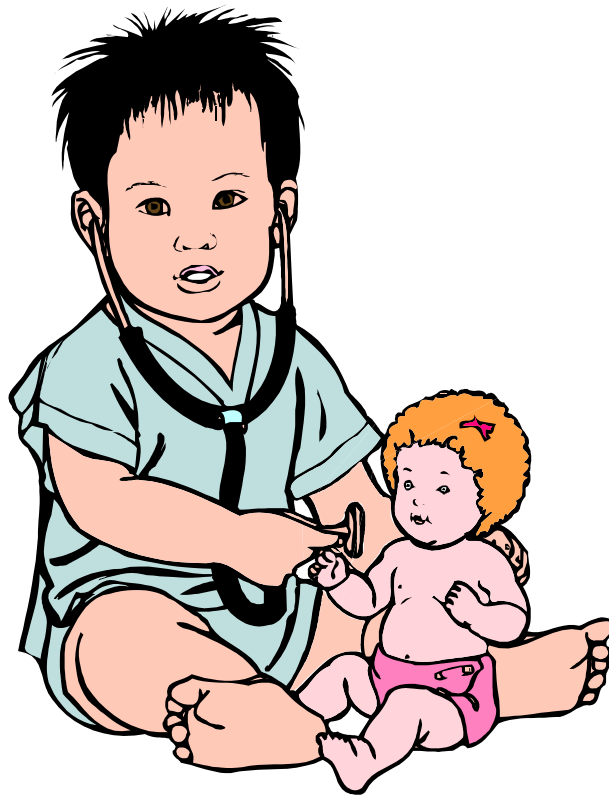


# Drinking Water, Wells, and Our Children's Health

By SAIF Water

for Virginia's  
Lancaster and Northumberland Counties



**Lead • Nitrate • Fluoride • Sodium  
Bacteria/Germs • Dehydration**

## **For Parents, Teachers and Mentors**

The purpose of this activity book is to help focus on some of the things in our drinking water that can impact the health, behavior, and learning ability of children.

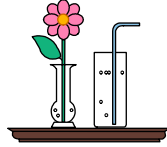
For example, our area is targeted by the Health Department as high risk for lead poisoning. Lead can cause many health problems including damage to the brain nervous system affecting a child's ability to learn and to control their behavior. Drinking water is only one of the possible sources of lead.

Some of the information, such as sodium level, is specific to the Northern Neck of Virginia. All of our drinking water comes from wells. Wells that are privately owned are not regulated like public water systems. It is up to the owner to learn as much as possible about how to keep well water sanitary.

The parents' pages are written in a simple language to help you discuss these subjects with children so they can take part in protecting their health.

We urge you to follow-up with the other sources of information listed and check with your family doctor or health care professional for medical advice.

For More Information 



## **SAIF Water Wells, Inc.**

P.O. Box 839

Burgess, Virginia 22432

[www.saifwater.org](http://www.saifwater.org)

804 580-2079

**Lancaster Health Department 804 462-9919**

**Northumberland Health Department 804 580-8827**

### **Lead**

Lead-Safe Virginia Program – Va. Dept. of Health

Hot line 1-877-668-7987

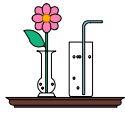
[www.vahealth.org/leadsafe](http://www.vahealth.org/leadsafe)

### **Fluoride**

Virginia Department of Health [www.vahealth.org/teeth](http://www.vahealth.org/teeth)

Or [www.ada.org](http://www.ada.org)

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## **My Water Wisdom Check List**

### **Dehydration**

\_\_\_\_1. Drinks 6-8 glasses of pure water a day

### **Fight Germs**

\_\_\_\_2, Washes hands very often with soap, especially after using the toilet.

### **Lead**

\_\_\_\_3. Turn on the water each morning to flush the lead out of the faucets..

\_\_\_\_4. Use only water from the cold tap for cooking.

### **Fluoride**

\_\_\_\_5. Limit the use of fluoride products like toothpaste if you use artesian water and have children under age 9.

### **Nitrate**

\_\_\_\_6. Shallow well has been tested for nitrate or another source is being used for a baby under 2 years of age.

### **Sodium**

\_\_\_\_7. Artesian water should not be used for drinking by family members who have health problems requiring that sodium be limited.

### **Bacteria/Germs**

\_\_\_\_8. For shallow wells the cap has a gasket to keep out bugs.

\_\_\_\_9. For shallow wells, the side of the well is sealed around the pipes that go through it.

\_\_\_\_10. Our well water was tested for bacteria this year.

\_\_\_\_11. Used the right amount of bleach to disinfect my well.

# Fight Germs



Suzie Squirrel says:

Wash your hands before you eat  
And the germs you will beat.  
No need to be sick with cold and flu.  
Wash your hands often,  
it's good for you.

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How many times did you wash  
your hands yesterday???



