

# Mastery Opportunity – Hydrosphere

Mastery assignments are optional, but are due on the day of the test.  
Choose any two of the following four assignments.

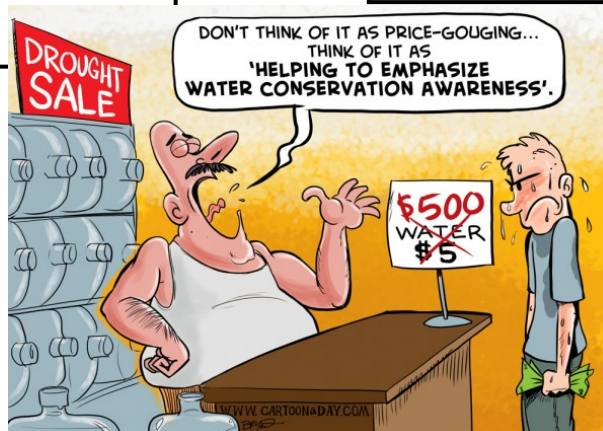
## Option 1:

1. What are tides?
2. Where is the gravitational pull on Earth the strongest?
3. What are spring tides and tidal range?
4. What are currents?
5. What are the 3 factors that control currents?
6. Where do warm currents flow and where do cold currents flow?
7. What is salinity?
8. What is the thermocline?
9. What is density and how do salinity and temperature affect it?
10. Where is there high salinity? Low salinity? WHY? (for both)
11. Why are some ocean waters clear blue and others dark green?

## Option 2:

Create a graph of temperature and ocean depth. Clearly show the thermocline.

1. Explain the significance of this graph.
2. What two factors affect ocean temperature?
3. A graph similar to this one could be created for the density of ocean water. What would the thermocline line be called on that graph?



## Option 3:

Create a story that revolves around an incident of groundwater contamination.

### You must address:

- How the contamination was discovered
- The process involved in discovering the source of contamination
- How homeowners were made aware of the contamination & its solution
- The steps to resolve the problem (clean-up)
- Methods put in place to prevent

## Option 4:

1. Why do we need to conserve water and what can we do to ensure enough water is available today and in the future?
2. What is acid precipitation?
3. How do rivers and streams form?
4. What is stream piracy?
5. List the three types of stream load and describe each in detail.
6. Describe at least 4 differences between a youthful river and an old river.
7. What is a rejuvenated river?
8. How do humans contribute to floods and how do we control floods?
9. Where in a meander is there a lot of erosion? Where is there sediment deposit?
10. What is an oxbow lake? Describe how it forms.