

Environmental Education Activity Guides



Use these activity guides to teach a variety of audiences and age groups about many environmental topics, including:

- Air, energy and climate change
- Protecting land and water
- Recycling
- Reducing food waste
- Reducing waste
- Toxicity and hazardous waste

Introduction



The decisions we make every day can have either a positive or negative impact on the environment, so we all play a role in creating a more sustainable future. These environmental education activity guides can be used to engage audiences of all ages in learning about and taking action to protect the environment.

The activities were developed based on the feedback and experiences of a variety of program managers, and they are designed to be flexible to work with different types of programs and age groups. The activities can be used by both formal and nonformal educators in a variety of settings and working with a range of audiences, including community groups, school classes, youth groups, congregations, early childhood education programs and more.

The activities were developed following best practices for environmental education. The activity guides:

- Feature hands-on, experiential learning.
- Help participants develop knowledge, critical-thinking and decision-making skills, self-confidence, and creativity.
- Allow for participants to help lead the activities and, in many cases, design their own learning.
- Use supplies that you may already have or that are easy to get and are free or low cost.
- Include up-to-date and accurate information on local environmental issues.

Organization

Activities are included on a variety of environmental topics, including reducing waste, recycling, reducing toxicity and hazardous waste, air, energy conservation and climate change, protecting land and water, and reducing food waste. There are also a few general activities that could be applied to any environmental topic. Each section includes background information to help educators and participants learn about the environmental issue.

Each activity includes:

- Introduction to the activity
- Recommended age group
- Estimated time requirement
- Outcomes for the activity
- Concepts to reinforce
- Supplies
- Preparation steps
- Procedure for carrying out the activity
- Discussion questions
- Additional activity ideas
- Other resources

Motivating behavior change

Hennepin County's environmental education activity guides were developed based on strategies for motivating people to take action to protect the environment. Motivating behavior change goes beyond sharing information.

For a person to take action they need to:

1. Be aware of a problem.
2. Know specifically what they can do about the problem.
3. Desire to do the action.
4. Believe they are capable of doing it and that it is worthwhile.

The steps to planning a project or activity that engages your audience in taking action includes selecting behaviors that are relatable and actionable for your audience, identifying the perceived benefits of and barriers to those behaviors, then using applicable strategies to encourage action.

It's important to remember that being effective in motivating behavior change often means starting small – focus on engaging your audience in one activity or changing one behavior and build on those successes to create additional change.

Selecting behaviors

The first step is deciding what behaviors you are encouraging people to change.

Behaviors should be specific. For example, instead of reducing waste, you should select more specific behaviors such as using a reusable bottle, using reusable bags, reducing packaging waste, shopping at reuse stores, etc. If the behaviors you select are too broad or vague, you will struggle to identify the barriers and benefits.



You should also focus on the direct environmental impact of the behaviors you select. For example, it's not about just getting a compost bin, but actually composting, or going beyond purchasing a programmable thermostat to make sure the thermostat is installed and programmed so that it is saving energy.

Finally, think about the impact the behavior will have with your audience. How many of them are already doing the behavior? How likely are they to take this action? If the majority of your audience has already adopted this behavior or if they are unlikely to take this action, you may want to focus on a different behavior.

Identifying barriers and benefits

The next step is finding out what barriers exist for your audience in taking this action and what they find beneficial about the behavior. This step is critical because it is easy to assume what the barriers and benefits are for a specific action for your audience, but the only way you can really find out is to ask. Gathering this information will help you develop effective strategies to motivate behavior change.

There are many ways to gather this information, including surveying or interviewing your audience,

observing the behavior, looking for applicable case studies and articles, or conducting focus groups. Even a simple interview that asks two questions – what stands in the way of taking this action and why you would take this action – can provide valuable insights.



Develop strategies

Once you've selected the behaviors you're focusing on and identified the barriers and benefits for your audience, you can develop strategies that will engage your audience in taking action. The research on behavior change tells us to do the following when encouraging people to make changes in long-held beliefs and actions:

- **Use pledges or commitments**

Pledges speak to our internal need to be consistent - if we say we are going to do something, we feel the need to follow through and actually take that action. They also help build self-perception. For example, by committing to recycle or reduce waste, we start to think of ourselves as someone who cares about recycling or reducing waste.

Use commitments when you need to enhance motivation, especially when your audience believes it is important to act but need a nudge to actually take action. You can consider using written, verbal, public or group commitments. For example, invite people to fill out and return a simple pledge form for one or more actions they commit to take, or have people share the actions they are pledging to make on a poster. Following up to see if people have taken action and to offer additional resources or support – either one-on-one or in group discussions – can make commitments an even more effective behavior-change strategy.

- **Create norms**

Norms get at our need to be socially accepted. They send the message that “this is how we do things,” and can be an effective strategy to motivate action on an issue your audience doesn't necessarily care

that much about. Use messaging, announcements, posters, buttons, lawn signs, etc., to let everyone what actions the community is taking.

- **Encourage social diffusion**

We make many decisions – small and large – in our lives based on the recommendations of others. Social diffusion involves engaging leaders and early adopters to encourage others in the community to take action. Using the train-the-trainer model, train leaders on the behavior you are encouraging and ask for their commitment to speak to others. This is an effective strategy to use when your audience lacks the knowledge or skills to take action.

- **Use prompts**

Prompts address the issue that we often operate in auto-pilot, getting stuck in our routines and forgetting to take action. Prompts remind people to engage in a behavior they may otherwise forget to do, such as bringing reusable bags with them to the store. Provide a visual reminder such as a sticker, window cling or flyer that reminds people to take action. Prompts can be a useful way to remind people of actions they have committed to take. If you're asking people to take a pledge, think about how you can have them take home a reminder of the commitment they made.



- **Let people try an activity**

Social anxiety or feeling incompetent can prevent people from taking action. Engage people in hands-on activities that give them the opportunity to learn the specific steps needed to take action in a safe and comfortable space.

- **Offer supplies and resources**

Help people take action by providing the tools they need. Be sure that any giveaways are closely related to the behavior you are encouraging. Relevant giveaways could include reusable shopping bags, recycling bins and labels, bottles of green cleaner or compost bins. Be thoughtful when using incentive items as they can undermine commitment – you want people to be motivated by their desire to take action, not by your prize.



- **Use effective communication and have effective conversations**

Giving people relevant information and helping them plan how they will take action can help motivate behavior change. Make your communications personal, concrete, local, and easy to remember. Integrate specific community goals and impact. Reinforce the message by getting it out through all of your communication channels.

- **Capitalize on trigger and major life events and celebrate successes**

Times when people are already making changes in their lives is a great opportunity to integrate new habits. Trigger and major life events that you may want to focus on include when people move, start a new job, graduate, or become parents. These may also include celebrations such as Earth Day or during the holidays when people are planning celebrations. It's also important to recognize how your community is making progress on your goals or when you reach milestones. Celebrating successes helps create momentum for further change.

Use strategies that address the barriers you have identified

Barrier	Strategy
Lack of motivation – value action	Commitment
Lack of motivation – don't value	Norms
Forget to act	Prompts
Lack of information	Communication Social diffusion
Lack skills; anxiety	Let people try an activity Social diffusion
External barriers	Make it easy to act: infrastructure, tools, supplies

For more information, see the Environmental Action Project Planning Checklist and Worksheet and in the Appendix.



Calendar

Take advantage of seasonal milestones and environmental holidays:

Winter (December – February)		Spring (March – May)	
Occasion/topic	Message	Occasion/topics	Message
January 1: New Year's Day	Commit to a green resolution for the new year.	March 22: World Water Day	Take actions to protect water by keeping grass clippings and leaves off the street, using a rain barrel, limiting chemical and fertilizer use or planting rain garden.
February 2: World Wetlands Day	Take actions to protect wetlands by limiting winter salt use on ice and picking up trash near wetlands.	Second Sunday in March: Daylight Savings	Conserve energy while you spring ahead. Ideas include drying clothes outside, conducting a home energy audit, and converting to renewable energy.
Salt and ice care	Salt used to treat ice and snow contains chloride that can end up in nearby water resources, causing permanent damage. Take the following actions to reduce the amount of chloride getting into lakes, rivers and streams: <ul style="list-style-type: none"> • Apply salt before a snow storm to prevent snow and ice from building up. • Use sand for traction below 15 degrees Fahrenheit because most salts stop working at this temperature. • Remove snow and ice manually. • Sweep up excess salt and properly dispose of it. 	Second or third week in April: National Environmental Education Week	Check out environmental education programs and resources from Hennepin County at www.hennepin.us/environmentaleducation and get involved.
Green celebrations	Use reusable supplies, dishware, and decorations. Provide recycling and organics recycling at celebrations.	April 22: Earth Day	Celebrate Earth Day by attending or planning a cleanup event in your community and commit to taking action to protect the environment.
Green gift giving	Give low- or no-waste gifts such as a homemade treats, gift cards, tickets to a show or a service like babysitting.	Last Friday in April: Arbor Day	Celebrate Arbor Day by planting a tree in your yard or at your organization.
Air quality	Sign up for the Minnesota Pollution Control Agency's air quality alerts and take appropriate action during alerts, such as limiting snow blower use.	Spring cleaning	Make homemade green cleaners with water, vinegar, dish soap and lemon juice as an alternative to chemical cleaners and properly dispose of household hazardous waste and other items. For more information, visit www.hennepin.us/greendisposalguide .
		Yard and lawn preparation	Don't rake grass clippings and leaves into the street. Leave them on your lawn, use them for compost, or bag them up. Grass clippings and leaves left in the street end up in the storm sewer, where they are carried to nearby lakes and streams.

Summer (June – August)		Fall (September – November)	
Occasion/topic	Message	Occasion/topic	Message
August through October: Choose to Reuse campaign	Reduce waste and support local businesses by ordering a Choose to Reuse coupon book to get discounts at local reuse stores.	August through October: Choose to Reuse campaign	Reduce waste and support local businesses by ordering a Choose to Reuse coupon book to get discounts at local reuse stores.
First Tuesday in August: National Night Out	Plan a low- or no-waste National Night Out event in your neighborhood. Provide recycling and organics recycling containers for event attendees.	Back to school	Go green when you go back to school. Use supplies you already have at home before going back-to-school shopping. Shop reuse stores for school supplies and clothing and pack low- or no-waste lunches.
Recycling on the go	Recycle everywhere you go by looking for recycling containers and asking if you don't see one. Collect recycling while camping, at summer barbeques or picnics, etc.	October 31: Halloween	Plan a costume swap party where people can trade old or unwanted costumes, or shop at a reuse store for your costume. Remember to compost pumpkins.
		First Sunday in November: Daylight savings	Conserve energy while you fall back. Ideas include conducting a home energy audit or converting to renewable energy.
Aquatic invasive species	Prevent the spread of aquatic invasive species by cleaning, draining and drying watercraft when entering and exiting water bodies.	November 15: America Recycles Day	Review all the items you can recycle, and make sure you are recycling all you can everywhere you can.
		Yard and lawn preparation	Properly dispose of yard waste such as grass clippings and leaves. Ask your waste hauler about a yard waste pick-up service or bring yard waste to a drop-off site.
Air quality	Sign up for the Minnesota Pollution Control Agency's air quality alerts and take appropriate action during alerts, such as limiting driving, mowing the lawn, and backyard bonfires.	Fourth Thursday in November: Thanksgiving	Reduce food waste when celebrating Thanksgiving by planning meals in advance to avoid food going in the trash, understand date labels on food to use up food you already have in the cupboard before heading to the store, and giving leftover food to guests.

Free resources and recommended websites

Visit www.hennepin.us/environmentaleducation or call 612-348-4168 to find out more about free handouts, literature, articles, learning trunks, displays and tours available through Hennepin County.

These organizations offer free environmental education information and resources:

- Hennepin County Environment and Energy
www.hennepin.us/environmentaleducation
- RethinkRecycling
www.RethinkRecycling.com
- Minnesota Pollution Control Agency
www.pca.state.mn.us, go to Living Green, Resource Center
- SEEK: Sharing Environmental Education Knowledge
www.seek.state.mn.us

Minnesota state education standards reinforced

Science standards

		9.1.1.2.1	9.1.2.1.3	9.1.3.1.1	9.1.3.1.3	9.1.3.3.1	9.1.3.3.3	9.1.3.4.1	9.1.3.4.2	9.2.3.2.1	9.2.4.1.1	9.2.4.1.2	9.3.2.2.2	9.3.3.2.1	9.3.4.1.2	9.4.4.1.2	9.4.4.2.4	9C.1.3.3.1	
HHW	Identify hazardous products							x	x			x			x		x	x	
	Clean and green							x				x			x		x	x	
Protecting land and water	Where in the watershed?			x											x	x	x	x	
	Ecosystem Assessment	x		x	x				x						x	x	x	x	
	Buy or build a rain barrel					x		x							x	x	x	x	
	Rain gauge monitoring	x			x	x									x	x	x		
	Organize or participate in a river cleanup					x	x								x	x	x	x	
	Maintain your drain				x	x									x	x	x	x	
	Water watch																		
	Storm drain detectives														x	x	x	x	
Reducing waste	Label trees with emerald ash borer						x					x			x	x	x		
	What are you paying for?	x	x			x	x	x				x			x	x	x	x	
	Eco fashion show		x			x	x					x			x	x	x	x	
	Give green gifts		x			x	x					x			x	x	x	x	
	Green party planning		x			x	x					x			x	x	x	x	
	Hold the mail		x			x	x					x			x	x	x	x	
	Create or decorate reusable bags		x			x	x					x			x	x	x	x	
	Litter songs																		
	Make toys from reused materials		x			x						x						x	x
	Reuse art projects		x			x						x			x	x	x	x	
Recycling	Swap party		x			x	x					x			x	x	x	x	
	Make a recycling monster					x						x			x	x	x	x	
	Do you know what to throw		x			x	x					x			x	x	x	x	
	Playhouse recycling																		
Reducing food waste	Close the loop on recycling		x	x	x	x	x	x				x			x	x	x	x	
	Track your food waste at home	x			x	x	x		x			x			x	x	x	x	
	Food waste buffet					x	x					x			x	x	x	x	
	Eat me first					x	x					x			x	x	x	x	
	Make sense of date labels					x	x					x			x	x	x	x	
Air, energy and climate change	Food storage					x	x					x			x	x	x	x	
	A few degrees matter				x	x	x					x	x	x	x	x	x	x	
	Energy vampires		x			x	x		x	x		x			x	x	x	x	
	Create a windsock and weather collage																		
	Renewable energy scavenger hunt					x	x	x		x	x	x	x	x	x	x	x	x	
	Encourage biking and walking					x	x	x		x	x	x	x		x	x	x	x	
Energy defined in a day					x	x			x					x	x	x	x		

Minnesota state education standards reinforced

Social studies standards

		1.1.1.1.1	2.2.4.5.1	2.3.4.9.1	3.1.1.1.1	3.2.4.5.1	4.1.1.1.1	4.3.1.1.1	4.3.4.9.1	5.1.1.1.2	5.3.1.1.1	5.3.4.10.1	6.1.1.1.2	6.3.1.1.1	6.3.3.6.1	7.1.1.1.1	7.2.1.1.1	8.1.1.1.1	9.1.1.1.1	9.3.2.3.1	9.3.4.9.1		
HHW	Identify hazardous products																					x	
	Clean and green																						x
Protecting land and water	Where in the watershed?								x		x		x	x	x						x	x	
	Ecosystem Assessment								x			x			x						x	x	
	Buy or build a rain barrel																					x	
	Rain gauge monitoring																					x	
	Organize or participate in a river cleanup	x			x		x		x	x			x				x		x	x		x	
	Maintain your drain				x		x		x	x													x
	Water watch				x	x	x		x	x													x
	Storm drain detectives				x		x		x				x										x
Label trees with emerald ash borer							x			x												x	
Reducing waste	What are you paying for?		x	x	x	x	x		x	x								x	x			x	
	Eco fashion show				x	x	x																x
	Give green gifts				x	x	x		x	x								x	x				x
	Green party planning				x	x	x		x	x								x	x				x
	Hold the mail			x	x	x	x		x	x													x
	Create or decorate reusable bags		x	x	x	x	x		x	x													x
	Litter songs	x		x	x																		
	Make toys from reused materials		x	x	x	x	x		x														
	Reuse art projects		x	x	x	x	x		x														x
Swap party		x	x	x	x	x		x	x													x	
Recycling	Make a recycling monster		x	x	x	x	x		x														x
	Do you know what to throw		x	x	x	x	x		x	x													x
	Playhouse recycling		x	x	x	x	x																
	Close the loop on recycling		x	x	x	x	x		x	x													x
Reducing food waste	Track your food waste at home		x	x	x	x	x		x	x													x
	Food waste buffet		x	x	x	x	x		x	x													x
	Eat me first		x	x	x	x	x		x	x													x
	Make sense of date labels																						
	Food storage		x	x	x	x	x		x	x													x
Air, energy and climate change	A few degrees matter			x	x	x	x		x	x													x
	Energy vampires								x	x													x
	Create a windsock and weather collage		x	x	x	x			x														x
	Renewable energy scavenger hunt								x	x													x
	Encourage biking and walking								x	x													x
	Energy defined in a day		x	x	x	x	x		x	x													x



TIPS FOR TEACHING OUTSIDE

Using the outdoors as a classroom for formal and non-formal education can help students of all ages gain knowledge and skills while connecting with nature. Many of the activities in Hennepin County's Environmental Education Activity Guides could be completed outside. Use the following tips for teaching outside to increase confidence among those leading activities outdoors.

Outcomes

- Leaders will gain confidence in teaching outside.
- Use the outdoors as a classroom to better engage participants and connect them to nature.

Audience

Leaders conducting activities

Time

Varies based on activity

Concepts

- Teaching outside can enhance learning.
- Teaching outside can connect participants with nature and motivate them to protect the environment.

Supplies

- Supplies vary based on which activity is being done outside



TIPS FOR TEACHING OUTSIDE

Preparation

- A variety of settings can be used for outdoor learning including a yard outside your school or organization, a local park, or a small forest or woodlot. Be creative and remember any outdoor setting can be used to connect participants with nature.
- Get permission before using an outdoor space and plan safe transportation or route to get there.
- Before going outside with participants, get to know the area's outdoor spaces on your own. Look for any hazards ahead of time so you can avoid them when you bring participants outside. Ask someone who is familiar with nature to identify plants and animals and point out any natural hazards.
- Make sure you inform parents beforehand that their children may get dirty during the outdoor activity.
- Be aware of the weather forecast before going outside with participants. Make sure participants have appropriate clothing for the weather.
- Establish and practice expected behavior in the outdoor classroom using the same rules you have established in the indoor classroom. If you have younger participants, remind them that learning outside is not the same as recess.
- Make sure you have a first aid kit and cell phone on hand before going outside.
- Create an outdoor classroom setting by bringing appropriate supplies, which may include blankets or sheets to lay out, clipboards, magnifying glasses, notebooks, and writing utensils.
- Make an "outdoor kit" for yourself that includes supplies for the activity you plan to do, a first aid kit, cell phone, water bottle, insect repellent and sunscreen.
- Make accommodations for participants with disabilities. Arrange for a paraprofessional to escort participants with special needs.

Procedure

Use the following tips to help you teach outside:

- Remember to have a balance of structured activities and free time for participants to explore the outdoor space. Be flexible and take advantage of unexpected learning opportunities such as spotting a bird close by, noticing changing leaf colors, observing the weather, etc. These "teachable moments" can be a powerful education tool.
- Try a simple activity for the first time you bring participants outside. Let participants learn their boundaries and get to know the outdoor space.
- Plan short activities to keep participants engaged on the way to the outdoor space. Ideas include picking a color and having participants find as many things in nature that have that color, picking a letter of the alphabet and having participants find as many items as they can that begin with that letter, or looking for signs of the season and making predictions about what will happen to the landscape in the next one to two months.
- Establish a central meeting place for your outdoor space. Use a signal that participants will recognize to meet at the central meeting point. Tell participants to go to the central meeting point if they get lost.
- If you are teaching with English Language Learner (ELL) students, the outdoors is a great place to learn new vocabulary terms.
- Have participants use field journals to make observations about what they see outdoors. Field journals can be used over time to document changes in seasons. Creating the journals together can be a great introduction to outdoor learning.
- Document the process while you go through it so you can look back and learn from what went well next time you teach outside.
- Before you leave the outdoor space, make sure the area is left the way you found it. Check that no participants, supplies or equipment were left behind.

Discussion questions

- How did participants react to teaching outside?
- What went well for participants outside? What could be improved next time you teach outside?
- Did teaching outside reveal anything new about the area around your school, work, office, etc.?

SPREAD THE WORD: INVESTIGATING ENVIRONMENTAL ISSUES AND CREATING CAMPAIGNS

Preparation

Read through the background sections of Hennepin County's environmental education activity guides to decide which environmental issue participants will investigate and create a campaign for.

Procedure

- After deciding which environmental issue participants will investigate, use computers or go to a library to research the topic further. Encourage participants to explore different aspects of the issue, including the history of the issue, stakeholders in the issue and current or potential solutions to the issue. If you are working with a larger group, divide participants into groups and have each group investigate one area of the issue.
- When participants feel like they have learned enough information about the environmental issue, have a discussion about their findings. Ask participants what stood out during their research. If you split participants into groups, have each group present their findings to the rest of the group.
- Have your group brainstorm what needs to be done to solve the environmental issue. It may be overwhelming to think about the issue on a global scale, so encourage participants to think about what could be done individually, in their homes, schools or workplaces. Try to think of one to three concrete actions that participants could take to help solve the environment issue. For example, if participants are investigating water quality, actions could include picking up trash on the street so it doesn't end up in the storm drain and making sure rain gutters and downspouts are directed into grass or a garden to avoid runoff.
- After participants decide on actions to take for the environmental issues, have participants brainstorm ways they can encourage other people in their community to learn about the environmental issue and take that action. Encourage participants to be creative with their campaign and try something new to get the word out! Ideas include:
 - Creating a mural
 - Presenting the research findings to an audience and having a discussion about solutions
 - Educating the community by using all of your organization's communication channels including websites, social media, newsletters, bulletin boards, flyers and brochures
 - Using sticky notes to make a wall of commitments to taking action
 - Making posters and hanging them in an area where it will be seen
 - Hosting a neighborhood cleanup event to pick up trash while educating attendees about the environmental topic
 - Hosting a swap party where participants trade clothing, toys, movies, etc. and learn about the environmental topic

Discussion questions

- What did you learn about the environmental issue you investigated?
- What actions are you going to take on that environmental issue? Are there barriers to taking other actions? If so, what are they?
- Was the campaign successful at raising awareness or motivating action? Why or why not?
- What went well in the issue investigation? What could be improved upon next time?
- What went well in creating a campaign? What could be improved upon next time?

START AN ENVIRONMENTAL BOOK CLUB

Reading about an environmental issue or topic is a great way to learn more about the environment. Sharing the ideas from different books with others who are interested in environmental issues through a book club can spark invigorating conversations and inspire new ways to take action.

Outcomes

- Start an environmental book club with family, friends, coworkers, neighbors and anyone else interested in reading and/or the environment.
- Learn more about an environmental issue or topic by reading books and having a discussion with others.

Audience

Older teens and adults

Time

Variable (one 1-2 hour meeting once a month works well)

Concepts

- Reading and discussing an environmental issue with others through a book club can inspire new ways to take action.

Supplies

- Books with an environmental focus (see book list at the end of this activity for ideas)



START AN ENVIRONMENTAL BOOK CLUB

Preparation

- Recruit members for your environmental book club through the organization you are working with or talking to friends, family, neighbors, coworkers and others and asking if they want to participate.
- Find environmental books that you can read throughout your book club. Refer to the book list at the end of this activity or search online for more options. Consider choosing a theme for your book club. Ideas for themes include:
 - A specific environmental issue such as waste, water or energy
 - Adventure, outdoor or nature writing
 - Classic environmental authors such as Rachel Carson and Aldo Leopold
- Decide on a meeting place and time for book club discussions.
- Make sure everyone in your book club has access to the books chosen. Hennepin County residents can get a library card for free at www.hclib.org.

Procedure

- Communicate which book needs to be read before each discussion meeting so all book club members are on the same page.
- After selecting a book and discussion meeting time, have each member of the book club take a couple weeks to read the book. Encourage participants to take notes while they read the book and write down any questions that come up so they can be addressed at the discussion meeting.
- Create questions or a discussion guide specific to the book you are reading for the discussion meeting or use the discussion questions below.

Discussion questions

- What did you like or dislike about the book? Why?
- What did you learn that was new about the environmental topic?
- What actions will you take or what will you do differently after reading this book?
- How did the author convey the environmental topic?
- Did the author suggest any solutions to the environmental issue?
- What more do you want to learn about the topic after reading the book?
- How did the book make you feel about solving environmental issues? Hopeful? Helpless?
- What other environmental topics do you want to learn about in the book club?

START AN ENVIRONMENTAL BOOK CLUB

Environmental book list

To get you started, the following environmentally focused books are available through Hennepin County libraries.