# Fight Germs

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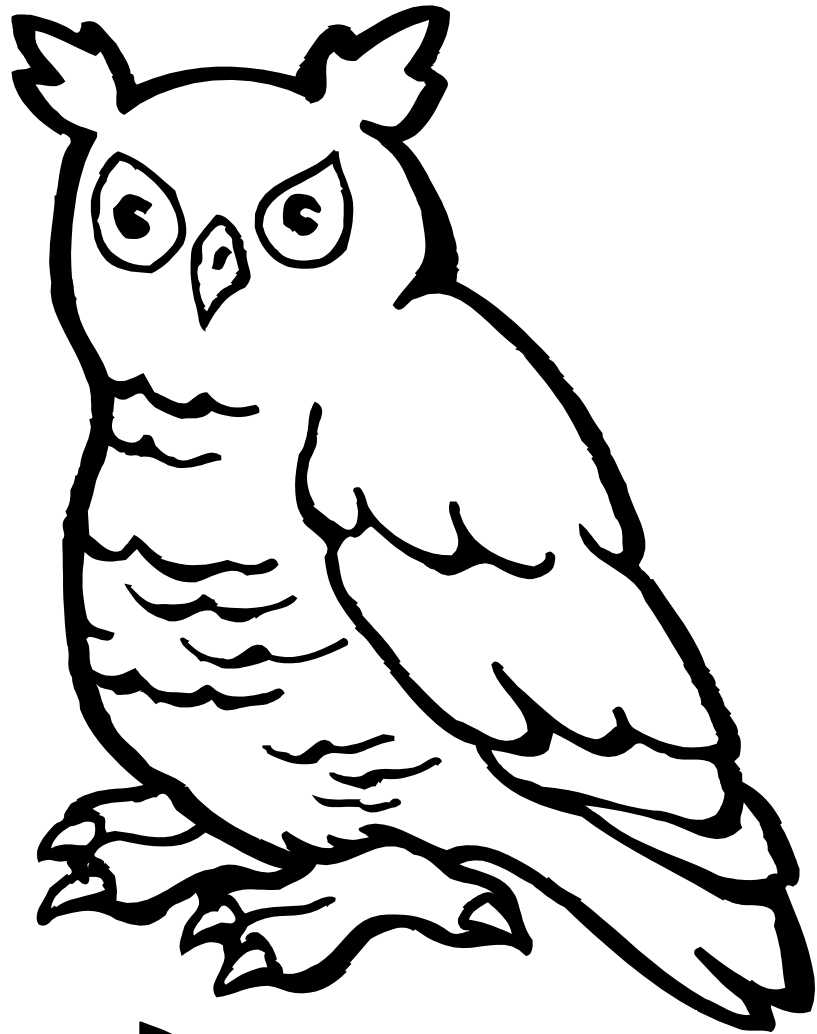
## **For parents:**

One of the most effective ways to help stop the spread of germs that bring on colds and influenza is to teach your child to wash their hands very often with soap.

We can pick up germs when we simply touch things like door knobs, or the handle of a grocery basket, or any place where other people have left their germs.

Washing hands often should include before eating, after going to the bathroom, after playing with others, anytime they are in a public setting, etc.

Teach them to be very thorough in the way they wash their hands with soap and plenty of water.



# Dehydration

Oliver owl says  
your brains need water to make it  
through school.

Be smart. Don't be a fool.

**Drink lots of water** all through the day.  
Your brains work better that way.



# Dehydration

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## For parents:

Our bodies are approximately 70 per cent water. Not drinking enough of it can cause many physical problems. The brain consists of 85 % water, the muscle tissue 75% and bone tissue is 22% water.

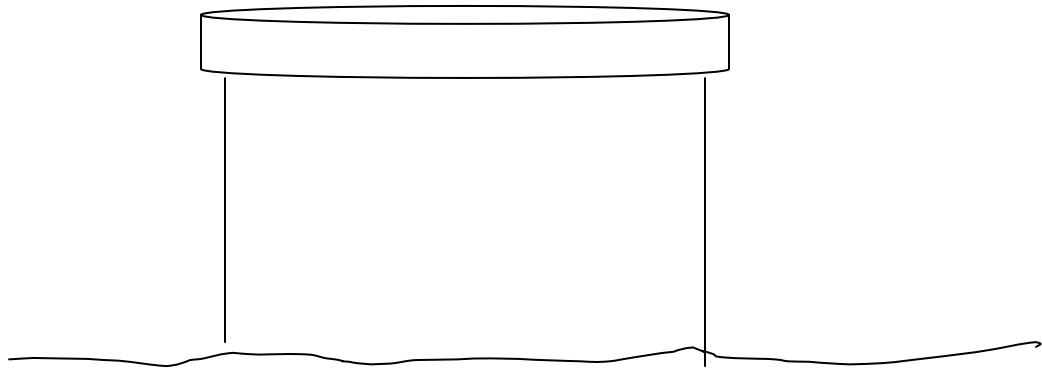
Other drinks with caffeine such as sodas and coffee can cause dehydration. There is no substitute for pure water.

