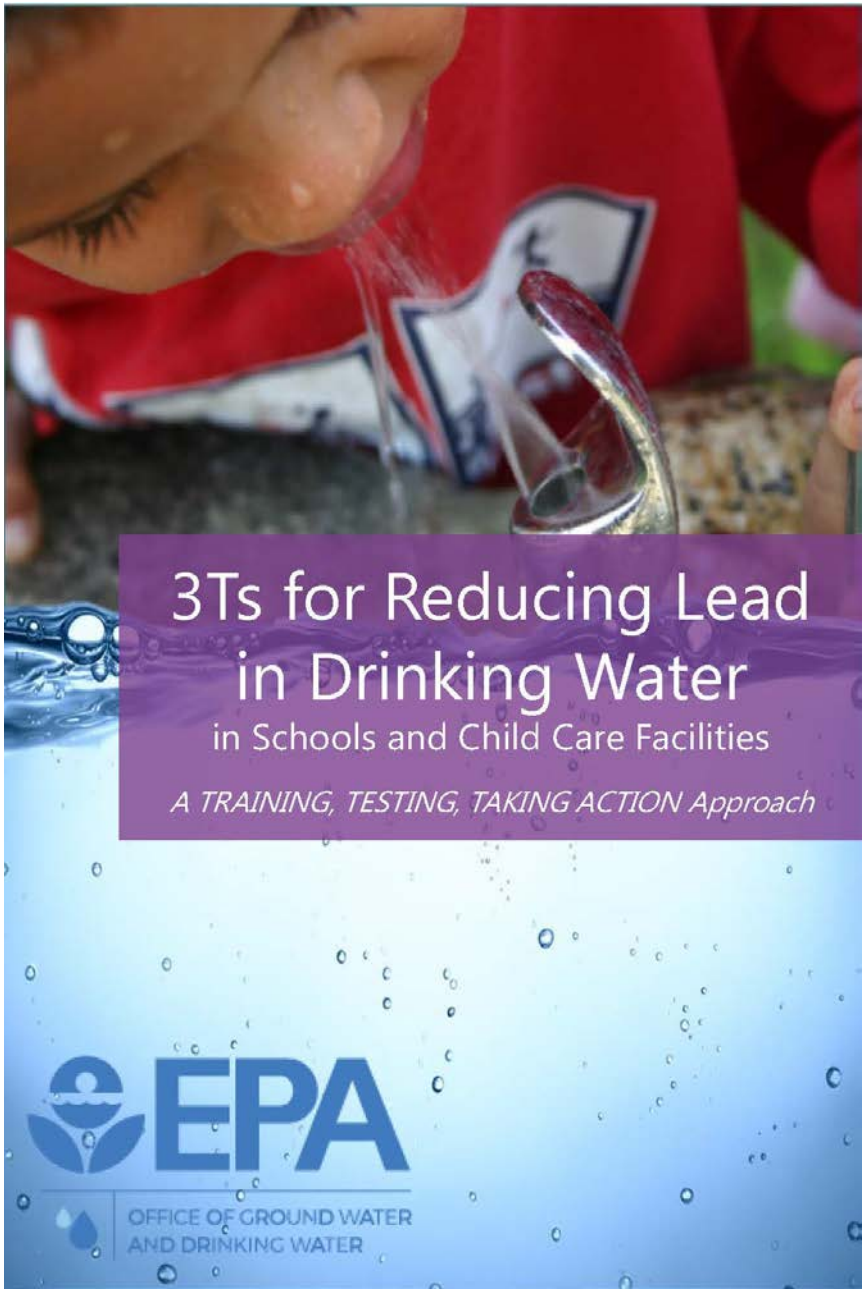

3Ts Toolkit

The 3Ts toolkit includes modules to assist facilities in developing a drinking water testing program.

Module 1
Communicating the 3Ts

Module 2
Learning About Lead in Drinking Water

Module 3
Planning Your 3Ts Program

Module 4
Developing a Sampling Plan

Module 5
Conducting Sampling & Interpreting Results

Module 6
Remediation & Establishing Routine Practices

Module 7
Recordkeeping

The 3Ts *Establishing a Lead Testing Program Checklist* includes steps needed to take a holistic approach, including important areas of communication throughout.

For this and the full toolkit, visit:
https://www.epa.gov/safewater/3Ts

What are the 3Ts?

