**Water Uses and the Water Cycle**

Date:

SWABT: Draw and describe the water cycle. ID and describe sources of freshwater and how to conserve the resource.

|  |  |
| --- | --- |
| All living things need water Human uses include:*
*
*
*
* Hydroelectric Energy
 | Distribution of Water on Earth |
| Water moves on Earth through the continuous process of the **water cycle.** **Water Cycle** –  |
| **The Water Cycle** | Description |
| Evaporation(liquid 🡪 gas) |  |
| Transpiration(liquid 🡪 gas) |  |
| Condensation(gas 🡪 liquid) |  |
| Precipitation | * **A decrease in precipitation decreases the amount of infiltration of water into the ground**
 |
| Infiltration | * Infiltration recharges groundwater supplies
 |
| Groundwater | * http://www.hydratelife.org/wp-content/uploads/2012/12/via-bournestreampartnership-dot-org-dot-uk.gifVast amounts of water are unseen underground.
* This water can move through the water cycle several ways:
1. Transpiration by plants
2. Move into surface water like streams
3. Move or storage in the ground
 |



**Groundwater, Wells, and Springs**

Date:

SWBAT: Draw and describe the layers of groundwater & discuss how water infiltrates the soil. ID sources of groundwater pollution.

**Aspects of Groundwater**

|  |  |
| --- | --- |
| **Term** | **Description** |
| Groundwater | Water under the lands surface often stored in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Aquifer | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layers or sediments that transmit groundwater freely.* Important source of well water
 |
| Porosity | http://onshoregas.vic.gov.au/__data/assets/image/0017/1027430/porosity.jpghttp://onshoregas.vic.gov.au/__data/assets/image/0017/1027430/porosity.jpgPercentage of the total volume of rock or sediment that consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Sorting: Rocks can be sorted into porous or non-porous
 |
| Permeability | http://onshoregas.vic.gov.au/__data/assets/image/0007/1027429/permeability-.jpgA materials ability to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ interconnected pore spaces * Groundwater moves more slowly when the pore spaces are smaller

http://onshoregas.vic.gov.au/__data/assets/image/0007/1027429/permeability-.jpg* Ex: **Fine clay** is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because its pore spaces are so small water can’t move through them
 |
| Zone of Aeration | The region between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* **A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during periods of heavy rainfall or rapid snow melt can lead to flooding**
* **Since the ground is already saturated (full of water), no more water can infiltrate into the ground which leads to flooding!**
 | http://www.un-igrac.org/sites/default/files/Figure%201%20Water%20Table.png |
| Water Table | the level below which the ground is saturated with water |
| Zone of Saturation | Area where water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in sediment and rock* **Groundwater is within this zone**
 |

**Groundwater and Surface Water Interaction**

|  |  |
| --- | --- |
| **Term** | **Description** |
| Ordinary Well | A hole that is dug below the water table and fills with groundwater.* Pumping is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Several wells drilled in a given area will: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
 |
| Artesian Well | **Groundwater rises on its own \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ out of well.*** The pressure is due to the water being sandwiched between two impermeable rock layers
* No pumping is necessary!
 |
| Subsidence |  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in response to *geologic* or man-induced causes. * **Caused by pumping water out of the ground.**

http://failures.wikispaces.com/file/view/portergill_covercollapse.gif/472462360/811x158/portergill_covercollapse.gif |
| Why is subsidence an issue for North Carolina? |  |
| Springs | A section of impermeable rock forces groundwater to \_\_\_\_\_ and emerge onto the surface of the Earth |
| Hot Springs | Temperatures increase into the earth. * Water from hot springs just originate\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ earth or is heated by magma.
 |
| Geyser | Hot springs that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* Small opening in crust…pressure builds until an eruption occurs
* Ex: Old Faithful in Yellowstone National Park
 |



**Groundwater Pollution**: Ground water is renewable; yet limited

* Ways groundwater can be polluted:
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Pesticides
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Arsenic (naturally occurring, factories, mining, and preserving bodies)

**Populations Effects on Water Resources**

Dates:

SWBAT: Understand where point/non-point source pollution originates.

|  |
| --- |
| Water pollution is the addition of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * Sources of water pollution in the US include:
	+
	+ run-off from fields treated with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ run-off from areas that have been mined
 |
| **Types of Water Pollution** |
| **Point Source Pollution**http://i.ytimg.com/vi/SfX8o2Is_uQ/mqdefault.jpgDefinition: contamination that enters the environment through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_means Examples:* Sewage plant pipe
* **Coal ash ponds**
 | **Non-Point Source Pollution**Definition:* Results from land runoff, precipitation, atmospheric deposition, drainage or seepage.