Draw a picture of your water well.

Is it big and round

Or just a pipe sticking out of the ground?

If it is a pipe, it may be an **artesian well** that goes very deep in the ground. Start at your well and walk 700 feet to get an idea of how far down in the ground an artesian well might go.

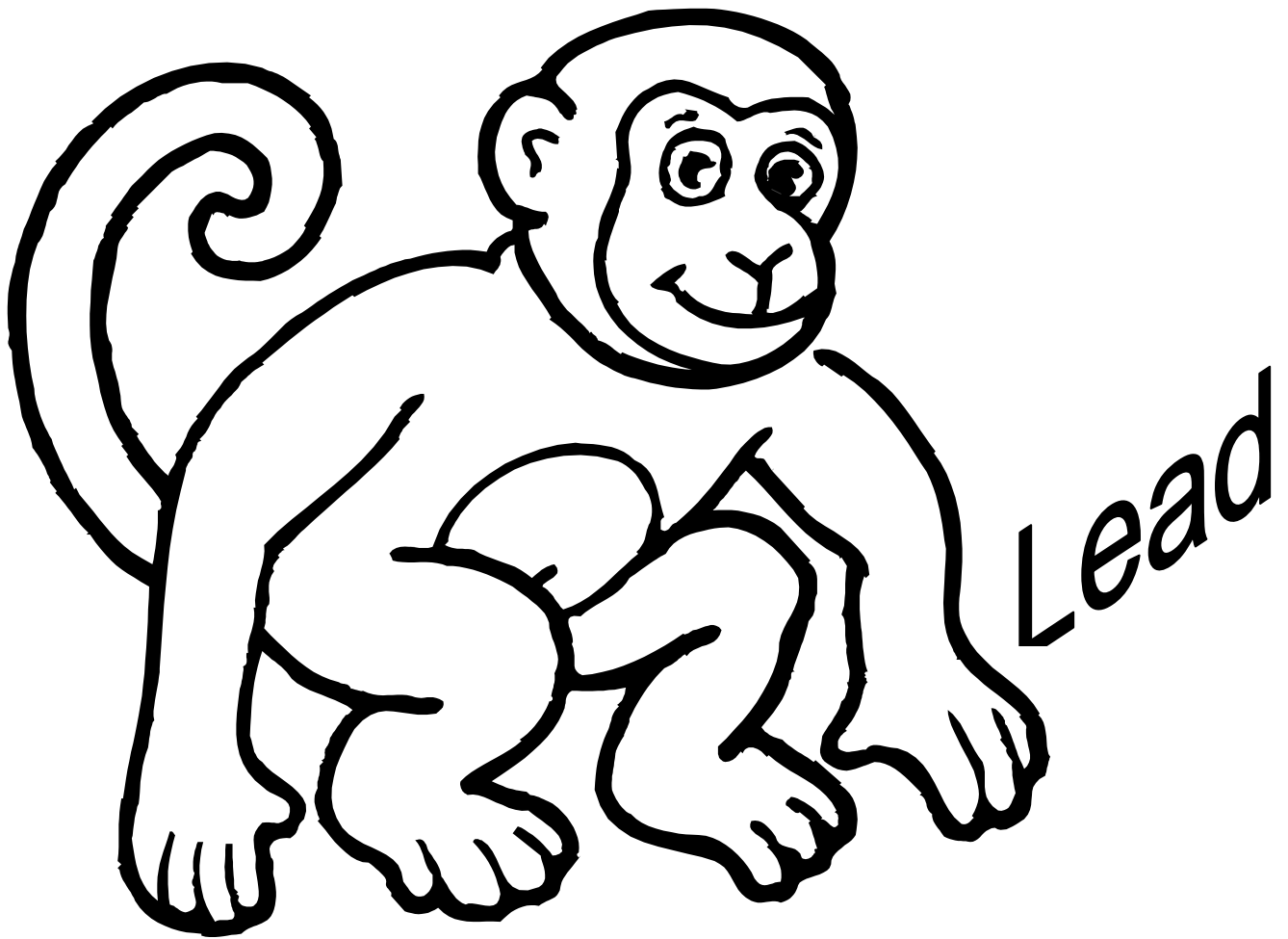


If you have a great big round well, it might be a shallow well. Ask your parents if they know how deep it is. Start at the well and walk 30 feet and then 80 feet to get an idea of how deep wells here have to be dug to reach water.

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**If the lid is heavy, here's why.  
You don't want to fall in and die!**

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*Michael Monkey says:*

When you get out of bed  
then get out the lead.

Turn on the faucet for a minute or two  
So the lead won't go in you.

# Lead - For Parents:



If you have old metal pipes in your home, you can greatly reduce any lead in the water by running the faucets until the water gets as cold as possible.

This flushes the lead out of the lines.

Do it before anyone uses the water in the morning and anytime the water has not been used for 6 hours.

Also use only water from the cold water tap for cooking.

