

The background features a smooth gradient from light blue at the top to light purple at the bottom. Scattered throughout are several realistic water droplets of various sizes, some with highlights and shadows, giving them a three-dimensional appearance. The main title is centered in a large, bold, black sans-serif font.

# OSMOTIC RESPONSE OF CELLS

LABORATORY

LABEL 4 BEAKERS AS FOLLOWS



ADD 40ML 0% SALT SOLUTION TO BEAKER A

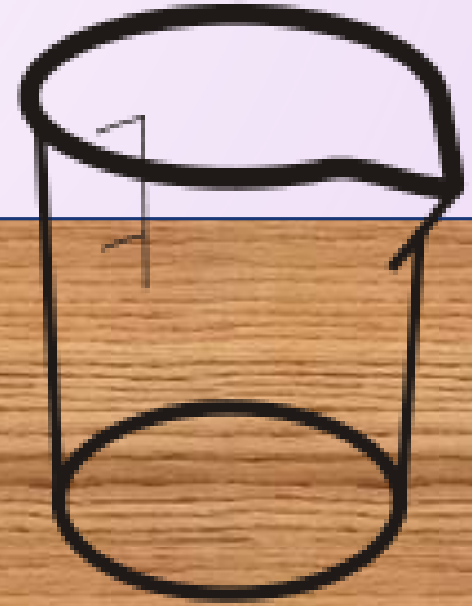
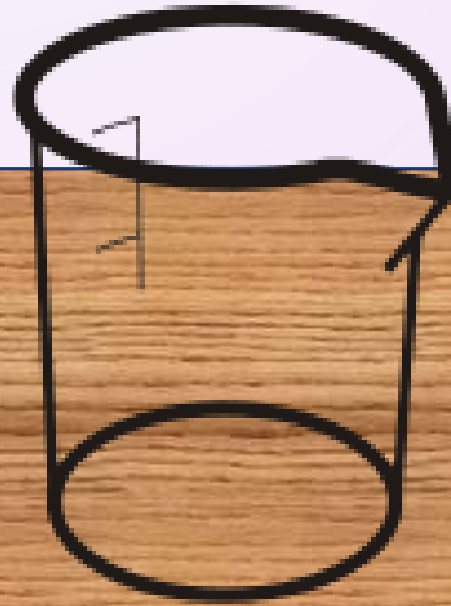
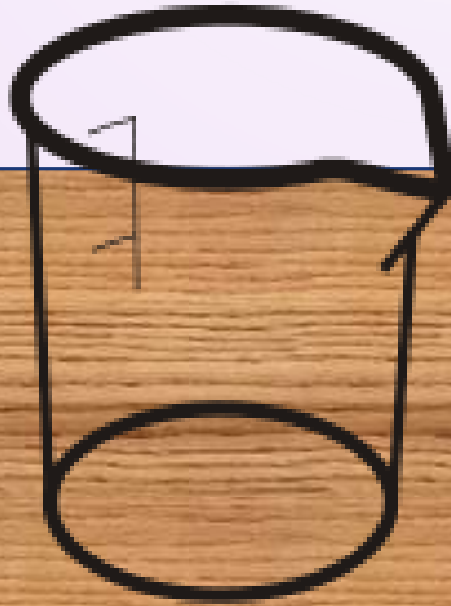