The 3Ts toolkit was developed for schools and child care facilities to help them implement a voluntary program for reducing lead in drinking water. The 3Ts consist of the following:

- TRAINING officials to raise awareness of the 3Ts program and summarize the potential causes and health effects of lead in drinking water.
- TESTING drinking water in schools and child care facilities to identify potential lead problems.
- TAKING ACTION to reduce lead in drinking water.

Module 1: Communicating the 3Ts

Develop a Communication Plan

Communicating early and often about your testing plans, results, and next steps will build confidence in your community.

Templates are available to help you:

- Get your team together
- Create a contact list
- Identify your target area
- Know your methods of communication
- Identify timing for communication
- Start communicating!

View the 3Ts Toolkit for helpful resources:

Link: **https://www.epa.gov/safewater/3Ts**

Reducing Lead Exposure

Lead is a toxic metal that is harmful to human health. We can be exposed to lead through a variety of sources (e.g. paint, dust, soil, air, and drinking water).

There is no known safe blood lead level for children. EPA suggests that schools and child care facilities implement programs for reducing lead in drinking water as part of their overall plans for reducing environmental threats. Safe and healthy school and child care environments foster healthy children and may improve student performance.

There are no federal laws requiring testing of drinking water in schools and child care facilities, except for those facilities that own and/or operate their own public water supply and are thus regulated under the Safe Drinking Water Act (SDWA).

Some states, tribes and local jurisdictions have established their own programs for testing drinking water lead levels in schools and child care facilities, and some have developed regulations or guidance. Facilities should reach out to their state to find out what laws or regulations may apply to them.

Even when water entering a facility meets all federal and state public health standards for lead, older plumbing materials in schools and child care facilities may contribute to elevated lead in their drinking water.

Utilizing the 3Ts Toolkit can help ensure a successful lead in drinking water reduction program.

Immediate Actions to Start Improving Water Quality

Immediately remove drinking water coolers listed in EPA's 3Ts as containing lead lined coolers. These were built before the 1986 Lead Free Act.

Clean drinking water fountains and aerators (screens) regularly. Consider creating a cleaning time card that can be posted by the water fountains to allow the cleaning times to be recorded.

Use only cold water for food and beverage preparation. Hot water will dissolve lead more quickly than cold water and is likely to contain increased lead levels.

Make sure filters are maintained if being used. Ensure that the selected filter is certified to remove lead (or any other contaminants of concern).

Create and post placards near bathroom or utility sinks with notices if the water should not be consumed. Use pictures if there are small children using bathrooms.

Regularly flush all water outlets used for drinking or food preparation, particularly after weekends and long vacations when water may have been sitting for a long period of time.

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TRAINING

Learn and develop plans that provide the framework for an effective program

Module 2: Learning About Lead in Drinking Water

Health Effects of Lead

There is no safe level of lead. The human body cannot tell the difference between lead and calcium, which is a mineral that strengthens the bones. Because of this, lead can be absorbed into the bones, where it can collect for a lifetime.

Young children are especially susceptible to lead exposure. Pregnant and nursing staff should also be aware of the harmful risks of lead exposure to nursing infants and the developing fetuses of pregnant women.

Even low blood levels of lead have been associated with:

- reduced IQ and attention span
- learning disabilities
- poor classroom performance
- hyperactivity
- behavioral problems
- impaired growth and hearing loss

Assigning Roles

It is important to clearly define responsibilities and to support those people in their roles. An effective program will require a team effort. Identifying specific roles and responsibilities before initiating a program will give the program accountability.

Role	Responsibilities
3Ts Program Contact	Act as the point of contact for the Program. Communicate with the other teams, external resources, and program partners.
Public Communications Contact	Communicate testing plans, results and remediation efforts to the public (e.g., to the school and child care facility community, media outlets, civic groups)
Partner Liaison Contact	Work with certified laboratories, interest groups, the school board and other partners supporting the 3Ts Program. Schedule activities and maintain communication.
Sampling Activities–Contact	Lead the effort to develop and implement a sampling plan. Engage with other program points of contact and external resources and partners as appropriate.
Remediation Activities Contact	Lead the remediation efforts, if necessary. Engage with other program points of contact and external partners as appropriate, acting as the Program point of contact for those resources.
Recordkeeping Contact	Ensure a central repository is created to house all 3Ts Program documents. Lead effort to create, maintain and update documentation with the team annually.

Sources of Lead

Sources of lead exposure include the lead industry, lead-based paint (e.g., paint chips or dust), lead in water, lead in the air, lead in soil, and lead in consumer products and food.