## **Why?**

Lead accumulates in the body and can cause many problems such as premature births, learning and behavior problems. Even small amounts of lead can be harmful to adults, children and unborn babies.

The Health Department has a video that will show you how to check for other lead problems around your house.

[www.vahealth.org/leadsafe](http://www.vahealth.org/leadsafe)

Hot line 1-877-668-7987



**Nitrate**

Ricky Rooster says:  
Cock a doodle doo,  
I'm telling you  
**Nitrate** can turn a baby blue.  
Check it out before babies do.

# Nitrate

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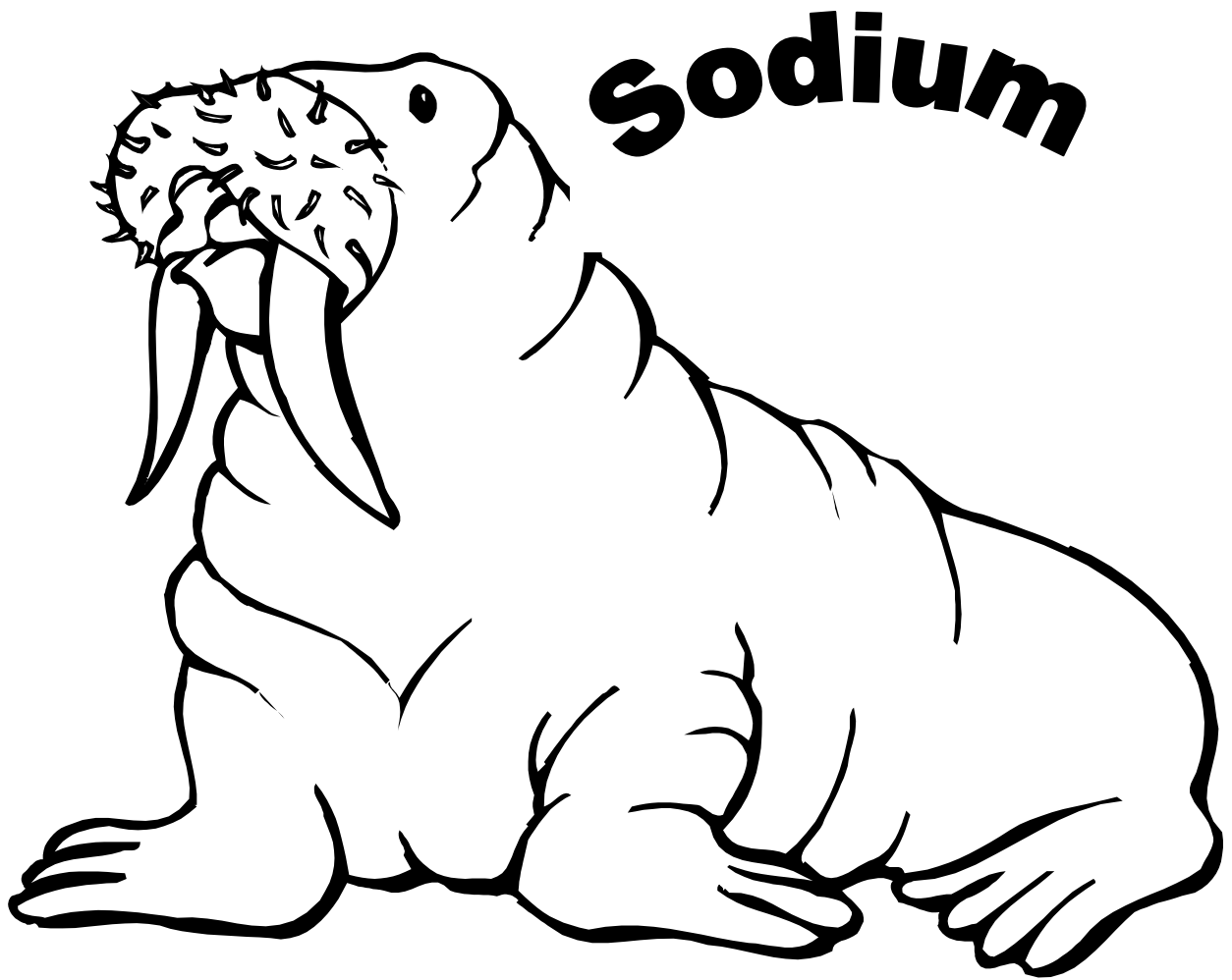
## **For Parents:**

A recent survey by SAIF Water found nitrate levels too high for infants in 78% of 38 shallow wells in Northumberland County.

Have the water tested specifically for nitrate before using it for infants under two years old, or use pure water from another source.

Note: The standard water test kit available at the Health Department is for bacteria. You need to ask specifically for nitrate. And check bacteria too.

If you choose to use bottled water, make sure the label says it has been purified for drinking. “Pure spring water” may not be treated for bacteria.



Wally Walrus says:

Wally's blood pressure is very high.  
So no artesian water for him. Why?