Examples:* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Arsenic from mining
* Sediment from land runoff
 |
| **How to Reduce Point and Non Point Pollution*** Use fertilizer and pesticide according to package directions
* Have septic systems \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Conserve sprinkler water
* Never dump anything down a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Pick up after your pets. Pet waste left on the ground can spread E. coli, roundworms and Salmonella.
 |
| Pollutants move through a water supply \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* As water moves towards the ocean, pollutants build up and can become \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |
| **Population Effects on Water Quantity*** Communities across the country are starting to face challenges in maintaining healthy and affordable water supplies
* **An increase in population size means there is**

Methods of Conservation:* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Turning off the faucet
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Water rations
* Watering plants at night or early morning
 | **Population Effects on Water Quality*** As populations grow rapidly, health standards find it difficult to keep up.
* **This leads to an increase in ­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_as pollutants build up.**

http://extensionpublications.unl.edu/assets/html/g1848/build/graphics/stop%20copy.jpg |
| **Water Treatment** |
| **Wastewater Treatment Systems*** The major aim of wastewater treatment is to remove

 before the remaining water is discharged back to the environment.* **Treatment facilities are unable to filter out all contaminants.**
 | **Drinking Water Treatment System**1. Remove small and large sediments from water
2. Water forced through filters to remove \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Removal of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |

**River Health**

Date:

SWBAT: Identify indicators of freshwater quality.

|  |
| --- |
| **Indicators of Water Quality** |
| Term | Description: | Changes Caused By: |
| Turbidity | Definition: The measure of the degree to which water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ due to the presence of suspended sediment.* **The Mississippi River is an example of a high turbidity body of water**
 | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Re-suspended sediments from the bottom
* Waste discharge
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Urban runoff
 |
| pH | Definition:* 0🡪7 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* 7🡪14 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Surface freshwater is usually 6.5-8

Changing pH in a stream can be an indicator of increasing pollution  | * Natural conditions
* Dumping of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Results of changes in pH:Most aquatic life cannot withstand water outside of the usual pH range, thus resulting in death |
| Dissolved Oxygen | Definition: When D.O. drops too low, fish die. When DO is high, the water tastes better but can damage water pipes. | * Rapidly moving water (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* Increased temperature (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* Discharge from sewer pipes (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
	+ Causes an increase in bacteria
 |
| Temperature | Definition:* Extreme low or high temperatures are only tolerated by hardy fish!

**Factory thermal pollution by dumping heated water into lakes and rivers – decreases species in body of water** | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Depth of water
* Shade from shoreline
 |
| Nitrates | Definition:Algae and other plants use nitrates as a source of food.  If algae have an unlimited source of nitrates, an algae bloom begins to grow.* **This algae bloom \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dissolved oxygen in water leading to aquatic insects and fish death**
 | **Improper use of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can lead to algae blooms** |
| Bio-Indicators | Definition: species that are used to monitor the health of an environment or ecosystem.  | Example: Amphibians |

**River Basics and Stream Erosion and Deposition**

Date:

SWBAT: Describe the parts of a river and investigate NC’s river basins. ID causes and effects of stream erosion.