Lead-based paint

In the air

In the soil

Lead Industry

In consumer products

In water

Lead gets into drinking water as it comes into contact with plumbing materials containing lead. Interior lead pipe and lead solder (commonly used until 1988), brass fittings, valves and various drinking water outlets (e.g., water fountains and faucets) are the primary contributors of lead in drinking water in schools and child care facilities.

How Lead in Drinking Water is Regulated

The Lead Ban (1986): A requirement that only "lead-free" materials be used in new plumbing and in plumbing repairs.

The Lead Contamination Control Act (LCCA) (1988): The LCCA aimed at the identification and reduction of lead in drinking water at schools and child care facilities, including the recall of drinking water coolers with lead lined tanks.

The Lead and Copper Rule (1991): A regulation by EPA to control the amount of lead and copper in water supplied by public water systems.

The Reduction Of Lead In Drinking Water Act (2011): This act further reduces lead and redefines "lead-free" under the Safe Drinking Water Act (SDWA).

State Laws: Some states, tribes and local jurisdictions have established regulations for schools and child care facilities.

Module 3: Planning a 3Ts Program

Review Records

Review records to determine if monitoring has been conducted, and to determine whether remediation actions have been taken. This will help to prioritize efforts and be more efficient.

Establishing Partnerships

Entities like the public water system, local health offices, state drinking water programs, certified laboratories and local community organizations may be able to provide assistance in testing the drinking water for lead.

- **Assistance from Public Water Systems:** Assistance may be available through technical guidance, sampling and/or sharing in sampling costs. Some systems may be willing to help develop sampling plans and plumbing profiles.
- **Assistance from Local Health Offices:** Many local governments have established programs that are responsible for a wide variety of public health protection activities, such as Lead Poisoning Prevention Programs.
- **Assistance from the State Drinking Water, Heath and Education Programs:** Contact your state programs to determine whether any other requirements apply, or whether training and/or technical assistance is available.
- **Assistance from Certified Laboratories:** The state drinking water office should be able to provide a list of certified laboratories that you can use for testing.
- **Assistance from Local Community Organizations:** There are a variety of local organizations within communities that can help; for example, community volunteer groups, senior citizens' groups, the PTAs and local environmental groups.

Identifying Funding Sources

Ensuring a 3Ts Program has adequate funding is necessary for the success of the program. Items such as the cost of collecting water samples, having the samples analyzed and any predictable remediation costs can be incorporated into the program's budget. Funding issues should be discussed with decision-makers and with partners early on in the planning process.

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TESTING

Test drinking water to identify potential problems

Module 4: Developing a Sampling Plan

Conduct a Walkthrough

Conduct a walkthrough of the facility and create an inventory. Take note of all sinks and fountains used for consumption. It may be helpful to take pictures when conducting this walkthrough.

This will enable you to understand how water enters and flows through building(s), and to prioritize sample sites.

Make sure to identify any outlet noted as having lead-lined storage tanks or lead parts listed in EPA's 3Ts. These should be removed immediately.

Determine Sample Locations

Sample sites include drinking fountains, kitchen and classroom sinks, home economics sinks, teachers' lounge, and other sites used for consumption.

Sampling Dos and Don'ts

Do:

- Follow the instructions provided by the laboratory for handling sample containers to ensure accurate results.
- Assign a unique sample identification number to each sample collected. Use a coding scheme to help differentiate samples, and don't forget to label.
- Collect all water samples before the facility opens and before any water is used. Ideally, the water should sit in the pipes unused for at least 8 hours but not more than 18 hours before a sample is taken.
- Learn how water flows in your facility. If there are multiple floors, it is typically recommended to sample from the bottom floor and continue up. Start sampling closest to the main and work away.

Don't:

- Remove aerators prior to sampling. Potential lead contributors may be missed if aerators are removed since debris could be contributing to the lead in drinking water if particles containing lead are trapped behind aerator screens.
- Flush water prior to sampling, unless instructed to do so. Flushing can be a tool to improve water quality, especially after long holidays or weekends. However, flushing prior to sampling may cause samples to not be representative of daily consumption.
- Close the shut-off valves to prevent their use prior to sample collection. Minute amounts of scrapings from the valves could produce inaccurate results showing higher-than-actual lead levels in the water.

