



Freshwater Unit Review

Eighth Grade 2008-2009

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Key Points:

- Most of the water in the world is salt water.
- Of the small amount of water in the world that's fresh water, most of it is found in ice form.
- Humans only drink fresh-water. Most of the fresh-water we drink comes from aquifers holding groundwater or lakes.
- There is usually a connection between aquatic (water) and terrestrial (land) food webs. A lot of times, animals that live in land eat animals that live in water.

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Distribution of Earth's Water Resources

Water covers about two-thirds of earth's surface—that means there's a lot of it on our planet! Not all of the water is in the oceans, rivers, and lakes though.

Salt Water: Most of the water in the world is salt water found in the oceans. In fact, 97% of the water in the world is salt water found in the Atlantic, Pacific, Arctic, and Indian Oceans. Humans can't drink salt water though, so we have to get our drinking water from other places. If we have a water shortage, we can get freshwater from the ocean by using the process of **desalination** and taking the salt out of ocean water. It is, however, expensive

to do, so we'd rather just drink freshwater that we find naturally on earth.

Freshwater: Humans can only drink freshwater, which is found in many different forms around the earth. Most of the freshwater in the world (69%) is actually found in ice form. This is a fact surprises most people.

After people learn that most freshwater is actually in ice form, they think that most of the leftover freshwater is found in rivers and lakes.

That's actually NOT true. **30%** of the world's freshwater is water that is found underground, or **groundwater**. Humans get lot of their drinking water from this underground water, which is held in rock layers called **aquifers** (see page 2 for more details). Finally, the remaining 1%

of freshwater is found in **rivers, lakes, and the atmosphere**. When people predict where most freshwater is found, they usually guess wrong, but now you know!



Freshwater Resources

Most freshwater is found in ice form—a lot of that ice is found in the form of **glaciers**, or chunks of ice and snow that move slowly across earth's surface.

However, the 1% of earth's freshwater that is found in rivers, lakes, and the atmos-

phere is found in many different places. Some of this is found in **wetlands**, areas of land that remain wet for all or part of the year. Many organisms make their home in wetlands, and they help keep floods from happening. They are sort of like a

sponge!

Finally, some of that 1% of freshwater found in rivers and lakes is found in **watersheds**, which are areas of land where rain and other precipitation collect and then drain to one place, like a lake or the ocean.

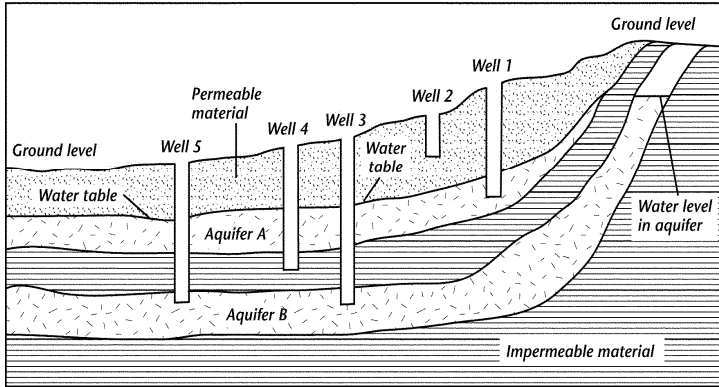
Groundwater: How do we get to it?

To use groundwater, humans have to get to it. That means that we have to create **wells**, which will bring groundwater

to the surface. Some wells will bring water to the surface while some will not.

This means that the rock will not absorb water. A well dug into impermeable rock, like well 4, will not produce water because it's trying to draw water from rock that isn't holding any.

Wells and Aquifers



For a well to bring water to the surface, it has to be below the **water table**, or the level of water underground. In the picture to the left, well 2 will NOT produce water because it doesn't extend below the water table. If the water table ever got higher, well 2 might produce water.

However, not all wells below the water table will produce water. Some wells are dug into **impermeable rock**.

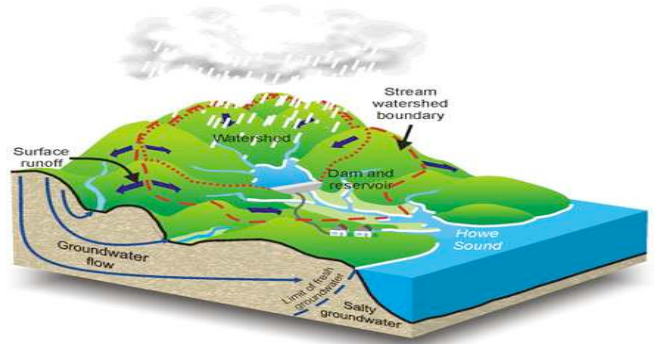
Wells that are dug into **permeable rock** that is below the water table will produce water. Permeable rock is rock that has small pores that will hold water. Wells 1, 3, and 5 are all dug into permeable rock (called **aquifers**—layers of rock underground that hold water).

We don't have a lot of freshwater—we have to conserve it to make sure we don't run out.

Watersheds

Earth's surface areas flow through areas called **watersheds**, which are areas of land where precipitation collects and then drains to one place (usually the ocean or a lake). Watersheds move water from high elevations to lower elevations.