Toddler to preschool	Preschool to 2nd Grade
<ul style="list-style-type: none"> • Big Earth, Little Me by Thom Wiley • Choose to Reuse by Miriam Latimer • Don't Throw That Away! by Laura Bergen • Is There Really a Human Race? by Jamie Lee Curtis • Joseph Had a Little Overcoat by Simms Taback • My Bag and Me! by Karen Farmer • The Berenstain Bears Don't Pollute (Anymore) by Stan and Jan Berenstain 	<ul style="list-style-type: none"> • 50 Simple Things Kids Can Do to Recycle by Earthworks Group • A Warmer World: From Polar Bears to Butterflies, How Climate Change Affects Wildlife • Crafting with Recycleables by Dana Meachen Rau • Crunch by Leslie Connor • E is for Environment: Stories to Help Children Care for Their World at Home, at School and at Play • Eillen Green The Recycling Queen by Penelope Dyan • Human Footprint: Everything you will Eat, Use, Wear, Buy, and Throw Out in Your Lifetime • Judy Moody Saves the World by Megan McDonald • Just Grace Goes Green (Fiction) by Charise Mericle Harper • Recycle This Book by Dan Gutman • What's It Like Living Green?: Kids Teaching Kids, by the Way They Live by Jill Ammon Vanderwood
3rd grade to 6th grade	7th grade to 12th grade
<ul style="list-style-type: none"> • 50 Simple Things Kids Can Do to Recycle by Earthworks Group • A Warmer World: From Polar Bears to Butterflies, How Climate Change Affects Wildlife • Crafting with Recycleables by Dana Meachen Rau • Crunch by Leslie Connor • E is for Environment: Stories to Help Children Care for Their World at Home, at School and at Play • Eillen Green The Recycling Queen by Penelope Dyan • Human Footprint: Everything you will Eat, Use, Wear, Buy, and Throw Out in Your Lifetime • Judy Moody Saves the World by Megan McDonald • Just Grace Goes Green (Fiction) by Charise Mericle Harper • Recycle This Book by Dan Gutman • What's It Like Living Green?: Kids Teaching Kids, by the Way They Live by Jill Ammon Vanderwood 	<ul style="list-style-type: none"> • 47 Things You Can Do for the Environment by Lisa Petronis • A Kids' Guide to Climate Change & Global Warming: How to Take Action! by Cathryn Berger Kate • Generation Green: The Ultimate Teen Guide to Living an Eco-Friendly Life by Linda Sivertsen • Green Careers: Environment and Natural Resources by Pamela Fehl • Harbinger by Sara Wilson Etienne • Heroes of the Environment: True Stories of People Who Are Helping to Protect Our Planet by Harriet Rohmer • Just for Fins by Tera Lynn Childs • Katarina Brieditis, Katarina Evans • Lost Code by Kevin Emerson • Making Good Choices About Recycling and Reuse by Stephanie Watson • My Summer of Pink and Green by Lisa Greenwald • Not Your Typical Book About the Environment by Elin Kelsey • Second-Time Cool: The Art of Chopping Up a Sweater by Anna-Stina Linden Ivarsson, • The Green Teen: The Eco-Friendly Teen's Guide to Saving the Planet by Jenn Savedge • Teens Go Green!: Tips, Techniques, Tools, and Themes for YA Programming (Libraries Unlimited Professional Guides for Young Adult Librarians Series) by Valerie Colston • Recycling by Viqi Wagner • Wear No Evil: How to Change the World With Your Wardrobe by Greta Eagan

START AN ENVIRONMENTAL BOOK CLUB

Book list continued

Adults

- *Affluenza: The All-Consuming Epidemic* by John de Graaf
- *Animal, Vegetable, Miracle* by Barbara Kingsolver
- *An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It* by Al Gore
- *Beyond Ecophobia* by David Sobel
- *Cradle to Cradle: Remaking the Way We Make Things* by William McDonough
- *Future: Six Drivers of Global Change*
- *Good Life Lab: Radical Experiments in Hands-on Living* by Wendy Jehanara Tremayne
- *Junkyard Planet: Travels in the Billion-Dollar Trash Trade* by Adam Minter
- *Last Child in the Woods* by Richard Louv
- *Natural Capitalism: Creating the Next Industrial Revolution* by Paul Hawken
- *New Art of Living Green* by Erica Harris
- *Stuff: The Secret Lives of Everyday Things* by Alan Thein Durning and John C. Ryan
- *The Consumer's Guide to Effective Environmental Choices: Practical Advice from the Union of Concerned Scientists* by Michael Brower
- *The Naturally Clean Home* by Karyn Siegel-Mayer
- *The Story of Stuff* by Annie Leonard
- *Triple Bottom Line: How Today's Best-Run Companies Are Achieving Economic, Social and Environmental Success – And How You Can Too* by Andrew W. Savitz'
- *Wear No Evil: How to Change the World With Your Wardrobe* by Greta Eagan
- *Zero Waste Home: The Ultimate Guide to Simplifying Your Life by Reducing Your Waste* by Bea Johnson

GO ON AN ENVIRONMENTAL FIELD TRIP

Going on a field trip is a great way for people of all ages to learn about the environment. Hennepin County provides field trip transportation for groups of at least 25 participants to take an environmental education field trip. Whether or not you use Hennepin County's transportation funding, going on an environmental field trip can increase environmental awareness and encourage participants to engage in environmental issues.

Outcomes

- Go on a field trip that highlights or explains an environmental topic.
- Inspire participants to learn more about the environment and take action to protect it.

Audience

Youth (ages 7+ for Hennepin County's transportation funding), adults

Time

Variable

Concepts

- Going on a field trip is a great way for people of all ages to learn about the environment.
- Viewing an environmental issue or solution up close can help participants understand a topic more clearly.

Supplies

- Transportation to the field trip location
- Proper safety equipment and clothing (depends on field trip location)



GO ON AN ENVIRONMENTAL FIELD TRIP

Preparation

- Decide where you want to go on an environmental field trip. View Hennepin County's list of field trip destinations at www.hennepin.us/environmentaleducation for location ideas for a variety of environmental topics.
- If you apply to Hennepin County's field trip transportation, make sure to apply two to eight weeks before your field trip date.
- Coordinate with field trip participants to make sure your group size is appropriate for the field trip. Recruit chaperones for the field trip if needed (some field trip locations may require your group to have a certain number of chaperones).
- Make sure participants wear clothing and shoes that are appropriate and safe for the field trip and weather.

Procedure

- Have participants meet at one location on the day of the field trip. If you are taking a bus, make sure the driver knows where to meet participants and know the field trip location.
- At the field trip location, make sure all participants understand any safety instructions.
- Encourage participants to be fully engaged during the field trip and ask questions.
- After the field trip, encourage participants to reflect on their experiences and what they learned.

Discussion questions

- What went well on the field trip? What could be improved upon next time?
- What did participants learn from the field trip?
- What other field trips would you like to take?

LEAD BY EXAMPLE: GREEN YOUR OPERATIONS

When organizations begin to educate others about environmental issues, they may also want to look at their internal operations and makes changes to be more environmentally friendly. The following tips and resources can help you implement these changes.

Outcomes

- Green your operations within your organization by reducing waste and increasing recycling.
- Encourage employees to get involved with greening the organization by understanding how to reduce, reuse and recycle.

Audience

Organizations leading activities

Time

Variable

Concepts

- Nearly two-thirds of the waste created at businesses and nonprofits is recyclable. Improving recycling within the organization can reduce waste.
- Having a strong recycling program demonstrates your organization's commitment to sustainability and the community, conserves natural resources and reduces greenhouse gas emissions.
- Leading by example gives participants ideas for what they can do in their lives to protect the environment.

Supplies

- Hennepin County's Best Practices Guide for Business Recycling available at www.hennepin.us/businessrecycling
- Hennepin County's Event Recycling Checklist available in the Appendix
- Bins for collecting trash, recycling and organics (if you don't have them already)



LEAD BY EXAMPLE: GREEN YOUR OPERATIONS

Procedure

- Use the following tips to green the operations at your organization and remember that greening your operations is a continuous process that will take time to be fully implemented within your organization.

Reduce

- Preventing waste from being generated in the first place is an easy and effective way to lower disposal costs. Look for creative ways in your day-to-day operations to reduce waste.
- Avoid unnecessary printing and make double-sided printouts and copies. Start a paper reduction campaign in your office to encourage your colleagues to reduce paper waste.
- Use email and telephone for communications and consider using e-newsletters to reduce paper use.
- Reuse scrap paper for notepads.
- Use reusable cups and dishware for meetings. Encourage attendees to bring their own reusable coffee mug.
- Encourage employees to pack lunches in reusable containers.
- Make your own green cleaners that are less-hazardous. Find green cleaning recipes at www.hennepin.us; search: green cleaning.

Reuse

- Set up a system at your organization for reusing office supplies and equipment, such as a central storage area or online database.
- Consider donating office equipment and materials that your organization no longer needs. Go to www.RethinkRecycling.com/business and look under “donation opportunities” for options.
- When shipping items, reuse packaging materials or use shredded paper.
- Use reusable or recyclable nametags at meetings.

Recycle

- Nearly two-thirds of the waste created at businesses and non-profits is recyclable. Having a strong recycling program demonstrates your organization’s commitment to sustainability and the community, can help your bottom line, conserves natural resources and reduces greenhouse gas emissions. Download Hennepin County’s Best Practices Guide for Business Recycling at www.hennepin.us/businessrecycling for more detailed information about implementing a recycling program at your organization.
- Visit all areas of your building where waste is generated. Look at the contents of your trash and any existing recycling containers to determine how much material is getting thrown away and how well people are recycling.
- Make sure recycling containers are clearly labeled and readily available. Posters and labels are available from Hennepin County for recycling programs.
- To encourage recycling, reduce the amount of trash bins in individual offices or cubicles; put them in the break room and common areas instead.
- Understand which materials are recyclable. Office paper, newspapers and magazines, cardboard, plastic bottles, metal cans and glass are all recyclable.
- Start an organics recycling program. Organic waste, including food waste and food-soiled paper, can be recycled into compost, a valuable resource used in landscaping and road construction projects. Visit www.hennepin.us/organics for more information.
- Gaining support and buy-in from everyone at your organization is crucial to the success of your recycling program. Train your entire staff to make sure that everyone knows what can and cannot be recycled and to ensure that recyclables and organics are sorted, collected and stored properly.

Discussion questions

- What did you learn when greening your operations?
- What was challenging about greening your operations? What could be improved upon moving forward?
- What else could your organization do to green its operations?

Recycling



When you total up all the paper, plastic, aluminum and glass, Hennepin County recycles 580,000 tons each year. All of that recycling makes a big difference. By choosing to recycle, we reduce our consumption of fossil fuels, create jobs, conserve natural resources and protect the environment. Plus, recycling is simple, convenient and something the entire family can help with. However, we can still do more to recycle everything we can everywhere we go by brushing up on what items go in the recycling bin and learning about the recycling process.

Why recycle?

Recycling saves energy

Manufacturing products from recycled materials uses far less energy than manufacturing the same product from virgin (new) materials. It takes 90 percent less energy to manufacture an aluminum can from recycled aluminum, about 50 percent less energy to manufacture a glass bottle from recycled glass, and about 75 percent less energy to manufacture paper from recycled paper. Recycling decreases our demand for fossil fuels.

Recycling benefits the economy

Recycling helps support local markets and businesses statewide. Approximately 37,000 jobs in Minnesota are directly or indirectly supported by the recycling industry. These jobs pay an estimated \$2 billion in wages and add \$8.5 billion to Minnesota's economy.

Additionally, recyclable material has tremendous economic value. In 2010, Minnesota recycling programs collected approximately 2.5 million tons of material worth \$690 million. We lose money when we don't recycle. About one million tons of recyclable material is thrown away each year. That material, if recycled, would be worth about \$217 million to the state's economy; instead, it costs more than \$200 million to send the material to landfills.

Recycling protects the environment

By reducing energy use, recycling decreases greenhouse gas emissions. The amount of material recycled in Minnesota annually reduces greenhouse gas emissions equal to taking 1.3 million cars off the road. By conserving natural resources, recycling has indirect benefits to climate change as well. Take paper recycling, for instance. Each mature tree we don't cut down can filter up to 60 pounds of pollutants and carbon dioxide out of our air each year.

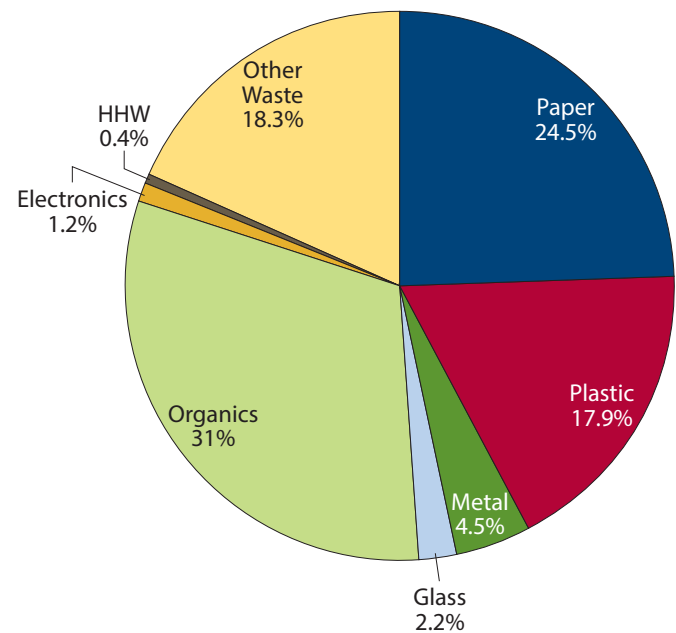
Recycling and buying recycled products also helps keep Minnesota's air and water clean as manufacturing products from recycled materials generates significantly less air and water pollution than manufacturing from virgin materials. Manufacturing recycled white office paper creates 74 percent less air pollutants and 35 percent less water pollutants than making it from virgin wood pulp.

We can recycle more

About 1.35 million tons of solid waste was generated in Hennepin County in 2015, which is nearly 34,000 tons less than 2014. Recycling increased to 43 percent in 2015. This is an increase of 2 percent compared to 2014, with 9,000 more tons of material recycled. The 2015 results continue the trend of small but consistent annual increases since 2010 when the recycling rate was 38 percent. However, this is 2 percent short of the 2015 goal of recycling 45 percent of waste generated. A lot of recyclable material, especially paper and plastic, still ends up in the trash. Everyone can help increase recycling by knowing what can be recycled and recycling everywhere they go, including at home, at work, at school, at events, while traveling and on-the-go.

What's in the trash?

Residential waste composition



What can I recycle?

From glass and metal to plastics, cartons and paper, you can recycle a wide variety of materials. The following is a list of materials that are accepted in all communities in Hennepin County. Some cities or haulers may accept more materials than what is on this list. Contact for your city recycling coordinator or hauler for information for your specific program. Find city recycling contacts at www.hennepin.us/recycling.

Paper

- Mail, office and school papers
- Magazines and catalogs
- Newspapers and inserts
- Phone books



Boxes:

- Cardboard
- Cereal and cracker boxes
- Shoe boxes, gift boxes and electronics boxes
- Toothpaste, medication and other toiletry boxes



Cartons

- Milk cartons
- Juice boxes
- Soup, broth and wine cartons

Glass

- Food and beverage bottles and jars



Plastic

Bottles and jugs:

- Water, soda and juice bottles
- Milk and juice jugs
- Ketchup and salad dressing bottles
- Dishwashing liquid bottles and detergent jugs
- Shampoo, soap and lotion bottles



Cups and containers:

- Yogurt, pudding and fruit cups
- Disposable cups and bowls
- Margarine, cottage cheese, and other containers
- Produce, deli and takeout containers

Packaging:

- Clear packaging from toys and electronics

Metal

- Food and beverage cans



Tips for recycling at home

Collect recycling throughout your home

People are generally pretty good at collecting the recycling they generate in the kitchen but often overlook recycling generated in other areas of the home.

Remember to recycle items from:

- The bathroom, including shampoo, soap and lotion bottles and boxes from toothpaste, medications and other toiletries.
- The laundry room, including laundry detergent jugs and boxes from dryer sheets.
- The office, including office paper, mail, newspapers and magazines.

Recycle more materials

People may also be unaware that more materials are now accepted for recycling. Materials that have been added to recycling programs recently include:

- Cartons, including milk, juice, soup or broth cartons as well as juice boxes.
- Plastic cups and containers such as yogurt cups or sour cream tubs.
- Plastic produce and deli containers or take-out containers.
- Plastic packaging from electronics and toys.

Don't recycle: Styrofoam™, plastic wrap, microwaveable food trays, paper soiled with food, paper plates and towels, drinking glasses, dishes, mirrors and containers that held hazardous products.

Recycling FAQs

The following are answers to frequently asked recycling questions.

My recycling is picked up every other week, and my recycling cart is overflowing. Why don't they pick my recycling up every week?

If you want to request that your recycling is collected more often, contact your city recycling coordinator and/or recycling hauler. But be aware that moving to weekly recycling pickup isn't necessarily the best solution. Picking up recycling weekly means more trucks on the roads and more emissions. It would also make recycling more costly.

You can typically get a second cart or a larger bin – contact your city recycling coordinator or hauler to request one. Also think about what you have in your recycling. Could you make more space in your bin by condensing your recycling? Try collapsing cardboard boxes, crushing cans, bottles, or cartons etc. Finally, you may want to consider why you're generating so much recycling. Is there waste that could be reduced or eliminated?

What should I do with caps and lids?

Leave plastic lids on to prevent them from falling through the gaps at the recycling sorting facility. This applies to plastic bottles, jugs, cups, containers, and cartons.

Remove caps and lids from glass bottles and jars. You can collect metal caps in a metal can (such as a soup can). Squeeze the can shut before recycling to prevent the caps from falling through the gaps at the recycling facility.

Can I recycle pizza boxes?

No. Pizza boxes are not accepted for recycling because they are almost always contaminated with grease and oil. Food is one of the worst contaminants in the paper recycling process because it can ruin entire batches of recycled paper, costing the industry \$700 million per year. If you do recycle your pizza boxes, make absolutely sure the entire box is grease-free. Cut or tear out the soiled portions of your pizza boxes put them in the trash.

Can I recycle plastic bags?

Check with your hauler. Republic Waste Services accepts retail plastic bags as long as you put all plastic bags together in one plastic bag before placing in the recycling cart. Waste Management, Randy's and most other haulers do not accept plastic bags. Check with your hauler or city for guidelines for guidelines specific to your recycling service.

Plastic bags cause problems at the recycling sorting facilities because they become wrapped around moving

parts and interfere with equipment. The good news is that many retail and grocery stores accept plastic bags. The county drop-off facilities accept plastic bags as well.

Can I recycle refrigerated and frozen food boxes?

Milk cartons and juice boxes can be recycled. Soup, broth, and wine cartons can, too. Thanks to new technology at paper mills the valuable, high-quality paper in cartons can be separated from the unwanted layers of plastic and aluminum. Check with your hauler for details on other items, such as pop and beer cartons and refrigerated food boxes.

Frozen food boxes and ice cream cartons are typically not accepted because plastic is incorporated into the matrix of the paper during manufacturing. This added plastic helps protect food from freezer burn and ensures that the paper container won't get soggy.

What do the numbers on plastics tell me about recycling?

The numbers on plastics are called Resin Identification Codes and let you know what type of plastic the items is made of. The symbol does not mean the item is recyclable. For example, both shampoo bottles and plastic bags may be #2 plastics, but their recyclability varies.

To crack the recycling code, it's best to use descriptions of the materials (bottles, cups, containers, etc.), images and the numbers to determine what is recyclable.

How clean do my recyclables need to be?

Cleaner is better. Rinse cans, bottles and jars to remove food residue. Here are some additional pointers for preparing recyclables:

- Leave plastic caps and lids on
- Remove lids from glass jars
- Flatten boxes
- Remove pumps from spray bottles
- Do not place recyclables in plastic bags

What should I do with confidential paper?

Confidential paper can be recycled. Your confidential papers are no safer in the garbage than in the recycling, but proper preparation is important. It's a good idea to shred paper with financial information or other sensitive personal information to prevent identity theft. Place the shredded paper in a brown paper bag, staple it shut, and put it in your curbside recycling cart.

Can I recycle egg cartons?

It depends on what type of egg carton it is. Paper egg

cartons cannot be recycled because the paper fiber in egg cartons has been recycled too often and is too short to be recycled again. However, they are great to use in compost. If the egg carton is Styrofoam™ or #6 polystyrene, it goes in the trash. If the egg carton is a clear #1 plastic, it can be recycled.

I'm confused about plastics. What should I do with Styrofoam™, flower and garden pots, and larger items such as my laundry basket?

Styrofoam™ should be placed in the garbage. Examples include Styrofoam™ cups, plates, bowls, take-out containers, egg cartons, mushroom containers, and all other expanded polystyrene foam products. These items may be labeled as #6 plastic. As a general rule, #6 plastics are not accepted for recycling. There are very few viable, cost-effective markets currently available for this material. Transportation costs are prohibitive and it contaminates other materials, not to mention the litter impact. It's best to avoid Styrofoam™.

Ask your city or hauler about flower and garden pots. Some haulers accept them, and some do not. If they are accepted, make sure to clean out any remaining dirt. Also check with your city or hauler about options for other rigid plastics such as laundry baskets.

The recycling process

Many people wonder what happens to their recycling after it leaves the curb, especially because most recycling is now collected in a single-sort system in which all recycling is placed into one bin or cart.

The materials that people recycle are put to good use by being manufactured into new products.

The recycling process includes four main steps:

1. Separation and collection
2. Processing
3. Marketing and manufacturing
4. Purchasing recycled materials

Recycling starts at the curb with source separation and collection, which means recyclables need to be separate from trash when they are picked up from homes and businesses.

The next step is processing, which is when waste haulers bring the collected recyclables to materials recovery facilities (MRFs) to be sorted, graded, cleaned and prepared for markets. Materials are sorted to remove contaminants

that may damage processing equipment and graded to reclaim higher-value materials. Various methods are used at MRFs to sort materials. Mechanical processes such as magnets, air jets and screens sort materials by taking advantage of the physical differences among materials, such as weight or magnetism. Hand-sorting is used to sort materials that the mechanical methods cannot.

After the recyclables are processed at the MRF, the materials are sold to manufacturers that make them into a wide variety of new products.

- Paper is turned into pulp by being mixed with water and heated at a paper mill. It is then recycled back into paper, newspaper, boxes, napkins, paper towels, egg cartons and more.
- Cartons are sent to a paper mill where the pulping process separates the valuable paper from the plastic or foil lining.
- Glass is crushed, heated and recycled into glass bottles and jars or used in insulation, floor tile, road construction projects and more.
- Steel or aluminum is heated, melted and recycled back into steel or aluminum cans.
- Plastics are shredded, melted and recycled into a variety of products, including plastic bottles, carpet, furniture, clothing and more.

The final step in the recycling process is closing the recycling loop by buying products made from recycled materials.



Close the recycling loop: buy recycled

Consumers are an important part in making recycling work because purchases send a message to manufactures that recycled products are valued. When you're out shopping, help close the recycling loop by purchasing items made from recycled materials. Look on product labels for words like: *this item is made from recycled materials*, *made from post consumer content*, or *made from reclaimed materials*.

Resources

www.hennepin.us/recycling

Information about what you can recycle, links to additional recycling and waste reduction services, and resources for apartment and condominium recycling.

www.RethinkRecycling.com

Your go-to guide for waste and recycling in the Twin Cities. Includes a residential recycling guide with information on what you can recycle, recycling drop-off locations, and information about reducing and reusing.

MAKE A RECYCLING MONSTER

Decorating recycling containers makes recycling fun and easy for your family. Creating recycling monsters gets everyone involved in recycling paper, plastic, cans and other items. Using two paper grocery bags, youth can create a recycling monster that is hungry for the items we recycle.

Outcome

Increase recycling at home by making it a fun activity for the entire family.

Audience

Youth (ages 5+), parents and children

Time

20 - 40 minutes

Concepts

- Many things can be recycled. Make sure you're familiar with what can be recycled.
- Remember to recycle materials generated throughout your home. Not just in the kitchen, but from the bathroom, laundry room, office and more.
- The whole family can be involved in recycling. Recycling can be fun!

Supplies

- Two same-size brown grocery bags per participant
- Scissors
- Glue
- Fabric scraps, crayons or other art materials for decorating the recycling monster



MAKE A RECYCLING MONSTER

Preparation

Gather enough supplies by asking participants to bring their own or soliciting supplies a few weeks before doing the activity.

Pre-cut the opening in paper bags for participants under the age of 8. Pre-cutting will also shorten activity length if you are short on time.

Procedure

- Each participant should have two same-sized brown grocery bags. Have participants cut a large oval in the bottom of one bag and slide it upside-down over the other bag, so the oval is on top. The oval will be the monster's mouth, which is where participants will place recyclable items.
- Have participants decorate the bag with fabric scraps, crayons or other art materials to make the monster's eyes, nose, hair, teeth, etc.
- Participants can use the recycling monster as their home recycling receptacle. Have the recycling monster 'eat' recyclables including: glass, plastic, paper, cartons and metal. Distribute the Recycling Guide to make sure everyone knows what the monster can eat (what can be recycled).
- When the monster is full, participants can pull off the top decorated bag and put the bottom bag containing recyclables in their recycling cart or out for curbside collection, and replace the bottom bag. The bag could also be emptied into a recycling cart and reused.
- Participants can add a string handle, which will make removing the top bag easier.
- Participants can make multiple monsters to collect recycling throughout their home (in the kitchen, the bathroom, the laundry room, the office, etc.).

Discussion questions

- How do you currently collect recycling at home? If you didn't recycle before, why not?
- What is difficult or confusing about recycling at home? Are there any materials on the recycling guide that you weren't aware you could recycle? Are there any materials you will begin recycling or will recycle more?
- How will you use the recycling monster at home to encourage your family to recycle?

Additional activity ideas

Make recycling monsters for your organization

Create recycling monsters (or animals or other creatures) to use in your organization's common areas, classrooms, etc.

Share photos of recycling monsters

Challenge participants to post or share photos of their recycling monsters in use in their home on social media.

Resources

Handout: Recycling Guide (*see Appendix*).

DO YOU KNOW WHAT TO THROW?

Many people think they know everything that can be recycled, but are surprised to learn that some items have been added to recycling programs while other items are a problem in the recycling process. Sorting through recyclable and not recyclable materials is a simple, fun and eye-opening way to engage people in learning more about recycling.

Outcome

Participants will learn what materials can and can't be recycled.