40 mL

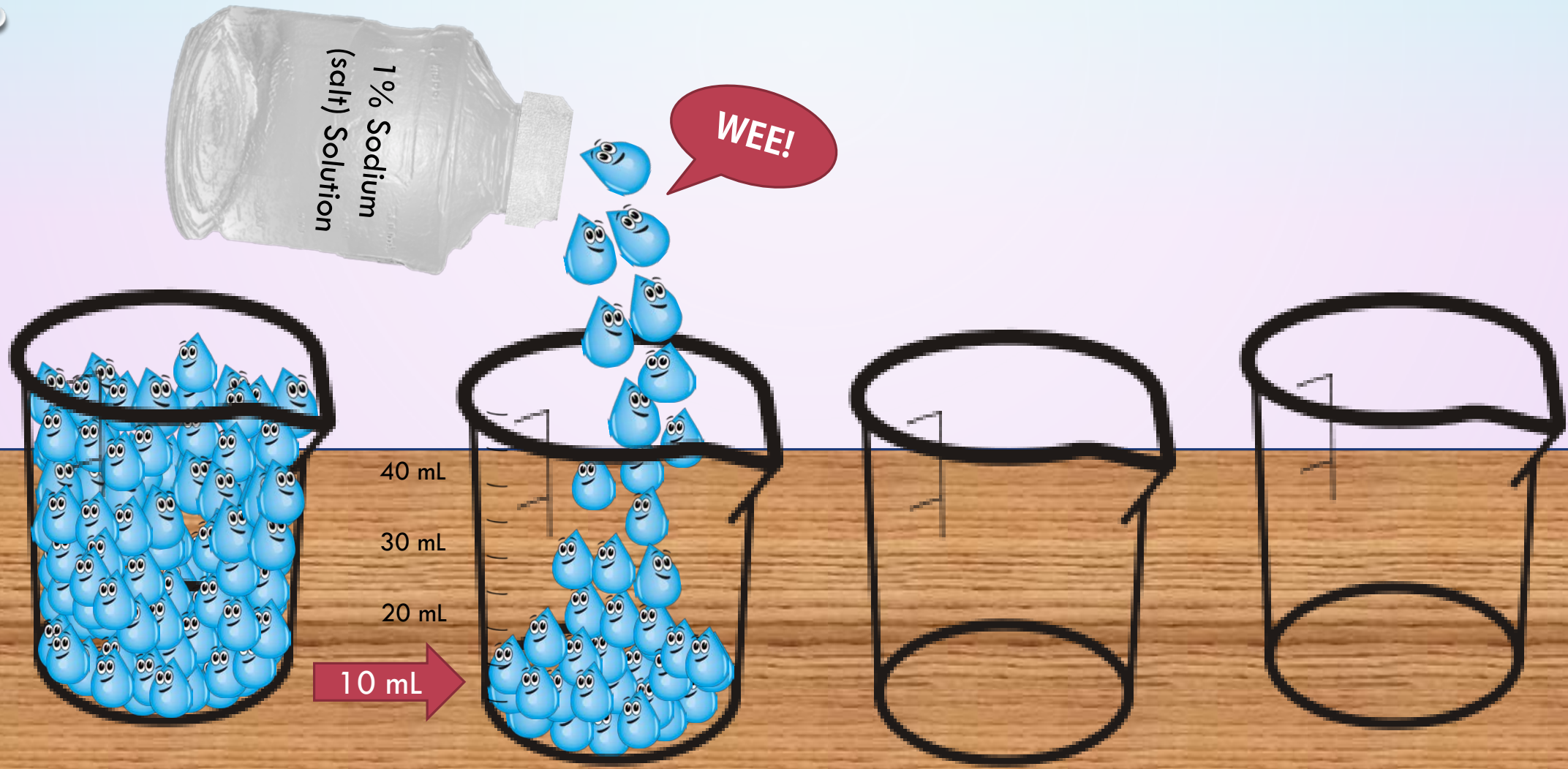
30 mL

20 mL

10 mL

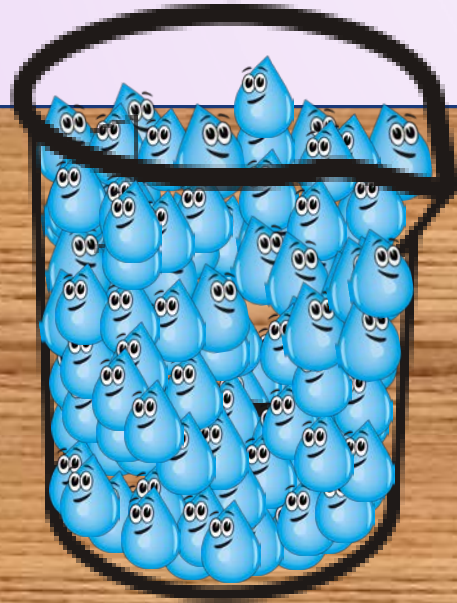


ADD 10ML OF 1% SALT SOLUTION TO BEAKER B



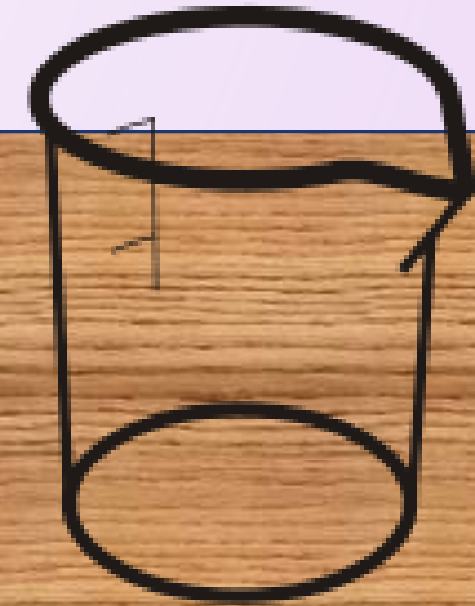


ADD 20ML OF 2% SALT SOLUTION TO BEAKER C

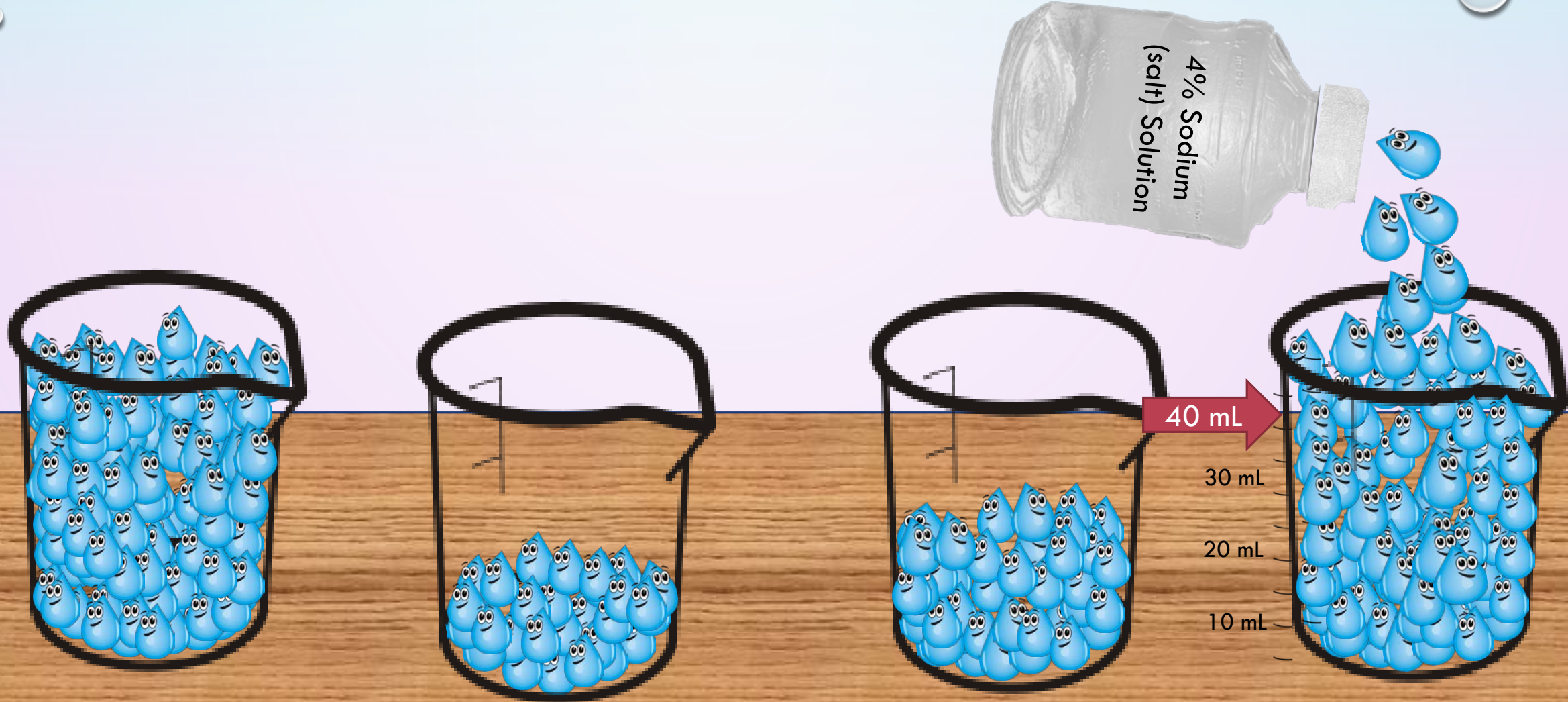


20 mL

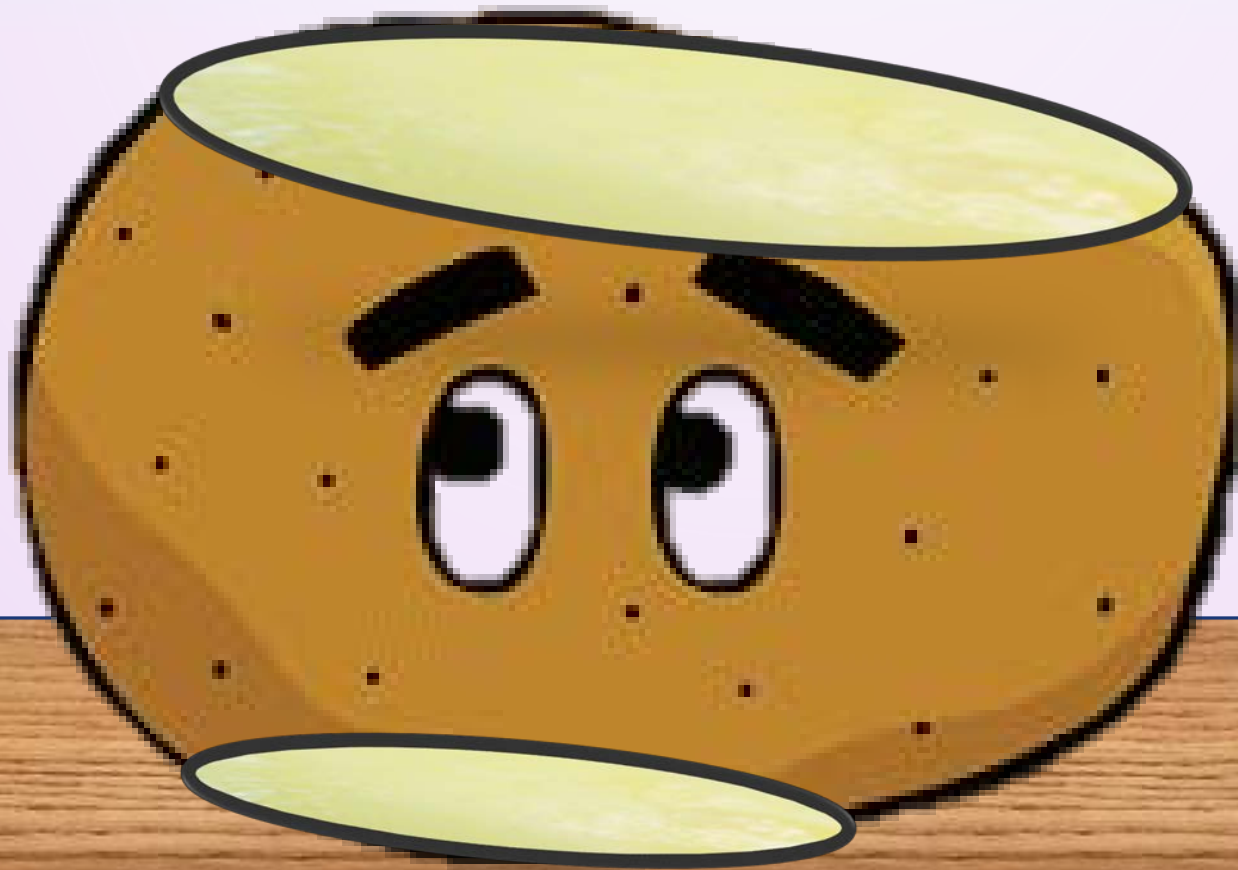
40 mL  