EPA recommends all outlets used for consumption be sampled; prioritizing outlets:

- That are used by children under the age of 6 years or pregnant women (e.g., drinking fountains, nurses' office sinks, classrooms used for early childhood education)
- That are frequently used by students and staff
- Are older and/or have never been tested

Faucets that are not used for human consumption, such as sinks in janitor's closets or outdoor hoses, do not need to be sampled and clear signage should be used to notify people that it is not for drinking.

Selecting a Laboratory for Sample Analysis

Regardless of who collects the samples, schools should employ a certified laboratory approved by the state or EPA for testing lead in drinking water. Contact the state drinking water program or the public water system, or visit EPA's website: **Contact Information for Certification Programs and Certified Laboratories for Drinking Water** for a list of certified laboratories in the area.

Determine Your Sampling Frequency

How frequently your facility can and should test for lead in drinking water is dependent on a variety of factors (e.g. plumbing, water quality, lead results, budget, and competing priorities).

Schools and child care facilities should make testing drinking water a part of their regular building operations. Annual monitoring provides information on changes in the lead levels and the effectiveness of remediation or treatment efforts.

Check your service line

Lead pipes are used for service connections, or service lines, in some locations. Other materials used for service lines include copper, galvanized steel, plastic and iron. Lead is less practical for the larger service lines typically used in larger buildings; however, **many child care facilities reside in small buildings and are at a higher likelihood of being served by lead lines.**

Regardless of building size, make sure to check the service line. The water utility may be able to provide information about whether there is a lead service line or can help identify the service line for the school.

Lead service lines may be visible and are generally a dull gray color and very soft.

Module 5: Conducting Sampling & Interpreting Results

Conducting Sampling

EPA recommends that schools and child care facilities conduct a **2-step sampling procedure** to identify if there is lead in the outlet (e.g. faucet, fixture, or water fountain) or behind the wall (e.g. in the interior plumbing).

Collect all water samples before the facility opens and before any water is used. Ideally, the water should sit in the pipes unused for at least 8 hours but not more than 18 hours before a sample is taken.

Step 1
250-mL First Draw Sample

Take a 250mL first draw sample at all taps used for consumption to identify potential lead in the fixture.

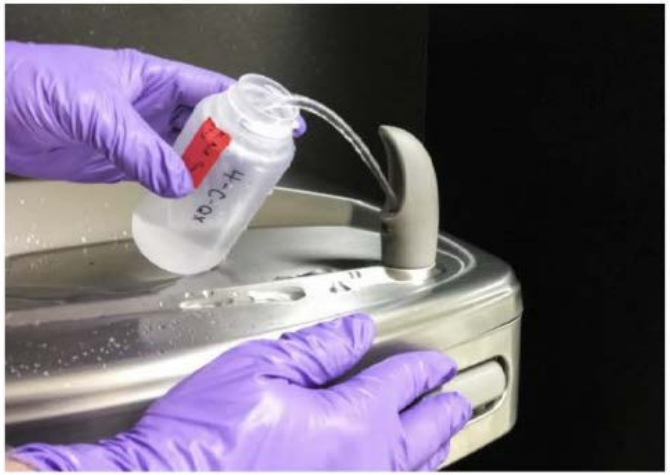
Step 2
250-mL Flush Sample

If the result of Step 1 is high, take a 30-second flush sample to identify lead in the plumbing behind the fixture.

Prioritize remediation efforts based on sample results and use the steps in the 3Ts to pinpoint potential lead sources to reduce their lead levels to the lowest possible concentrations.

Communicate Results

Telling parents and staff about your lead monitoring program will demonstrate your commitment to protecting children and staff health. Communicating early and often about your testing plans, results, and next steps will build confidence in your community.



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TAKING ACTION

Take action to reduce lead in drinking water and communicate to parents, staff, and the larger school community

Module 6: Remediation & Establishing Routine Practices

Decide When to Take Action

There is no known safe level of lead for children. EPA encourages schools to prioritize remediation efforts based on lead sample results and to use the steps in the toolkit to pinpoint potential lead sources to reduce their lead levels to the lowest possible concentrations.

Before sampling, facilities should establish a plan on how they will respond to their sample results to protect the school and child care facility population from lead in drinking water. This may be dependent on a variety of factors (e.g., age of plumbing, population, water corrosivity, available resources, and other school and child care program priorities). EPA recommends that you prioritize remediation of drinking water outlets with the highest lead levels.