Audience

Youth (ages 5+), parents and children

Time

20 - 30 minutes

Concepts

- Many things can be recycled. Some materials have been added to recycling programs while others are problematic in the recycling process. The basic list of what items are accepted for recycling is consistent throughout Hennepin County and most of the metro area, but some haulers accept more materials for recycling beyond the basic list.
- Some materials cannot be recycled because either there is no good way to recycle them or they cause problems in the recycling process. Try to reduce or avoid these items.
- Recycling conserves energy and natural resources and reduces greenhouse gas emissions.

Supplies

- Multiple examples of the following items:
 - Recyclables: office paper, newspaper, magazines, phone books, cereal, cracker or pasta boxes, cardboard rolls from toilet paper/paper towels, plastic bottles, plastic cups, plastic containers, metal food cans, pop cans, glass bottles and jars, and cartons.
 - Trash: food/candy wrappers, gift wrap, frozen food boxes, broken toys, Styrofoam™ cups, to-go food boxes, microwave meal trays
 - If your city offers organics recycling collection, consider using examples of items accepted in organics recycling programs. Items include: all food (plastic food toys can be used to represent food), non-recyclable paper like napkins, paper towels and tissues, certified compostable products and other compostable household items such as coffee grounds and filters.
- Containers for sorting recyclables. Boxes, bins, bags or laundry baskets work well.
- Coloring materials (crayons, colored pencils, etc.)
- Handout: Recycling Guide
- Handout: Organics Recycling Guide (*optional*)



DO YOU KNOW WHAT TO THROW?

Preparation

- Collect and clean common items that can and cannot be recycled (see a list under supplies, and double-check the details of what is recyclable in your city).
- Put example items from the trash, recycling and organics into a container that can be used as a sorting kit. Make sorting kits of similar difficulty.
- Create as many sorting kits as you need. It's ideal to work in groups of about five. See additional activity ideas for variations for larger groups.
- Make sure that each sorting kit has the same general types of recyclable and non-recyclable items.

Procedure

- Split your audience into groups of about five participants each. Distribute the boxes or bags of items to each group.
- Have the groups work on sorting the materials into trash, recycling and organics items, focusing on what you can recycle at home. You can provide recycling guides or signs to help people determine what goes where. There are many different ways to make this activity engaging for your audience. You can set it up as a game show, timed race, team-building activity or other sort of contest. See additional activity ideas for more details on these additional options.
- As a large group, go through a sorting kit explaining what materials are recyclable or not. Encourage participants to ask questions and discuss options. The Recycling FAQs in the background information section may help you answer some questions. If you're unsure about something, follow up with Hennepin County at environment@hennepin.us to get an answer.
- Some items aren't accepted for recycling because they cause problems at recycling processing facilities, called material recovery facilities or MRFs, which sort recycling after it's picked up at the curb. Show participants how recycling is sorted at a MRF by watching the "How Recycling Works" KARE 11 news story (available at www.hennepin.us/environmentaleducation under videos). Look at the items that cannot be recycled and discuss if there are drop-off recycling options or ways to reduce or eliminate those items.
- Learn how to dispose of specific items with the Green Disposal Guide at www.hennepin.us/greendisposalguide.

Discussion questions

- What did you learn that was new? What items can we recycle that you didn't realize are recyclable?
- Were there any materials that you thought you could recycle but actually aren't accepted for recycling? Do you know of any other options for recycling these materials (there are drop off locations for some materials, such as plastic bags at many grocery stores)?
- Are there any materials you are confused about?
- Why is recycling important?
- Why do you think some people decide not to recycle? What would help them start recycling?
- What did you learn that you want to share with someone else? Who will you share it with?
- How can you incorporate what you learned to set up a recycling system in your home? What would a home recycling system look like?
- What do you want to learn more about?

DO YOU KNOW WHAT TO THROW?

Additional activity ideas

Relay race

Teams can use a relay race to fuel friendly competition. Have teams race to see who can sort the items correctly the fastest. Assign a time penalty for each incorrect item.

Circle up

Have participants stand in a circle and give one item to each person. Go around the circle and have each participant say whether they think their item is trash, recycling or organics. Discuss with the group the correct answer and ways to recycle or avoid items not accepted for recycling at home.

Team-building

Have youth work together to create a project from the non-recyclable items. Examples include creating the tallest structure, a model that represents something else or forming a band that plays instruments made from non-recyclable materials.

Recycling chart

Create a recycling chart to help youth remember which items can and can't be recycled. First, make a copy of the *What can my family recycle?* worksheet (see Appendix) for each youth. Cut out photos from magazines or draw pictures of the items that can be recycled and put them in the *What can my family recycle?* worksheet. Encourage youth to post their recycling chart in the kitchen or near the garbage/recycling area at home. Challenge youth and their families to start recycling at least one new item from the recycling chart.

Waste audit

- Examining what materials are being put in the trash or recycling is an eye-opening way to understand your recycling system and identify opportunities to improve.
- Put on protective gear such as rubber gloves and take a look in your trash and recycling bin. Note what kinds of recyclables are in there and calculate the percentage of trash that could be recycled. Use this information to improve recycling within your household or your group's facility. For example, place signs on recycling bins of all the items that can be recycled and place reminders on the trash bin to only throw away things that are truly garbage. If you're doing a waste audit at home, ask participants to take a look at what is going in the trash versus what is getting recycled in different areas of their homes, including the kitchen, office, bathroom and laundry room.
- As a group, discuss what opportunities there are to recycle more. Order labels for participants to put on their trash and recycling bins at home at www.hennepin.us/recycleeverywhere.

Improve your recycling set-up

- Inventory recycling at your home. Where do you have bins at home? We do well at recycling in the kitchen, but can improve recycling in other rooms such as the bathroom, laundry room and home office. Add recycling bins to all areas of your home and make sure to have a recycling bin wherever you have a trash bin. Label the containers so members of your household know what to put in each container. Order labels at www.hennepin.us/recycleeverywhere.

Resources

- **Handout:** Recycling Guide (available in English or bilingual in English and Cambodian Khmer, Hmong, Lao, Spanish, Somali, Thai and Vietnamese)
- Recycling and trash labels for household waste containers (order at www.hennepin.us/recycleeverywhere)

PLAYHOUSE RECYCLING

Recycling is a family-friendly activity that can help get young children excited about protecting the environment. Teaching children how to recycle at a young age is important to establishing life-long recycling habits, especially when they are having fun doing it! If you have a playhouse area in your home or classroom, establishing a recycling sorting center within the playhouse can reinforce recycling as a norm.

Outcome

Create a recycling sorting center in your child's playhouse to create lifelong recycling habits.

Audience

Youth (age 2+) with the assistance of an adult

Time

Variable

Concepts

- Recycling is an easy thing that everyone can do to protect the environment.
- When we recycle, the stuff we no longer need gets made into new items.

Supplies

- Two colored plastic tubs or boxes labeled for recycling, organics and trash.
- Labels or art supplies to create labels. Clean and empty items that can be recycled (plastic bottles, paper and aluminum cans) and items that go in the trash (Styrofoam, wrappers, plastic wrap, etc.)
- Art supplies for decorating and labeling waste bins.



PLAYHOUSE RECYCLING

Preparation

- Set up your containers, making sure that the trash, recycling and organics bins are placed together wherever you set them up.
- Label the containers. The recycling sign should depict what can be recycled, such as plastic bottles, cups and containers, metal cans, cartons, paper and glass.

Procedure

- Place labeled plastic tubs or boxes in the playhouse area in your classroom, at home or at your organization.
- Talk with children about recycling. Use the recyclable and non-recyclable items to explain the basics of how recycling works and what materials can be recycled. Encourage children to recycle when they use the playhouse area.
- Have children create recycling bins they can use at home. Have them create labels depicting what can be recycled and place them on boxes or containers they already have at home. To make the signs, children can either draw recyclable items or use pictures of recyclable items.

Discussion questions

- How did children react to the recycling sorting system in their playhouse? What did you expect? What surprised you?
- What did you learn about recycling? Were you surprised by any materials that you didn't know were recyclable?
- How can teaching children to recycle at a young age establish lifelong recycling habits?

Resources

- **Handout:** Recycling Guide (available in English or bilingual in English and Cambodian Khmer, Hmong, Lao, Spanish, Somali, Thai and Vietnamese)
- What can my family recycle worksheet (*see Appendix*).

CLOSE THE LOOP ON RECYCLING

In order for recycling to work, there must be a market for recycled materials. We can support that market by purchasing products containing recycled content. Look on a product's label for words like: *this item is made from recycled materials, made from post consumer content or made from reclaimed materials.*

Making products from recycled materials saves energy and natural resources. It takes 95 percent less energy to make aluminum from recycled material than it does to make it from raw materials. Using recycled plastic results in a 70 percent energy savings, and using recycled glass results in a 40 percent energy savings. Five plastic soda bottles yield enough fiber for one extra-large T-shirt, one square foot of carpet or enough fiber fill for one ski jacket.

Outcome

Participants will understand how recycling works by learning about materials made from recycled products.

Audience

Youth (ages 12+)

Time

20 - 30 minutes

Concepts

- After your recycling is picked up, it is sorted at a recycling facility and then sold to manufacturers who make a variety of new products.
- Recycling saves energy and natural resources.
- Purchasing products made from recycled materials helps close the recycling loop and support the recycling industry.

Supplies

- Computers with internet access for research
- How recycling works videos, access at www.hennepin.us/environmentaleducation in the Videos section
- Materials for participants to present their findings such as poster board and markers (*optional*)
- Examples of materials made from recycled materials. Gather your own or reserve Hennepin County's Recycled Products Learning Trunk at www.hennepin.us/environment (*optional*)



CLOSE THE LOOP ON RECYCLING

Preparation

Set out examples of items made from recycled materials for the participants to see.

Procedure

- Ask participants to describe the recycling loop. Questions might include: what happens to recycling once it leaves the curb? What products are made from recycled materials?
 - Have participants watch a video on how recycling works from www.hennepin.us/environmentaleducation in the Videos section to learn about how recycling is sorted, graded, cleaned and prepared before being sold to manufacturers to make new products.
 - Divide participants into research teams for each type of recyclable material: paper, plastic, cartons, metal and glass. Have each team research what happens to their material during the recycling process – from picking it up at the curb to making it into something new.
- Have your teams answer the following questions:
- How much of this material is generated (in Minnesota, in the U.S., etc.)?
 - What products made of this material can be recycled? What products cannot be recycled?
 - What raw materials and natural resources go into making this product if it's not made from recycled materials?
 - How is this material sorted from other materials and prepared for markets at a recycling facility?
- What new products are made from this recycled material?
 - What are the benefits of recycling this material? How much energy and water is saved? What natural resources are conserved? What types of jobs are created?
 - What is the difference between recycled-content products, post-consumer content products, and recyclable products? Where can you buy recycled products?
 - Suggestions for research:
Good sources of information about recycling include Hennepin County, the Minnesota Pollution Control Agency, Recycle More Minnesota, Rethink Recycling, the Recycling Association of Minnesota and the Environmental Protection Agency.
 - Have participants present what they learned to other teams. Use visual aids to show the life cycle of recycled and non-recycled products. Have examples of products made from recycled materials available for groups to use during their presentation.

Discussion questions

- What items do you use that you didn't realize are made from recycled materials? What items would you like to start using? Why?
- What did you learn about the different steps within the recycling loop? What are you still confused about? What more do you want to learn about?
- Why does it matter if anyone uses materials with recycled content?
- What were some good sources of information for your project?
- Can you imagine other uses for recycled materials that you don't think are already being done?
- How can we encourage more people to use recycled products?
- What did you learn that you want to share with someone else? Who will you share it with?

(over)

CLOSE THE LOOP ON RECYCLING

Additional activity ideas

Tour the Brooklyn Park Transfer Station

On this tour, participants learn how waste including household hazardous waste, recycling, organics and problem materials such as computers, televisions and appliances are properly managed, recycled or disposed of. This tour highlights the importance of reducing, reusing, recycling and preventing pollution. Appropriate for ages 7 and older. Visit www.hennepin.us, search tours.

Recycling process activity sheet

See the recycling process activity sheet in the Appendix. Copy or download and print enough copies for your group to work in teams of two to five people. Cut out images of raw materials and products made from recycled materials. Have participants tape or glue onto the activity sheets what raw materials each product is made from and what it can be recycled into. Review the recycling process explanation in the recycling background information and discuss with your group how each material is recycled into new products.

Resources

Recycled Products Learning Trunk

This trunk demonstrates the importance of completing the recycling loop by purchasing products made from recycled materials. It includes example products.

Learning trunks can be checked out for free from Hennepin County at www.hennepin.us/environmentaleducation.

Recycling FAQs

The following are answers to frequently asked recycling questions.

My recycling is picked up every other week, and my recycling cart is overflowing. Why don't they pick my recycling up every week?

If you want to request that your recycling is collected more often, contact your city recycling coordinator and/or recycling hauler. But be aware that moving to weekly recycling pickup isn't necessarily the best solution. Picking up recycling weekly means more trucks on the roads and more emissions. It would also make recycling more costly.

You can typically get a second cart or a larger bin – contact your city recycling coordinator or hauler to request one. Also think about what you have in your recycling. Could you make more space in your bin by condensing your recycling? Try collapsing cardboard boxes, crushing cans, bottles, or cartons etc. Finally, you may want to consider why you're generating so much recycling. Is there waste that could be reduced or eliminated?

What should I do with caps and lids?

Leave plastic lids on to prevent them from falling through the gaps at the recycling sorting facility. This applies to plastic bottles, jugs, cups, containers, and cartons.

Remove caps and lids from glass bottles and jars. You can collect metal caps in a metal can (such as a soup can). Squeeze the can shut before recycling to prevent the caps from falling through the gaps at the recycling facility.

Can I recycle pizza boxes?

No. Pizza boxes are not accepted for recycling because they are almost always contaminated with grease and oil. Food is one of the worst contaminants in the paper recycling process because it can ruin entire batches of recycled paper, costing the industry \$700 million per year. If you do recycle your pizza boxes, make absolutely sure the entire box is grease-free. Cut or tear out the soiled portions of your pizza boxes put them in the trash.

Can I recycle plastic bags?

Check with your hauler. Republic Waste Services accepts retail plastic bags as long as you put all plastic bags together in one plastic bag before placing in the recycling cart. Waste Management, Randy's and most other haulers do not accept plastic bags. Check with your hauler or city for guidelines for guidelines specific to your recycling service.

Plastic bags cause problems at the recycling sorting facilities because they become wrapped around moving parts and interfere with equipment. The good news is that many retail and grocery stores accept plastic bags. The county drop-off facilities accept plastic bags as well.

Can I recycle refrigerated and frozen food boxes?

Milk cartons and juice boxes can be recycled. Soup, broth, and wine cartons can, too. Thanks to new technology at paper mills the valuable, high-quality paper in cartons can be separated from the unwanted layers of plastic and aluminum. Check with your hauler for details on other items, such as pop and beer cartons and refrigerated food boxes.

Frozen food boxes and ice cream cartons are typically not accepted because plastic is incorporated into the matrix of the paper during manufacturing. This added plastic helps protect food from freezer burn and ensures that the paper container won't get soggy.

What do the numbers on plastics tell me about recycling?

The numbers on plastics are called Resin Identification Codes and let you know what type of plastic the items is made of. The symbol **does not** mean the item is recyclable. For example, both shampoo bottles and plastic bags may be #2 plastics, but their recyclability varies.

To crack the recycling code, it's best to use descriptions of the materials (bottles, cups, containers, etc.), images and the numbers to determine what is recyclable.

How clean do my recyclables need to be?

Cleaner is better. Rinse cans, bottles and jars to remove food residue. Here are some additional pointers for preparing recyclables:

- Leave plastic caps and lids on
- Remove lids from glass jars
- Flatten boxes
- Remove pumps from spray bottles
- Do not place recyclables in plastic bags

What should I do with confidential paper?

Confidential paper can be recycled. Your confidential papers are no safer in the garbage than in the recycling, but proper preparation is important. It's a good idea to shred paper with financial information or other sensitive personal information to prevent identity theft. Place the shredded paper in a brown paper bag, staple it shut, and put it in your curbside recycling cart.

Can I recycle egg cartons?

It depends on what type of egg carton it is. Paper egg cartons cannot be recycled because the paper fiber in egg cartons has been recycled too often and is too short to be recycled again. However, they are great to use in compost. If the egg carton is Styrofoam™ or #6 polystyrene, it goes in the trash. If the egg carton is a clear #1 plastic, it can be recycled.

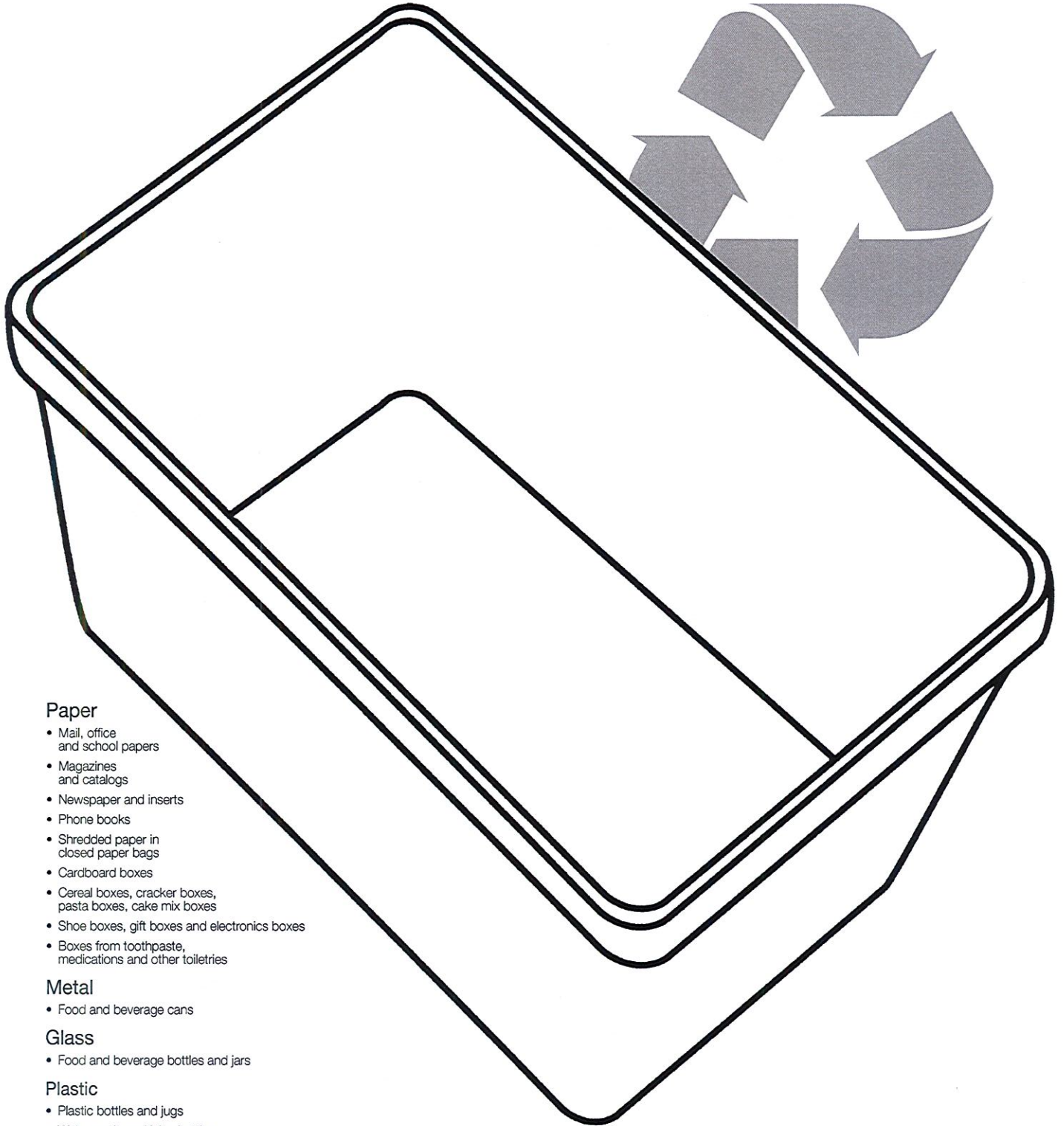
I'm confused about plastics. What should I do with Styrofoam™, flower and garden pots, and larger items such as my laundry basket?

Styrofoam™ should be placed in the garbage. Examples include Styrofoam™ cups, plates, bowls, take-out containers, egg cartons, mushroom containers, and all other expanded polystyrene foam products. These items may be labeled as #6 plastic. As a general rule, #6 plastics are not accepted for recycling. There are very few viable, cost-effective markets currently available for this material. Transportation costs are prohibitive and it contaminates other materials, not to mention the litter impact. It's best to avoid Styrofoam™.

Ask your city or hauler about flower and garden pots. Some haulers accept them, and some do not. If they are accepted, make sure to clean out any remaining dirt. Also check with your city or hauler about options for other rigid plastics such as laundry baskets.

Kid's Activity

What can my family recycle?



Paper

- Mail, office and school papers
- Magazines and catalogs
- Newspaper and inserts
- Phone books
- Shredded paper in closed paper bags
- Cardboard boxes
- Cereal boxes, cracker boxes, pasta boxes, cake mix boxes
- Shoe boxes, gift boxes and electronics boxes
- Boxes from toothpaste, medications and other toiletries

Metal

- Food and beverage cans

Glass

- Food and beverage bottles and jars

Plastic

- Plastic bottles and jugs
- Water, soda and juice bottles
- Milk and juice jugs
- Ketchup and salad dressing bottles
- Dishwashing bottles and detergent jugs
- Shampoo, soap and lotion bottles

Hennepin County
Public Works

Environment and Energy
612-348-3777



Toxicity and hazardous waste

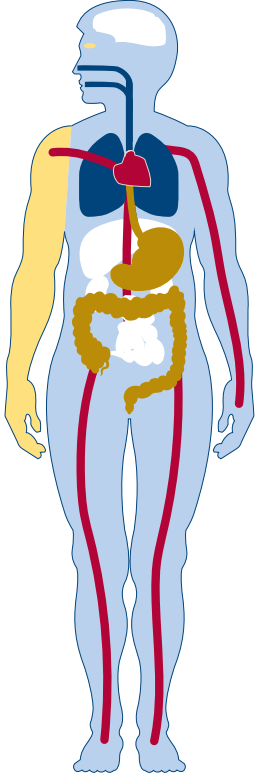


According to the U.S. Environmental Protection Agency, only a fraction of registered chemicals have gone through complete testing for human health concerns. Some chemicals have immediate toxic effects. Others are toxic to our bodies only after repeated, long-term exposure. In addition, many products we use in our homes contain heavy metals or other hazardous materials that can pollute the environment if improperly disposed of. Because of the potential dangers associated with hazardous products in the home, it is important to know how to identify and properly use, store and dispose of them.

Exposure pathways

Chemicals can enter our bodies through a number of "exposure pathways."

Exposure pathways



Chemicals can get into your body through:

- Inhalation**
Gets into the lungs through the nose and/or mouth.
- Contact**
Gets on skin, and/or in the eyes, nose or throat.
- Ingestion**
Gets into the body through the mouth.
- Injection**
Gets into the bloodstream through a cut or puncture in the skin.

Children and pets are impacted more significantly by the negative effects of chemicals. Pound for pound, children and pets breathe more air, drink more water and eat more food than adults. When children play, they crawl and put things in their mouths. Pets can pick up harmful chemicals on their bare paws, which they can then ingest when they clean their paws. As a result, children and pets have an increased chance of exposure to potential pollutants.

What are hazardous wastes?

Hazardous wastes in our homes include unwanted chemical products that are flammable, toxic, or dangerous when combined with other products. They are also products that contain hazardous materials, including electronics, batteries and some types of light bulbs and thermometers. Hazardous wastes should be brought to a drop-off location and must not be placed in the trash.

Hazardous waste includes:

- **Automotive materials**

- Antifreeze
- Brake and transmission fluid
- Fuel and oil
- Lead acid batteries



- **Household, lawn and garden products**

- Batteries
- Cleaning products
- Drain cleaner
- Fluorescent light bulbs
- Paints, stains and thinners
- Pesticides
- Thermostats and thermometers (that contain mercury)



- **Personal care products**

- Hair spray
- Nail polish remover
- Perfume

- **Electronics**

- Cameras
- DVD players
- Computers
- Game systems
- Printers
- Telephones
- Televisions
- Radios and music players
- Speakers



- **Appliances**

- Air conditioners
- Microwaves
- Ovens
- Refrigerators
- Washers and dryers
- Water heaters



- **Tires**



Safely dispose of household hazardous waste

Improper disposal of household hazardous waste, such as throwing it in the garbage or pouring it down the drain or storm sewer, could harm your family or garbage hauler. Improper disposal contaminates our air, water and soil. We all have a responsibility to protect the environment.

Disposal options



- Dispose of hazardous waste year-round at Hennepin County's drop-off facilities in Brooklyn Park and Bloomington. Find facility information at www.hennepin.us/dropoffs.
- Bring hazardous waste to a community collection event. Find an event near you at www.hennepin.us/collectionevents.
- Some hardware stores and electronics retailers accept certain hazardous wastes, including electronics and fluorescent light bulbs.
- Find other disposal options for household hazardous waste at www.hennepin.us/greendisposalguide or call 612-348-3777.

Become a label reader



Federal law requires labeling of hazardous products by using signal words. By understanding the difference in the use of the signal words, you can determine how hazardous the product is.

Less hazardous



More hazardous

Signal Word	Hazard Level
Caution	mild/moderate hazard
Warning	moderate hazard
Danger	extremely flammable, corrosive or highly toxic
Poison	highly toxic

Hazard levels of common household products

Caution

- All-purpose cleaners
- Ammonia
- Dishwashing detergent
- Laundry detergent
- Soft scrub cleaner

Warning

- Antifreeze
- Bathroom tile cleaner
- Pine-based floor cleaners

Danger

- Chlorine bleach
- Drain cleaner
- Lighter fuel
- Metal polish
- Oven cleaner
- Rubber cement

Poison

- Ant/insect sprays
- Lye
- Mouse/rat poison

Smart purchasing and storage

Watch out for greenwashing

Greenwashing is a marketing strategy in which companies use several tactics to mislead consumers into thinking their products are better for the environment than is actually the case. Beware of these signs!

