Cell Division and Mitosis Notes Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_

Background Information:

* Organisms that have only one cell are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms.
* In unicellular organisms, \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ is ONLY for the purpose of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Why do Cells Divide?

* Organisms made of more than one cell are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms use cell division for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ Growth – Cells can grow in \_\_\_\_\_\_\_\_\_\_, but there is a \_\_\_\_\_\_\_\_\_\_\_\_ to how large a cell can get. Cells need a lot of surface area because the materials that it needs to function travel across its \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. As a cell gets bigger, its needs \_\_\_\_\_\_\_\_\_\_\_\_\_ to a larger degree than its surface area, so it will \_\_\_\_\_\_\_\_\_\_\_\_ instead of growing bigger and bigger.
	+ Development – Multicellular organisms all start as \_\_\_\_\_\_\_\_\_ cell and grow larger through cell \_\_\_\_\_\_\_\_\_\_\_\_\_. But, cell division is \_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_\_\_thing that leads to the development of an organism. During \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, cells become \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to perform \_\_\_\_\_\_\_\_\_\_\_\_\_\_ functions like; skin cells, liver cells, brain cells, etc.
	+ Repair – The body \_\_\_\_\_\_\_\_\_\_\_\_ injuries, like cuts and broken bones, through \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Cells also get old and die and need to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

What Part of the Cell is Involved in Cell Division?

* DNA ( \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Acid) - the chemical that contains information for an organism’s growth and functions.
* **Chromosome**- DNA wrapped around proteins and compacted into two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ held together by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Draw a chromosome and label it.

The Cell Cycle:

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_- normal sequence of development and division of a cell

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- normal cell function, the part of cell cycle before division occurs. DNA duplicates \_\_\_\_\_\_\_\_\_\_\_\_.

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- nucleus divides (**eukaryotes** only- cell with a \_\_\_\_\_\_\_\_\_\_\_\_\_)

 a. **Prophase**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ form and the membrane around the nucleus disappears.

 b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- chromosomes line up in the \_\_\_\_\_\_\_\_\_\_\_ of the cell

 c. **Anaphase**- chromatids \_\_\_\_\_\_\_\_\_\_\_ and are pulled to opposite side of the cell

 d. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- nuclei \_\_\_\_\_\_\_\_\_\_, new nuclear membranes develop

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- cytoplasm divides and produces two identical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells.

Cell Division in Reproduction:

**Asexual reproduction-** one organism produces one or more new, \_\_\_\_\_\_\_\_\_\_\_\_\_ organisms that can live independently. Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and few multi-cellular organisms reproduce this way

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_- **prokaryotic** (cells with NO \_\_\_\_\_\_\_\_\_\_\_\_) unicellular organisms

 -cell division **IS** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Cytokinesis only (no mitosis)

 -\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reproduce this way

 - eukaryotic, unicellular organisms undergo mitosis and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 -\_\_\_\_\_\_\_\_\_\_\_\_\_\_, yeast and protozoan reproduce this way

2**. Budding**- organisms develop tiny \_\_\_\_\_\_\_ on their bodies which grow into complete organisms and then break free

 -hydra and some types of plants reproduce this way

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- new tissue growth at the site of a lost limb

 -starfish and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ repair/reproduce this way

**Sexual Reproduction -** genetic material from \_\_\_\_\_\_\_\_\_\_ parents. Allows for great \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_