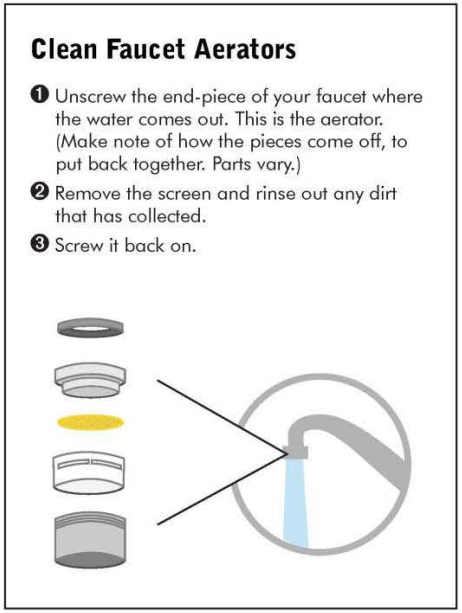
Make sure to also check with your state and local health department. They may have guidance or even requirements that include a lead remediation trigger.

Establishing Routine Practices

Establish routine practices to reduce exposure to lead and other environmental hazards (e.g., bacteria). These activities should not be conducted immediately prior to collecting a water sample but should be planned as part of the school's or child care facility's water management program to improve overall drinking water quality.

Some of these include:

- Clean water fountains, aerators and screens
- Use only cold water for food and beverages
- If filters are used, make sure they are maintained
- Create and post placards near sinks where water should not be consumed
- Regularly flush all water outlets, particularly after weekends and vacations



Solutions typically should be addressed on both on a short-term and on a long-term basis.

Immediate Response

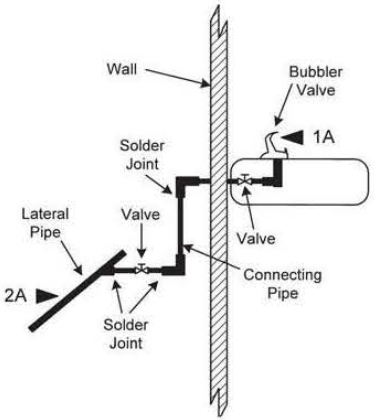
- **Shut off problem outlets:** If initial sample results from an outlet exceed the remediation level, the outlet can be shut off or disconnected until the problem is resolved.
- **Share Test Results:** Notify staff, parents, and students of test results and actions the school is taking.
- **Increase Awareness and Public Education:** If the remediation trigger is exceeded, take the initiative by providing information to your school community.

Short-Term Control Measures

- **Provide Filters at Problem Taps:** Point of use (POU), or filter, units are commercially available and can be effective in removing lead.
- **Flush Taps Prior to Use:** Flushing individual problem outlets or all outlets may also represent a short-term solution. Learn how to use flushing as a tool appropriately in the **3Ts Flushing Best Practices.**
- **Provide Bottled Water:** This can be an expensive alternative but might be warranted if schools expect or are aware of widespread contamination and other remediation is not an option.

Permanent Control Measures

- **Replacement of Outlets:** If the sources of lead contamination are localized and limited to a few outlets, replacing these outlets or upstream components may be the most practical solution.
- **Pipe Replacement:** Lead pipes within the school and those portions of the lead service lines under the public water system's jurisdiction can be replaced.
- **Provide Filters at Problem Taps:** Some facilities may chose to use filters or Point of use (POU) units as a long-term or permanent control measure. It is important to follow manufacturer instructions for maintaining filters (e.g., change the cartridge).
- **Reconfigure Plumbing:** Ongoing renovation of school or childcare buildings may provide an opportunity to modify the plumbing system to redirect water supplied for drinking or cooking to bypass sources of lead contamination.



Follow-Up Procedures

Once a remediation option has been selected and implemented there are additional follow-up procedures that should be taken.

Work with plumbers and maintenance staff to ensure that additional samples are taken from any outlets that were impacted by replacement of fixtures, reconfiguration of plumbing, or other remediation actions to ensure that lead levels are reduced.

Schools and child care facilities should continue to test for lead regularly and make testing drinking water a part of their regular building operations.

Communicate Results

Reach out to your community, parents and staff to let them know what remediation is being conducted. Include any lead protection efforts the that have been conducted and that the school or child care facility is already implementing (e.g., routine practices).

Module 7: Recordkeeping

Keep a record

Keep a record of sampling and remediation efforts that have been conducted and schedules that have been created to continue to maintain water quality. It is important to keep an ongoing record of public outreach and communication activities. Keep copies of past communication materials and the dates they were sent out. Strong recordkeeping can prove to be helpful in ensuring the longevity of the program. The 3Ts includes recordkeeping templates.

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