Watch out for:	Description
"Best in class"	Declaring you are slightly greener than the rest, even if the rest are highly hazardous.
Biodegradable	Products that are biodegradable are not always environmentally friendly.
False labels	Companies often make up certifications and labels for their products that required no verification. See below for validated certifications
Fluffy language	Words or terms with no clear meaning. For example: eco friendly, earth friendly, natural.
Irrelevant claims	Emphasizing one small green attribute when everything else is not green. For example: "Does not contain acid."
Suggestive pictures	Green images that indicate an unjustified green impact. For example: flowers blooming from exhaust pipes.

Sins of Greenwashing. (2010, January 1). Retrieved February 1, 2015, from <http://sinsofgreenwashing.com/findings/the-seven-sins>

Safe storage tips

- Keep products out of reach of children and animals.
- Store all hazardous products on high shelves or in locked cabinets away from food.
- Store products that say "prevent freezing" (such as latex paint) indoors.
- Never mix chemicals together (such as bleach and ammonia).
- Keep products away from heat, sparks, flames or other sources of ignition.
- Only buy the amount of product that you will use.
- Keep products in their original containers and make sure the label is legible.
- For long-term storage, place waterproof transparent tape over product labels to prevent them from falling off.

Reducing hazardous chemicals in your home

- Remove your shoes at the entrance to your home so you don't track chemicals from outside throughout your house.
- Use pump spray products instead of aerosols as aerosol mist is more easily inhaled.
- Avoid chemical air fresheners and candles.
- Avoid chemicals used in traditional dry cleaning.
- Buy fewer household hazardous products by avoiding specialty cleaners, using multipurpose cleaners and using single-ingredient products like vinegar or baking soda for cleaning.
- Use a fabric shower curtain instead of a vinyl as vinyl releases chemical gases.
- Use mercury-free thermometers such as alcohol or digital ones. Take mercury thermometers to a hazardous waste collection site.
- Dispose of hazardous products properly.
- Avoid chemical pesticides and herbicides.

Beware of toxic look-a-likes

Children and pets often do not know the difference between toxins and food. Be sure to safely store chemicals and hazardous products out of reach of children and pets. Never store household chemicals in food containers.



IDENTIFY HAZARDOUS PRODUCTS

We use a variety of products and chemicals every day to clean and fix our homes, maintain our vehicles and take care of our lawns. According to the U.S. Environmental Protection Agency, only a small fraction of the more than 75,000 registered chemicals have gone through complete testing for human health concerns. These days, it seems like every product comes with a warning, so you may not pay much attention to the words on the label. However, when it comes to hazardous products, reading the label is the easiest way to identify them.

Outcomes

Participants will learn what the words and symbols on product labels tell them about a product's toxicity and how to use and store them safely.

Audience

Youth (ages 12+), adults

Time

20 - 40 minutes

Concepts

- A product's label tells you many important things about a product if you know what to look for, including the product's hazard level, why the product is hazardous, and steps you should take to use the product safely.
- The words caution, warning, danger or poison on a product label indicate the level of toxicity of that product, with caution being the least hazardous and poison being the most hazardous. Choose the least hazardous product for the job.
- There are many things we can do to reduce our exposure to hazardous chemicals in our homes and ensure the products we do have are stored and used safely.
- Hazardous products require special disposal at a drop-off facility and must not be thrown in the trash or poured down the drain.

Supplies

- Common household products such as window cleaner, disinfectant wipes, all-purpose cleaner, bleach, and lawn and garden items or sample products from the Hennepin County Household Hazardous Waste Learning Trunk
- Chemicals in the Home quiz and Label Reading Activity available in the Appendix
- Handout: How to identify and reduce hazardous chemicals in your home brochure
- Handout: Hennepin County Drop-off Facilities brochure
- Handout: Green Cleaning Recipes guide



IDENTIFY HAZARDOUS PRODUCTS

Preparation

- Ask participants in advance to discuss or provide a list of products they use around their homes, such as in the kitchen and bathroom, on floors, woodwork and windows, or in the yard and garden.
- Gather examples or ask adult participants to bring in some of the products they regularly use. Do not have youth participants bring in items. These products could be hazardous and should only be gathered for the activity by an adult.

Procedure

- Have the participants complete the Chemicals in the Home quiz (see Appendix).
- Again, ask the participants to list household products they use in their household.
- Write the list of the household products participants use on a blackboard, whiteboard or large piece of paper.
- Have participants conduct the label reading activity:
 - Have participants divide into pairs and give each pair two examples of household, yard or garden products.
 - Give each person a copy of the How to identify and reduce hazardous chemicals in your home brochure.
 - Have each pair complete the Label Reading Activity worksheet, then share the information they found with the larger group.
 - Discuss what people can do to reduce hazardous products in their home. See the How to identify and reduce hazardous chemicals in your home brochure and the Green Cleaning Recipes guide for ideas.
- Discuss steps participants can take to safely store and use products in their home, and review disposal options.
- Discuss the concept of greenwashing with participants using information from the How to identify and reduce hazardous chemicals in your home brochure. Greenwashing is a marketing strategy in which companies use several tactics to mislead consumers into thinking their products are better for the environment than they actually are.
- Ask participants if they look for environmentally friendly certifications when buying products. Certifications include the Green Seal certification and the U.S. EPA Design for the Environment. See the Green Cleaning Recipes guide for examples.

Discussion questions

- Have you read labels on products in the past? If yes, what were you looking for? What did you find?
- In the past, did you ever consider the products you use as “harmful” or “hazardous”?
- What are some easy first steps you’ll take to reduce harmful chemicals in your home?
- What did you learn about the products you are currently using?

Additional activity ideas

Tour the Hennepin County Drop-Off Facility in Brooklyn Park

This tour highlights the importance of reducing, reusing, recycling and preventing pollution. A household hazardous waste focused tour is also available. For ages 7 through adults. Visit www.hennepin.us/environmentaleducation to sign up.

Resources

- Chemicals in the Home quiz, Label Reading Activity and a Home Hazardous Products Survey (see Appendix).
- Handout: How to identify and reduce harmful chemicals in your home brochure
- Handout: Hennepin County Drop-off Facilities brochure
- Handout: Green Cleaning Recipes guide
- Household Hazardous Waste Learning Trunk. This trunk will help explain the importance of proper use, storage, disposal and safety information of household hazardous products. Check out a learning trunk at angela.ziobro@hennepin.us or visit www.hennepin.us/environmentaleducation.
- Green Cleaning Learning Trunk. This trunk helps explain the simplicity, safety and effectiveness of home-made cleaners. Check out a learning trunk at angela.ziobro@hennepin.us or visit www.hennepin.us/environmentaleducation.

CLEAN AND GREEN

According to the U.S. Environmental Protection Agency, only a fraction of registered chemicals have gone through complete testing for human health concerns. You can protect your health and the health of your family, pets and the environment by making your own cleaning products with simple, less-toxic ingredients. Many common household products, such as baking soda, lemon juice, vinegar and liquid dish soap, can make effective and inexpensive cleaners.

Outcomes

Participants will learn how to make an all-purpose cleaner from simple ingredients and learn other ways to reduce the use of chemicals in their homes.

Audience

Youth (ages 10+), adult

Time

30 - 45 minutes

Concepts

- There's a lot we don't know about the chemicals we use in and around our homes. Making your own cleaners from simple, less-toxic ingredients is one way to reduce the amount of hazardous chemicals in your home.
- Make sure to use a recipe from a trusted source and do not mix other cleaners and products together.
- Reduce the toxicity of the products you purchase by choosing the least hazardous product for the job, looking for environmentally friendly certifications on products you do buy, and being aware of resources to learn more about the products you buy.

Supplies

- 12 oz. spray bottles (available from Hennepin County)
- White vinegar
- Water
- Liquid dish soap
- Labels printed with the recipe and clear packaging tape to secure label to the bottle (if not using Hennepin County bottles, which have the recipes pre-printed on the bottle)
- Liquid measuring cups and spoons
- Funnel
- Handout: Green Cleaning Recipes
- Lemon juice (*optional*)



CLEAN AND GREEN

Preparation

Set up stations with each ingredient for the all-purpose cleaner or set up a demonstration of how to make the cleaners.

If you are not using bottles pre-printed with the recipe, you may want to label the bottles ahead of time by using clear packaging tape to make the labels waterproof.

Procedure

- Discuss the cleaning products that participants use around their homes. Discuss why they chose those products and ask them to think about how they define a clean home (it is a certain look, smell, etc.) Ask participants what they know about the ingredients in the cleaning products they use and if they are aware of any health or safety concerns.
- Provide each participant with a spray bottle and the recipe for the all-purpose cleaner.
- Have participants make cleaners:
 - Ingredients:
 - ¼ c. white vinegar
 - 1.5 tsps. liquid dish soap
 - Directions: In a 12 oz. spray bottle, use a funnel to add the vinegar and fill with water. Add the dish soap last. Add 2-5 drops of lemon juice as desired.
- Adults should supervise youth making cleaners.
- Participants may want to test the cleaner in the program space or compare its effectiveness with other cleaners.
- Hand out the Green Cleaning Recipes guide and discuss the cleaning properties of the basic cleaning ingredients and other homemade cleaning recipes.

Discussion questions

- What did you learn that was new?
- Why should we care about the products we use?
- What are some reasons to make your own cleaners at home? (Healthier, less expensive, etc.)
- What other ways could you reduce the amount of toxic chemicals in your home? (See Additional activity ideas for suggestions).
- Will you or another family member use the cleaner at home?
- What did you learn that you want to share with someone else? Who will you share it with?
- What do you want to learn more about?

Additional activity ideas

Make additional cleaners

Refer to the Green Cleaning Recipes guide for additional products to make, such as tile cleaner or window cleaner.

Discuss ways to reduce hazardous chemicals in your home

Ask participants to commit to taking one or more action. Some ideas include:

- Remove your shoes at the entrance to your home so you don't track chemicals from outside throughout your house.
- Use pump spray products instead of aerosols as aerosol mist is more easily inhaled.
- Avoid chemical air fresheners and candles.
- Avoid chemicals used in traditional dry cleaning.

- Buy fewer household hazardous products by avoiding specialty cleaners, using multipurpose cleaners and using single-ingredient products like vinegar or baking soda for cleaning.
- Use a fabric shower curtain instead of vinyl as vinyl releases chemical gases.
- Use mercury-free thermometers such as alcohol or digital ones. Take mercury thermometers to a hazardous waste collection site.
- Dispose of hazardous products properly.

Tour the Hennepin County Drop-Off Facility in Brooklyn Park

This tour highlights the importance of reducing, reusing, recycling and preventing pollution. A household hazardous waste focused tour is also available. For ages 7 through adults. Visit www.hennepin.us/environmentaleducation.

CLEAN AND GREEN

Resources

- Handout: Green Cleaning Recipes guide
- Household Hazardous Waste Learning Trunk
This trunk will help explain the importance of proper use, storage, disposal and safety information of household hazardous products. Check out a learning trunk at angela.ziobro@hennepin.us or visit www.hennepin.us/environmentaleducation.
- Green Cleaning Learning Trunk
This trunk helps explain the simplicity, safety and effectiveness of home-made cleaners. Check out a learning trunk at angela.ziobro@hennepin.us or visit www.hennepin.us/environmentaleducation.

Chemicals in the home quiz

Circle True or False

1. Manufactures of household cleaners are required to list all ingredients of their products. T or F
2. Labels of all home and garden products must be precise, showing exactly what substances are present and the amount of each..... T or F
3. Household products must be tested for their long-term health effects before being placed on the market..... T or F
4. Products placed on the market are not guaranteed to be safe..... T or F
5. If ingredients are listed as "inert," they are harmless. T or F
6. "Active" ingredients make up the major portion of a product. T or F
7. A hazardous substance is described as highly toxic, flammable or combustible, corrosive, an irritant, a strong sensitizer, radioactive, capable of generating pressure, or capable of causing substantial illness or injury. T or F
8. How often do you read product labels at the store to find the least toxic alternative when buying cleaners and other household products? Check one.
 Never Infrequently Sometimes Most of the time Almost always Always
9. Do you make your own green household cleaners or use non-toxic alternative cleaners? Check one.
 Never Infrequently Sometimes Most of the time Almost always Always
10. Indicate how you dispose of these household items:
 - Paint
 Throw in the trash Take to a drop-off facility Take back to the store for recycling
 - Compact fluorescent light bulbs
 Throw in the trash Take to a drop-off facility Take back to the store for recycling
 - Mercury thermometer
 Throw in the trash Take to a drop-off facility Take back to the store for recycling
 - Rechargeable batteries
 Throw in the trash Take to a drop-off facility Take back to the store for recycling

Answers and notes

#:	Answer:	Notes:
1	False	
2	False	
3	False	
4	True	
5	False	"Inert" ingredients, in limited cases, may still cause a chemical reaction if combined with other substances.
6	False	An "active" ingredient is an agent that is specifically intended to kill, repel, or otherwise deter a target organism. For example, the active ingredient in Drano and other conventional drain cleaners is sodium hydroxide, otherwise known as a caustic soda or lye. It is a man-made chemical used for its corrosive properties.
7	True	
8		It's important to recognize the "signal" words on the label. These words indicate levels of hazard.
9		Making your own green cleaners from common household items such as baking soda, vinegar and lemon juice, is an easy alternative to store-bought cleaners.
10		Items should be taken to a drop-off facility or recycled at the store where purchased.

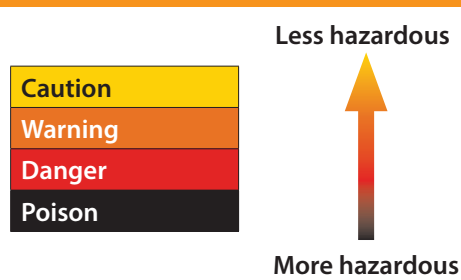
Label reading activity

Name of product	Signal words – level of hazard	Characteristic words – type of hazard	Precautionary statements	Directions for storage	Directions for disposal



Signal words

If the product is hazardous, it will include one of the following words, which indicates the level of hazardous.



Characteristic words

Labels may include the following words and/or precautionary statements for different types of hazards:

Flammable/combustible	Corrosive	Toxic	Reactive
<ul style="list-style-type: none"> • Flammable • Inflammable • Ignitable • Combustible • Petroleum distillates • Do not use near flame • Do not store near heat • Keep in cool, dry place 	<ul style="list-style-type: none"> • Causes burns to skin • Caustic • Contains lye • Contains acid • May cause burns on contact • Wear rubber gloves 	<ul style="list-style-type: none"> • Poison • Harmful or fatal if swallowed • Vapor harmful • Harmful if absorbed by skin • Avoid skin contact • Skull and cross bones symbol 	<ul style="list-style-type: none"> • May react violently • Explosive • Store separately from other products

How hazardous is it and how do I store it?


Signal words

Federal law requires labeling of hazardous products by using these signal words. By understanding the difference in the use of signal words, you can determine how hazardous a product is.

Become a label reader

Reading the label on household products can tell you how hazardous a product is. Look for signal words on labels and choose the least hazardous product.

Less hazardous



More hazardous

Signal Word	Hazard Level
Caution	mild/moderate hazard
Warning	moderate hazard
Danger	extremely flammable, corrosive or highly toxic
Poison	highly toxic

Characteristic words

Characteristic words indicate the type of hazard posed by a product and are usually found after the signal word on the label.

- Flammable/combustible Easily set on fire
- Corrosive. Results in chemical reaction that can burn skin or eyes and destroy other material
- Toxic Causes injury through ingestion, inhalation or skin absorption
- Reactive. May explode from heat exposure, shock or pressure. May product toxic gas if combined with other substances.

Protecting land and water



Minnesota is known for its abundance of water and natural resources. Hennepin County has a diversity of landscapes and habitats ranging from formal gardens and urban parks to prairies, forests lakes, streams and wetlands. Natural resources provide critical habitat for wildlife, protect water quality, offer recreational opportunities and serve as the foundation to the region's environmental well-being, economic prosperity and collective quality of life. Protecting the health of our natural resources is important for air and water quality, recreation, wildlife and tourism. However, our natural resources are under increasing pressure from population growth, development and climate change.

Steps you can take to protect land and water

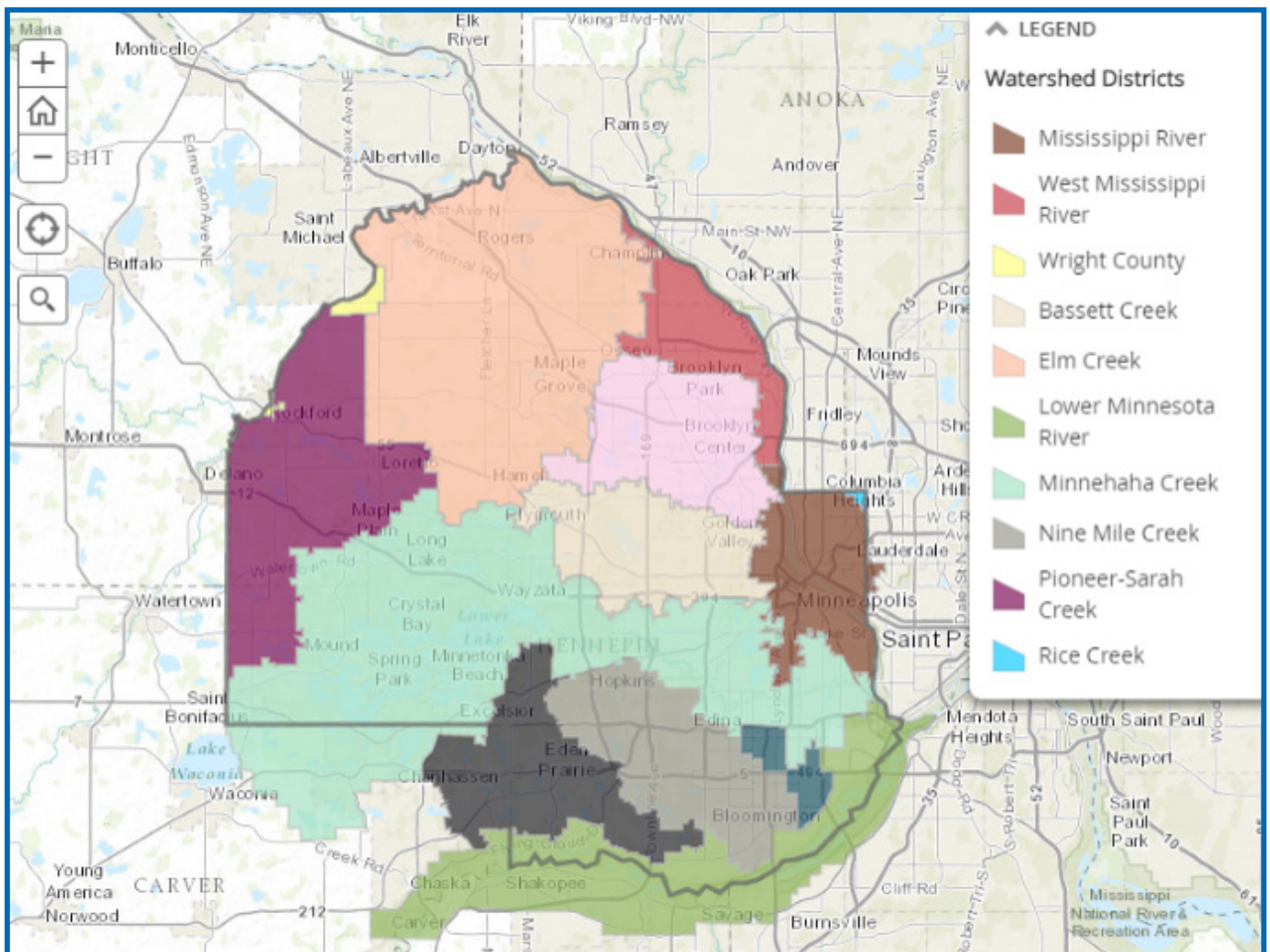
- **Use your runoff.** When it rains, the water that runs off driveways, lawns, houses and parking lots can carry pollutants such as oil, paint and chemicals down storm sewers that drain directly into nearby lakes, streams, rivers, and wetlands. Instead of letting it run off, you can capture rain water to reuse on your lawn and garden by directing your downspouts onto your lawn or garden or into a rain barrel.
- **Keep grass clippings and leaves out of the street.** Grass clippings and leaves in the street can be washed into the storm sewer where they are carried to nearby lakes, streams and wetlands. Clippings and leaves contain phosphorus and other nutrients that, like fertilizer, feed algae and other aquatic plants, contributing to algae blooms. Leave grass clippings and leaves on your lawn, use them in your backyard compost bin, or bag them up and bring them to a compost site.
- **Scoop the poop.** Grab a bag when you grab the leash and pick up after your pets. When waste is left behind, rainwater washes it into lakes and streams. Pet waste contains bacteria that can cause illnesses and nutrients that can contribute to excessive algae growth in lakes and streams.
- **Use chemicals wisely.** Use lawns and garden chemicals according to label directions, and use the minimum amount needed to control the problem. Sweep up any fertilizer or other chemicals that spill onto hard surfaces. Consider alternative or natural remedies to control weeds and pests.
- **Keep a healthy lawn.** Aerate your lawn, seed bare patches and mow at a higher setting. A vigorous lawn needs less watering, fewer chemicals and less maintenance.
- **Plant a rain garden.** Rain gardens are planted depressions designed to capture rainwater and allow it to soak into the soil. Find out more about rain gardens at www.bluethumb.org.
- **Replace turf with native plants.** Many native plants develop deeper root structures than turf grass, which reduces runoff by slowing the flow of water and allowing it to filter into the soil. Native plants can also provide food and habitat for birds, bees, butterflies and other wildlife. Drought-resistant native plants may require less watering than grass.
- **Reduce paved surfaces.** Replace paved surfaces, such as sidewalks, patios and driveways, with porous surfaces that allow water to seep through. Options include pervious pavers, grass strips and gravel.
- **Adopt a storm drain.** Keep storm drains on your street free of leaves, seeds and grass clippings. Storm sewers drain directly into a nearby body of water. Water running into storm drains can carry with it anything dumped nearby including leaves, grass clippings, soil, oil, paint and chemicals.
- **Reduce salt use.** Salt, or sodium chloride, is commonly used on driveways, sidewalks, roadways and parking lots to improve traction and safety. However, too much salt is polluting our lakes and streams – it takes only one teaspoon of road salt to permanently pollute five gallons of water. Reduce salt use by shoveling or using a snow blower, using the right amount of salt, using sand instead of salt when it's too cold (most salts stop working when it's colder than 15°F), and sweeping up any extra.
- **Practice sustainable landscaping.** Practice earth-friendly landscaping in your lawn by utilizing low-maintenance grasses, planting native tree and plant species, or composting food scraps and yard waste.

Know your watershed

A watershed is an area of land that drains to a common lake, river, stream or wetland. Water resources are managed based on their watershed, which allows communities to work together to prevent and solve water-related problems. Watersheds districts and watershed management organizations are special units of local government that regulate land-disturbing activities, perform capital improvement projects and provide environmental education related to water issues.

The watersheds organizations in Hennepin County are:

- Bassett Creek Watershed Management Commission (www.bassettcreekwmo.org)
- Elm Creek Watershed Management Commission (www.elmcreekwatershed.org)
- Lower Minnesota River Watershed District (www.watersheddistrict.org)
- Minnehaha Creek Watershed District (www.minnehahacreek.org)
- Mississippi Watershed Management Organization (www.mwmo.org)
- Nine Mile Creek Watershed District (www.ninemilecreek.org)
- Pioneer-Sarah Creek Watershed Management Commission (www.pioneersarahcreek.org)
- Richfield-Bloomington Watershed Management Organization (www.rbwmo.com)
- Riley Purgatory Bluff Creek Watershed District (www.rpbcwd.org)
- Shingle Creek and West Mississippi Watershed Management Commissions (www.shinglecreek.org)



Resources:

- Hennepin County's Ten Things You Can Do To Improve Minnesota's Lakes, Rivers and Streams brochure

WHERE IN THE WATERSHED?

A watershed is an area that drains to a common waterway, such as a stream, lake, river or wetland. No matter where you live, you live in a watershed! Our individual actions can directly affect the health of water resources. Water resources are managed by either a watershed district or watershed management organization, which are special units of local government that work together to solve and prevent water-related problems. Determining which watershed you live in can help you learn how you get your water and where it goes after you use it.

Outcomes

- Participants will determine which watershed they live in.
- Participants will learn which waterways are connected to their watershed.
- Participants will learn actions to protect water resources.

Audience

Youth (ages 10+), adults

Time

Variable

Concepts

- A watershed is an area that drains to a common waterway such as a stream, lake, river, or wetland.
- Understanding which watershed you live in can help you learn how you get water and what happens after you use it.
- Our actions can directly impact the health of water resources.

Supplies

- Construction paper
- Markers, paints or crayons
- Ruler
- Watershed map from the Appendix



WHERE IN THE WATERSHED?

Preparation

Gather enough supplies by asking participants to bring their own or soliciting supplies a few weeks before doing the activity.

Procedure

- Use the watershed map in the Appendix to identify which watershed each participant lives in.
- Have participants identify the lakes, streams and rivers in your watershed. Analyze how the water resources are connected.
- Have participants think about how the water that falls on the property of your home, school, or organization travels to nearby lakes, streams, rivers and wetlands.
- Read about what individuals and families can do to conserve water and reduce pollution in the Background Section of this chapter. Think about both small and large actions they can take. Some examples:
 - Small: don't rake grass clippings and leaves into the street, clean up after your pets, etc.
 - Large: replace turf with native plants, plant a rain garden, etc.
- Encourage participants to commit to changes they want to make and write these on their watershed picture.
- Display the picture on the refrigerator or another "public" place.
- Make a plan to track the participants' commitments and encourage them to continue to take action to protect water resources.

