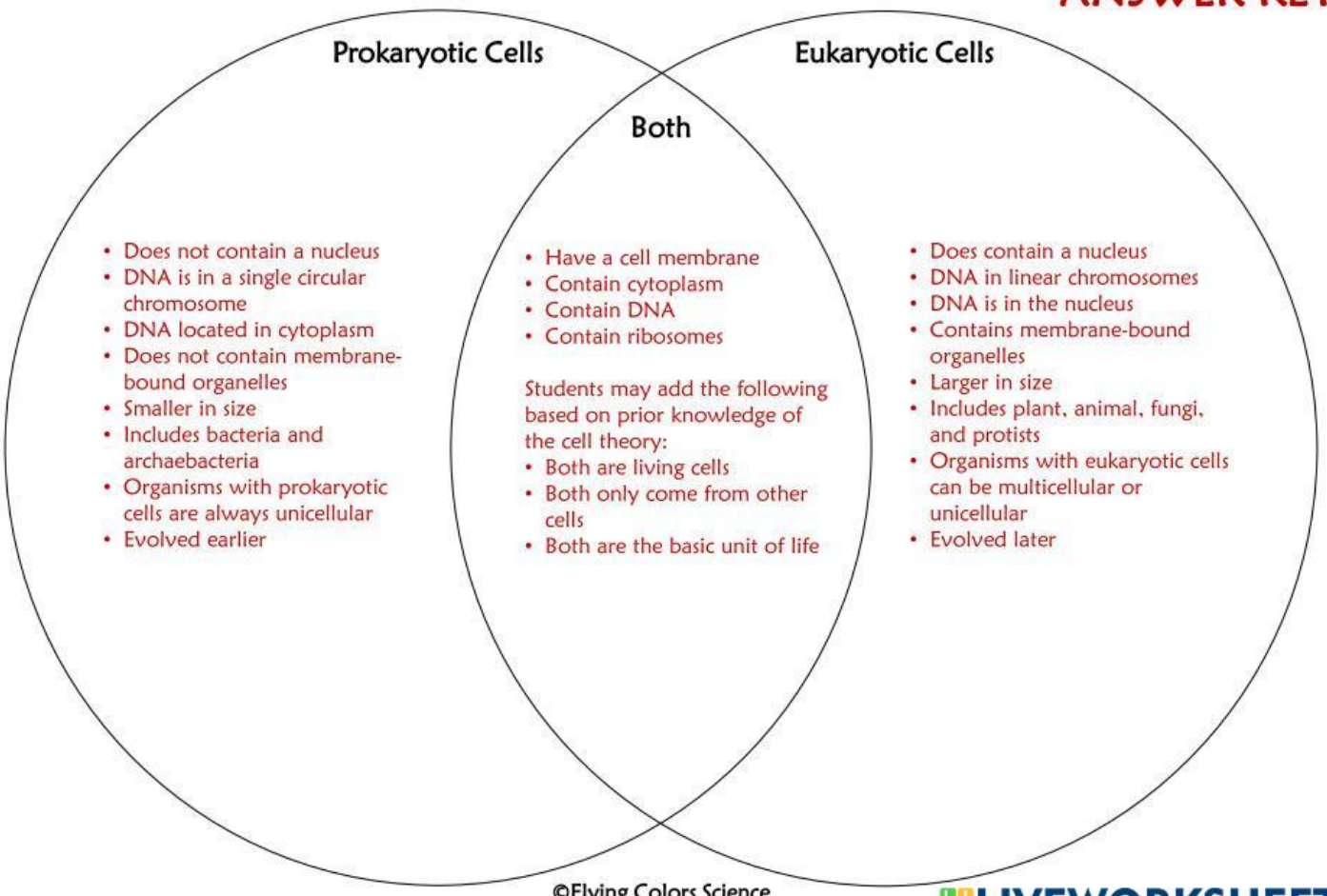


©Flying Colors Science

LIVEWORKSHEETS

Directions: In the "Prokaryotic Cells" circle, write down characteristics that are unique to prokaryotic cells. In the "Eukaryotic Cells" circle, write down characteristics that are unique to eukaryotic cells. In the middle, overlapping area of the circles, write down characteristics that are common to both types of cells.

ANSWER KEY



©Flying Colors Science

LIVEWORKSHEETS