**Salt** - "Sodium" is another name.  
It will slow down his game.



# Salt - Sodium

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## **For parents:**

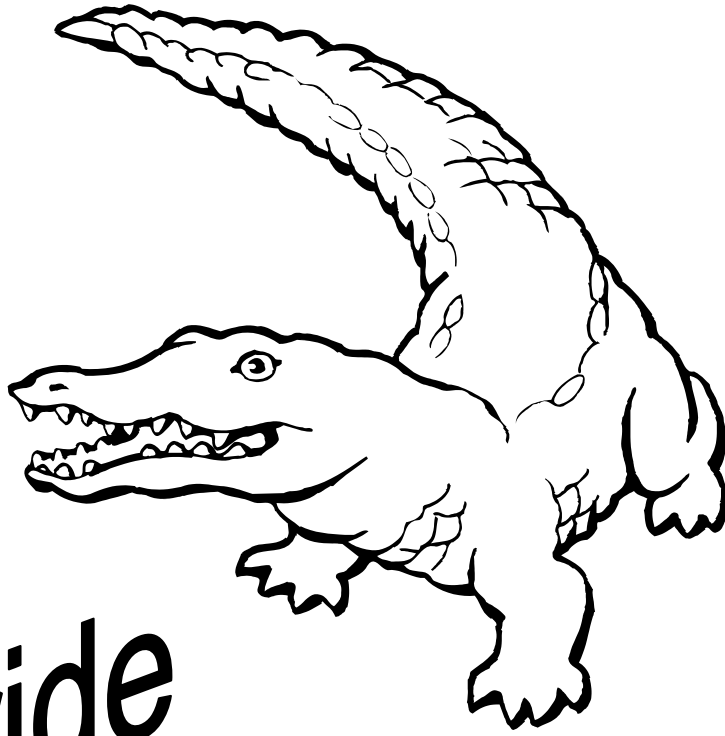
All artesian water in Virginia's Lancaster and Northumberland counties is high in sodium.

A healthy person can drink it with no problem.

But if the doctor has advised you to lower the sodium intake of your child, the artesian water can be much higher than what the Environmental Protection Agency recommends.

It is wiser to use drinking water from another source and use the artesian water only for things like bathing and utilities.

You can buy filtration equipment, but be sure it says it will lower sodium. Some equipment uses more sodium to treat the water. If you buy bottled water, be sure it has been purified for drinking. The label should say filtered, ozonated, distilled, or reverse osmosis.



# Fluoride

Alexander alligator can really grin.

He watches the **fluoride**  
When he brushes his teeth,  
Just enough and not too much  
Will give those teeth the proper touch.

*How many teeth does he have?*



# Fluoride

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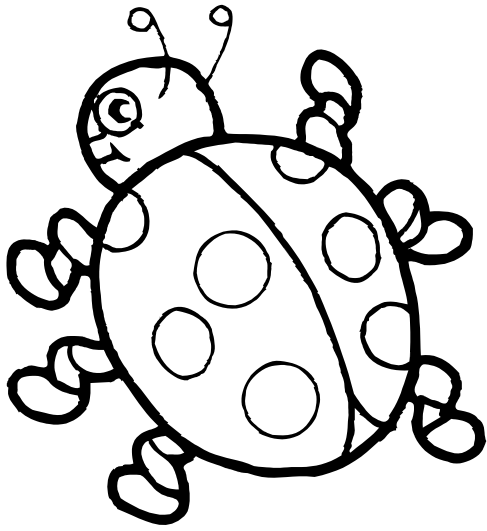
## For Parents:

The Virginia Department of Health says that **artesian** water in our area naturally has a lot of fluoride.

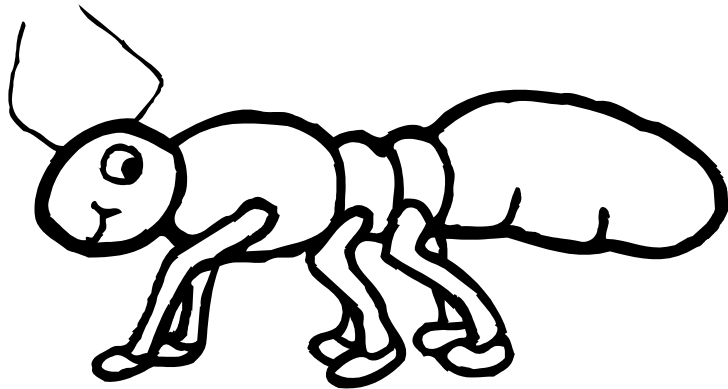
Children should avoid using bottled water with fluoride until their permanent teeth are in (about 9 years old). Always be careful not to swallow toothpaste.

Some fluoride is needed for strong teeth. But too much will cause discoloration and pitting.

Visit your Health Department or their web site [www.vahealth.org/teeth](http://www.vahealth.org/teeth) for more information.



Bacteria



Betty and Billy Bug say:

Bugs are neat

Bugs are sweet.