30 mL  
10 mL



ADD 40ML OF 4% SALT SOLUTION TO BEAKER D

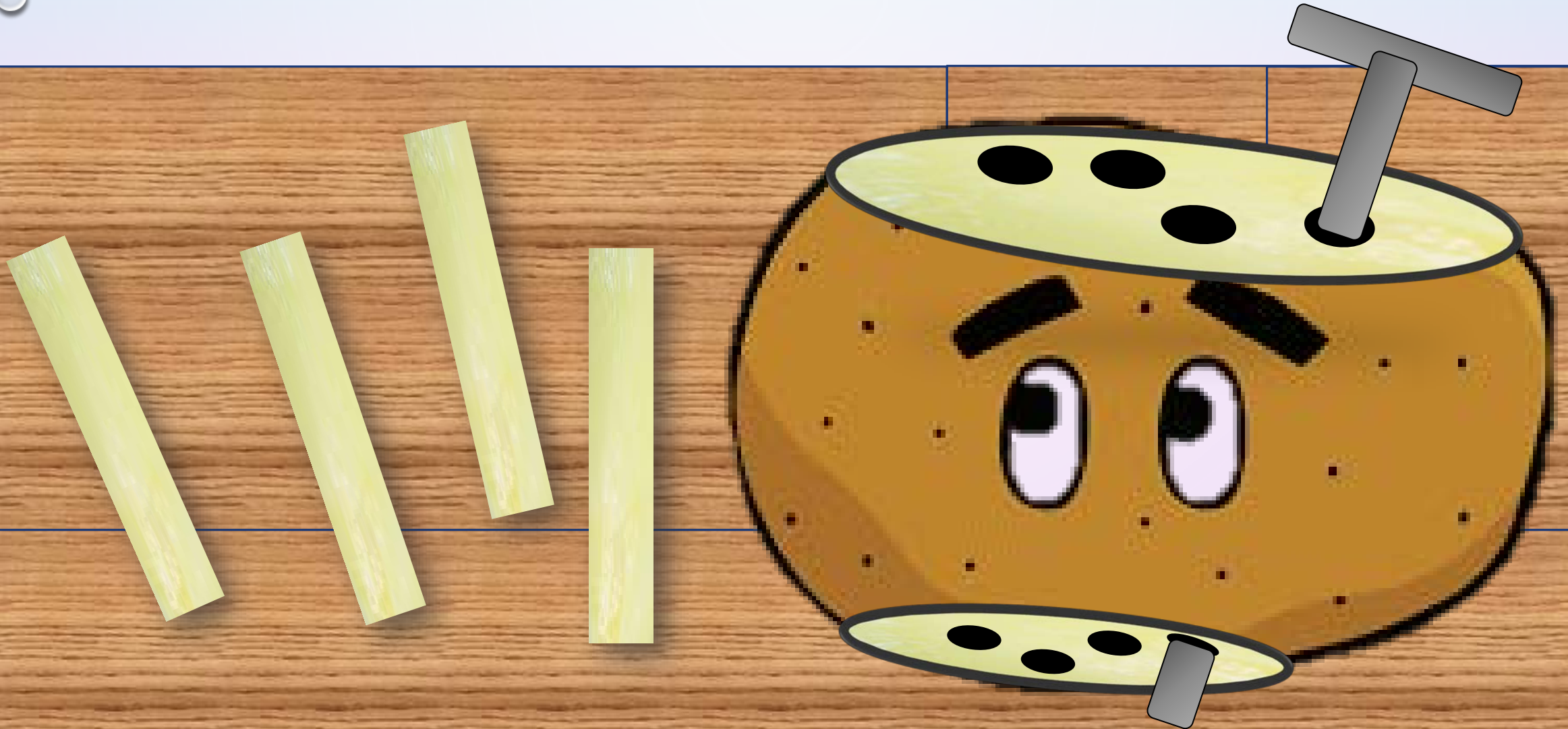


CUT THE SKIN OFF TOP AND BOTTOM OF POTATO





USE A CORK BORER TO TAKE 4 CORE SAMPLES OF THE POTATO.



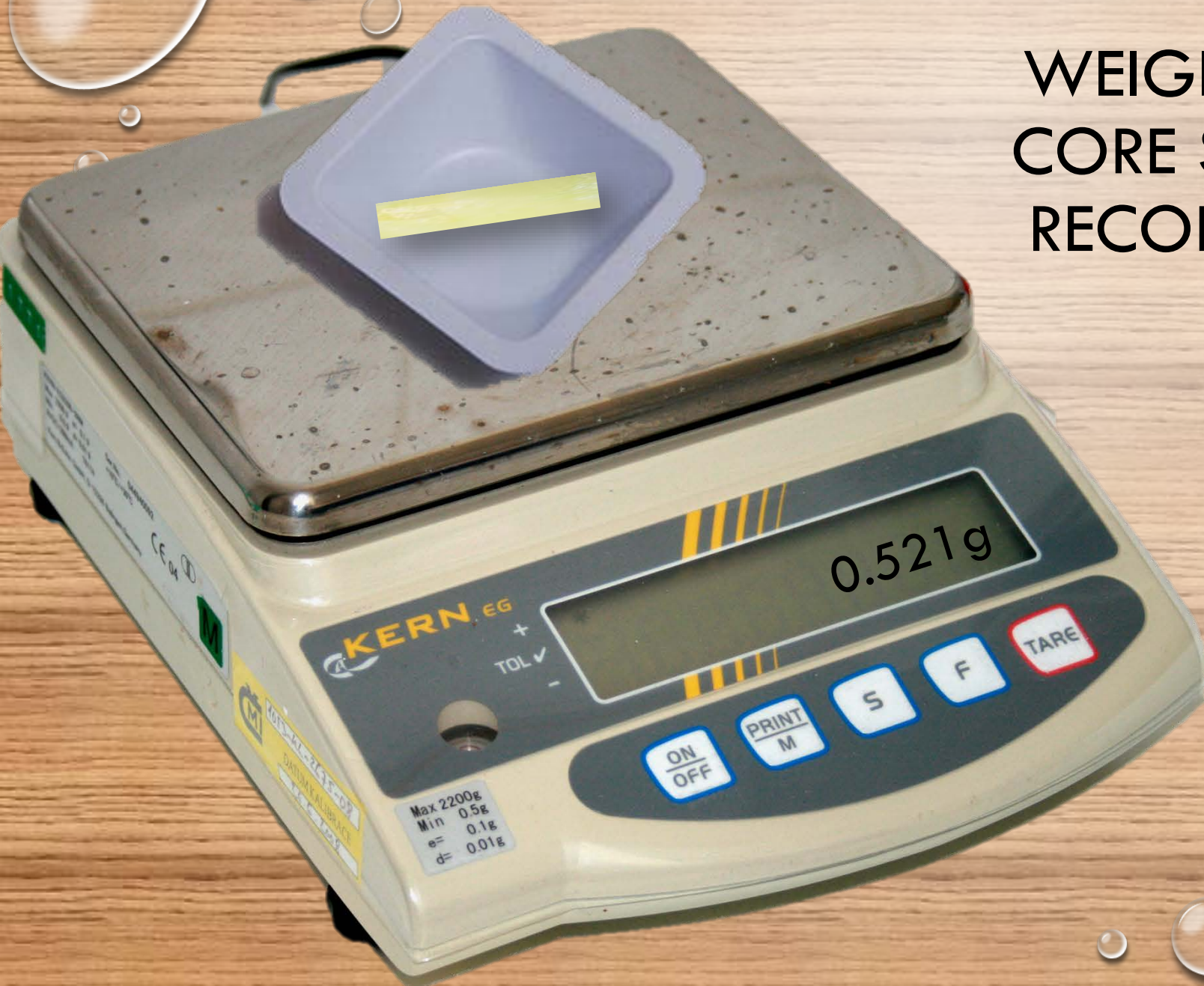


PLACE AN EMPTY WEIGH BOAT ON THE SCALE AND HIT  
"TARE" TO 'ZERO OUT' THE  
SCALE.



