**CELLS & TONICITY**

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| **Instructions**  **For a 3-Tab Foldable** | **Diagrams:** |
| 1. Fold a sheet of paper like a *hot dog.* 2. With the paper horizontal, and the fold of the *hot dog* up, fold the right side toward the center, trying to cover one half of the paper. 3. Fold the left side over the right side to make a book with three folds. 4. Open the folded book. Place your hands between the two thicknesses of paper and cut up the two *valleys* on one side only. This will form three tabs. |  |

**FRONT SIDE OF TABS (left to right):**

1. Use Capital letters and label the top of each tab as follows ---  
    Tab 1 – HYPERTONIC, Tab 2 – ISOTONIC, and Tab 3 – HYPOTONIC.
2. SKETCH a CELL in the center of each tab and label it CELL. *Be sure to draw it large enough to write the percent salt and percent water it contains.*
3. On the BOTTOM OF EACH TAB, print the word **environment**.

**TAB 1**

* 1. DRAW A CELL that has a 10% NaCl (salt) solution in an ENVIRONMENT with a 15% salt solution.
  2. COLOR the cell yellow and the environment light blue.
  3. In RED INK, write the percent of water inside and outside the cell.
  4. Use RED INK, and draw arrows showing the direction of movement of water into or out of the cell.

**TAB 2**

1. DRAW A CELL that has a 10% NaCl (salt) solution in an ENVIRONMENT with a 10% salt solution.
2. COLOR the cell yellow and the environment light blue.
3. In RED INK, write the percent of water inside and outside the cell.
4. Use RED INK, and draw arrows showing the direction of movement of water into or out of the cell.

**TAB 3**

1. DRAW A CELL that has a 6% NaCl (salt) solution in an ENVIRONMENT with a 3% salt solution.
2. COLOR the cell yellow and the environment light blue.
3. In RED INK, write the percent of water inside and outside the cell.
4. Use RED INK, and draw arrows showing the direction of movement of water into or out of the cell.

**INSIDE OF FOLDABLE (NOT THE BACK OF THE TAB)**

Use a ruler and draw two lines that divide the inside of your foldable into 3 sections.

BE SURE TO UNDERLINE THE MISSING TERM(S).

In SECTION 1, bullet and answer each of the following questions about HYPERTONIC solutions:

* In HYPERTONIC solutions, water moves \_\_\_\_\_\_\_\_\_\_\_\_\_ the cell.
* Hypertonicity causes cells to \_\_\_\_\_\_\_\_\_\_\_.
* Plants cells \_\_\_\_\_\_\_\_\_ water and start to \_W\_ \_\_\_ \_\_\_ \_\_\_.
* The process of water moving out of a cell is called P\_\_\_\_\_\_\_\_\_\_.

In SECTION 2, bullet and answer each of the following questions about ISOTONIC solutions:

* \_\_\_\_\_\_\_\_ cells need isotonic solutions to be at homeostasis.
* Water DOES or DOES NOT stop moving.
* Cells reach a point called Dynamic \_\_\_\_\_\_\_\_\_\_\_\_\_ in isotonic solutions.
* Equal amounts of water are \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ the cell.

In SECTION 3, bullet and answer each of the following questions about HYPOTONIC solutions:

* In HYPOTONIC solutions, water moves \_\_\_\_\_\_\_\_\_\_ a cell.
* Animal cells \_\_\_\_\_\_\_\_\_\_ in size and \_\_\_\_\_\_\_\_\_ or lyse in these solutions
* Bursting of cells is called C\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_ cells need this tonicity to be at homeostasis.
* \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ results from water inside a plant cell pushing the cell membrane out against the plant’s cell wall.