Discussion questions

- What watershed do you live in? Did you know this prior to the activity?
- Why is it important for participants to know what watershed they live in?
- How can the behavior of people living in one watershed affect the people in another watershed?
- What are other actions you could take to protect water resources? (look at the "10 things you can do to improve Minnesota's lakes, rivers and streams" brochure)

Additional activity ideas

Watershed map

With the watershed map from the Appendix and a set of pushpins, have each participant pin where they live on the map to show which watershed everyone lives in.

Identify where water flows

Walk around your home, school, organization or workplace and identify sources of water and where the water flows on the property. Look for gutters, driveways, sidewalks, grass, gardens and other areas that water might flow through. Then, look for stormdrains or nearby water bodies that water flows into.

Sandbox watershed

Allow children in your program to create hills and mountains in the sand play area. Use a hose with a sprinkler attachment or a watering can to "rain" on

the sandbox. Watch how the water creates rivers and streams through the sand and collects at the lowest point.

Watershed game

The Watershed Game helps students understand connections between land use, clean water and their community. Working in teams, students apply practices, plans, and policies to decrease water pollution while juggling financial resources. Successful teams reduce water pollution without going broke. Hennepin County staff is available to facilitate the watershed game with classrooms or youth and community groups or to train educators in using the game. Contact Stacey Lijewski at stacey.lijewski@hennepin.us or 612-348-9938 for more information.

Resources

Handout: 10 things you can do to improve Minnesota's lakes, rivers and streams brochure

HABITAT ASSESSMENT

Assessing part of an ecosystem can reveal information about land and water and help participants gain confidence and enthusiasm for going outside. Making observations about a habitat site can also help participants discover parts of an ecosystem they might not have noticed before. In this activity, participants will fill out a field data sheet to organize their observations about the several characteristics of their habitat site, including weather, water appearance, water odor, stream surroundings, wildlife, local land use, stream bank and channel conditions.

Outcomes

- Participants will explore part of a habitat site.
- Participants will fill out a field data sheet to organize their observations.
- Participants will draw a sketch of the habitat site.

Audience

Youth (8+), adults

Time

60+ minutes

Concepts

- Assessing part of an ecosystem can reveal information about land and water.
- Getting outside and making observations about a habitat can connect participants to the environment.

Supplies

- Pen or pencil (one per participant)
- Field data sheet available in the Appendix (one per participant)
- Clipboard, notebook or other hard writing surface (one per participant)



HABITAT ASSESSMENT

Preparation

- Select a habitat site to conduct the assessment that is close to the location where the participants will meet. The site could include part of a stream, lake or river, forest, field or other habitat.
- Read over the field data sheet to become familiar with the content before conducting the habitat assessment.
- Print enough copies of the field data sheet for each participant in advance and make sure each participant will have a pen or pencil and clipboard or other hard writing surface.

Procedure

- Gather participants and lead them to the selected habitat site.
- Before handing out the field data sheets, have participants walk around the habitat site for up to five minutes, taking notice of any plants, water and wildlife.
- After the participants make their initial observations about the habitat site, hand out the field data sheets, a pen or pencil and clipboard or other hard writing surface to each participant.
- Have participants fill out the front side of the field data sheet one category at a time, using the checkboxes to write down their observations. If you have a large group, consider breaking participants into partners or teams to complete the field data sheet.
- Next, have participants fill out the back side of the field data sheet by drawing a sketch of the habitat site. Encourage participants to be creative and remember that the sketch does not need to look like an exact replica of the site.
- When all participants have finished filling out the field data sheet, gather the participants to have a discussion using the discussion questions below.

Discussion questions

- What was the most interesting thing you saw during the habitat assessment?
- What surprised you about the habitat assessment?
- What did you notice while filling out the field data sheet that you might not have noticed before?
- What was the most difficult category of the field data sheet? Easiest category?
- How do you think the field data sheet would change for a different type of site?

Additional activity ideas

Volunteer with WHEP

- Hennepin County's Wetland Health Evaluation Program (WHEP), is an environmental monitoring program focused on assessing the condition and health of wetlands. Volunteers obtain water quality data and biological communities to assess the overall health of wetlands. Join a team of other interested citizens who are concerned about wetlands in your area. By volunteering with a WHEP team and attending informational workshops, you will gain skills to help you match your interest and commitment. You can be directly involved in collecting and submitting important, meaningful data to your community leaders. To learn more and sign up for WHEP, visit www.hennepin.us and search: WHEP.

Get youth involved with River Watch

- Hennepin County's River Watch program provides hands-on environmental education opportunities for high school classes and student groups. The program runs from April to August and allows students to assess water quality and learn how actions impact local water sources. Learn more and sign up at www.hennepin.us/riverwatch.

BUY OR BUILD A RAIN BARREL

A rain barrel is a system that collects and stores rain water from your roof that would otherwise run off into storm drains that flow directly into nearby lakes, streams and wetlands. Rain barrels typically hold 50 to 100 gallons of water that can be used on your lawn or garden, saving approximately 1,300 gallons of water during peak summer months. Capturing rain water in a rain barrel reduces runoff that can carry pollutants into streams and rivers. Rain barrels can be purchased at local hardware stores or through special sales organized by government agencies or non-profit organizations. You can also build your own rain barrel. Community groups can purchase the supplies and offer free or low-cost workshops for residents who want to build a rain barrel.

Outcome

Buy or build a rain barrel to capture rain water and reduce runoff.

Audience

Youth (ages 14+), adults

Time

60+ minutes

Concepts

- Collecting rain water in rain barrels can help reduce runoff.
- Rain water runoff can pollute streams and rivers.
- You can buy or build your own rain barrel.

Supplies

- Materials to build your own rain barrel (55-gallon plastic drum, plastic spigots, skimmer basket, window screening, power drill)
- Internet access to get instructions for building a rain barrel.
- Resources to buy your own rain barrel.



BUY OR BUILD A RAIN BARREL

Preparation

Decide if you want to buy or build a rain barrel.

Procedure

- Use the Background Information to have a discussion about rain barrels. How might they fit into your landscape design? What are barriers to buying or building a rain barrel?
- Ask your group if building or buying a rain barrel is feasible. Does buying or building make more sense for your group?
- If your group decides to build rain barrels, go to www.masterwaterstewards.org for instructions.
- If your group decides to buy rain barrels, search for options at your local hardware store, Home Depot, Lowe's, Mills Fleet Farm or specialty rain barrel sellers such as Barrel Depot, Mother Earth Gardens, Cedar Hill Natives, the Recycling Association of Minnesota (RAM) or Minneapolis Rain Barrel.
- To ensure participants commit to using rain barrels, the groups should check-in periodically to share their rain water experiences, lessons learned, etc.

Discussion questions

- What did you learn about rain barrels and rain water runoff?
- How can rain barrels help lower water costs?
- Why is it important to keep water from running off of impervious pavements?
- What types of pollutants can end up in local water sources from rain water runoff?
- What were the largest barriers to installing a rain barrel? How did your group overcome these barriers?
- What are the benefits of using a rain barrel?

RAIN GAUGE MONITORING

Monitoring the amount of rain falling on your yard is a great way to learn about water, specifically precipitation. Rain gauges are inexpensive, easy to install, and can be used to monitor daily precipitation totals. Observing and monitoring precipitation with a rain gauge can help participants understand how much rain falls into their yard and conserve water. Precipitation data gathered from the rain gauge can be reported directly to the State Office of Climatology (www.climate.umn.edu) and is used to develop maps and reports of precipitation trends.

Outcome

Use a rain gauge to monitor the amount of precipitation on your yard and report data.

Audience

Youth (ages 13+), adults

Time

15 - 20 minutes, daily

Concepts

- Learn how to use a rain gauge for monitoring precipitation levels.
- Report daily precipitation totals to the State Office of Climatology.
- Understand water conservation strategies.

Supplies

- Rain gauge
- Computer with internet access to report data



RAIN GAUGE MONITORING

Preparation

- Buy a rain gauge from your local hardware store.
- Create your own rain gauge with an empty can marked in one-inch increments

Procedure

- Install a rain gauge at your home or at your program site.
- Monitor daily precipitation by reading the measurements on the side of the rain gauge.
- Data can be reported directly at with the State Office of Climatology at www.climate.umn.edu through the MNgage program. The data is used to develop maps and reports of precipitation trends.
- Participants can also be part of the Community Collaborative Rain, Hail and Snow Network (CoCoRaHS) program program by signing up at www.cocorahs.org. Participants will be able to enter data and see the results immediately.
- Compare measurement results from different locations around the community. Discuss why there might be differences (or similarities) in water levels.
- Think about ways to conserve water and discuss this with your group. Use the information in the background section or the 10 Things You Can Do to Protect Minnesota's Lakes and Streams brochure for ideas.

Discussion questions

- What did you learn from rain gauge monitoring?
- Why is data from rain monitoring important information to report?
- How is precipitation connected to climate change?
- What observations did you make when monitoring the rain gauge? What observations did you make when comparing your rain gauge measurements with those taken from other locations in your community?
- How much water do you think a typical lawn needs each week? A tree? A flower garden?
- How much rain do you think comes off your roof in a one-inch rainfall?

ORGANIZE OR PARTICIPATE IN A RIVER CLEANUP

Non-point source pollution is pollution that can't be traced back to a specific location and is the greatest threat to our waterways today. Organizing or participating in a river cleanup with your group, neighbors, friends or family can help protect the health of water by preventing pollution from many sources such as land runoff, precipitation and more. You can also join the Adopt a River program through the Minnesota Department of Natural Resources. If there isn't a river near you, a stream or lake cleanup also works.

Outcome

Organize or participate a river clean-up to keep polluting trash out of water.

Audience

Youth (ages 5+), adults

Time

1 - 3 hours

Concepts

- Gather neighbors, friends or family to clean-up a section of a river.
- Pick up trash around a river, lake, stream, or wetland.
- Encourage participants to reduce waste to improve water quality.

Supplies

- Trash bags
- Gloves
- Scale (*optional*)



ORGANIZE OR PARTICIPATE IN A RIVER CLEANUP

Preparation

- Set a date, time and location for the river cleanup. Check with city or watershed to see if you need permission to hold a river cleanup or if they have resources available to assist in a river cleanup.
- Freshwater Society offers resources for planning a community cleanup. Find out more at www.freshwater.org/community-clean-ups-for-water-quality. You can also visit the Adopt a River program website for additional

planning assistance. The Adopt a River program through the Minnesota Department of Natural Resources helps groups select a site, provides a How-to kit for organizing a cleanup, and supplies including free bags and gloves. Volunteers are required to commit to conducting an annual cleanup for two consecutive years. For more information, visit www.dnr.state.mn.us/adoptriver/index.html.

Procedure

- After you pick a date, time and location for the river cleanup, coordinate with your group, neighbors, family or friends by inviting them to attend.
- On the day of the cleanup, bring trash bags and gloves to the site.
- Before you go out to pick up trash, discuss why keeping pollutants out of water sources is important. Ask the group why water is important to them and what motivated them to participate in the cleanup.
- Divide the participants into smaller groups if the area is large to cover more ground.
- Consider making the cleanup a contest between smaller groups. Whoever collects the most trash or the weirdest item wins!
- If you have a scale, consider weighing the trash collected after the cleanup. Then you can tell others how many pounds of trash you collected to help keep pollutants out of water resources.

Discussion questions

- What did you learn from organizing or participating in the river cleanup?
- How did you feel after cleaning up the river (or stream or lake)?
- What was challenging about the river cleanup? What was rewarding?
- How can cleaning up the area around the river help improve water quality? What impact can this have on fish and other aquatic wildlife?
- What else do you want to learn about water quality?

ORGANIZE OR PARTICIPATE IN A RIVER CLEANUP

Additional activity ideas

Leaf cleanup

Leaves are one major source of pollution into waterways because they can act like fertilizer in nearby water sources, contributing to algae blooms. Gather friends, family and neighbors for a leaf cleanup to rake, collect, bag and dispose of leaves properly. Find disposal options at www.hennepin.us/yardwaste.

Litter scavenger hunt

- To organize a litter hunt and cleanup near your program site, prepare sturdy gloves for all participants and large trash bags. Consider using recycling bins to collect recyclables that were picked up. You may also want a scale to weigh trash collected, maps of the area and list of scavenger hunt categories for each team (categories could include biggest, smallest, heaviest, weirdest, oldest).
- Talk with participants about how streets connect with local rivers and lakes. Ask participants to brainstorm examples of pollution that could be taken by rain into lakes and rivers via storm sewers. Discuss other materials that can be carried into water sources and why it is a problem.
- Explain that participants are going to go on a litter scavenger hunt and help reduce pollution in the process. Talk about safety issues in picking up trash: wear gloves, don't touch anything sharp, and, if you are working with youth, ask adults if they are unsure if something is safe to pick up.
- Form small teams, pass out gloves, trash bags and scavenger hunt categories on a handout or describe the categories. Set a time limit. An adult should accompany groups of younger children.
- Gather at the end to weigh the trash picked up, sort recyclables and reflect.

Resources

Your watershed district may provide assistance in selecting a site or offer other opportunities to get involved.

MAINTAIN YOUR DRAIN

Runoff from driveways, lawns, houses and parking lots can carry pollutants such as oil, paint and chemicals down storm sewers and into nearby lakes, streams, rivers, and wetlands. Cleaning out storm drains can help keep leaves, grass, litter and other items from getting washed into lakes, streams, rivers, and wetlands. In this activity you will maintain your storm drain by cleaning out the drains and gutters on your street to protect nearby water sources from contaminants.

Outcome

Storm drains are directly connected to water resources, and keeping litter out of drains can prevent water pollution.

Audience

Youth (ages 6+), adults

Time

60 minutes

Concepts

- Storm drains carry pollution directly to nearby bodies of water.
- Cleaning storm drains keep pollution from entering water resources.
- Keeping leaves, grass clippings and other items out of the streets prevents materials from entering storm drains.

Supplies

- Clear plastic bags
- Protective gloves



MAINTAIN YOUR DRAIN

Procedure

- Wearing the protective gloves, have participants collect everything from the storm drain and street in front of your house, school or organization's building during a specific time period. Children should be supervised, wear gloves, and should only pick up what they recognize and know is safe to touch.
- Put the items into clear plastic bags so participants can see the items through the bags.
- Analyze the items found in the gutter and discuss where it might have come from.
- Ask participants if they want to adopt a specific storm drain to keep free of litter or have them make a commitment to keep their own blocks litter-free. Then, share what you are doing and why with your neighbors in the area.

Discussion questions

- Were you surprised by the amount of litter you collected? What was the strangest item you found? The largest?
- How do you think all the litter ends up in the gutters? How could it potentially end up in nearby water sources such as lakes, rivers, streams and wetlands?
- Do you think this activity has an impact? Why or why not?
- How can you encourage your neighbors to make a commitment to keep their yards free of litter?

Additional activity ideas

"This Drains To River!" Mark the Storm Drains

When volunteers mark or stencil a message next to the storm drains in the street, it reminds everyone that whatever goes down the storm drain ends up in the nearest body of water. Visit www.fmr.org/storm-drain-stenciling for storm drain stenciling resources. Storm drain stenciling must be coordinated with city government and your watershed.

WATER WATCH

Water is a shared and limited resource that we rely on every day. On average, a person uses about 80 to 100 gallons of water a day. In Hennepin County, drinking water comes from a variety of sources. Drinking water sources include surface water such as the Mississippi River or other lakes and streams, and ground water that is pulled through wells from pools of water deep underground called aquifers. Some people are supplied water from a city or other public water source, while others get water from private wells located on or near their property. Regardless of where your water comes from, it takes energy to clean the water, transport it to our homes and use it in our daily activities, so we should take steps to reduce water consumption.

Outcome

Participants will learn how much water is used and wasted in everyday activities and will consider how to use less water.

Audience

Youth (ages 6-12), adults

Time

30 minutes

Concepts

- Daily activities can use a lot of water, which is a limited resource.
- By thinking about your activities, you can reduce the amount of water you use.

Supplies

- Empty plastic gallon milk jugs (about five per participant), five-gallon pails, or other physical representation of gallons of water.
- Props representing the activities listed in the table below, or the name of the activity written on a card or piece of paper.
- A larger bucket filled with water to represent the drinking water source for the participants' homes or program site (surface or ground water). A smaller container (1 cup) to represent a gallon of water. *(optional)*

Activity	Suggested prop	Average gallons of water used
Brushing teeth	Toothbrush or toothpaste	2 (with tap running)
Flushing toilet	Toilet paper	2 – 5
Taking a bath or shower	Soap or shampoo	30 – 50
Washing clothes	Detergent	30 – 60
Washing dishes	Soap or dish soap	10 – 20 (by hand or machine)
Watering the yard	Hose or watering can	10 – 15 per minute
Washing the car	Toy car	50 – 100



WATER WATCH

Preparation

Prepare the materials described in the table. Clear a large space for your group to spread out and work in teams.

Procedure

- Have participants research where the drinking water supplied to their homes or program site comes from. Label the larger bucket of water with that drinking source.
- Ask participants to name ways they and their families use water every day. As participants name one of the activities for which you have a prop or sign, give it to the participants. Once all props are given out, have participants with no props join with those who do as team members.
- Have the teams decide how many gallons of water are typically used to accomplish their activity. When ready, each group should put the prop or sign on the ground with the number of milk gallons next to it (if you run out of gallons, participants can write down their guess). Or have the participants fill up their milk jug or container with the number of gallons (represented by the smaller cup or container) that each activity requires.
- Discuss each activity, asking the whole group if the guess is correct, too high or too low. Reveal the actual amounts. Fill your containers with the correct amount of water.
- Ask participants to calculate how much water, on average, they likely use every day based on the amounts listed in the table. People typically use 80 to 100 gallons a day.
- Ask participants to brainstorm actions to reduce water use. Ideas include turning off the tap while brushing teeth or washing dishes, taking a shower instead of a bath, limiting shower time to five minutes or less, only watering the lawn when it's needed, and watering the yard in the early morning or late evening when it's cool outside.

Discussion questions

- What did you learn from participating in water watch?
- How did you feel after calculating water usage?
- What actions can you take to conserve water?
- What else do you want to learn about water?

STORM DRAIN DETECTIVES

To protect land and water, it is important to understand how water flows from roofs, driveways, and lawns and into storm drains and eventually local water sources. Impervious surfaces are those that prevent water from naturally soaking into the ground and include sidewalks, driveways, streets and roofs. Water flows over impervious surfaces and into the sewer system through storm drains, often carrying pollution with it. Pollution can be nutrients from leaves, grass clippings, pet waste or fertilizers, which cause algae growth, dirt that can impact aquatic habitats, bacteria, and trash. Storm drains connect to local water sources such as streams or lakes which can be contaminated with pollution from runoff. There are many ways to prevent water from running off, including permeable pavers, rain gardens, rain barrels and native plants that can infiltrate water. In this activity, participants will search for impervious and permeable surfaces and mark storm drains.

Outcomes

- Participants will learn how rain that runs down storm sewers drains directly into nearby lakes and rivers, taking pollutants and excess nutrients with it.
- Participants will act as detectives scanning the area around your program site for trouble spots and opportunities.

Audience

Youth (ages 8+)

Time

40 – 60 minutes (less time for Part One only)

Concepts

- Our streets connect directly to rivers and lakes.
- Hard (or impervious) surfaces allow rain, also called storm water, to quickly take pollutants from the streets into rivers and lakes.
- Helping water soak into the ground next to houses and other buildings helps prevent water pollution.

Supplies

- Cookie sheet or other hard, flat surface that water can't soak into
- Large bowl (clear glass is ideal), bucket, or other container for water
- Spray bottle of water
- Small bits of paper and other items representing pollution, such as vegetable oil
- Piece of green felt, or a slightly damp sponge or cloth
- Notebooks or paper
- Pens/pencils



Reducing food waste



As much as 40 percent of food produced in the U.S. for human consumption goes uneaten, and worldwide, one-third of food is wasted. About 36 million tons of food waste are generated in the United States each year. Food waste has increased significantly in recent years. Food waste per capita in the U.S. increased 50 percent from 1974 to 2009 according to the National Institute of Health.

According to the U.S. Environmental Protection Agency, food waste is the single largest component of garbage being sent to landfills and incinerators. Locally, food scraps and non-recyclable paper make up about one-third of what we throw in the garbage at home.

Environmental and economic impacts

Wasting food wastes resources that go into producing, packaging and transporting food. Additionally, there are many agricultural inputs used to produce food that emit greenhouse gases and impact soil and water, making wasting food an environmental threat. Food disposed of in a landfill quickly rots and becomes a significant source of methane, a potent greenhouse gas. Landfills are the largest source of human-related methane in the United States, accounting for more than 20 percent of all methane emissions.

Wasted food in the U.S. is valued at \$165 billion annually, representing a significant waste of money for households and businesses. Households are responsible for throwing away approximately \$43 billion worth of food, and this doesn't include plate scrapings, garbage disposal waste or composting. On average, American households throw away 14 percent of the food purchased, an average of nearly \$1,500 worth of edible food a year for a family of four.

Social and ethical impacts

The issue of wasted food is often juxtaposed with hunger and food insecurity. Every day, 980 million people go hungry in the world even though there is no shortage of food. In the U.S., 1 in 6 people don't have enough food. There are ways to help distribute food to people who are dealing with hunger issues, including donating unused food to a local food shelf and encouraging local restaurants and grocery stores to donate unused food.

Sources of food waste

Food waste is generated from many sources, including food manufacturing and processing facilities, supermarkets, institutions such as schools and hospitals, restaurants, and households. Because so much food is wasted at home, consumers play an important role in the food-waste equation and must be part of the solution. According to the Natural Resources Defense Council, the reasons consumers waste food include:

- Lack of awareness and undervaluing of food
- Confusion over dates on labels
- Impulse and bulk purchases
- Poor planning
- Cooking too much at once
- Forgetting about leftovers

By increasing awareness and taking some simple steps, households can significantly reduce the amount of food and money wasted every year.

Web resources

U.S. Environmental Protection Agency
www.epa.gov/foodrecovery

Natural Resources Defense Council
www.nrdc.org/food/files/wasted-food-ip.pdf

West Coast Climate & Materials Management Forum
westcoastclimateforum.com/food

Food and Agriculture Organization of the United Nations
www.fao.org/home/en

Save the Food
www.savethefood.com

TRACK YOUR FOOD WASTE AT HOME

More than 20 percent of the food we buy gets thrown away. That adds up to about 245 pounds per person each year! And food waste is a large proportion of our trash. An average household throws away one pound of food waste for every seven pounds of trash. The average American family of four ends up throwing away an equivalent of up to \$1,500 annually in food. In this activity, participants will calculate food waste by measuring and tracking all the food thrown away over a week or longer.

Outcome

Participants will increase their awareness of how much food waste they produce each week by measuring their food waste.

Audience

Youth (ages 8+), adults

Time

60 minutes for the initial set-up, then 1 to 2 weeks for the measurement exercise

Concepts

- Measure and record the amount food wasted each week
- Increase awareness about food waste

Supplies

- Paper lunch bags
- Tape or stapler
- The Food Waste Challenge measurement tool from the U.S. Environmental Protection Agency (EPA), available in the Appendix. Try to get participants to reuse the label for subsequent measurement weeks by removing the label from the paper bag after each week and reattaching it to a new bag, but be prepared to provide a few extras.
- The Food Waste Challenge worksheet from the U.S. EPA, available in the Appendix.
- BPI-certified compostable bags (*optional*)



TRACK YOUR FOOD WASTE AT HOME

Preparation

- Gather a supply of paper lunch bags, one or two for each week that you want participants to measure their food waste.
- Print out copies of the Food Waste Challenge measurement tool. Decide how long you want participants to measure their food waste.

Procedure

- Tape or staple the Food Waste Challenge measurement labels on the paper bags.
- At the start of each week, line one paper lunch bag with a BPI-certified compostable bag. Over the course of the week, place all your preventable food waste into the bag. Preventable food waste is food you bought to eat but has since spoiled or food that was prepared but was not eaten. Discard non-edible food waste such as banana peels, egg shells and chicken bones in the usual manner.
- At the end of each week, measure the volume of food waste in the bag using the fractions on the printed label. Record the volume on the Food Waste Challenge worksheet. If you have a kitchen scale at home, you may use that to weigh the food waste for a more accurate measurement.
- If the bag fills up before the end of the week, weigh or record the volume of the full bag and record how many days you collected food in that bag. Then begin collecting in a new bag. At the end of the week, total the weight and/or volume of food waste for the entire week.
- After recording the volume of food wasted for the week, place the collection bag and food in a curbside organics cart (if available) or backyard compost bin (as long as the food waste is only fruit and vegetable scraps), bring it to the Hennepin County Drop-off facility in Brooklyn Park or put it in your garbage.
- Have participants report and share the amount of food waste generated. If you are working with a group, consider charting or otherwise displaying and sharing the group's results. Discuss changes participants are motivated to take after measuring their food waste. Consider doing the activity again in a few months to see if participants have made any lasting changes.
- Waste collection tips:
 - If you are concerned about leakage, use a plastic bag as a second liner.
 - If you are concerned about odor, you can clip the top of the bag shut, or you can start using a new bag midweek as long as you track the total volume of waste for the whole week. You can also store the bag in the fridge.
 - Do not collect liquid waste such as soup.

Discussion questions

- What did you learn that was new? Was there anything that surprised you?
- Did you find the exercise helpful or informative, and how?
- Can you think of ways to reduce how much food you are throwing in the trash based on what you threw out?
- Do you think you often buy more food than needed?
- What are the most common food items that get thrown away in your household?
- What do you want to learn more about?