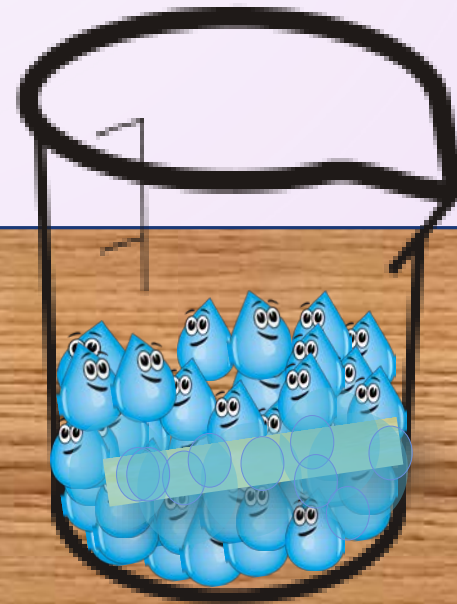
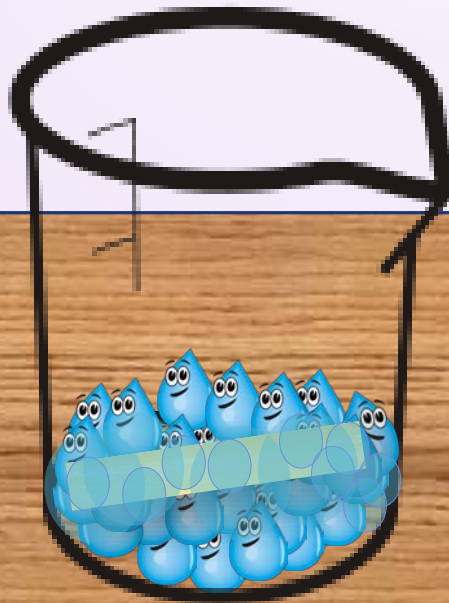
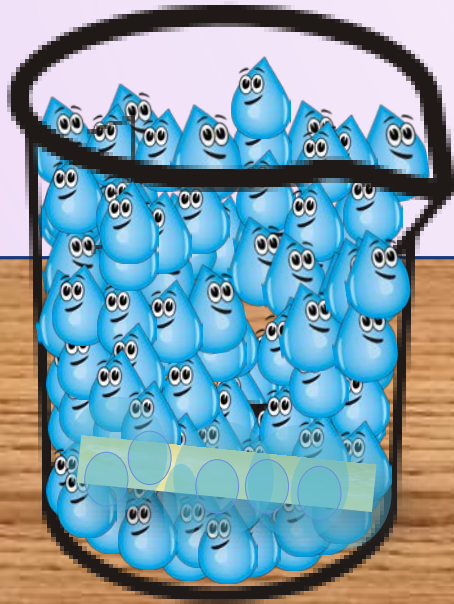


WEIGH EACH POTATO  
CORE SEPARATELY AND  
RECORD THE WEIGHT.

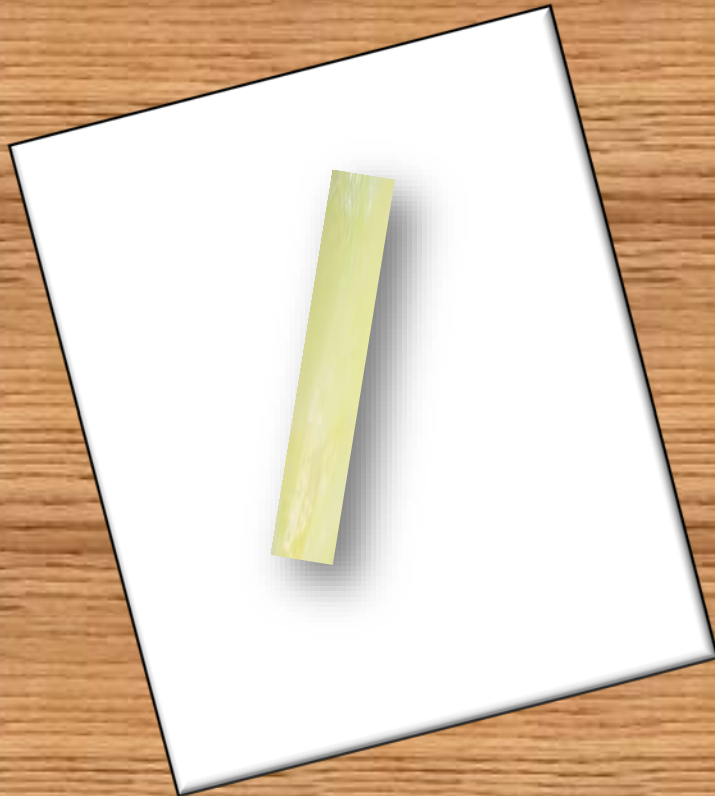




IMMERSE THE POTATO CORES IN THE SALT SOLUTIONS FOR 30 MINUTES.

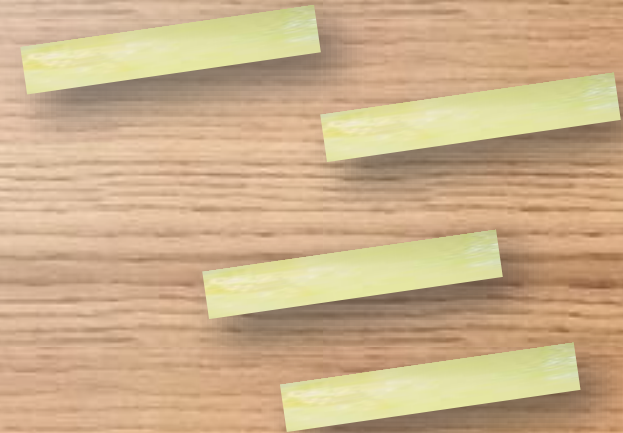


AFTER 30 MINUTES, REMOVE THE  
CORES AND DRY USING A PAPER  
TOWEL.





PLACE AN EMPTY WEIGH BOAT ON THE SCALE AND HIT  
"TARE" TO 'ZERO OUT' THE SCALE.





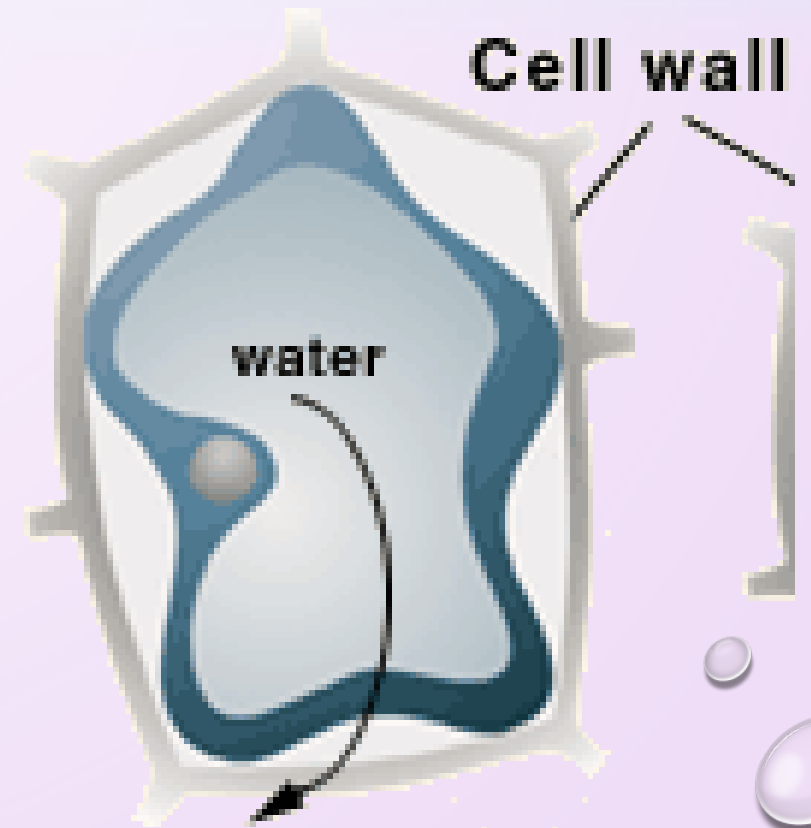
RECORD THE FINAL  
WEIGHT OF EACH  
POTATO CORE  
SEPARATELY.