But not in what we drink  
or eat.



# Bacteria

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## For parents:

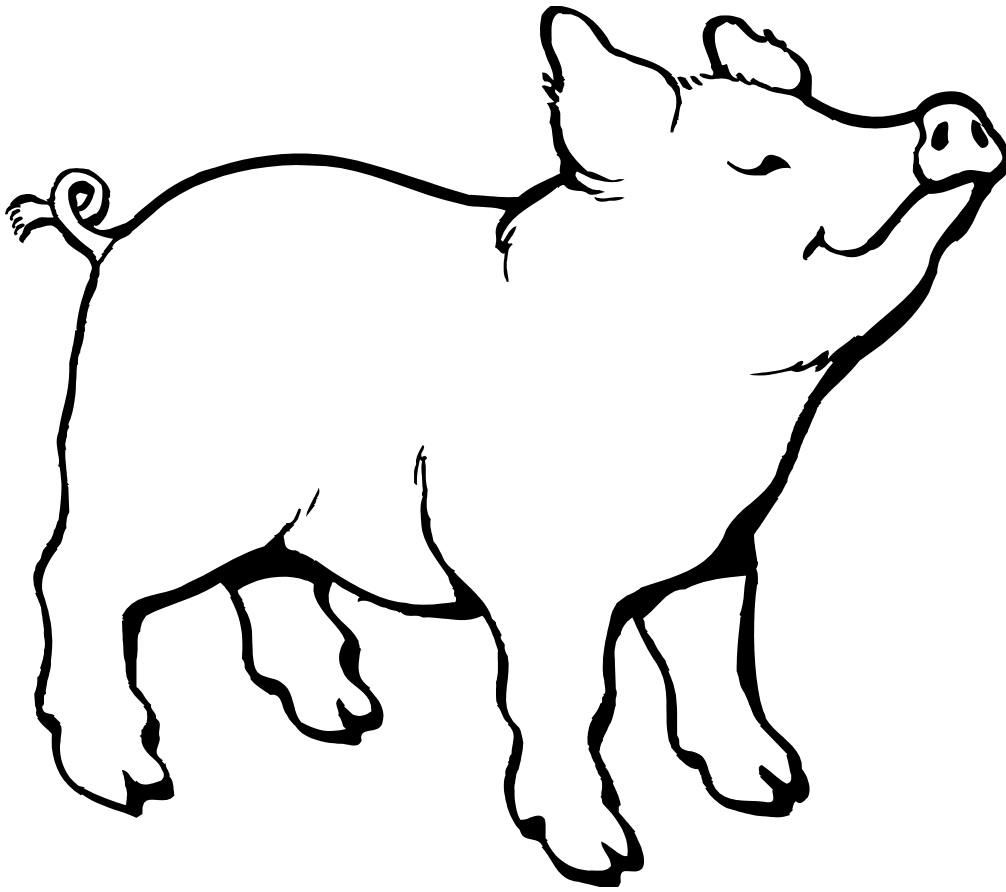
Bugs can carry harmful bacteria (germs) into your well. To keep bugs out of your shallow well, put a gasket underneath the cap.

You can use weather stripping or slit a garden hose and make a ring around the top of the well curb. Then set the cap on it.



The hose doesn't need any glue but the weather stripping will need glue on the bottom. Use glue that works on cement.

Not all bacteria are harmful. Some kinds of bacteria do good things like help you digest your food.



# Bacteria

Patty Pig says

"No mud near my well.  
I keep it clean. You can tell.  
Bacteria breeds in dirt you know.  
So watch it, cover it, test it soon."