Additional activity ideas

Research the life cycle of food

Research the life cycle of a food or food product. What goes into getting your chosen food item from farm to your table?

Continue to measure food waste

Continue the food-waste measurement exercise for six weeks. The first two weeks are spent measuring

how much food waste your household throws away, and the third through sixth weeks are spent testing strategies from the U.S. EPA to prevent food waste while continuing to measure how much is being thrown away. View the U.S. EPA's "Food: Too Good to Waste" Implementation Guide and Toolkit at www.epa.gov/sustainable-management-food/food-too-good-waste-implementation-guide-and-toolkit.

FOOD WASTE BUFFET

About 40 percent of food produced for people to eat in the United States today goes uneaten, which is more than 20 pounds of food per person every month. That means Americans are throwing out the equivalent of \$165 billion in food each year. The food we throw out also uses huge amounts of water, chemicals, energy and land. Food is wasted for many reasons, such as buying too much, poor planning, spoilage and lack of awareness of how much is thrown away. In this activity, participants will take food waste and display it on a table like a dinner buffet to create a visual statement about food waste.

Outcome

Participants will visualize the amount of food that is regularly put into a garbage container by taking the waste out of the garbage can and displaying it on a table at an event.

Audience

Youth (ages 8+), adults

Time

30 - 90 minutes

Concepts

- Americans waste about 40 percent of the food that is produced in the United States for human consumption each year.
- Wasted food is wasted resources – water, fuel, and energy. It also contributes to pollution, soil erosion and deforestation.
- Displaying food waste at an event can help participants visualize how much food is wasted every day.

Supplies

- 1-2 long rectangular “banquet” tables
- Tablecloth(s)
- White board or chalkboard
- Marker or chalk



FOOD WASTE BUFFET

Preparation

- Choose an event for the food waste buffet. Make sure there will be food served at the event so attendees can use their leftover food for the food waste buffet. Choose a location for the buffet in a space that is highly visible but not obtrusive for the flow of traffic; for example near the trash containers, dish room or room exits.
- Recruit two to four volunteers (depending on the length of time for the event) to direct event attendees with their plates of leftover food.

Procedure

- Before the event, set up one or two tables, depending on the number of attendees, covered with a tablecloth. Position the dry-erase board or chalkboard near the table facing in a direction that makes it easy to read. Write a description such as “measuring our food waste” on the board.
- As the event is taking place, have the volunteers take peoples’ plates of leftover food and place the food on the food waste “buffet” tables. Food can be combined with other food to create full plates. Be prepared to answer questions about the purpose of doing this exercise (raising awareness about food waste by making it visible).
- After the event, calculate the amount of food waste by weighing or counting the number of plates of food, and report the results to the event’s attendees or organizer. Another possibility is to calculate the amount of leftover or wasted food generated in the kitchen, such as if the event takes place at a church, school or person’s house.
- Challenge event attendees to reduce their food waste at future events by only taking what they think they will eat and knowing they can go back for more food if they wish. Compare the results of this food waste “buffet” with those of the next event.

Discussion questions

- What new things did you learn?
- What was your reaction to seeing the leftover food? Did you expect to see more? Less?
- Was there any item in particular that people seemed to throw away a lot?
- Thinking about food waste in your household, overall how much food would you say you throw away in general?
- What reasons do you think lead to food getting wasted?
- Thinking about when you throw food away, to what extent does it bother you? A great deal, a fair amount, a little, not very much, not at all.
- What do you want to learn more about?

Additional activity ideas

Volunteer at a food shelf

- Volunteering at a food shelf can put a face on those who are hungry. One in nine Minnesotans struggles with hunger. You can help by volunteering at a food shelf. To find a food shelf near you, go to www.2harvest.org/get-involved/volunteer/ or salvationarmynorth.org/community/twin-cities-metro/community-pages/volunteering-21/.

EAT ME FIRST

According to the U.S. Environmental Protection Agency, food waste accounted for almost 14 percent of municipal solid waste in the United States in 2010 – that’s 34 million tons of food waste! Food is wasted for many reasons, including buying too much, poor planning and spoilage. This activity aims to help reduce the amount of food wasted in households by helping participants prioritize what food needs to be eaten first.

Outcome

Participants will create an “Eat Me First” sign to label a box, container or area of their refrigerator as a visual reminder that certain foods need to be eaten sooner to prevent them from spoiling and going to waste.

Audience

Youth (ages 8+), adults

Time

30 - 50 minutes

Concepts

- Food gets wasted when it’s forgotten about in the back of the fridge.
- Use up perishable foods before they spoil to avoid wasting money and resources that went into growing and producing the food.
- Make your perishable foods more visible by designating a specially labeled place for them in your fridge.

Supplies

- Shoe box or shoe box-sized plastic container for each participant
- Large, flat pieces of paper
- Scissors
- Glue stick or tape
- Markers or crayons
- Paints, fabric scraps, buttons, etc. for decorating the box (*optional*)
- A computer and printer if participants want to design a sign (*optional*)



EAT ME FIRST

Preparation

Gather the containers and materials for decorating the containers in advance. Provide a shoe box or other shoe

box-shaped container for each person, or have each participant bring one.

Procedure

- Explain to participants that they will be creating an “Eat Me First” container to keep in the refrigerator that will hold food that is close to its expiration date and should be consumed before it goes bad or is wasted.
- Have each participant use the paper and writing utensils to make a sign that says, “Eat Me First.” The signs can be as creative or decorative as they wish, but the wording should remain clear. Make sure the signs are the right size for the shoe boxes or containers.
- Have participants tape or glue the “Eat Me First” sign on the shoe box or container and ask each participant to specify where in their refrigerator makes sense to put this container.
- Have participants identify perishable food that should go in the “Eat Me First” container, and place the container in the refrigerator.

Discussion questions

- What types of foods will you put into your “Eat Me First” box?
- What are other ways you can try to help foods get eaten? (Example: rotate food forward with older food in front and new food in back)
- What are some other ideas for better storing food? (Example: place items on Lazy Susans in the fridge so food can be found and used easily)
- What are other ways you can reduce the amount of food you waste?
- How does reducing food waste help the environment?

Additional activity ideas

- **Create “Eat Me First” stickers**
Buy blank stickers and write or print “Eat Me First” on each sticker. Place stickers on individual food items in the fridge so people know which items to use up first.
- **Cooking challenge**
Choose five ingredients that you already have in your fridge, freezer or cupboards. Look online to find a recipe or brainstorm to create a recipe that incorporates those five ingredients. Prepare a dish, and then share it with other participants, who will rate each other’s creations to choose a winner of the cooking challenge.
- **Pack a Low-Waste Lunch**
Many parents pack lunch items in single-use plastic bags, or they purchase single-serving items that come in their own disposable package. These products are extremely convenient, but create a lot of waste. You can pack a no-waste lunch by using a reusable lunch bag, putting sandwiches and other main dishes as well as fruits and vegetables in reusable containers, and using a reusable beverage bottle, utensils and cloth napkin. You’ll be reducing packaging waste and saving money, too.
- **Tour a commercial composting facility**
Tour a commercial composting facility to see what happens to food waste. The Mulch Store is a commercial composting facility that offer tours to the public. Learn more at www.hennepin.us/environmentaleducation.

Resources

- Eureka Recycling’s online A to Z Food Storage Guide available in the Appendix.

MAKING SENSE OF DATE LABELS ON FOOD

Confusion over date labels on food can cause consumers to throw away food prematurely. In the United States, “sell by” and “use by” dates are not federally regulated and do not necessarily indicate food safety, except on certain baby foods or infant formula. Rather, they are manufacturer suggestions for peak quality. Most foods can be safely consumed well after their use-by dates. Understanding the true meaning of use by and sell by dates and being okay consuming foods that aren’t quite perfect can help reduce food waste.

Outcome

Participants will learn about food product dating labels such as “sell by” and “use by” to make informed choices about food.

Audience

Adults

Time

30 - 45 minutes

Concepts

- Use by and sell by dates on food labels don’t necessarily indicate food safety. They are often manufacturer suggestions for peak quality.
- Understanding date labels can help you reduce the amount of still-good food you throw away.

Supplies

- Food products that contain different date labels. Ideas include dry pasta, canned salsa or vegetables, bread, produce or cheese.



MAKING SENSE OF DATE LABELS ON FOOD

Preparation

- Collect food containers in advance.
- Review the date-label terms and definitions below before the activity to be well-versed on what the terms mean.

Procedure

- Explain what each date label means. Give participants time to ask questions about each date label.
- Have participants take an inventory of the dates on some of the food in their households. Ask them to choose foods stored in a variety of locations, such as in the cupboard, in the fridge, in the freezer, etc.
- Have participants record the dates on the food product and then think about how they would know if the food was safe to eat beyond looking at the date label, such as smelling the food first or looking for signs of freshness.
- Have participants discuss their findings and what they will do differently as a result.

Dates meant for businesses to communicate with each other:

- “Production” or “pack date”: the date on which the food product was manufactured or placed in its final packaging.
- “Sell by” date: the manufacturer’s suggestion for when the grocery store should no longer sell the product. This information helps stores with their stock rotation. The “sell by” date is often misinterpreted to mean a product is unsafe to eat, but in fact, “sell by” dates are typically designed as a way for the manufacturer to ensure the grocery store that if a product is sold by that date, it will still be of good quality for a reasonable amount of time after it’s purchased.

Dates meant to communicate directly with the consumer:

As explained by the FDA, “use by,” “best by,” “best if used before,” and “guaranteed fresh until” dates are typically manufacturer suggestions for peak quality. These are loosely used to mean:

- “Best if used before” or “best by” date: the manufacturer’s estimate of a date after which food will no longer be at its highest quality.
- “Use by” date: also typically a manufacturer’s estimate of the last date recommended for the use of the product while at peak quality.
- “Freeze by” date: a guide for consumers to know by when to freeze a product. This date is often used in conjunction with another date, in case the consumer chooses not to freeze the product.

Discussion questions

- How has your understanding of food date labels changed? What changes could be made to help consumers better understand food labels?
- Can you think of a food item that you have thrown away recently based on the belief that the food was unsafe to eat/no longer fresh?
- What do you want to learn more about?

MAKING SENSE OF DATE LABELS ON FOOD

Additional activity ideas

- **Grocery store label search**

Go to the grocery store as a group and split into groups. Visit the different areas of the store to look at the types of date labels commonly found on items such as fresh packaged deli food, packaged produce, canned foods, frozen foods, dairy products, baby food, pet food, and household cleaners. Each team should write down the number of different date labels they find, and then compare their list with the other teams. Review what the different date labels mean.

- **Watch and discuss “Inglorious Fruits and Vegetables”**

Intermarche, France’s third-largest supermarket chain, began a campaign called “Inglorious Fruits and Vegetables” in 2014 to try to change consumer attitudes about ugly-looking produce. View

Intermarche’s campaign video at www.vimeo.com/98441820 and discuss the campaign with participants. Was the campaign successful? Why or why not? What strategies can you use to know when fruits and vegetables are still edible and when they should be thrown out? What can you do with produce that might be overripe? (Example: use them for baking in dressings, soups or in a juice or smoothie)

- **Tell a friend**

Commit to telling one friend, family member, neighbor or co-worker about label dates and what they mean. Ask if they tend to throw away food because of the date labels, and encourage them to learn more about what labels really mean.

FOOD STORAGE

Much of household food waste is generated because we buy too much, let it spoil or put more on our plates than what we can eat. About two-thirds of food waste is due to food spoiling because it is not used in time, whereas the other one-third is caused by people cooking or serving too much. Certain types of food, such as produce, tend to get thrown away because it spoils before it can be used. Learning how to properly store food can significantly reduce food waste.

Outcome

Participants will learn how to store, refrigerate and freeze food to reduce food waste.

Audience

Adults

Time

30 - 45 minutes

Concepts

- Properly storing food can make it last longer and reduce food waste.
- Wasting food is costly for your wallet and the environment. It takes energy, water and other natural resources to produce food and to dispose of food waste.

Supplies

- Eureka Recycling's online A to Z Food Storage Guide available in the Appendix
- Examples of food items, including fruits and vegetables, meats, dairy, dry goods and spices
- Storage supplies including paper towels, cloth towel, glass jar, plastic bag, airtight container, kitchen knife, wax paper, grater
- Thermometers for people to check the temperature of their refrigerators (*optional*)



FOOD STORAGE

Preparation

- Read Eureka Recycling's online A to Z Food Storage Guide and review the Natural Resources Defense Council's The Refrigerator Demystified infographic to familiarize yourself with the material before you present it to participants.
- Print copies of Eureka Recycling's online A to Z Food Storage Guide for participants
- Acquire examples of food items.

Procedure

- Distribute Eureka Recycling's online A to Z Food Storage Guide and display or distribute copies of the Refrigerator Demystified infographic.
- Review the following food waste storage tips with participants.
 - Set your refrigerator to the right temperature. Food needs to be stored between 33 - 41 degrees Fahrenheit for maximum freshness and longevity. Check that the seals on your fridge are good as well. Make sure to store foods in the correct place in the refrigerator for maximum freshness.
 - Place food in appropriate packaging (example: store mushrooms in something breathable, like a paper bag, instead of plastic). Find alternative uses for produce that is past its peak quality. For example, vegetables that are starting to wilt can be used to make soup.
 - Learn the best place to store food. For example, many fruits should be stored in the fridge because they last longer in cooler temperatures.
 - Properly store your food immediately after buying items to ensure your food will last as long as possible.
 - Freeze food if you can't eat it in time. Many fruits freeze well, such as strawberries, blueberries, and bananas, and can then be used for smoothies or baking. Visit www.usda.gov and search "freezing food" to see how long certain foods last in the freezer.
- Ask participants what types of food are often wasted in their homes and search for storage tips on Eureka Recycling's A to Z Food Storage Guide.
- Show participants examples of food storage items and which foods could be stored in them to maximize the shelf life.
- Have each participant chose one to three storage tips to try at home. Have participants commit to their storage tips by writing which storage tips they will try on a sticky note and display the sticky notes for all participant to see.
- If possible, give participants a few weeks to try out the food storage techniques. Discuss the changes participants have made, sharing both successes and challenges they continue to encounter.

Discussion questions

- What specific food items do you have questions about storing properly? Give an example of one item, such as an apple, for which you learned the proper storage technique.
- What foods do you buy most often?
- What foods do you often find yourself throwing away?
- How often do you shop for food? Do you plan meals before you go to the grocery store? Do you find it helps you waste less food? What are other benefits to meal planning?
- What is your most common reason for throwing out food?
- What do you want to learn more about?

FOOD STORAGE

Additional activity ideas

- **Take inventory**

Take inventory of your refrigerator, freezer and cupboards to see what foods you have. Keep a list of the contents of each to remind yourself to use them up before buying more or before they spoil or become stale.

- **Donate food**

If you have non-perishable and unspoiled perishable food that you don't want or don't think you'll use, donate it to local food banks, soup kitchens, pantries, and shelters.

- **Leftover potluck**

Have a potluck dinner in which only leftovers are served. Foods such as chili, stew and soups can taste better as leftovers because the flavors have had time to meld.

Resources

The Natural Resources Defense Council's "the Refrigerator Demystified" infographic in the Appendix.

WHAT ARE YOU PAYING FOR?

Packaging makes up about 30 percent of our trash. Some packaging, including paper, boxes and plastic packaging from toys and electronics, is recyclable. However, a lot of packaging, including plastic bags and wrap, foil, and Styrofoam, is not easily recyclable.

A lot of products are available in small portions that have a lot of packaging. These products, while claiming to increase convenience, also greatly increase the cost of the product. For example, individually packaged, snack-sized bags of potato chips cost about twice as much as buying the same amount of chips in a larger bag. Choosing products with minimal packaging saves money and reduces the amount of waste produced.

Outcome

Participants will learn the economic and environmental costs of purchasing overly packaged food and drink products.

Audience

Youth (ages 8+), adults

Time

20 - 30 minutes

Concepts

- Look for less packaging and avoid disposables.
- Choose products with the least packaging over individually wrapped items.
- These choices don't just help the environment; purchasing items with less packaging saves money!

Supplies

- Examples of food and beverage items that are individually or overly packaged (snack packs, individual servings, etc.) and the same or similar products with less packaging such as bulk portions or family-size quantities. Some examples include chips, crackers, sweetened drinks, cookies, popcorn and raisins.
- Receipt from grocery shopping
- Two baskets, boxes or bags of equal size
- Paper and pens/pencils
- Calculators (*optional*)
- Examples of containers for buying and storing in bulk and packing food in reusable containers for lunches, snacks, etc. (*optional*)



WHAT ARE YOU PAYING FOR?

Preparation

Separate the examples of more packaging and less packaging into separate baskets, bags, boxes or piles. Create a chart or list of the prices you paid for the items that participants can see.

Procedure

- Ask participants how they make decisions about what they buy. Do they take taste into account? Healthfulness? Convenience? Size? Packaging? Price?
- Divide participants into small groups and distribute “less waste” and “more waste” examples of the same products to each group. Ask them to describe the differences they see. Ask them to guess the price of the different items.
- After the participants guess the costs of items, reveal the list of prices.
- Collect all the items from participants in two baskets, boxes or bags (one for “less waste” and one for “more”), or set the items into two different piles. Determine the total cost for each basket and discuss the difference in waste (for example, the “less” waste items may cost about 60 percent less than the same food and drinks in the “more” waste pile).
- If time permits, discuss buying items in bulk and packing food in reusable containers. Explain how to find the weight of the container by first weighing the empty container and how to label containers for check out.

Discussion questions

- Was anyone surprised by the difference in the prices? What did you already know about this?
- Why are some items packaged in individual containers? What price do we pay for convenience (economic, environmental)?
- What are the alternatives to buying individually wrapped containers? (Buy durables, not disposables. Use reusable containers.)
- How can you alter your lunch or snack to produce less waste?
- What are the challenges with buying food with less packaging (time, convenience, etc.)? Does anyone have experience addressing these challenges?
- Does anyone’s family buy larger portions or in bulk? Why? (Save money, reduce waste, etc.) What do you buy in bulk? Where do you get it?
- How can you make a less-packaged product more convenient? (When you need a smaller amount for a lunch or snack, take the food from the large container and place it in a smaller, reusable container.)
- Will you share information you learned with anyone else? Who will you share it with?
- What more do you want to learn about these issues?



WHAT ARE YOU PAYING FOR?

Additional activity ideas

Investigate the life cycle of products

- Have participants investigate the life cycle of a product – from the extraction of raw materials through manufacturing, use and disposal. Consider common items that may be made of numerous materials, such as a pen or permanent marker, electronics, clothing, etc.
- Have participants research the types of materials this product is made of including where the materials are sourced and how the product is manufactured. Have participants consider:
 - What materials is this product made of? Where did these materials come from? Were they mined, produced in a factory, grown on a farm?
 - How were the different materials manufactured into the product?
 - How far did the materials and/or product travel to get to the consumer?
 - What will happen to the product when we are done using it? Is the product or parts of the product recyclable?
 - Could a similar product be used that has less environmental impacts?
 - Was there any information you couldn't find or was difficult to find?

Participants can create posters or visuals to share their findings.

Grocery store detectives

- Take participants to a store and ask them to help find products that are individually or overly packaged and minimally packaged.

Ask participants to find multiple products in each of these categories:

- no wrapping (e.g. apple)
- one wrapping (e.g. bread)
- two wrappings (e.g. cereal)
- three or more (e.g. frozen meals, snack packs)
- Have participants discuss less packaging alternatives to the items they found. Which items have an less packaging alternatives? Which do not?

Design less-wasteful packaging

- Using examples from the packaging activity or any other product of interest, challenge participants to research and design packaging that would be less wasteful. Ask teams to present their packaging ideas to the entire group.

Reducing waste at your organization

- Look for ways to reduce waste within your organization, especially with groups that meet regularly as a class, team, group, etc. Considering auditing the waste generated by the group or within your organization in order to identify the best waste reduction actions. Some actions include:
 - Commit to bringing reusable mugs and bottles instead of disposal cups. Consider tracking the number of disposable cups avoided every time the group meets with a “Saved Cup Tally.”
 - Serve snacks in bulk or with less packaging.
 - Use reusable foodware, including bowls, cups, plates, silverware, cups and napkins. If your organization doesn't have enough, ask participants to commit to bringing their own.
 - Reduce paper use by limiting handouts.
 - Track your progress to see how much waste the group prevents!

Resources

Tour the Hennepin County Drop-off Facility in Brooklyn Park

This tour highlights the importance of reducing, reusing, recycling and preventing pollution. Students will learn about the materials accepted at the Hennepin County Recycling Center and Transfer Station and witness what happens to the materials first-hand. They will also learn about the proper ways to dispose of and handle household hazardous waste. Available for grades 2 and older. Visit www.hennepin.us, search: tours.

Packaging Waste Reduction Learning Trunk

This learning trunk demonstrates the cost differences and packaging waste when purchasing single-serve items versus those packaged in bulk or concentrate. It also addresses packaging recyclability. Learn more at www.hennepin.us/environmentaleducation and check out the learning trunk for free by calling 612-348-4168.

ECO FASHION SHOW

Every person in the U.S. throws away an average of 70 pounds of clothing and other textiles annually. Only 15 percent of textile waste is reused or recycling, meaning 85 percent ends up in the trash. By reusing and repurposing, materials that someone no longer wants or needs can be given a new life. Reusing is an even better option than recycling because reusing doesn't require processing or manufacturing, which saves energy and resources. By shopping reuse, you can get quality, unique goods and save money.

Outcomes

- Participants will learn the value of reusing items instead of buying new.
- Participants will organize a fun event to illustrate creative reuse ideas.

Audience

Youth (ages 11+), adults

Time

Planning will take at least two weeks; actual time depends on how involved the event becomes. See Extensions for a one-day activity.

Concepts

- Before you buy a new item, think about whether you could get it used. Get creative! There are endless ideas for how you can reuse and repurpose materials into new-to-you, unique items that show off your personal style.
- By shopping used first, you can get quality, unique items and save money.

Supplies

- Reused clothes and accessories can be collected, purchased or created (see Additional activity ideas for ideas)
- Handout: Donation Opportunities Guide (*optional*)



ECO FASHION SHOW

Preparation

- Collect reused clothes and accessories by asking participants to bring in items they no longer need. Consider partnering with a local reuse outlet and giving participants a budget (if possible) to purchase items.

Procedure

- Ask participants about their favorite places to get clothes and accessories. Then ask participants if they ever wear secondhand items. What do they like or dislike about shopping reuse or wearing secondhand items? What are the challenges with shopping reuse?
- Have participants organize an Eco Fashion Show by assembling outfits from reused clothes and repurposing or altering reused clothing and accessories. Consider incorporating a theme, such as outfits inspired by famous musicians, songs, movies, cartoons, parts of the world, sports or outdoor activities, fancy party outfits, etc.
- Award prizes in categories such as “most reused materials,” “least expensive,” “most beautiful,” “most creative,” “weirdest,” etc. Prizes should be made from reused or repurposed materials or encourage reuse (reusable shopping bags, gift cards to local reuse outlets, etc.).
- Have participants develop a plan, if applicable, for advertising the show to the friends, family and the community. Consider integrating the fashion show into an existing event within your organization.

Discussion questions

- What did you learn that was new? What surprised you?
- What was the most successful part of the show? What would you do differently in the future?
- What was most fun about working with reused clothes or accessories?
- What was your favorite outside? Which outfit would you actually wear?
- What is your past experience buying used goods?
- If you are reluctant to buy used goods, what is holding you back?
- Will you buy or use more used goods after this experience? Why or why not?
- When you are done using something, what do you do with it? Where can we donate usable items we are done using? (see the Donations Opportunities brochure for ideas.)
- What do you want to learn more about?

ECO FASHION SHOW

Additional activity ideas

Make accessories from reused materials

- In addition to or instead of a fashion show, you can make smaller accessories made from reused materials. Follow these suggestions or search online for additional ideas:
 - Make bracelets from old snack bags. (<http://familyfun.go.com/crafts/snackbag-chain-bracelet-673305/>)
 - Make beads for a necklace out of old magazines or junk mail (www.wikihow.com/Make-Paper-Beads)
 - Make a purse out of old blue jeans (<http://familyfun.go.com/crafts/jean-pocket-purse-667156/>)
 - Make flower pins or headbands from fabric scraps

Research the life cycle of clothing

- Clothing serves many purposes, including function and fashion. But what do we know about the environmental impact of the clothing we wear? Ask participants to take a look at the tag on an article of clothing they are wearing. What can you learn from the tag? What is the item of clothing made of? Where was it made?

- Have participants research fabrics – what raw materials are fabrics made of and what are the environmental implications? How much textile waste is generated, and how much is reused or recycled? What are the issues with fast fashion and other clothing trends? What are the benefits and challenges of buying reused items versus new items?
- Discuss ways of reducing the environmental impact of our clothing choices (buying reused, buying classic and well-made items, looking for sustainable fabrics, etc.).

One-day eco fashion show

- Group leaders should secure reused clothes and accessories in advance of the session, or have participants bring several items of clothes or accessories.
- Have the participants assemble an outfit from the items provided and perform a spontaneous fashion show.

Resources

Handout: Donation Opportunities brochure



GIVE GREEN GIFTS

On average, Minnesotans creates six pounds of waste per person per day. From Thanksgiving to New Year's Day, residential waste increases by more than 25 percent. Additional food waste, packaging, wrapping paper and decorations add about one million extra tons per week to the nation's garbage piles. By changing the way we celebrate during holidays and throughout the year, we can also celebrate a cleaner environment. One thing you can do is make your own gift boxes and gift card holders instead of spending money on new materials that often cannot be recycled. You can also give low-waste presents by creating a homemade gift, sharing an experience or providing a service. Through these creative projects, participants can make the gifts they give both affordable and green.

