# Shrimp Commodity Systems Learning Lab: Guidance Notes

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## What is Osmosis?

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Osmosis is the process in which molecules move from an area of higher concentration to an area of lower concentration in order to keep the internal and external environments stable.

## Problem

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## Hypothesis

Lower concentration of salt= growth in shrimp

Greater concentration of salt= shrink in the cells of the shrimp

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0% solution 10% solution

## Procedure

*Materials*

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- Brine shrimp (about 30)
- Spring water
- Salt
- Graduated cylinder
- Scale
- Triplate
- Ruler
- Compound microscope
- Well slides (3)
- Water dropper
- Three coverslips
- Stereomicroscope
- Weigh boat

## Data

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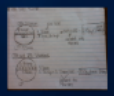
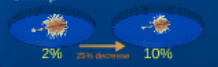


## Conclusion

- 5x greater salt concentration= 25% growth in shrimp
- 2% decrease in salt concentration= little measurable change in the shrimp



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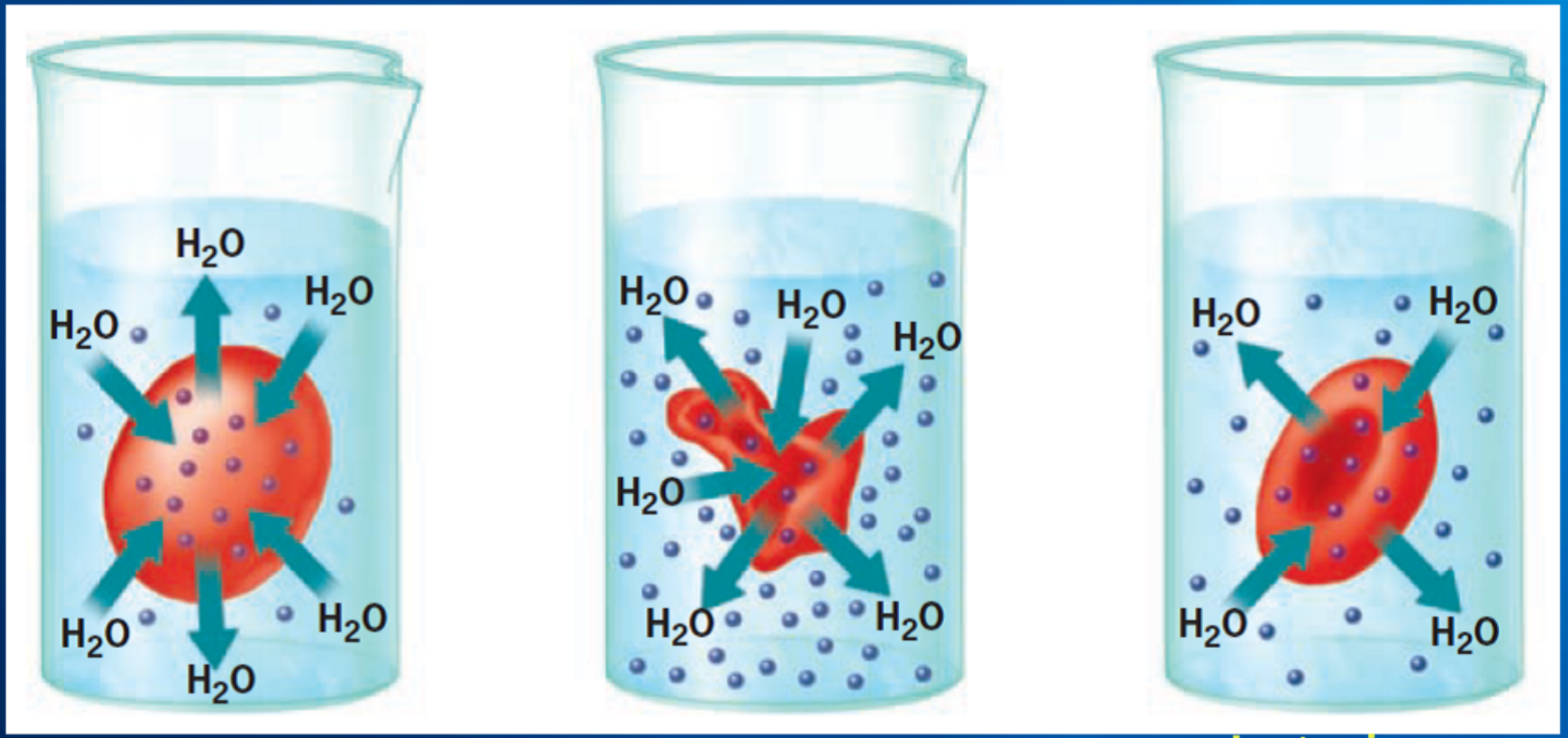


**Hypotonic Solution**

0% solution; growth in cell

**Hypertonic Solution**

**10% solution; shrink in cell**

**Isotonic**

**2% solution; cell stays the same**

# Problem

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How do different concentrations of salt in water affect the size of brine shrimp?

# Hypothesis

Lower concentration of salt= growth in shrimp

Greater concentration of salt= shrink in the cells of the shrimp

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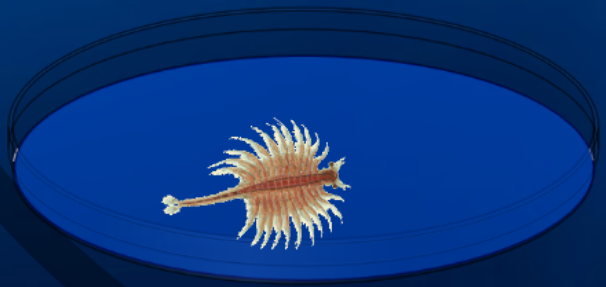

0% solution

10% solution

# Procedure

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# Steps

1.) Label triplate
2.) Measure 10mL of 2% solution
3.) Add 0.8g of salt
4.) Add about 10 brine shrimp to solution and stir
5.) Drop into triplate
6.) Measure 10mL of spring water
7.) Add 10 brine shrimp to the spring water
8.) Place into triplate
9.) Add 10 shrimp to triplate in the normal 2% solution
10.) Let shrimp sit in solutions over night
11.) Drop 1-2 shrimp from each solution on separate well slides.
12.) Cover with converslip
13.) Observe with compound microscope under low power
14.) Estimate number of shrimp that fit across the field of view
15.) Compare findings with other group members
16.) If findings differ, come to a group consensus
17.) Use these estimations for data

# Data

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| Concentration of Salt in Water (%) | Number of shrimp that fit across FOV before (group consensus) | Number of shrimp that fit across the FOV after one day (group consensus) | Size of Brine Shrimp (Microns) | Observations of the brine shrimp after one day |
|---|---|---|---|---|
| 0% | 6 | 6 | 720 | Not moving; appear dead |
| 2% | 6 | 6 | 720 | Alive and well |
| 10% | 6 | 8 | 540 | Some alive, some dead; moving slow |