# RESULTS – 2% AND 4% SALT SOLUTION CAUSED WATER LOSS

## Hypertonic

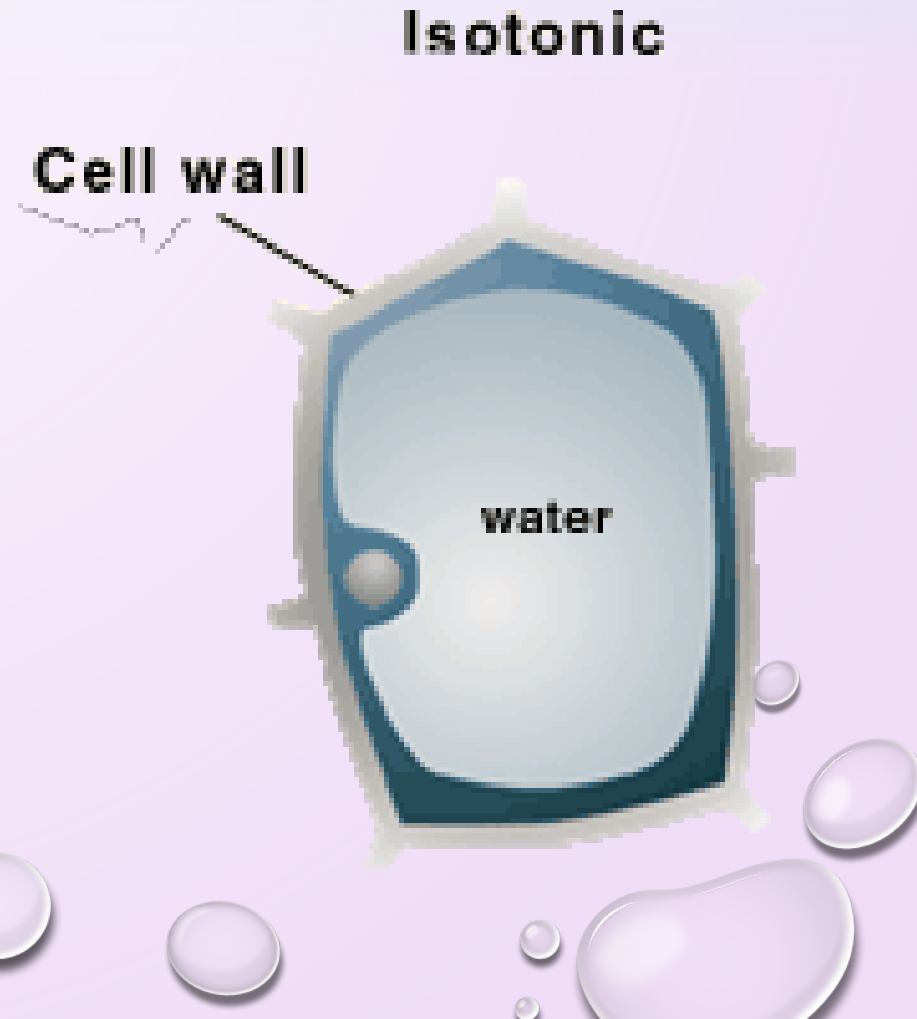
- YOU SHOULD FIND THAT THE POTATO CORES PLACED IN THE 4% SOLUTION (THIS IS A HYPERTONIC SOLUTION) HAVE LOST WEIGHT! THEY WILL ALSO APPEAR SHRUNKEN UNDER THE MICROSCOPE. THE MEMBRANE OF THE PLANT CELL HAS PULLED AWAY FROM THE CELL WALL, DUE TO WATER LOSS BY OSMOSIS.
- YOU SHOULD NOTICE A SIMILAR EFFECT IN THE 2% SOLUTION, BUT PROBABLY NOT AS MUCH OF A WATER LOSS AS WAS OBSERVED IN THE HIGHER SALT SOLUTION.





## RESULTS – 1% SOLUTION HAD NO EFFECT.

- YOU SHOULD FIND THAT THE POTATO CORES PLACED IN THE 1% SOLUTION (THIS IS AN ISOTONIC SOLUTION) HAVE NOT CHANGED THEIR WEIGHT. THEY SHOULD APPEAR 'NORMAL' UNDER THE MICROSCOPE.