|  |
| --- |
| **Parts of a River** |
| Term | Description |
| Headwaters | Definition:* Usually found in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Runoff from mountains flow into valleys, valleys become saturated
* Flows to lowest point
 |
| Tributaries | Definition:* More found in mountains than on flat land
 |
| Mouth | Definition:  |
| Watershed/River Basin | http://www.bae.ncsu.edu/support/graphics/templates_logos/nc%20watershed%20maps/nc-watersheds%20outline.jpg**Definition:** |
| Divide | http://www.indiawaterportal.org/sites/indiawaterportal.org/files/watershed.bmp_.jpg**Definition:** |
| Channel | Definition: |
| Gradient | Definition:* Usually expressed as the vertical drop of a stream over a certain distance (change in elevation)
 |
| Discharge | Definition:* Usually measured in cubic meters per second
 |
| Stream Load | Definition:* Erosion removes mineral material from the stream banks adding this material to the regular flow of water.
* **Higher stream velocity equals higher stream load capacity—streams that move fast erode more and carry more sediment.**
 |
| **Stream Erosion and Deposition** |
| Sediment Deposition* Sediment is deposited in a stream when there is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the speed of the water.
* Speed may decrease because of:
	1.
	2. Bed widening
	3.
* Stream deposition can create landforms or change the river valley
 |
| **Term** | **Description** |
| Alluvial Fan | Definition: * Occurs where a stream descending a steep slope reaches flat land.
 |
| Levees | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - raised river banks caused by flooding.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - an embankment built to prevent the overflow of a river.
 |
| Floodplain | Definition:* **A floodplain forms where a stream cuts mainly side to side**

Sediment is deposited making \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Flooding Precautions1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. Flood insurance if you own a home in a high-risk area
3. Be prepared to evacuate if need be
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Why limit floodplain development?* Allows floodplains to

 * Prevents structures from being put in harm’s way
 |
| Meander | Definition:* Erosion occurs on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a bend
* Deposition occurs on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a bend.
 |
| Oxbow Lake | Definition: |
| Stages in the Development of a River | Young River\_\_\_\_\_\_\_\_\_\_\_\_\_ shaped channel\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sides | Mature River\_\_\_\_\_\_\_\_\_\_\_\_\_ shaped channel\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sidesFeatures: | Old River\_\_\_\_\_\_\_\_\_\_\_\_\_ shaped channel\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sidesFeatures: |
| Delta | Definition:* Occurs because the water slows down as it is emptied into another body of water.
 |
| Dam | Definition: |
| Advantages* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Hydroelectric power
* Recreational facilities
* Irrigation
 | Disadvantages* Increase accumulation of sediment in water
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Destruction of natural habitat for plants and animal
 |

Label the components of a watershed on the diagram using the words listed below



**Word Bank**

Tributaries

Head of the River

Mouth of the River

Upstream

Wetlands

Watershed Boundary

Main River

Floodplain

Downstream

Meanders

Use the three rivers below to answer the following questions:

****

**River A River B River C**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Highest Gradient
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Has the most whitewater rapids and waterfalls
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Has the lowest gradient
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Youngest (earliest) stage
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Widest floodplain
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Least likely to flood
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Has the most depositional features

**Wetlands and Estuaries**

Date:

SWBAT: Identify factors of wetland degradation and discuss impacts of saltwater intrusion

|  |
| --- |
| Wetlands – Areas of land that are covered by water at least part of the year.Roles of Wetlands in the Ecosystem* **Wetlands prevent flooding by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **Natural water quality improvement.**
*
* Fish and wildlife habitat
* Natural products for economy (etc. shellfish, timber, blueberries, medicines)
 |
| Wetland LossDefinition:* The United States alone has lost more than half of its original wetlands
 | Wetland DegradationDefinition:Some human activities that degrade wetlands are:* Urbanization
*
*
* Marinas
*
 |
| **Types of Wetlands** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - An ecosystem in which fresh water from rivers mixes with salt water from the ocean.* Becomes a nutrient trap: mineral-rich mud drops to the bottom.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Freshwater wetland that contains non-woody plants.* Attract many types of nesting birds.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Freshwater wetland that contains woody plants and shrubs.Water Ecosystems* Freshwater: lakes, rivers and wetlands (swamps and marshes)
* Mix of fresh and saltwater: estuary
 |
| **Saltwater Intrusion** |
| Definition:How does it occur?* Saltwater has a higher mineral content than freshwater so it is denser and has a higher \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Saltwater can push inland beneath the freshwater.
 |
| CausesHuman activities have increased saltwater intrusion in many coastal areas by:* **An increase in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of freshwater along a coastal area**
* Digging navigation channels
* Digging drainage canals

Saltwater intrusion can be worsened by extreme events like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ surges and sea level rise |
| Why is saltwater intrusion an issue for North Carolina?* It can lead to contamination of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |
| How to prevent saltwater intrusion?* The use of injection wells, subsurface barriers, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ would improve water quality and prevent saltwater intrusion.
 |