

# Who Do Organelles Do?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Organelles in Cell Transport

- \_\_\_\_\_ organelles largely responsible for proteins moving throughout the cell
  - \_\_\_\_\_ (endoplasmic reticulum)
  - \_\_\_\_\_ Apparatus
  - \_\_\_\_\_
- The ER transports \_\_\_\_\_ products to the Golgi apparatus.
- The Golgi apparatus in turn packages \_\_\_\_\_ in other vesicles so the proteins can cross the cell membrane and leave the cell.
- The Golgi apparatus also transports \_\_\_\_\_ and creates lysosomes and vesicles involved in digestion.

## Animal and Plant Cells

- While plants and animal cells share many common features and processes, they have distinct \_\_\_\_\_.
- These differences allow them to carry out \_\_\_\_\_ jobs.
- Differences
  - Vacuole are smaller in \_\_\_\_\_ cells and are larger in \_\_\_\_\_ cells
  - \_\_\_\_\_ cells have cell wall and chloroplast

## Machines at Work

- \_\_\_\_\_ are constantly busy carrying out life functions.
- They are microscopic, but try to think of each organelle as an individual \_\_\_\_\_.
- Each organelle includes thousands of tiny molecular machines with multiple moving parts that work \_\_\_\_\_ to perform a specific job.
- Like machines designed by humans, these tiny molecular machines are amazingly \_\_\_\_\_.
- Solar-powered machines (\_\_\_\_\_) capture light energy and store it.
- Tiny electrical machines in nerve cells carry \_\_\_\_\_.
- Tiny mechanical machines in \_\_\_\_\_ haul cargo and even build other machines.

- Every cell in every plant and animal functions because of the combined work of these \_\_\_\_\_.
- If these machines were not \_\_\_\_\_, the cell would not be alive.
- But the complexity \_\_\_\_\_ end there.
- Most of these tiny molecular machines are made up of \_\_\_\_\_.
- \_\_\_\_\_ are required for every structure and function within the cell.
- There are tens of thousands of different kinds of proteins in each cell, each with a \_\_\_\_\_ to do.
- But before we can understand proteins, we need to know about one \_\_\_\_\_ thing.

### Machines at Work: Amino Acids

- The building blocks of proteins, which are called \_\_\_\_\_.
- Think of amino acids as differently shaped, interconnecting \_\_\_\_\_.
- Instead of a typical set of blocks with about a dozen different \_\_\_\_\_.
- Imagine \_\_\_\_\_ different shapes with different chemical properties.
- When amino acids are joined together, they make \_\_\_\_\_.
- A \_\_\_\_\_ protein contains hundreds, or even thousands, of amino acids in a row.
- A specific protein is made only when the exactly the right amino acids join in just the right \_\_\_\_\_.
- The protein then folds into a \_\_\_\_\_.
- Exactly the right shape is \_\_\_\_\_ for the protein to function the way it is supposed to.

### Machines at Work: New Discoveries

- Each time a molecular biologist makes a new discovery about amino acids, proteins, or molecular machines, it becomes more challenging to imagine that such complex things could have happened spontaneously from \_\_\_\_\_ matter.
- If scientists from the nineteenth century who thought cells were simple little blobs could have known that our bodies are made up of \_\_\_\_\_ of cells
  - Each cell housing thousands of \_\_\_\_\_
  - Each organelle made up of tens of thousands of \_\_\_\_\_
  - Each protein made of hundreds or thousands of \_\_\_\_\_.
- They might not have been as willing to accept the idea of \_\_\_\_\_.