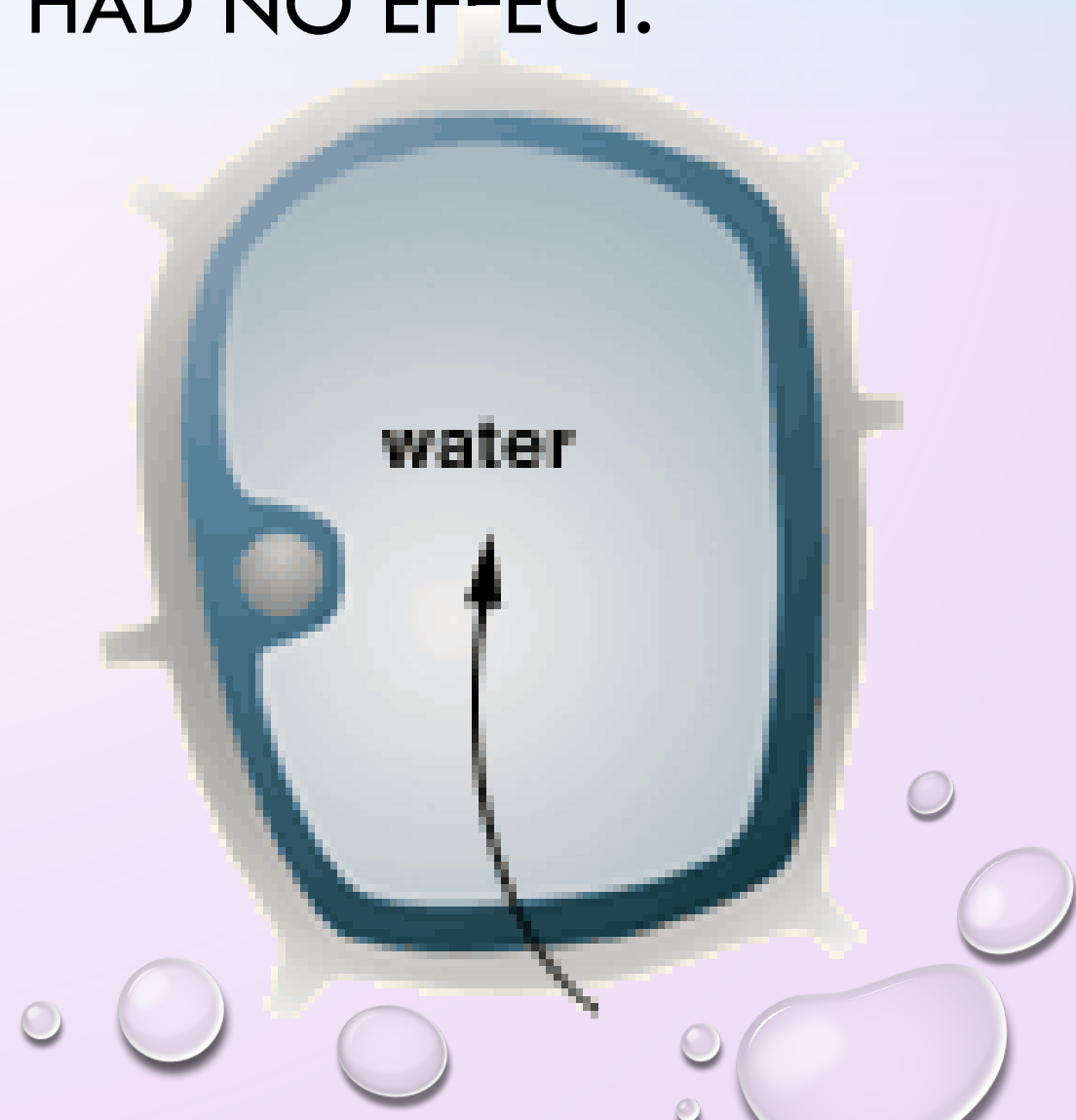




# Hypotonic

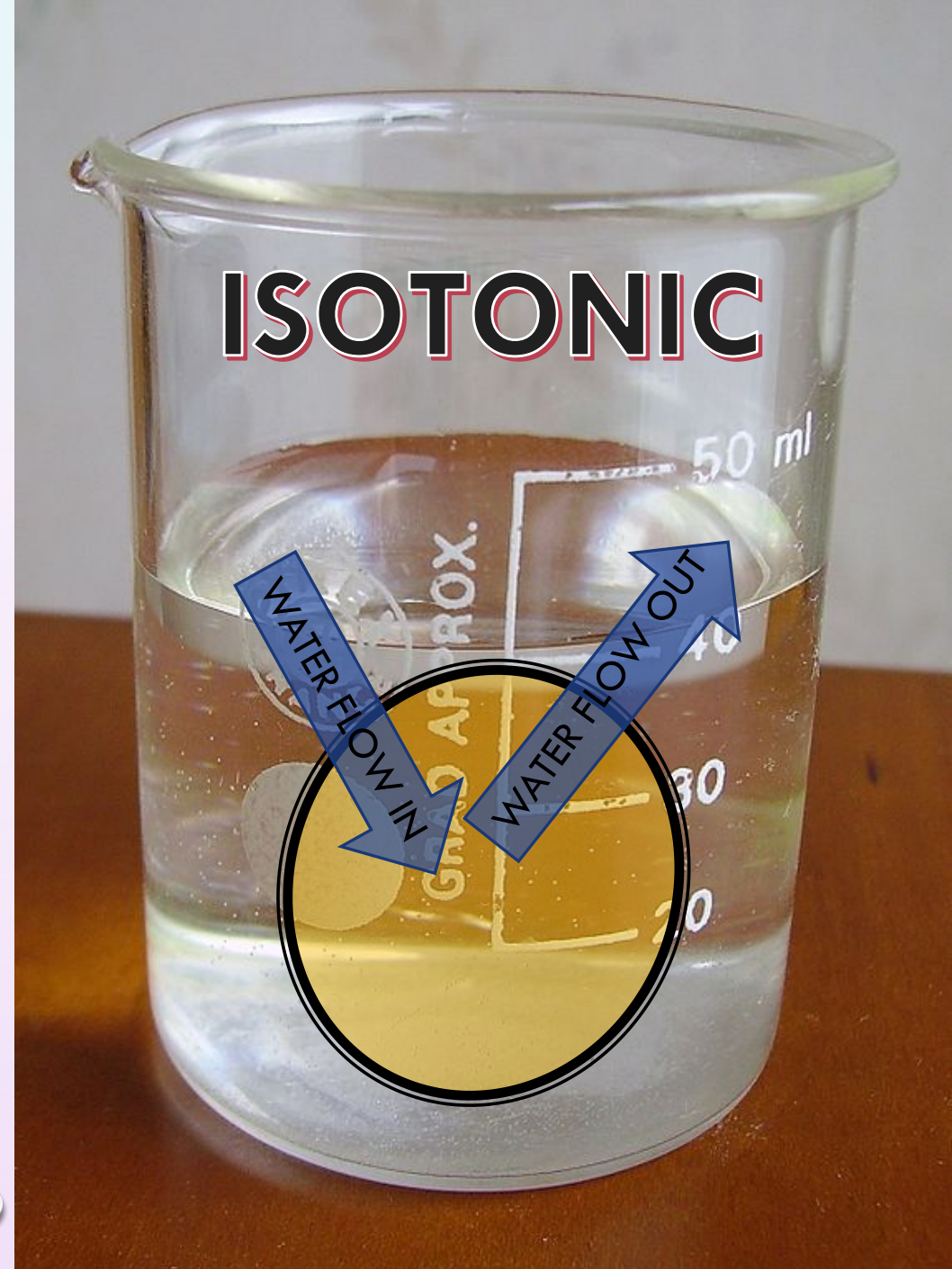
**RESULTS – 0% SOLUTION HAD NO EFFECT.**

- YOU SHOULD FIND THAT THE POTATO CORES PLACED IN THE 0% SOLUTION HAVE GAINED WEIGHT BY TAKING ON WATER THROUGH OSMOSIS.