Outcomes

- Participants will use alternatives to gift wrap with reused materials.
- Participants will learn ways to reduce waste during celebrations.
- Participants will get ideas for giving green gifts.

Audience

Youth (ages 5+), adults

Time

20 – 60 minutes

Concepts

- Gift wrap is generally not recyclable, but there are many alternatives for wrapping gifts in reusable materials.
- You can give green gifts by creating a homemade gift, sharing an experience or providing a service.

Supplies

- One empty box with separate top and bottom (example: shoe box), container (example: Pringles can) or empty toilet paper roll per participant
- Large, flat pieces of newspaper, old maps or posters, brown paper bags cut open, or any other reusable paper that is large enough to wrap around the container you're using
- Scissors
- Glue or tape
- Markers, crayons, colored pencils, ribbon, string or fabric for decorating the paper (*optional*)



GIVE GREEN GIFTS

Preparation

- Gather supplies for the activity in advance on your own or work with participants to brainstorm sources of used paper and collect it.
- Create a green gift box and green gift card holder in advance to become familiar with the process and make samples.

Procedure

Green gift box

- Make sure each participant has a box or container to create a green gift box.
- Have participants use scissors to cut paper, newspaper, old maps or posters to fit the size of the box or container.
- Have participants wrap the box or container with paper, newspaper, old maps or posters, using glue or tape to secure paper. Make sure participants wrap the top and bottom of the box separately so the gift can be opened and reused over and over again. Participants can secure any loose edges or corners with glue or tape.
- Have participants use markers, crayons, colored pencils, ribbon, string or fabric to decorate the outside of the box or container if desired.
- While participants are creating green gift boxes, have a discussion about alternatives to purchased and new gifts. Ask participants to brainstorm ideas for gifts that are homemade, reusable, recyclable or edible. Ideas include: baking cookies or giving ingredients to cook a treat or meal, giving an experience such as concert or movie tickets or a restaurant gift card, creating a homemade keepsake, or providing a service such as babysitting or mowing the lawn.



Example of green gift box made from a Pringles container.



Example of green gift box made from a box.

Green gift card holder

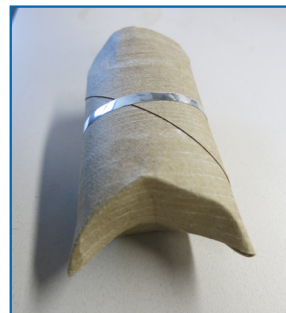
- Make sure each participant has at least one empty toilet paper roll to create a green gift card holder.
- Have participants use markers, crayons, colored pencils, ribbon, string or fabric to decorate the outside of the toilet paper roll if desired.
- Have participants fold in one half of the roll at both ends and fold the other half of the roll on top of it to enclose the roll. A crescent shape should form at both ends of the roll. Participants can re-open one end of the roll when they are ready to place a gift card inside and give it as a gift.
- While participants are creating green gift card, have a discussion about alternatives to purchased and new gifts. Ask participants to brainstorm ideas for gifts that are homemade, reusable, recyclable or edible. Ideas that could be given in the green gift holder include: gift cards, favorite recipes, an experience such as concert or movie tickets or a restaurant gift card, or a voucher for a service such as babysitting or mowing the lawn.



Start by folding one half of the toilet paper roll at both ends.



Fold the other half of the toilet paper roll to enclose it.



A crescent shape could form at both ends of the toilet paper roll to enclose it.



Completed decorated gift card holders.

GIVE GREEN GIFTS

Discussion questions

- Why do you think people use new gift wrap every year?
- What kind of difference would it make if everyone used green gift wrap?
- In addition to using green gift wrap, what else can you do around holidays or celebrations to reduce waste? (Use reusable dishes at parties instead of disposables, providing recycling options, etc.)
- Have you given a gift that was homemade, reusable, recyclable or edible before? What was the reaction to the gift?
- What other ideas do you have for giving green gifts?

Additional activity ideas

Make gift tags out of repurposed greeting cards

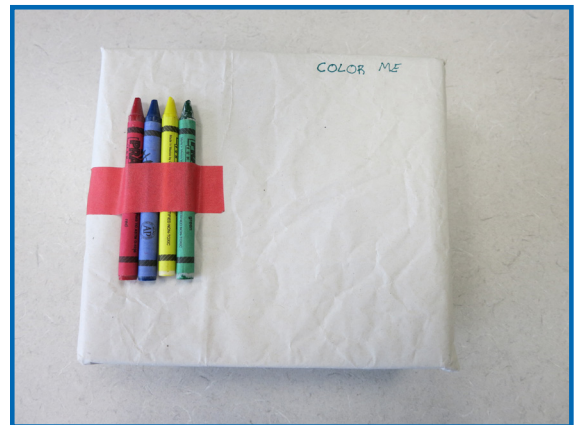
- Collect greeting cards. Using scissors, cut the greeting cards into various shapes and sizes as desired. Use a hole-punch to make a hole to tie a ribbon through and attach to gift.



Examples of gift tags made from repurposed greeting cards.

Give a coloring gift box

- Use white or light-colored packaging paper to wrap a gift box. Attach 3-5 crayons or markers to the wrapped box with tape and write a note that says, "color me before opening."



Example of a coloring gift box.

Check out the Green Parties Learning Trunk

The Green Parties Learning Trunk helps illustrate ideas for hosting greener parties and includes party supply examples for high-waste parties, low-waste parties, and parties with organics for composting as an option. The trunk also includes an engagement guide to facilitate brainstorming and planning an example party with the group. Check out a learning trunk at angela.ziobro@hennepin.us or visit www.hennepin.us/environmentaleducation

GREEN PARTY PLANNING

With all the food, packaging, decorations and giveaways, events of any size – from small gatherings to large parties – can generate a lot of waste. Many party supplies used at gatherings are used once and then thrown away. In this activity, participants will create reusable party supplies, including a pennant banner and a tablecloth, which can be used for all of their celebrations throughout the year. Participants will also review a green event checklist to assist in party planning. Whether the gathering is an upcoming holiday celebration or a birthday party, planning efforts to make and use reusable party supplies will help reduce waste.

Outcome

- Participants will learn how to reduce waste at celebrations by making reusable party supplies.
- Participants will use a green event checklist to reduce waste at celebrations and gatherings.

Audience

Youth (ages 10+), adults

Time

20 – 60 minutes

Concepts

- Parties of any size can generate a lot of waste with decorations and other party supplies, and reusable supplies can help reduce waste.
- Planning waste reduction strategies before a party can help the host throw a successful green celebration.

Supplies

- Newspapers, magazines, old maps, colored paper or fabric
- Twine or ribbon (length depends on size of pennant banner)
- Scissors
- Glue or tape
- Fabric tablecloth (one per participant, available at most party supply stores)
- Fabric paint (available at most arts and crafts stores)
- Handout: Green Party Checklist available in the Appendix (one per participant)
- Markers, crayons, colored pencils, ribbon, string or fabric for decorating (*optional*)



GREEN PARTY PLANNING

Preparation

- Gather supplies in advance or ask participants to bring their own supplies.
- Create one pennant banner and tablecloth in advance to become familiar with the process and make samples.

Procedure

Create a pennant banner

- Hand out the Green Party Checklist to participants and have them read through the list.
- Ask participants if they have considered any of the steps for previous gatherings or parties. Ask which of the steps would be easiest and hardest to follow to make a gathering or party greener.
- Have a discussion with participants about waste created from decorations and other party supplies, and ask participants to brainstorm ideas for alternatives to disposable decorations and party supplies (tablecloths, dishware, etc.)
- Have participants cut newspapers, magazines, old maps, colored paper or fabric into triangle shapes. The more triangles you have, the longer the banner will be! Encourage participants to use colors and designs that can be reused for more than one celebration so the banner can be a go-to event supply.
- Have participants fold over the top edge of the triangles about half an inch.
- Have participants glue or tape the twine or ribbon under the half inch fold and press down on the paper to secure the triangles to the banner firmly. Participants can use the scissors to snip any extra corners sticking out from the triangle.
- Have participants continue adding triangles to the twine or ribbon until the banner reaches the desired length.
- Participants can bring their banners home to use as a decoration for any event celebration.
- Make a reusable tablecloth
- Make sure each participant has a tablecloth. Have participants use fabric paint to decorate the tablecloth. Encourage participants to use colors and designs that can be reused for more than one celebration so the tablecloth can be a go-to event supply.
- Let the tablecloths dry.
- While the tablecloths are drying, hand out the Green Event Checklist to participants and have them read through the list.
- Ask participants if they have considered any of the steps for previous gatherings or parties. Ask which of the steps would be easiest and hardest to follow to make a gathering or party greener.
- Have a discussion with participants about waste created from decorations and other party supplies and ask participants to brainstorm ideas for alternatives to disposable decorations and party supplies (tablecloths, dishware, etc.)

Discussion questions

- Why do you think people use new event decorations and supplies for each party or celebration?
- What kind of difference would it make if everyone created reusable event decorations and supplies?
- In addition to using green decorations and supplies, what else can you do before and during parties or celebrations to reduce waste? (Use reusable dishes instead of disposables, providing recycling options, etc.)
- What other ideas do you have for green party decorations and supplies?

Additional activity ideas

Check out the Green Parties Learning Trunk

The Green Parties Learning Trunk helps illustrate ideas for hosting greener parties and includes party supply examples for high-waste parties, low-waste parties, and parties with organics for composting as an option.

The trunk also includes an engagement guide to facilitate brainstorming and planning an example party with the group. Check out a learning trunk at angela.ziobro@hennepin.us or visit www.hennepin.us/environmentaleducation

HOLD THE MAIL

The average American household receives more than 70 pounds of advertising mail each year. Although nearly all mail can be recycled, producing mail and delivering it to households takes natural resources and creates pollution. There are many ways to reduce the amount of junk mail you receive. This activity combines actions to reduce junk mail with creative projects to raise awareness of the issue.

Outcome

Participants will take steps to reduce the amount of unwanted mail they receive.

Audience

Youth (ages 5+) for art project, adults for reduction challenge

Time

Project can be started several weeks in advance. Allow 30 - 60 minutes or longer to create junk mail art or trees.

Concepts

- Most households receive a lot of unwanted mail.
- There are relatively simple steps you can take to reduce the amount of unwanted mail you receive.

Supplies

- Junk mail collected by participants for several weeks.
- Supplies to turn junk mail into 2-D or 3-D art, such as scissors, glue, large pieces of paper or cardboard, etc.
- Handout: Hold the Mail



HOLD THE MAIL

Preparation

- Ask participants to collect and bring in unwanted mail for a few weeks. Have participants remove personal information (name, address).
- Ask participants about the unwanted, or “junk,” mail they receive. How much do they get? Have they tried to get their name off of mailing lists in the past?
- Order or download a free Hold the Mail brochure for participants. Order online at www.hennepin.us/literatureorderform.

Procedure

Junk mail reduction challenge

- Have participants count, weigh and/or observe how much junk mail they receive in a specified time period (one or two weeks would work well).
- Review the Hold the Mail brochure with participants and discuss steps to reduce junk mail. Have participants go online to get their name off of mailing lists, or ask participants to commit to taking these actions at home.
- After a month or two (it can take up to eight weeks to see a change in the amount of junk mail received), have participants reassess the unwanted mail they receive. What types of mail were they successful at reducing? What unwanted mail are they still receiving?

Junk mail art projects

- The goal of these art projects is to make the connection that unwanted mail is made from trees, and creating mail and paper uses a lot of energy and water, so taking steps to reduce the mail we receive will protect the environment.

- Have individuals or teams of participants make a three-dimensional “junk mail tree” or a two-dimensional “junk mail tree” mural out of the junk mail they collected. Consider choosing a theme for the art, such as ripping up your junk mail and stacking it on a post to create a pine tree. Search “junk mail art” online for inspiration. Consider incorporating messages to remind people that mail (paper) comes from trees or outlining the steps people can take to reduce the amount of mail they receive. Display the art in your program space or a public space (such as a park building or community center). Consider having a “gallery opening.” Ask participants to decide how they will educate the people who see the art about how to reduce junk mail.
- Challenge youth (and their families) to take steps to reduce junk mail at home – track how many of the steps listed in Hold the Mail youth complete or how successful they are at reducing the amount of unwanted mail they receive.

Discussion questions

- Why do businesses use direct mail (junk mail) to advertise? (One reason is it is cost-effective.)
- Why are there so many steps to reduce junk mail? (Advertisers do not use just one database or mailing list.)
- Why is it important to reduce the amount of junk mail you receive? (Reduce paper waste, reduce energy used in mailing, etc.)
- What other ways can businesses advertise products and services to adults and youth?
- How easy or challenging was it to get your name off of mailing lists?
- What did you learn that was new?
- How did people respond to the junk mail art?
- Who showed leadership or was a great team member? How did they show it?
- What do you want to learn more about?

Resources

- Handout: Hold the Mail booklet
- Minnesota Pollution Control Agency’s website for tips to reduce junk mail: [www.pca.state.mn.us/index.php/living-](http://www.pca.state.mn.us/index.php/living-green/living-green-citizen/reduce-reuse-recycle/too-much-junk-mail.html)

[green/living-green-citizen/reduce-reuse-recycle/too-much-junk-mail.html](http://www.pca.state.mn.us/index.php/living-green/living-green-citizen/reduce-reuse-recycle/too-much-junk-mail.html)

CREATE OR DECORATE REUSEABLE BAGS

Between 500 billion to one trillion plastic shopping bags are used worldwide each year, according to the U.S. Environmental Protection Agency (EPA). Most of these bags are used only once and thrown away, ending up in landfills or polluting land and water and damaging wildlife habitat. We can reduce plastic-bag waste by using reusable bags. Using four or five reusable bags multiple times at least once a week can replace 520 plastic bags a year.

Outcomes

Participants will learn the problem with plastic shopping bags and commit to using reusable bags.

Audience

Youth (5+), adults

Time

20 - 40 minutes

Concepts

- Plastic shopping bags, while convenient, are a waste and are generally not accepted in residential recycling programs.
- Avoid plastic bags by using reusable bags when you go shopping. Remember to bring bags with you every time you go shopping, including at the grocery store, retail and clothing stores, farmer's markets, department stores, hardware stores – everywhere!

Supplies

- Reusable bags made from canvas, cotton, recycled plastic, etc. Order reusable bags through the Hennepin County Green Partners Seed program at www.hennepin.us/greenpartners.
- Crayons, fabric markers, glue and art scraps such as yarn, ribbon or fabric.
- "Remember the bags" window clings (order online at www.hennepin.us/literatureorderform).



CREATE OR DECORATE REUSABLE SHOPPING BAGS

Preparation

Order free reusable bags to decorate and “Remember the Bags” window clings in advance at www.hennepin.us/greenpartners.

Procedure

- Discuss the use of reusable versus disposable shopping bags with participants. Do they already use reusable bags? When do they use reusable bags? Do they have any challenges with remembering to bring or using reusable bags?
- Pass out plain reusable bags and reusable art supplies and bags to participants and have participants decorate the bags.
- Distribute Remember the Bags window clings, and encourage participants to place the clings where it will prompt them to bring their bags with them when they go to the store.
- Ask participants to commit to bringing bags with them every time they go shopping. Even if they already use reusable bags, discuss ways they can increase their use of reusable bags (for example, people may use bags at the grocery store but forget about it when they are shopping for clothing). Have participants sign a commitment form to pledge to bring reusable bags with them when shopping.

Discussion questions

- Does anyone already bring reusable bags when shopping? What motivated you to start bringing reusable bags? Where did you get the bags?
- If you are not bringing a reusable bag with you when shopping, what is holding you back? How can people overcome those barriers?
- How can you remember to take reusable bags with you when you go shopping?
- How do you define reusable? What are the benefits of reusable bags?
- What are the impacts of plastic shopping bags on the environment? Consider having participants research impacts of plastic shopping bags and report back to the group.
- Why are plastic shopping bags a problem at recycling facilities? What are other options for recycling plastic bags? (Bring them to a drop-off facility or retailer take-back program)

Resources

- Handout: “Remember the bags” window cling available at www.hennepin.us/literatureorderform. See Appendix for a sample.

LITTER SONGS

Litter is still a very visible waste problem. Litter is typically packaging generated by consumers that is carelessly on the ground instead of in a recycling bin or trash bin. Littering is a completely avoidable problem – we can simply put our items into the recycling or trash bin (or reuse them)! Picking up litter is an easy way to protect land and water and to teach children about the environment.

Outcomes

Parents and children will learn about cleaning up the environment and picking up litter with songs.

Audience

Youth (ages 2+), parents and children

Time

Variable; 10 - 60 minutes

Concepts

- Littering is avoidable.
- Use songs to reinforce the idea of keeping the planet clean.
- It is easy and fun to clean up the planet.

Supplies

- Any clean items of to represent garbage or recycling
- Trash can or recycling bin



LITTER SONGS

Preparation

Adults should learn the lyrics and tune of the songs.

Procedure

- Sing the songs to children participants to get them familiar with the lyrics and tune.
- Families can sing the song and help children practice picking up items from the floor and throwing them away in the trash can or recycling bin.
- Suggested songs (courtesy of Minneapolis Early Childhood Family Education Curriculum Families for Saving the Environment by Janet Craig and Annette Gagliardi)
 1. **Litter song** —
to the tune of *London Bridge is Falling Down*
 - Let's look for litter and pick it up,
 - Pick it up, pick it up.
 - Let's look for litter and pick it up,
 - We'll help our earth stay clean.
 2. **Litter is Garbage** —
to the tune of *The Wheels on the Bus*
 - Litter is garbage that wasn't put away,
 - Wasn't put away, wasn't put away.
 - Litter is garbage that wasn't put away
 - In the garbage can.
 - I put my garbage in the garbage can,
 - In the garbage can, in the garbage can,
 - I put my garbage in the garbage can,
 - I'm not a litter bug.
 3. **There is a Planet Not So Clean** —
to the tune of *BINGO*
 - There is a planet not so clean
 - And Earth is its name-o.
 - Let's clean up the Earth
 - Let's clean up the Earth
 - Let's clean up the Earth
 - And try to save our planet.
 - There is a planet not so clean
 - And Earth is its name-o.
 - E-A-R-T-H, E-A-R-T-H, E-A-R-T-H
 - And Earth is its name-o!

Discussion questions

- Have you ever littered? Why do you think people litter?
- Will you start picking up litter more now when you see it on the ground?
- What are barriers to people putting their items into the recycling or trash bin? How can recycling and trash bins be more accessible everywhere?
- Did you find any litter that could have been recycled? How did you know it was recyclable? How will you encourage others to recycle items instead of littering or throwing them in the trash?
- Do you have other ideas for songs about the environment?

Additional activity ideas

Litter pick up for older youth

To take action to reduce litter, older youth (with adult supervision) can go outside and pick up litter around their house, school or neighborhood. Participants

should be aware of which dangerous items they shouldn't pick up and participants should wear protective gloves.

Remember to properly dispose of litter items.

MAKE TOYS FROM REUSED MATERIALS

Children often play with things that aren't sold in the toy aisle such as food containers, bottle caps, and more. Many items that we commonly consider trash can be reused as toys. Instead of wasting items like water bottles, pop bottles, milk jugs and disposable packaging, parents and children can reuse them to create toys like shaker bottles and sensory tables!

Outcomes

Parents and children will learn simple reuse ideas by creating toys from commonly trashed or recycled items.

Audience

Youth (ages 1+), parents and children

Time

30-60 minutes

Concepts

- Reuse trash or recyclables instead of throwing them away.
- Instead of buying new, make toys by reusing common household items for children's toys.
- Children's toys are typically not recyclable.

Supplies

- Empty pop bottles, water bottles, juice bottles, milk jugs or oatmeal containers.
- Clean, plastic caps from pop bottles, water bottles and/or milk jugs
- Items to put in empty bottles, such as recycled or shredded paper, small pieces of cardboard, wood chips, cut straw, plastic rings from bottles, etc.
- Hot glue or duct tape



MAKE TOYS FROM REUSED MATERIALS

Preparation

Ask parents to bring empty pop and/or water bottles from home along with clean caps from milk and juice jugs.

Procedure

Supervision for younger children is necessary when exploring small objects.

For sensory table:

- Put clean, plastic lids from containers such as water bottles, pop bottles, juice bottles or milk jugs into sensory table. Consider using other household utensils to have children grab items from the table.
- Let children sort and play with them. Children can sort items according to color, shape or size.

For shaker bottle:

- Put reused materials (pompoms, feathers, dried beans, dried rice, etc.) into bowls.
- Have parents and children put the items into pop or water bottles.
- Have parents hot glue or duct tape the caps back on the bottles to prevent children from opening the bottle.
- Shaker bottle can be used as a musical instrument for children.

Discussion questions

- Do your children enjoy playing with items that you would consider non-traditional play items? Do you already reuse any items as toys? Are there certain reused items that your children enjoy playing with? Is there anything holding you back from using reused items?
- How can you work to reduce your waste? Will you continue to use trash or recyclable items to create activities with your children?
- What other items could you use in the sensory table?
- What additional ideas do you have for creating toys from items that are typically trashed or recycled?
- How did your child respond to the sensory table and/or shaker bottles? Did they enjoy using it as much other toys?

REUSE ART PROJECTS

With a little creativity, many items that we commonly consider waste can be reused. By using commonly trashed or recycled items in art projects, you can help raise awareness about waste reduction, save money on buying art supplies and create unique masterpieces!

Outcomes

Participants will rethink items that are typically considered waste by creating art projects from trash or other reusable materials.

Audience

Youth (ages 3+), parents and children

Time

30 - 60 minutes , varies by type of art project

Concepts

- Old “trash” materials can be used to create art projects.
- You can save money while reducing waste by reusing products.
- Art can be used to spread awareness about waste reduction.

Supplies

- Recyclable art materials (old newspapers, magazines, plastic bottles, empty toilet paper or paper towel rolls, etc.)
- Trash art materials (old chip bags, pizza boxes, aluminum foil, etc.)
- Old, broken crayons
- Glue
- Scissors
- Paint (*optional*)
- Art materials such as yarn, ribbon, thread and buttons (*optional*)
- Sewing needles or sewing machine (*optional*)
- Fabric (*optional*)



REUSE ART PROJECTS

Preparation

Collect materials and consider asking participants to help you collect reusable art supplies.

Procedure

- Discuss issues related to waste reduction (refer to the background information). Have participants decide on a message you want the art to express that will encourage people to take action.
 - Allow participants to use their creativity or create a sample model of what they could create. Some ideas include:
 - Decorate an old picture frame
 - Sew old clothes into new clothes
 - Create a mural from items that can't be recycled
 - Make a snow globe using a small glass jar from jam, baby food, olives, etc. and an old small toy that can fit inside the jar. Decorate the inside of the jar with paint or glitter to look like snow.
 - Use an oatmeal container to create a holder for pencils and pens. Decorate the oatmeal container with colored paper, crayons and markers.
- Remember to not glue or tape items in ways that make them impossible to recycle later.**
- Have participants display their creations for their families and friends. Consider creating invitations to view their art with the reuse art materials.

Discussion questions

- How can art be used to spread awareness about environmental issues like waste reduction? How did people respond to the reuse art projects?
- How did the reuse art projects compare to non-reuse art projects?
- Will you continue to create reuse art projects with trash materials? Why or why not?

Additional activity ideas

Create new crayons from old, broken ones

- Peel all paper off of broken crayons
- Preheat oven to 275 degrees Fahrenheit
- Spray large or small muffin tin with cooking spray
- Fill tins with broken crayons (solid or mixed colors)
- Bake in oven for 7 to 14 minutes
- While still warm, use a toothpick to swirl colors if desired
- Cool completely, then pop out of tins

SWAP PARTY

Everyone loves new things, even when they're used. Organize a party where no one spends money and everyone leaves with gifts! Have adults and/or children look through their things and collect gently used items they no longer want. Consider a theme for the swap party, such as books, music, toys, kitchen items, clothes, shoes, jewelry, etc. Your swap party can be informal, by casually laying everything around your space and taking turns choosing items, or formal by making a game of it.

Outcomes

Participants will learn first-hand that reuse is a good way to both get rid of items you no longer want and get new-to-you items.

Audience

Youth (ages 4+), parents and children, adults

Time

30 - 60 minutes, varies by size of swap party

Concepts

- We typically have stuff we don't want any more that is still in good shape. We also like getting new stuff.
- Swap parties are a good way to get rid of stuff and get new stuff without buying new.
- Instead of shopping for new items, choose to reuse.

Supplies

- Gently used items (books, music, toys, kitchen items, clothes, shoes, jewelry, etc.)
- Computer with internet access to look at Hennepin County's Choose to Reuse Directory at www.hennepin.us/choosetoreuse (optional)



SWAP PARTY

Preparation

- Ask participants to bring gently used items to swap (remember to consider choosing a theme for the party, or create different areas at your swap for different types of items).
- Consider how your swap will work. You can have a

smaller informal swap in which items are laid out for people to take, or a larger, more formal swap with a process for how people get to select items or with items wrapped (remember to use alternative gift wrap ideas) so the swap can be more of a game.

Procedure

Small swap:

- Lay out the participants' gently used items in your space.
- Have participants take turns choosing the items they want until all items are taken.
- Decide where items that were not selected in the swap will go. Look in the Donation Opportunities brochure for options or search items on Hennepin County's Green Disposal Guide at www.hennepin.us/green-disposal-guide

Large swap:

- Lay out the participants' gently used wrapped items in your space.
- Write out consecutive numbers on small pieces of paper. Make numbers for the amount of people participating in the gift swap party (if there are 10 people participating then write out numbers 1 through 10 on small pieces of paper) and put them into a bowl, bag or hat.