Most watersheds contain a **river** that is fed by smaller streams called **tributaries**.



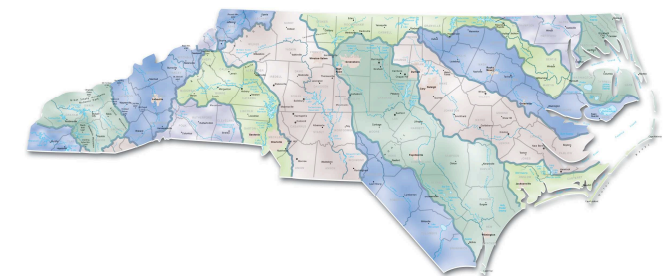
The watershed is the area of land that is drained by a particular river and its tributaries.

Usually they also contain a **lake**, a low area of land where surface water collects.

North Carolina's Freshwater

Every one in the world lives in a watershed. North Carolina contains seventeen watersheds. The **Cape Fear River Basin** is the largest in North Carolina. It covers 9,324 square miles of land area and contains streams that drain twenty-nine of North Carolina's 100 counties. Durham is in the **Cape Fear River Basin**, as well as the **Neuse River Basin**.

Most communities were



founded around good sources of freshwater, as all people need water to drink and to use in industry. Durham also formed around freshwater

sources, such as **Lake Michie** and the **Little River reservoir**. These are both sources of freshwater for us as we go about our daily activities.

Inside Story Headline

This story can fit 150-200 words.

One benefit of using your newsletter as a promotional tool is that you can reuse content from other marketing materials, such as press releases, market studies, and reports.

While your main goal of distributing a newsletter might be to sell your product or service, the key to a successful newsletter is making it useful to your readers.

A great way to add useful con-

tent to your newsletter is to develop and write your own articles, or include a calendar of upcoming events or a special offer that promotes a new product.

You can also research articles or find "filler" articles by accessing the World Wide Web. You can write about a variety of topics but try to keep your articles short.

Much of the content you put in your newsletter can also be used for your Web site. Microsoft Publisher offers a simple way to convert your newslet-

ter to a Web publication. So, when you're finished writing your newsletter, convert it to a Web site and post it.



Caption describing picture or graphic.

Inside Story Headline

This story can fit 100-150 words.

The subject matter that appears in newsletters is virtually endless. You can include stories that focus on current technologies or innovations in your field.

You may also want to note business or economic trends, or make predictions for your

customers or clients.

If the newsletter is distributed internally, you might comment upon new procedures or improvements to the business. Sales figures or earnings will show how your business is growing.

Some newsletters include a column that is updated every issue, for instance, an advice

column, a book review, a letter from the president, or an editorial. You can also profile new employees or top customers or vendors.

"To catch the reader's attention, place an interesting sentence or quote from the story here."

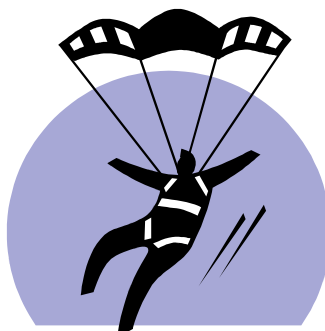
Inside Story Headline

This story can fit 75-125 words.

Selecting pictures or graphics is an important part of adding content to your newsletter.

Think about your article and ask yourself if the picture supports or enhances the message you're trying to convey. Avoid selecting images that appear to be out of context.

Microsoft Publisher includes thousands of clip art images



Caption describing picture or graphic.

from which you can choose and import into your newslet-

ter. There are also several tools you can use to draw shapes and symbols.

Once you have chosen an image, place it close to the article. Be sure to place the caption of the image near the image.



Primary Business Address
Your Address Line 2
Your Address Line 3
Your Address Line 4
Phone: 555-555-5555
Fax: 555-555-5555
E-mail:
someone@example.com

Your business tag line
here.

WE'RE ON THE WEB!

EXAMPLE.MICROSOFT.CO

M

This would be a good place to insert a short paragraph about your organization. It might include the purpose of the organization, its mission, founding date, and a brief history. You could also include a brief list of the types of products, services, or programs your organization offers, the geographic area covered (for example, western U.S. or European markets), and a profile of the types of customers or members served.

It would also be useful to include a contact name for readers who want more information about the organization.

Back Page Story Headline

This story can fit 175-225 words.

If your newsletter is folded and mailed, this story will appear on the back. So, it's a good idea to make it easy to read at a glance.

A question and answer session is a good way to quickly capture the attention of readers. You can either compile questions that you've received since the last edition or you can summarize some generic questions that are frequently asked about your organization.

A listing of names and titles of managers in your organization is a good way to give your newsletter a personal touch. If

your organization is small, you may want to list the names of all employees.

If you have any prices of standard products or services, you can include a listing of those here. You may want to refer your readers to any other forms of communication that you've created for your organization.

You can also use this space to remind readers to mark their calendars for a regular event, such as a breakfast meeting for vendors every third Tuesday of the month, or a biannual charity auction.

If space is available, this is a good place to insert a clip art



Caption describing picture or graphic.

image or some other graphic.