

Name: \_\_\_\_\_

## The Shallows

### What's floating in your water, there Kimberly?

Define concentration: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

### Just a little iron, and some magnesium What does that say about the quality?

Define water quality: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

List 2 harmless substances commonly found in water.

1. \_\_\_\_\_

2. \_\_\_\_\_

List 2 harmful substances found in drinking water.

1. \_\_\_\_\_

2. \_\_\_\_\_

### How many other molecules could cause disease-ium Following the standards by the EPA

What is the name of the government organization that controls water, air and land quality?

\_\_\_\_\_

The EPA was established in the year \_\_\_\_\_.

Why was the EPA established? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

### Yea the concentration is acceptable – today EPA, come measure the acidity

3 factors that affect water quality

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

What does pH measure? \_\_\_\_\_

pH is measured on a scale from \_\_\_\_\_ to \_\_\_\_\_. Water with a low pH is very \_\_\_\_\_.

Water with a high pH is very \_\_\_\_\_.

### PH must be neutral, 7 would be beautiful Pure water has a pH of \_\_\_\_\_.

Drinking water must have a pH of \_\_\_\_\_ to \_\_\_\_\_ as set by the EPA.

**The hardness of water, that is tough to clean  
Magnesium and calcium, clogging my pipes full**

Hardness of water is defined as the amount of \_\_\_\_\_ and \_\_\_\_\_ present in the water.

What are two drawbacks of hard water? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Coliform count more than 5%**

The amount of the bacteria \_\_\_\_\_ found in water is referred to as the \_\_\_\_\_.

Where are E. coli found? \_\_\_\_\_

What is the EPA coliform count allowed in drinking water? \_\_\_\_\_

What does a high coliform count indicate about drinking water? \_\_\_\_\_

**Don't drink it down...well, do you feel real bad yet?**

What disease can result from drinking water with a high coliform count? \_\_\_\_\_

**Hm...there's something in the water  
Eutrophication from the fertilizer**

Define eutrophication: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Blocks out the light like a thick sun visor**

How does the use of fertilizers in farming increase the rate of eutrophication? \_\_\_\_\_

**While point source pipes dumping sludge in the water – oh  
Causing this pollution**

Define water pollution: \_\_\_\_\_  
\_\_\_\_\_

The substance causing the water pollution is called the \_\_\_\_\_

List two types of water pollution.

1. \_\_\_\_\_

2. \_\_\_\_\_

Define point source pollution:\_\_\_\_\_

\_\_\_\_\_

List two examples of point source pollution.

1. \_\_\_\_\_

2. \_\_\_\_\_

**While, government government makes some laws to protect “the shallows”  
oh we oh oh**

Why does the government make laws to protect the shallows?\_\_\_\_\_

\_\_\_\_\_

**Now we filter water from a public lake  
Screens remove the particles, branches and barnacles**

Where is our local drinking water stored before it’s treated?\_\_\_\_\_

Why does water need to be treated before it is drinkable?\_\_\_\_\_

\_\_\_\_\_

The first step to treating drinking water is \_\_\_\_\_.

What happens in this step?\_\_\_\_\_

\_\_\_\_\_

**Chemical added that coagulates**

The second step to treating drinking water is \_\_\_\_\_.

Define coagulation:\_\_\_\_\_

\_\_\_\_\_

**Sticky sticky flocs, making basins functional**

A chemical, called \_\_\_\_\_, causes sticky globs called \_\_\_\_\_

to form. Particles that stick to the flocs include \_\_\_\_\_ and \_\_\_\_\_.

**Little floating globs settle down at the bottom  
Are they easy to remove – oh yea, we got ‘em**

The third step to treating drinking water is \_\_\_\_\_.

What happens in settling basins?\_\_\_\_\_

\_\_\_\_\_

**Filter once more using sand and gravel**

The 4<sup>th</sup> step to treating drinking water is \_\_\_\_\_.

What substances filter the water in the 2<sup>nd</sup> filtration?\_\_\_\_\_

**Would you care to remove all of the algae and bacteria?**

What substances are removed from the water during 2<sup>nd</sup> filtration?\_\_\_\_\_

\_\_\_\_\_

**Add the chlorination and then stir with a paddle  
Kill the microorganisms in this area**

The 5<sup>th</sup> step to treating drinking water is \_\_\_\_\_

Why is chlorine added to drinking water? \_\_\_\_\_

**Air through the water to reduce the smell  
I'll fix it up. Aeration is a-kind a swell**

The 6<sup>th</sup> step to treating drinking water is \_\_\_\_\_

Why is drinking water aerated? \_\_\_\_\_

**Hm...there's something in the water**

Additional substances that may be added to drinking water include

1. \_\_\_\_\_

2. \_\_\_\_\_

**Plant roots filter and absorb all the metals and chemicals**

How do plants help cleanup water pollution? \_\_\_\_\_

**While bacteria can eat some oil at the time of a spill**

How are bacteria used to clean up oil spills? \_\_\_\_\_

What is the name of the largest oil spill in history? \_\_\_\_\_

How much oil was spilled? \_\_\_\_\_

**If you reuse the water  
Yea and cool the water  
Reuse the water**

How can dumping hot water into streams harm the environment? \_\_\_\_\_

What is a solution to heated water pollution? \_\_\_\_\_

**Gosh, I hope they will  
Human human waste can really cause some disease**  
One major source of water pollution is \_\_\_\_\_.

**Cholera, cholera - it's such a follower**

What is cholera? \_\_\_\_\_

How is cholera spread? \_\_\_\_\_

**Treatment plants, remove all of it please  
Clean it up, serve it up – give me what I prefer**

Two ways to treat human waste water are

1. \_\_\_\_\_

2. \_\_\_\_\_

**Industrial waste, from factories and mines**

A second major source of water pollution is \_\_\_\_\_

**Can cause non point source - where pollution can't be tied**

Define nonpoint source pollution: \_\_\_\_\_

\_\_\_\_\_

**Chemicals dumped cause a reaction chain**

**Toxic chemicals, let's be sensible**

One type of industrial waste water pollution is \_\_\_\_\_

List examples of chemical water pollution and label as point or nonpoint source.

1. \_\_\_\_\_

2. \_\_\_\_\_

Smoke and exhaust result in acid rain

**Cars and smoke stacks...emitting the dispensable**

A second type of industrial waste pollution is \_\_\_\_\_

What does smoke and exhaust pollution cause? \_\_\_\_\_

Why is acid rain harmful? \_\_\_\_\_

**Heat pollution gets some hot hot water**

**And heats it up...more than southern Nicaragua**

A third type of industrial waste pollution is \_\_\_\_\_

What is heat pollution? \_\_\_\_\_

**Hm...there's something in the water**