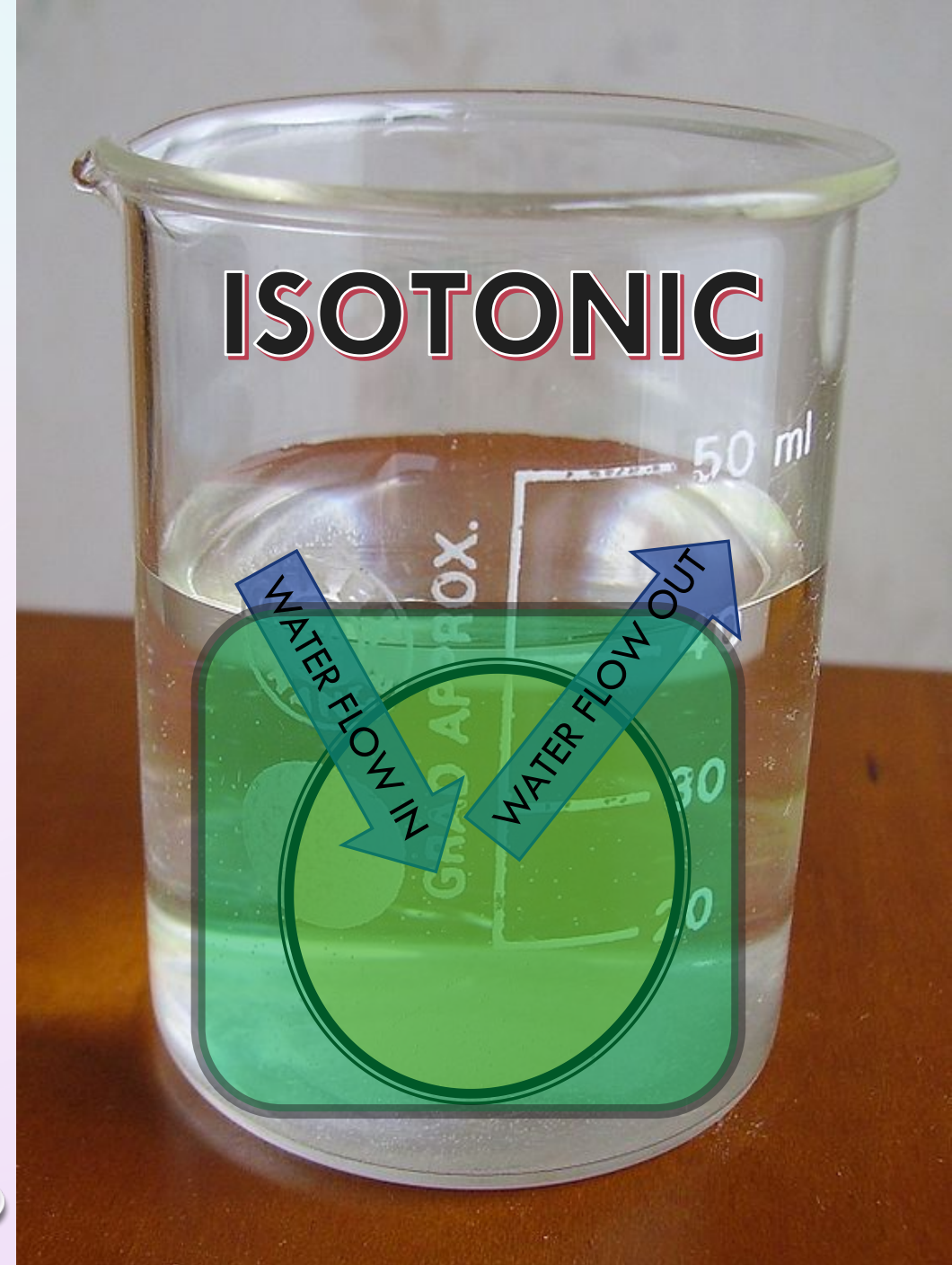
# OSMOSIS IN AN ISOTONIC SOLUTION IN AN **ANIMAL CELL**

- IN AN ISOTONIC SOLUTION, THE SALT CONCENTRATION IS THE SAME OUT SIDE THE CELL AS IT IS INSIDE OF THE CELL.
- SINCE THE CONCENTRATIONS ARE THE SAME, THERE WILL BE NO NET FLOW OF WATER FLOWING INTO OR OUT OF THE CELL. THE CELL IS SAID TO BE “OSMOTICALLY BALANCED”.
- THERE IS NO CHANGE TO THE SHAPE OF THE CELL AND THE CELL IS HAPPY.



# OSMOSIS IN AN ISOTONIC SOLUTION IN AN **PLANT CELL**

- IN AN ISOTONIC SOLUTION, THE SALT CONCENTRATION IS THE SAME OUT SIDE THE CELL AS IT IS INSIDE OF THE CELL.
- SINCE THE CONCENTRATIONS ARE THE SAME, THERE WILL BE NO NET FLOW OF WATER FLOWING INTO OR OUT OF THE CELL. THE CELL IS SAID TO BE “OSMOTICALLY BALANCED”.
- THERE IS NO CHANGE TO THE SHAPE OF THE CELL AND THE CELL IS HAPPY.

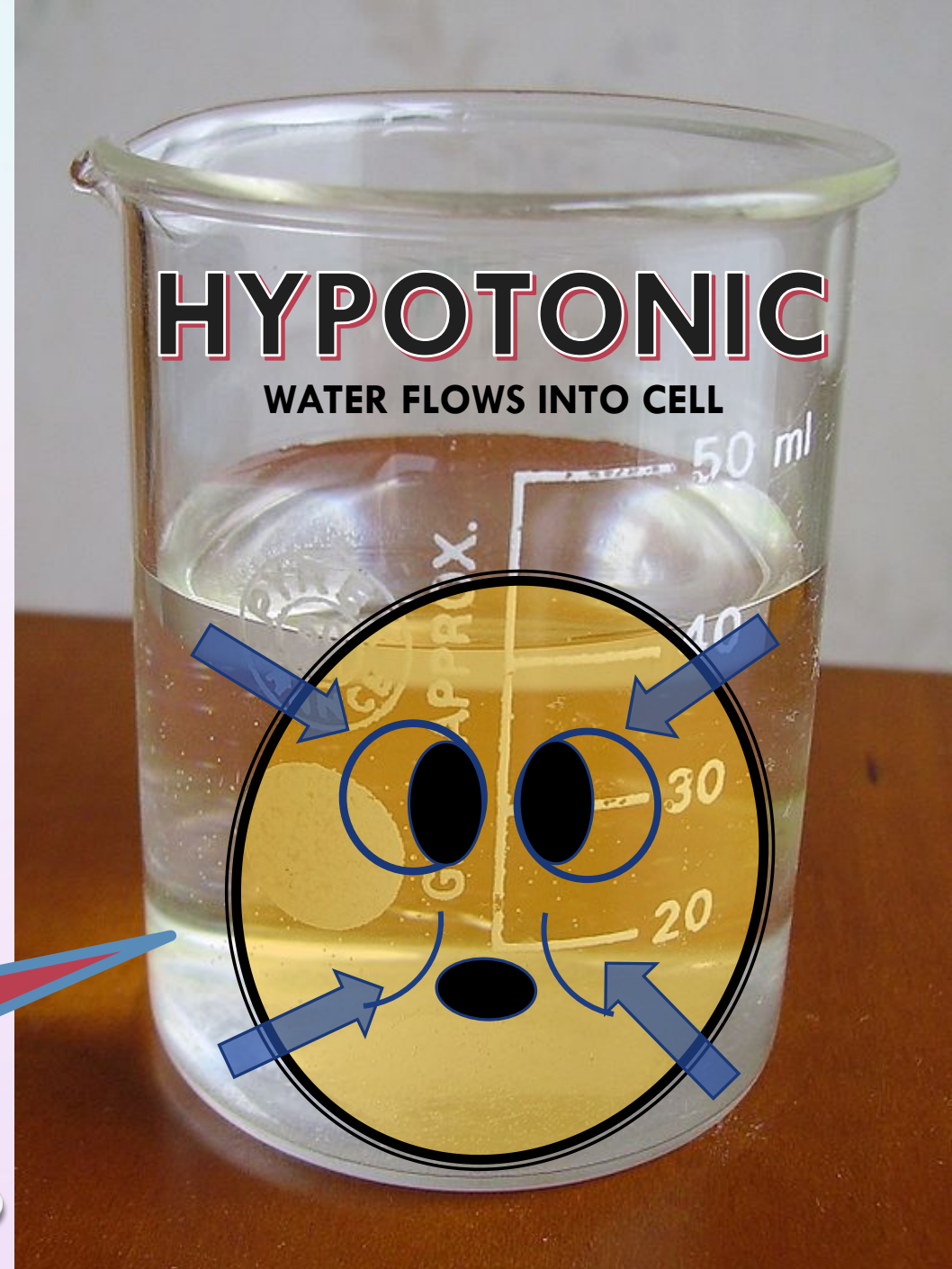




# OSMOSIS IN AN HYPOTONIC SOLUTION IN AN **ANIMAL CELL**

- IN A HYPOTONIC SOLUTION, THE SALT CONCENTRATION IS **LOWER** ON THE OUTSIDE OF THE CELL THAN IT IS INSIDE OF THE CELL.
- WATER WILL THEN FLOW **INTO** THE CELL.
- THE CELL WILL SWELL AN BLOAT AND CAN EVEN BURST!

I don't Fell So Well!





