**STURCTURAL ADAPTATIONS GUIDED NOTES**

1. Remember that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is about maintaining a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between the environment *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* your body and the environment *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* your body. Structural \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have evolved to help animals thrive and assume \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ roles (niches) in even the most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of environments.

2. Not all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; some do, and if so they are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ vacuoles. Their purpose is to remove excess \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ build up inside the cell.

3. The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** apparatus is a photoreceptive \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ found in the flagellate or (motile) cells of green algae and other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ photosynthetic organisms such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ It allows the cells to sense light direction and intensity and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to it by swimming either towards the light (positive phototaxis) or away from the light (negative phototaxis).

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are long whiplike tails used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the cell toward \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, away from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are small hairlike projections from the cell membrane used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of mucus in respiratory system and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in unicellular organisms.

 **Cilia Flagella**

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| **Definition** | Cilia are short, hair like appendages extending from the surface of a living cell. | Flagella are long, threadlike appendages on the surface of a living cell. |
| **Length** | Short | Longer than cilia, can vary |
| **Motion** | Rotational, like a motor, very fast moving | Wave-like, undulating, sinusoidal, slow movement compared to cilia |
| **Density** | Many (hundreds) per cell | Few (less than 10) per cell |
| **Found in** | Eukaryotic cells | Eukaryotic and prokaryotic cells |
| **Etymology** | Pronounced as ‘silly-ah’, is the plural of cilium. From Latin word for eyelash. | Pronounced as ‘fla-gel-ah’, is the plural of flagellum. From Latin word for whip. |



6. ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** is the phenomenon whereby bacteria, and other single-cell or multicellular organisms direct their movements according to certain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in their environment. This is important for bacteria to find \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (move to the greatest concentration of particles) or to move away from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Amoebas use a pseudopod (fake foot) to move toward/away from chemicals**

7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a kind of taxis, or locomotory \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, that occurs when a whole organism moves in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the stimulus of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This is advantageous for phototrophic organisms as they can orient themselves most efficiently to receive light for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Phototaxis is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ if the movement is in the direction of increasing light intensity and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ if the direction is opposite.