# Bacteria

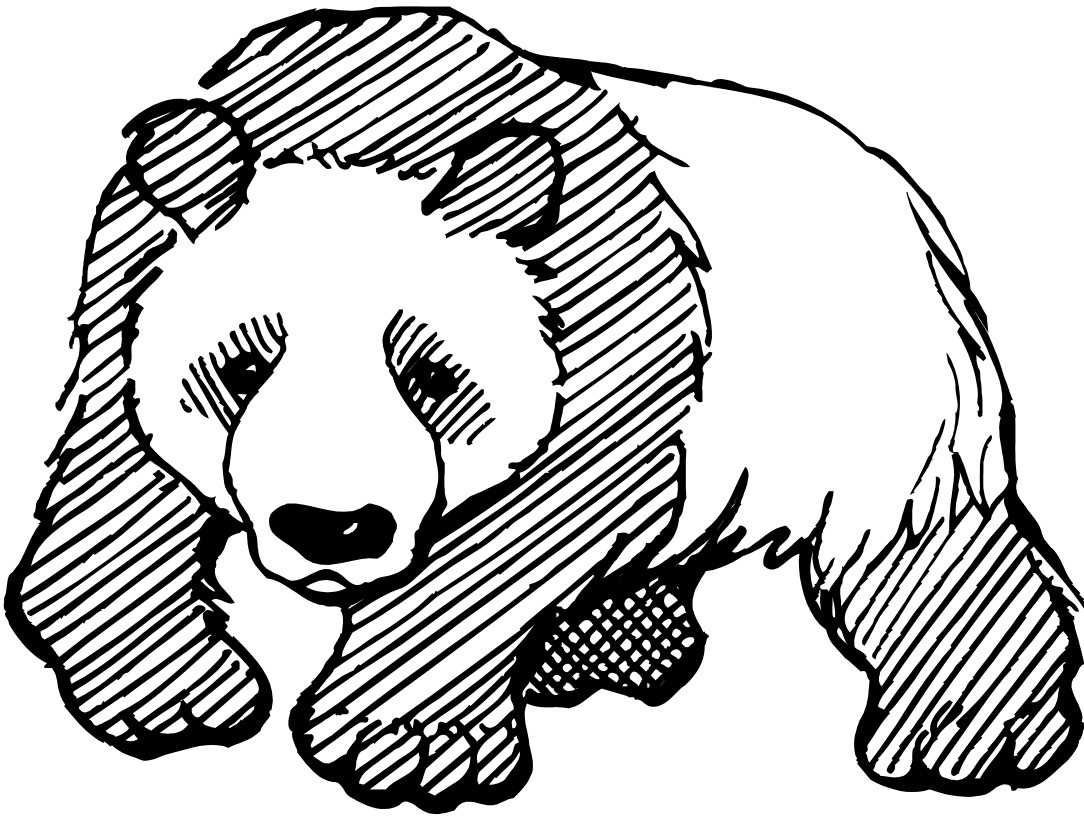
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For parents:

Shallow wells (with the large cement curbs) are easily contaminated.

1. Move trash and oil products like old cars away from the well.
2. Make sure there are no holes in the sides of the well (curbs)—check where the pipes go through the side of the well, and the curb joints come together.
3. Don't allow anyone to throw things in the well.
4. See page 16 on how to seal the cap.
5. Have your water tested once a year or if you notice a change in the water. Kits are available at the Health Department for you to take the sample and mail it in to a lab.

# Chlorine



Barney Bear says:  
Better get around to it.  
But a little bit won't do it.  
Takes lots of bleach to clean a well  
So your body will stay well.  
For germs, disease, or infection  
Chlorine is a good protection.



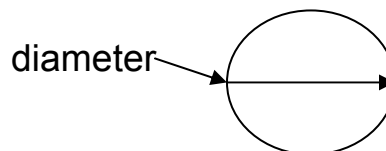
# Chlorine - *Bleach*

## **For Parents:**

Regular chlorination of your **shallow** well can help prevent the growth of bacteria if you use the right amount.

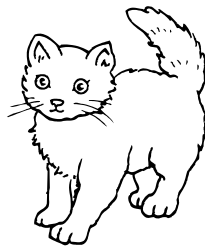
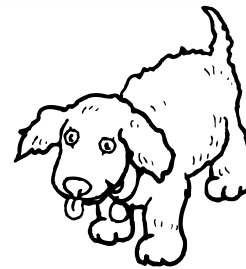
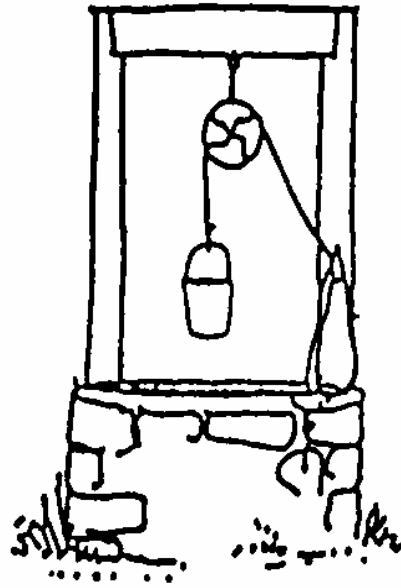
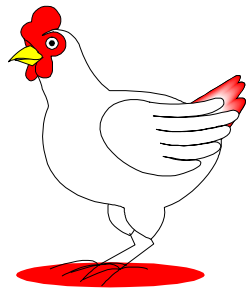
In one city 400 people died and thousands became ill when the town did not put enough chlorine in their water.

Directions are available from SAIF Water, the Health Department, and the Extension Service, which show how much to use. For example, a well 36 inches in diameter with 15 feet of water in it may need 2 gallons of liquid bleach.



You also need to run the chlorinated water through all of your faucets to sterilize the plumbing. Then be sure to run the chlorinated water out of your well and let fresh water come in before using it to drink, cook or bathe.