# OSMOSIS IN AN HYPOTONIC SOLUTION IN AN **PLANT CELL**

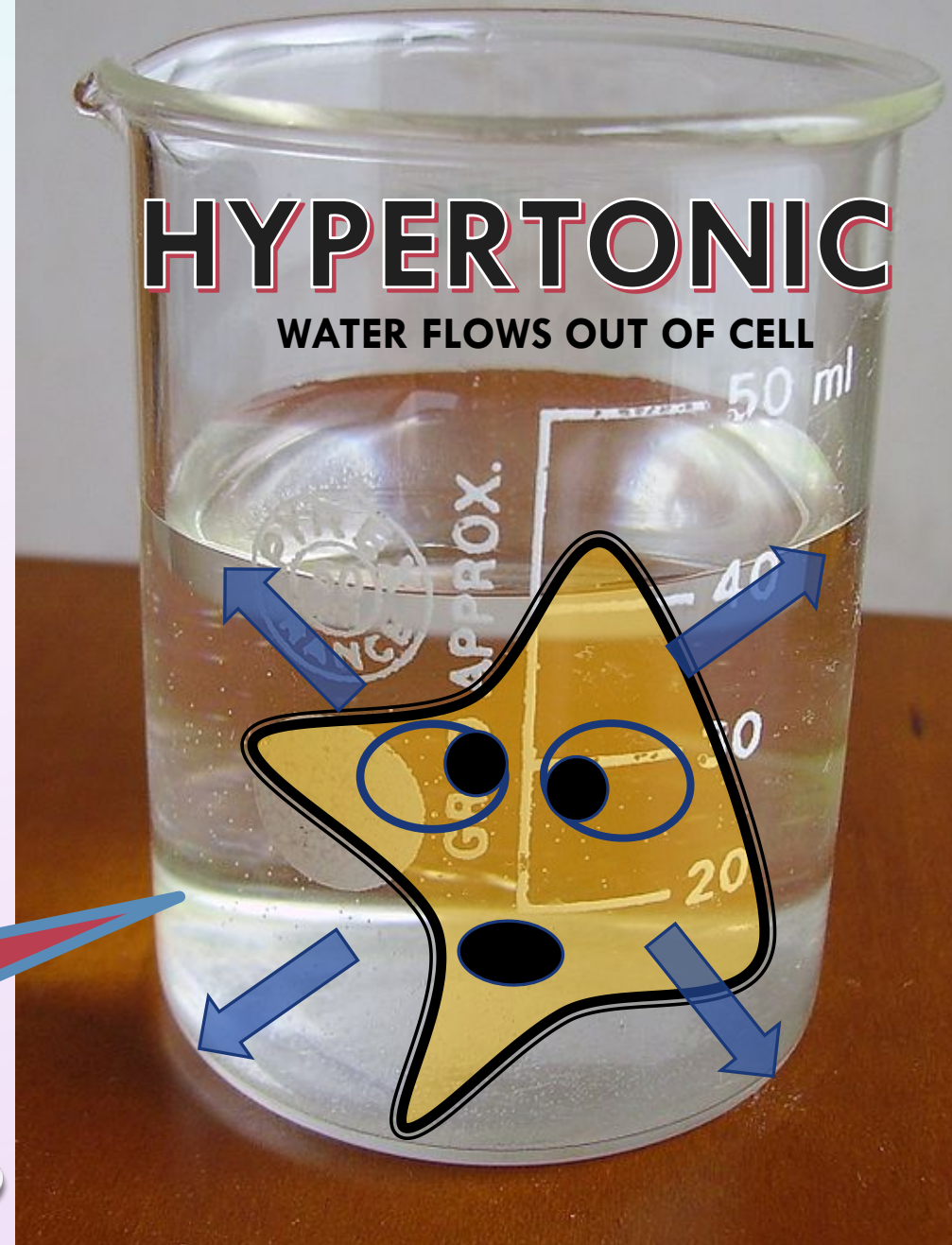
- IN A HYPOTONIC SOLUTION, THE SALT CONCENTRATION IS **LOWER** ON THE OUTSIDE OF THE CELL THAN IT IS INSIDE OF THE CELL.
- A GREAT EXAMPLE OF A HYPOTONIC SOLUTION WOULD BE WATER SINCE IT HAS 0% SALT.
- WATER WILL THEN FLOW **INTO** THE CELL.
- THIS CELL WILL BECOME INFLATED, BECAUSE THE WATER OUTSIDE THE CELL IS AT A HIGHER CONCENTRATION THAN THE WATER INSIDE THE CELL. AS WATER MOVES IN BY OSMOSIS THE CELL MEMBRANE PASSES OUT AGAINST THE CELL WALL.



# OSMOSIS IN AN HYPERTONIC SOLUTION IN AN **ANIMAL CELL**

- IN A HYPERTONIC SOLUTION, THE SALT CONCENTRATION IS **HIGHER** ON THE OUTSIDE OF THE CELL THAN IT IS INSIDE OF THE CELL.
- WATER WILL THEN FLOW **OUT OF** THE CELL.
- THE CELL WILL SHRIVEL UP AND SHRINK. THE PROCESS IS ALSO KNOWN AS “CRENATION”

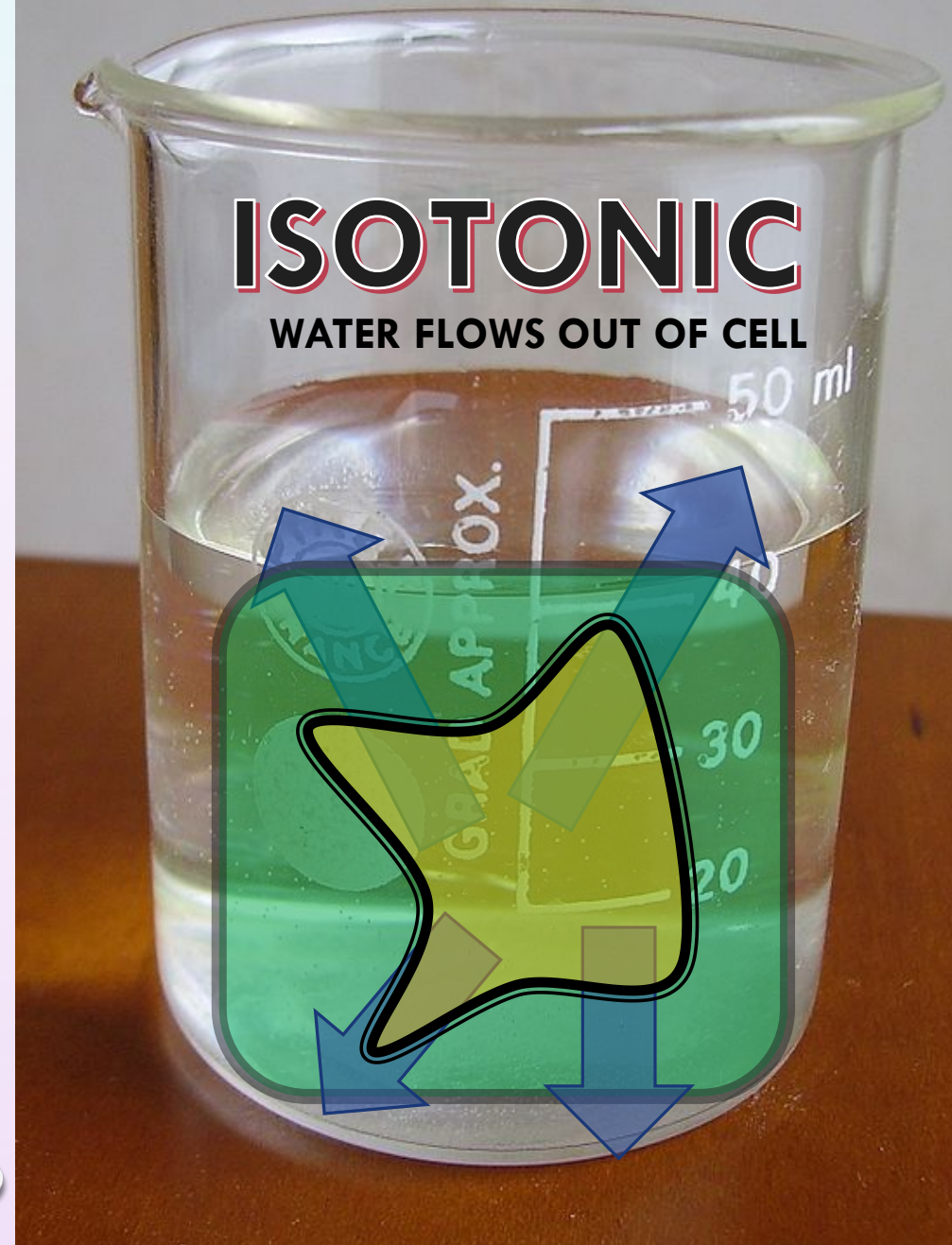
I don't feel so well!





# OSMOSIS IN AN HYPOTONIC SOLUTION IN AN **PLANT CELL**

- IN A HYPERTONIC SOLUTION, THE SALT CONCENTRATION IS **HIGHER** ON THE OUTSIDE OF THE CELL THAN IT IS INSIDE OF THE CELL.
- WATER WILL THEN FLOW **OUT OF** THE CELL.
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# RESULTS