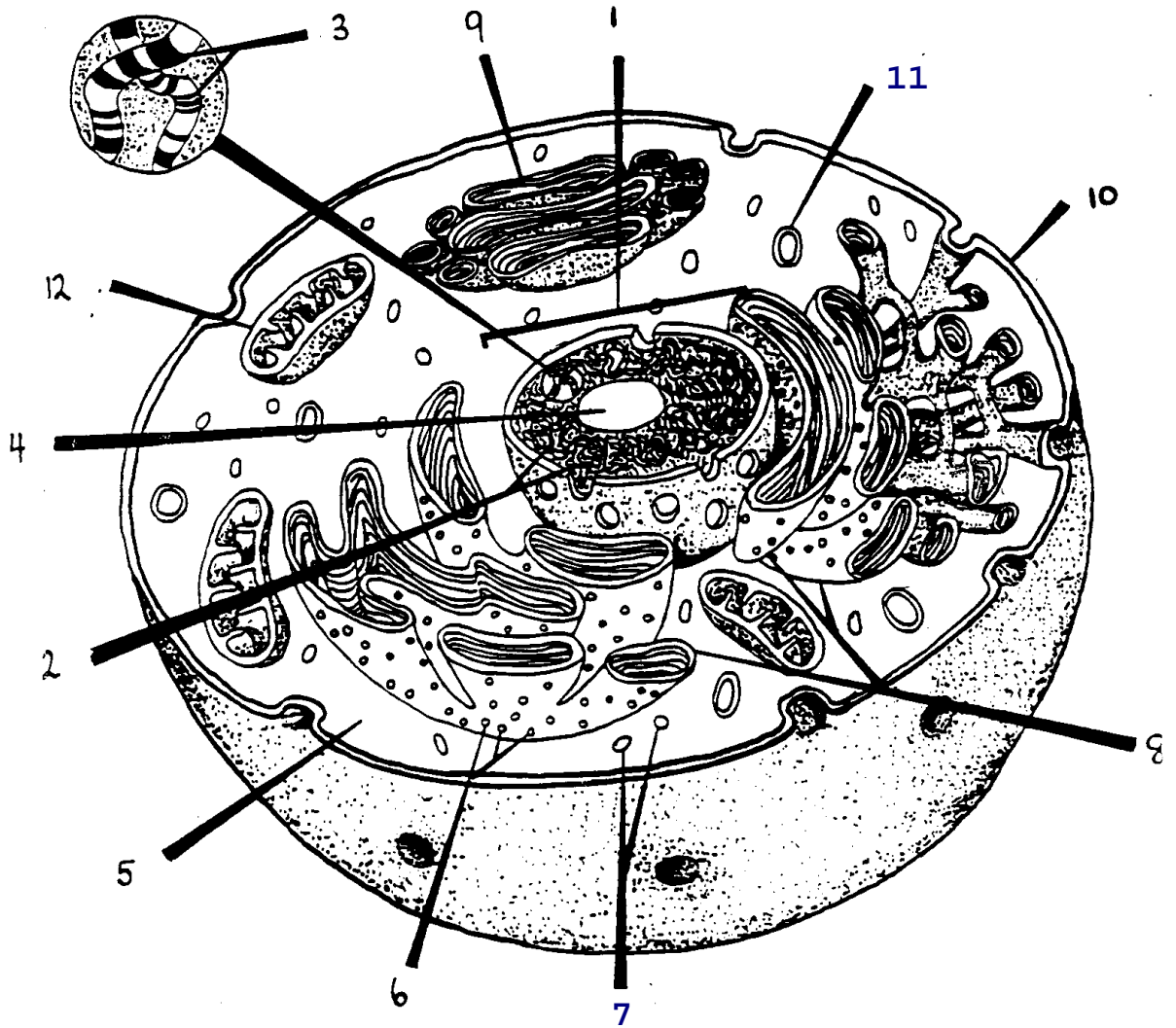


Cell Organelles - Animal Cell

- | | |
|----------|-----------|
| 1. _____ | 7. _____ |
| 2. _____ | 8. _____ |
| 3. _____ | 9. _____ |
| 4. _____ | 10. _____ |
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| 6. _____ | 12. _____ |



The Animal Cell - A Living Factory

The cell is the building block for all living things. Even the smallest living organism must be made up of at least one cell. Since this is the case, a cell must be able to carry out all of life's operations by itself. Each cell must have the machinery to perform all the tasks necessary to be alive. We call this machinery the **organelles** of a cell. Together the organelles operate much like a factory, each doing a special and different job to produce a final product. In this exercise you will learn how each organelle contributes to the cell, much like the different parts of a factory.

Every factory requires a head office where decisions are made and information is stored. The **head office in the cell is the nucleus**. *Colour the word nucleus at the top of the page, then colour the nucleus in the cell with the same colour. Be sure to colour lightly, otherwise you will lose details in the drawing.* Within the head office there must be filing cabinets that contain the plans or blueprints for the products. The nucleus contains **filing cabinets in the form of chromosomes**. In the chromosomes are the **cell's blueprints which we call genes**. Each gene is a plan for a specific product (protein). *Colour the words chromosome and genes the same colour, then colour the chromosomes in the drawing.* There is a special set of files that contain the **blueprints to build the ribosomes. This area is called the nucleolus**. *Colour this organelle in the same manner as the other organelles.*

Outside of the office space is the work area, where all of the machines, raw materials and finished products are found. This **work space is called the cytoplasm**. *Leave this word and area of the drawing white.*

So how does this work area operate? Once the blueprints are brought out of the head office (nucleus) and into the work space (cytoplasm) they are fed into the **machines which build the product of the day call ribosomes**. The ribosomes need raw materials to build the products. The raw materials are brought to the ribosomes from **storage areas called vacuoles**. These raw materials travel through the **hallways and corridors called the endoplasmic reticulum** until they reach the ribosomes. After the ribosomes have made the final products, they are carried back through the endoplasmic reticulum to the warehouse. The **warehouse in the cell is called the Golgi apparatus** (it's a capital G because Mr. Golgi discovered it). *Colour these organelles, each a different colour.*

With all of these products being made the factory would soon run out of raw materials if it didn't have a shipping and receiving area. The **shipping and receiving, where raw materials arrive and where products leave is the cell membrane**. The cell membrane controls the comings and goings of the cell. *Colour all of the cell membrane.*

Finally, we cannot overlook two very important parts of the factory's operation. These are power and garbage. All factories make garbage made up of unused materials, old broken down machines, etc.. Cells are no exception, and they've had a recycling program long before blue boxes were around. Small sacs called **lysosomes are able to take apart old and worn out cell parts so they can be recycled**. Where does all the power to run this operation come from? In a factory B.N.P.D. would supply the electricity. In the cell it's the mighty **mitochondria that are able to turn sugar and oxygen into the power** needed to run the cell. *Finish off your diagram by colouring these two groups of organelles.*