

### Reading Check

- 1. State** How many sets of chromosomes are in a nucleus? (Circle the answer.)
- a. 1
  - b. 2
  - c. 3

### Academic Vocabulary


**injure** (IHN jur) (verb) to cause pain or harm

### Picture This

- 2. Highlight** the stage of the cell cycle during which organelle replication takes place.

## What are the characteristics of interphase?

During interphase a cell performs specific functions, such as producing enzymes in your stomach to help you digest food. A plant cell might perform cellular respiration during interphase.

Recall that there are two sets of chromosomes in a nucleus. Scientists call each pair of similar chromosomes **homologous chromosomes** (huh MAH luh gus • KROH muh sohmz). Homologous chromosomes are similar but not identical. Humans have 23 pairs of homologous chromosomes. 

## What are the three stages of interphase?

There are three stages that occur in a cell during interphase. These stages are G1, S and G2. During G1 stage, a cell grows, but some cells remain in G1 stage. Cells that remain in G1 stage do not reproduce. Your muscle cells and nerve cells are examples of G1 cells that never reproduce. If you **injure** your muscle cells and nerve cells, the damage might be permanent because the cells are not replaced.

During S stage, the chromosomes inside a cell's nucleus replicate, which means that they make copies of themselves. The copies are called **sister chromatids** (KROH muh tudz). The sister chromatids are held together near the middle of each chromatid in a place called the **centromere**. The two new cells formed by this replication are identical.

## What happens during the G2 stage?

During the final stage of interphase, the G2 stage, cells continue to grow and carry out cellular functions. Cells also replicate organelles during this stage. Some organelles can replicate themselves because they contain their own DNA. The table below summarizes the phases of a cell cycle.

Phases of the Cell Cycle		
Phase	Stages	Description
Interphase	G1	Growth and cellular functions
	S	Growth and chromosome replication
	G2	Growth and cellular functions; organelle replication
Mitotic phase	Mitosis	Nucleus divides
	Cytokinesis	Cytoplasm divides