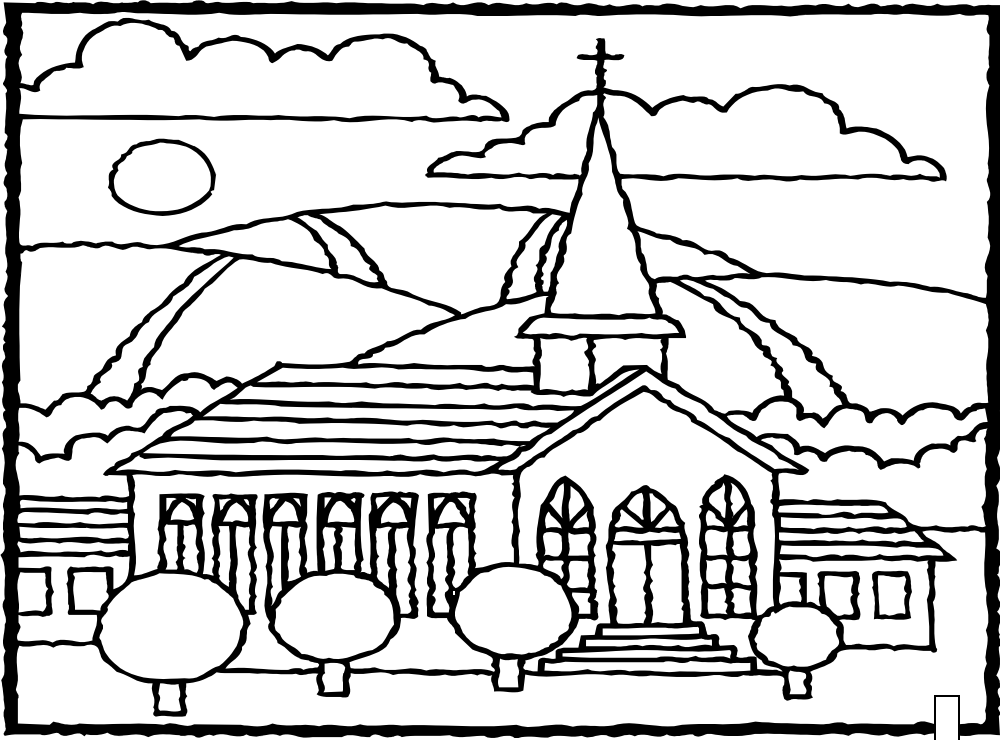
If your water has bacteria, call for suggestions on how to protect your well. SAIF Water 804 580-2079.



C

Cross out the things that you don't want near your big shallow well.

For the answer cross out every "z":  
zAlzl zozf tzhze azbzovze.



The church has an artesian well  
700 feet deep.

Circle 4 things that could be  
Problems in artesian well water:

Bacteria      sodium

Fluoride      nitrate

Lead



## Answers for the church's artesian well:

Circle bacteria, sodium, fluoride, lead.

It can have bacteria if there is a leak in the pipes.

All artesian water in our area has lots of sodium.

Artesian water can have lead if it comes through old metal pipes.

Some areas have fluoride.

An artesian well is too deep in the ground to have nitrate.



The Smiths have a shallow well that is 80 feet deep.

Circle 3 things that could be a problem in their well.

Bacteria      Sodium      Lead  
Fluoride      Nitrate



## Answers for the Shallow well:

Circle: bacteria, nitrate and lead

**Bacteria** can come from things on top of the ground and get into the well as the rain sinks into the ground.

**Nitrate** can come from farm chemicals and lawn fertilizers near the well.

**Lead** is possible when you have metal pipes.

## Explore your house -

What color are the pipes under your kitchen sink? If they are white, your plumbing is likely to be PVC plastic. Ask whether they are plastic all the way to the well.

If they are metal, be sure to run your faucets for a minute the first time you use them in the morning to flush out metal deposits. And only use the cold water for things you are going to cook. This will cut down on the possibility of your drinking lead in your water.

## Word List

**artesian well** - A deep drilled well through which groundwater is forced upward under pressure.

**bacteria** - a tiny (microbial) form of life. Bacteria are found everywhere, and some of them can cause disease or even death. That is why feces from humans and animals should always be avoided. See germs.

**fluoride** - an element (F) which, in small quantities, reduces tooth decay. In larger quantities it can lead to tooth mottling in children and possible other health problems.

**dehydration** - loss of water. If a person does not drink enough water, especially on hot days, dehydration can lead to cramps (that is why athletes drink so much Gatorade), unconsciousness or even death.

**germs** – Too small to see, but they can make you sick. Some bacteria are germs and some bacteria are good for you.

**lead** - a toxic element (Pb) used in solder and in batteries that can cause nerve damage, especially in the fetus or in young children.

**nitrate** - a soluble ion found in our groundwater consisting of a nitrogen (N) atom combined with three oxygen (O) atoms. Nitrogen is a fertilizer and is necessary for all forms of life. It can be supplied either as nitrate or as ammonia (nitrogen combined with hydrogen (H)).

**shallow well** - a well that taps water from the uppermost groundwater zone of the earth. Unlike an artesian well, its water is not pressurized.

**sodium** - a very soluble element (Na) as is found in common table salt or sodium chloride (NaCl). Too much sodium in a person's diet can contribute to high blood pressure.