- Have everyone draw a number. The number will designate the order in which guests choose a gift.
- Begin with the participant who chose the number 1. The participant will choose any gift and open it.
- Continue with the next participant. The next participant can either choose an unopened gift or they can steal an item guests have opened previously.
- Someone who has their gift stolen can either steal another gift from someone else or choose an unopened gift. A gift cannot be stolen more than once a turn.
- Continue until all participants have had a turn and a gift.
- Decide where items that were not selected in the swap will go. Look in the Donation Opportunities brochure for options or search items on Hennepin County's Green Disposal Guide at www.hennepin.us/green-disposal-guide.

Discussion questions

- Was it easy or difficult to find a reuse gift to bring to the swap party? Why do you think this was?
- What surprised you during the swap party? How did the swap party compare to a typical gift giving party?
- How does reusing items reduce waste? How can

we continue to make waste reduction a part of our everyday life?

- Did you save money when planning your swap party compares to a typical party? Why do you think this was? How can reusing items save money?

Additional activity ideas

- Incorporate a swap party into your holiday or birthday celebrations.
- Host a larger swap party for your organization and incorporate into an existing event. Consider timing the

event to correspond with a change in the seasons, before the holidays, etc. Consider incorporating a repair or mending aspect of your swap by having handy volunteers with repair or sewing skills on-hand.

Resources

- Handout: Donation Opportunities Guide available in the Appendix
- Computer with internet access to look at Hennepin County's Choose to Reuse Directory

at www.hennepin.us/choosetoreuse and the Twin Cities Free Market at www.twincitiesfreemarket.org.

- Do it Green! Minnesota's Swapping Made Easy Guide available at www.doitgreen.org.

Green party checklist

With all the food, packaging, decorations and giveaways, celebrations of any size – from small gatherings to large parties – can generate a lot of waste. With a little bit of planning, you can make your next party low- or no-waste. The following checklist will help green your efforts before, during and after your party.

Hennepin County can help event coordinators for larger develop waste-reduction plans, educate vendors, train volunteers and find collection options. Learn more at www.hennepin.us/eventrecycling.

Before the party

Planning:

- Evaluate all materials that will be at the party (packaging, decorations, banners, dishware), and try to eliminate as many disposable materials as possible.
- Assess the waste that will be generated to identify recycling and/or composting opportunities. If food waste makes up a significant portion of the waste generated, consider collecting food waste for composting.
- Plan to serve food items that have little or no packaging.
- Make sure to use reusable, compostable or recyclable dishware.
- Have a disposal method for your dishware (organics recycling for compostable ware, recycling for recyclable etc.)
- Use large beverage containers or jugs to fill reusable or compostable cups to avoid single-use water bottles or beverage containers.
- Choose reusable linens, centerpieces, decorations, etc.
- Use decorations that can be reused in future years or consider borrowing decorations from a friend that has thrown a similar party. Consider using alternatives to balloons, such as fresh-cut flowers from your garden.
- Plan to collect plastic bags – gather plastic bags into one bag and place in recycling container.
- If you are making your own food, consider using local food, such as from a farmers market or your own backyard garden. Many local farmers can provide local food items in the wintertime. If food for your party is being catered, talk to your catering company about how they can incorporate local food into the menu.
- Provide condiments in bulk instead of individually wrapped servings. For example, a squeeze container of ketchup, instead of individual packets.

Communication and education:

- Provide information on bike and transit routes to your party, or encourage your guests to carpool when possible.
- Consider distributing invitations electronically to reduce paper waste. If you prefer paper invitations, purchase invitations made from a minimum of 30% post-consumer content recycled paper.

Waste stations:

- Plan to place recycling, composting and trash receptacles together to form a waste station. This will help ensure that materials end up in the correct container.
- Make sure you have access to recycling, composting and trash containers prior to your party. Hennepin County also offers free portable recycling containers to reserve..
- Make sure waste stations are placed in a convenient location.
- Label all containers with large, clear and specific signs. If possible, include pictures or post examples of what goes in each container. Hennepin County offers free signs for recycling containers. Be sure signs on the waste containers are visible.

At the party:

- Empty bins often, especially during the summer when odors and/or insects can discourage recycling.

Energy conservation, air quality and climate change



The world's climate is changing due to increasing levels of greenhouse gases, especially carbon dioxide, in the atmosphere. Like windows in a greenhouse, carbon dioxide in the earth's atmosphere traps the sun's heat and insulates the planet. So, increasing levels of carbon dioxide in the atmosphere are warming the planet. Carbon dioxide comes primarily from the burning of fossil fuels, such as exhaust from vehicles and coal burned to generate electricity. Changes in the climate pose significant environmental and economic threats to communities in Minnesota and throughout the world.

In addition to greenhouse gases and climate change, Minnesota's air quality is impacted by a variety of air pollutants. Air pollution comes from many different sources that result from the combustion of coal, gasoline, diesel, wood and other fuels to run our vehicles and power our homes and businesses. Air pollution can have a variety of health impacts, with the biggest concern being impacts on respiratory and cardiovascular systems. Although Minnesota's air quality is generally good and has been improving for most pollutants, more can be done to reduce emissions and improve air quality.

Climate change

Shifts in climate have happened throughout Earth's history due to natural factors. Changes occur in temperature, precipitation patterns, snow and ice cover, and sea level. But what's different now is how fast these changes are happening. Almost all climate scientists agree that recent changes are primarily caused by human activities, with levels of carbon dioxide emissions having risen dramatically since late 1800s. Minnesota's carbon dioxide emissions have increased 37 percent over the past 20 years, according to the Minnesota Pollution Control Agency (MPCA).

Climate change is already observable. Animal and plant habitats are shifting, weather patterns are changing and severe storms and droughts are becoming more common. Minnesota has warmed an average of one degree Fahrenheit during the past century, according to the MPCA. Additionally, from 1958 to 2011 the Midwest region, including Minnesota, experienced an increase of heavy precipitation by 45 percent. If temperature readings and precipitation continue to increase over the next century, Minnesota might soon feel and look more like Missouri. Other impacts of climate change in Minnesota include the following:

- Changes in ecosystems and decline of forested areas by as much as 50 to 70 percent. This is concerning because temperature and moisture patterns will change faster than plant and animal communities can adapt.
- Groundwater resources, a major source of drinking water, may be reduced due to a drop in stream flow and lake levels.
- Weather patterns will become more extreme. The overall frequency of both flooding and droughts will increase.
- Changes in seasonal conditions, including frequency of poor air quality (smoggy) days in summer and less snow in the winter, which will decrease opportunities for winter recreation. Milder winters will also affect animal hibernation patterns, stressing food supplies and habitats.

Despite these changes, Minnesota will be less negatively impacted by climate change than many other areas of the country and the world. Minnesota may actually see some potential benefits, such as warmer nighttime temperatures in winter that would reduce heating costs and a longer growing season that would increase agricultural production (in years without drought).

What can you do?

- Drive less. Walk, bike, carpool or take public transit instead of driving.
- Understand your energy use by reviewing and tracking your energy bills.
- Reduce energy in home heating and cooling by sealing air leaks around windows and doors, turning down your thermostat in the winter and up in the summer, and installing a programmable thermostat.
- Install energy-efficient lighting.
- Turn off and unplug appliances and electronics when they are not in use.
- Use your refrigerator efficiently. Recommended temperatures are 30 to 40 degrees Fahrenheit for the refrigerator and five degrees Fahrenheit for the freezer.
- Switch to a low-flow showerhead and take shorter showers.
- Wash clothes in cold water. Line-dry clothing instead of using a dryer.
- Reduce, reuse and recycle.
- Purchase food grown locally to reduce the distance food travels.
- Purchase renewable energy. Many utility providers offer customers an option to purchase renewable energy.



Air quality

Although Minnesota is fortunate to have generally good air quality that has improved over the last decade for most pollutants, there is still a lot we can do to reduce air pollution.

The Minnesota Pollution Control Agency maintains the Air Quality Index, which reports daily air quality conditions. The Air Quality Index measures five air pollutants that are good indicators of daily air quality: fine particles (PM2.5), ground-level ozone (O3), sulfur dioxide (SO2), nitrogen dioxide (NO2), and carbon monoxide (CO).

An air pollution health advisory is issued when air pollution reaches levels that are considered unhealthy for sensitive groups, such as those with pre-existing respiratory or cardiovascular conditions, elderly, children, and people who are physically active.

Many factors can lead to poor air quality days. Air pollution in Minnesota come from many sources, including emissions from cars, equipment, homes, buildings and industries as well as pollution that is blown into Minnesota from surrounding areas.

Most poor air quality days are driven by changing weather conditions that increase the rate at which air pollutants are formed or accumulate in the air. For example, ozone pollution levels tend to rise on very hot and sunny days with little wind. Fine particle pollution can be elevated in weather conditions with high humidity, high pressure, strong overnight temperature inversions, or low wind speeds. This often occurs in Minnesota from November through March.

With more days topping 100 degrees Fahrenheit due to climate change, Minnesotans could experience more days with poor air quality.

Take the following actions to reduce air pollution, especially during air quality alert days:

- **Drive easy.** You can improve fuel efficiency by 10 percent or more by driving the speed limit, accelerating slowly and maintaining your vehicle.
- **Fuel up in the evening** when it's cooler, and don't top off the fuel tank beyond where the automatic nozzle clicks off. This forces vapors out of the tank and potentially leads to spills.
- **Take the bus** or check out rideshare or telework options at your work place.
- **Reduce small engine use.** Mow your grass less often, try an electric mower or push mower, or reduce total lawn area by planting native plants, rain gardens, or a vegetable garden.

- **Use less electricity.** Burning coal or natural gas for energy results in air emissions, so reducing energy use is an important way to improve air quality.
- **Reconsider the campfire.** Wood smoke contains toxins and harmful microscopic particles. Even an outdoor fire can impact the indoor air quality in your home. Always consider those living around you and the direction of the wind. If you decide to have a fire, be sure to burn dry wood. Don't burn wood during air pollution health alerts.
- **Sign up for air quality alerts** from the Minnesota Pollution Control Agency to find out when air quality is poor in Minnesota.



Resources:

- MPCA climate change factsheet: www.pca.state.mn.us/index.php/view-document.html?gid=11394
- MPCA climate change info: www.pca.state.mn.us/index.php/topics/climate-change/index.html
- Be Air Aware MN: www.beairawaremn.org
- Minnesota Pollution Control Agency's air quality index www.pca.state.mn.us/index.php/air/air-quality-and-pollutants/general-air-quality/air-quality-index/current-air-quality-index.html
- Minnesota Pollution Control Agency's wood smoke information www.pca.state.mn.us/index.php/air/air-quality-and-pollutants/general-air-quality/wood-smoke/index.html

A FEW DEGREES MATTER

Climate change is already noticeable in Minnesota. Animal and plant habitats are shifting, weather patterns are changing, and severe storms and droughts are becoming more common. Minnesota has warmed an average of 1 degree Fahrenheit during the past century according to the Minnesota Pollution Control Agency. Precipitation has increased by 20 percent since 1990, especially in southern Minnesota. If temperature readings and precipitation continue to increase within the next century, Minnesota might soon feel and look more like Missouri. In this activity, participants will create a visual representation of climate change impacts in Minnesota.

Outcome

Participants will increase their understanding of how climate change is affecting Minnesota and make a visual representation of how to make changes to address it.

Audience

Youth (ages 9+), adults

Time

30 - 60 minutes

Concepts

- Climate change affects Minnesota.
- People's activities contribute to climate change.
- There are things we can do to reduce our contribution to climate change.

Supplies

- Large sticky notes or half-sheets of paper and tape (4 or 5 per participant)
- Markers, crayons or colored pencils
- A board or large sheet of paper/newspaper
- Calculator (*optional*)
- Minnesota Environmental Quality Board's report "Minnesota and Climate Change: Our Tomorrow Starts Today" www.eqb.state.mn.us/content/climate-change (*optional*)



A FEW DEGREES MATTER

Preparation

Collect a poster board or large sheet of paper/newspaper. Put large sticky notes (or half-sheets of

paper) at each participant's place around a table or on the floor.

Procedure

- Discuss the terms climate change, global warming and greenhouse gases using information found in "Background Information" without talking about concrete effects of climate change or what individuals should change.

Part one:

- Ask participants to draw or write one way that climate change may negatively affect people, animals or nature in Minnesota on their sticky note or piece of paper. Younger participants may benefit from acting out, making a collage of or coloring in examples of the effects of climate change in Minnesota.
- Have participants post and describe their ideas one-by-one on the board or large piece of paper. Ask what some of the common ideas were. Correct inaccuracies. See information in "Background Information" for examples of the impacts of climate change in Minnesota.

Part two:

- Ask participants to draw or write ideas they have about how people can make changes to slow down the rate of climate change (one idea per post-it note).
- Have participants post and describe their ideas one-by-one on the board or large piece of paper, covering up the ways climate change will affect Minnesota. Ask what some of the common ideas were. Correct inaccuracies. Accurate examples include:
 - Drive less. Walk, ride a bike, carpool or take public transit instead of driving.
 - Plan your errands so you can take care of them in one trip to reduce the overall miles you drive.
 - Do a home energy audit to determine where energy is being wasted (e.g. drafty windows and doors).
 - Seal air leaks around windows and doors and add insulation to your home.
 - Turn down your thermostat in the winter and up in the summer, and install a programmable thermostat.
 - Install energy efficient lighting such as LEDs and compact fluorescents.

- Purchase energy efficient appliances and electronics by looking for the ENERGY STAR label.
- Don't keep your refrigerator or freezer too cold. Recommended temperatures are 30 to 40 degrees Fahrenheit for the fresh food compartment of the refrigerator and five degrees Fahrenheit for the freezer section. If you have a separate freezer for long-term storage, it should be kept at zero degrees Fahrenheit. Don't keep the refrigerator or freezer door open for a long time.
- Switch to a low-flow showerhead. Take shorter showers.
- Wash clothes in cold water. Line-dry clothing instead of using the dryer.
- Reduce, reuse and recycle. Teach your organization, classroom, school or workplace about the 3 R's.
- Purchase foods grown locally to reduce the distance food travels. Eat foods that are in season for our region. Support local, sustainable and organic farmers by purchasing their products directly through farmer's markets, community supported agriculture farms (CSAs), food co-ops, natural foods stores and local grocers.
- Purchase renewable energy. Many utility providers offer customers an option to purchase renewable energy, usually for an additional charge. Or learn about home installation or renewable energy, such as solar water heaters.
- Turn off the water while brushing teeth.
- Take shorter showers.
- Unplug game consoles, phone chargers, and other electronics when you are done using them.

Part three:

- Have participants commit to taking one or a few actions. Share and discuss progress in a follow-up meeting if possible.
- The wall or mural of energy-saving ideas could be left up as a reminder of what is possible. Have participants choose actions they will commit to do.

Discussion questions

- What did you learn that was new?
- How do you feel about the issues we talked about today?
- Why should we care about climate change?
- Looking at all of our ideas, what will you commit to do?
- Why doesn't everyone make the changes they could?
- Does climate change affect other parts of the country or world differently than Minnesota? (Yes, one example is that rising sea levels will affect coastal communities.)
- What did you learn that you want to share with someone else? Who will you share it with?
- What do you want to do about this issue?
- What do you want to learn more about?

Additional activity ideas

Take the Minnesota Energy Challenge (Minnesota Energy Challenge)

- Visit www.mnenergychallenge.org to calculate your carbon footprint and identify actions you can take to reduce it. When you commit to simple changes, the online system tells you how much carbon dioxide and money you will save. Youth can take the challenge with their families, school or classroom. Teams can compete with other families, classrooms or schools.
- The website also has free, online toolkits for communities and educators to involve groups in taking the challenge together and tracking your changes.

What defines Minnesota's biomes?

Credit: Climate Generation: A Will Steger Legacy

- Have participants research different biomes in Minnesota (prairie grassland, tallgrass aspen parkland, deciduous forest, coniferous forest) and expected shifts that may occur in Minnesota's biomes from climate change.
- Using tape, make the shape of the map of Minnesota on the floor (or use chalk if you are outside). Give each student a label of an animal or plant in Minnesota.
- Have the students arrange themselves on the map in the appropriate biome where the animal or plant belongs. Discuss effects climate change will have on animals and plants in each biome of Minnesota.

- Ask students why certain animals and vegetation are native to certain biomes in Minnesota (example: spruce trees in coniferous forest or coyote in prairie grassland) and have a discussion about climate influencing biomes.
- For more information, visit www.willstegerfoundation.org/curricula-resources.

Learn more about climate change

- Youth can visit websites like www.epa.gov/climatechange/kids/index.html for kid-friendly information on what climate change is and how kids can make a difference (or visit the library to look up information) and create a project or campaign to educate others.

What does the future look like?

- Older youth can research green technologies (e.g. wind, solar, geothermal, changing automobiles) and discuss/present how these technologies may influence lifestyles and jobs in the future.

Calculate your carbon footprint

- A carbon footprint is the amount of carbon dioxide that an individual, household, or business puts into the atmosphere every year. There are many resources available to help calculate a personal carbon footprint. Join the Minnesota Energy Challenge at www.mnenergychallenge.org or use the EPA's Personal Emissions Calculator at www.epa.gov/climatechange/emissions/ind_calculator.html. Ask youth to investigate their family's or organization's carbon footprint and to make suggestions for improvement.

Resources

- Minnesota Environmental Quality Board's report "Minnesota and Climate Change: Our Tomorrow Starts Today" www.eqb.state.mn.us/content/climate-change
- MPCA "Adapting to Climate Change" www.pca.state.mn.us/news/adapting-climate-change

LEARN ABOUT YOUR HOME ENERGY USE

Paying bills may not be any fun, but you can learn a lot about your home energy consumption from a home energy audit and your utility bill. A home energy audit can help you understand how you use energy in your home and identify ways you can save energy. Have members of your group audit their home energy use and set goals for the changes they plan to make.

Outcomes

Learn how to conserve energy in your home by conducting a home energy audit and understanding your utility bill.

Audience

Adults

Time

60 minutes

Concepts

- Understand how to conduct a home energy audit and find out where to conserve energy in your house.
- Understand how to read your utility bill to see where you can conserve energy and save money.
- Learn how to conserve energy within your home.

Supplies

- ENERGY STAR Home Energy Yardstick, www.energystar.gov, search: "energy yardstick"
- U.S. Department of Energy, www.energysavers.gov, search: "home energy audit"
- Home Energy Saver, www.hes.lbl.gov
- Examples of weatherizing materials such as caulk, weather-stripping, plastic for windows, etc



LEARN ABOUT YOUR HOME ENERGY USE

Preparation

- Home energy audit: Use the resources listed in supplies to help you conduct your own energy audit or contact your utility provider to set up a home energy audit (your utility provider has professional energy auditors that can conduct energy audits).
- Utility bill: ask participants to bring in their utility bill

Procedure

Home energy audit:

- For your own energy audit, start with a walk-through of your home and keep a checklist of areas you have inspected and problems you found.
- First, make a list of obvious air leaks, called drafts, which are often found along baseboards or the edge of flooring. Seal air leaks by caulking or applying weather-stripping.
- Heat loss can waste a lot of energy and money in your home. Check insulation and seal any gaps with an expanding foam caulk or other permanent sealant. Make sure vents are not blocked by insulation.
- Inspect heating and cooling equipment by checking filters and replacing them as needed. Consider replacing units 15 years or older.
- Examine light bulbs in your house and consider replacing light bulbs with more energy efficient bulbs such as compact fluorescent lamps (CFLs), or light-emitting diodes (LEDs).
- Consider strategies for reducing energy use of your appliances and electronics such as unplugging an item when it is not in use, using the items less often, or purchasing a new, more efficient product.

Utility bill

- Have participants analyze their utility bills. They can compare energy consumption among group members. Analyze how energy consumption changes during different times of the year.
- Consider tracking your group member's energy consumption over time.
- Make goals for reducing energy consumption.
- Discuss what factors affect energy use and encourage participants to share what steps they've taken to reduce energy consumption.

Discussion questions

- What did you learn from your home energy audit? What was surprising to you?
- Where did you find the most opportunities to conserve energy?
- Do you winterize your home when seasons change? Why or why not? What barriers stand in your way?
- What did you learn from analyzing your utility bill?
- Will you inspect your utility bill differently after this exercise?
- What goals did you make to reduce your energy consumption? How can this save you money?
- What more do you want to learn about energy conservation?

Additional activity ideas

Discuss alternatives to laundry dryer

- Clothes dryers are typically one of the top three energy-using appliances in the home. By air drying your clothes on the line or on drying racks, you can save energy and money. An average family spends \$80 to \$120 per year drying clothes. Other ways to conserve energy with laundry include using a drying rack, using cold water instead of hot or warm water and avoiding laundromats.
- Discussion questions:
 - Do you currently use a clothesline or a drying rack? Why or why not?
 - How do you feel about using a clothesline? Studies show that when people see others acting in certain ways, they are more likely to change their own behavior. Do you think you might influence others by simply using a clothesline? What message does it send?
 - Do you currently use cold water instead of hot or warm water? Why or why not? Did you know switching to cold water can save energy and money?
 - What are the biggest barriers to switching your laundry habits? Could they be easy to overcome?

Resources

- Department of Energy's Home Energy Audit checklist www.energy.gov/articles/energy-saver-101-infographic-home-energy-audits
- Clean Energy Resource Team's Right Light Guide www.cleanenergyresourceteams.org/sites/default/files/CERTs_RightLightGuide_2014.pdf

ENERGY VAMPIRES

Learn about the electricity consumption of your appliances and electronics by using an energy meter. Energy meters can help you identify high energy use appliances and electronics in your home, determine how much it costs to use appliances and identify “energy vampires” – appliances that use energy when switched off. One barrier people have with “energy vampires” is that they don’t think the energy costs are significant – but the average U.S. household spends \$100 each year to power devices when they are off or in standby mode.

Outcomes

- Understand that some electronics and appliances use energy even when they are not in use.
- Unplug electronics when you don’t need them.

Audience

Youth (ages 14+), adults

Time

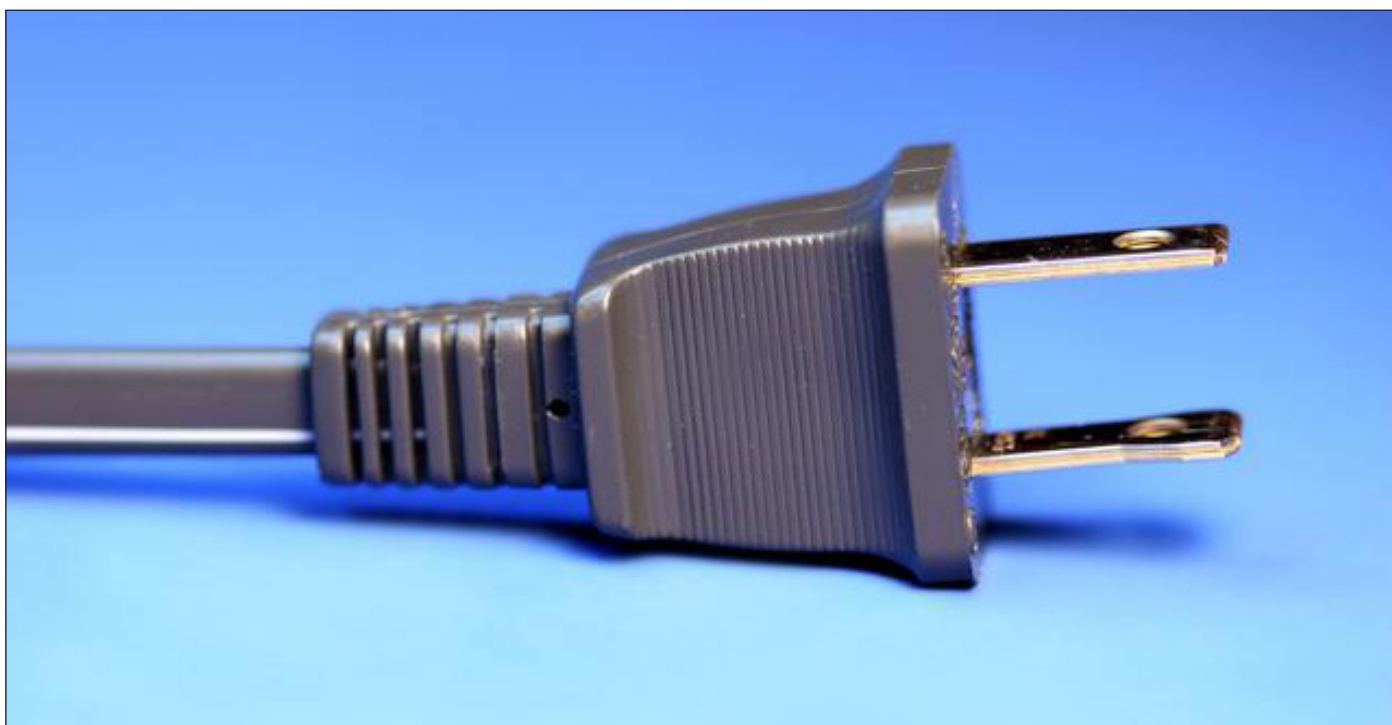
Variable

Concepts

- Energy vampires are electronics that use energy even when they are not in use.
- Energy vampires waste energy and money.
- Unplugging electronics conserves energy and saves money.

Supplies

- Energy meter – available for check-out at Hennepin County libraries. Visit www.hclib.org for more information. Energy meters can be purchased for about \$25. Check at hardware stores or search online.
- Electronics to sample if participants are not meeting in a home. Examples include a blow dryer, cell phone charger, gaming console, toaster or fan.



ENERGY VAMPIRES

Preparation

- Rent or buy an energy meter.
- Since you will most likely need to use a home for an example, have participants gather in a “sample” home to learn how to use the energy meter.

Procedure

- Choose an appliance to monitor with the energy meter. Remove the appliance’s power cord from the wall outlet. Plug in the energy meter and then connect the appliance’s power cord into the meter’s outlet.
- While the appliance is turned on, have participants observe the energy monitor to determine how much energy your appliance is consuming turned on and record the results.
- While the appliance is turned off, have participants observe the energy monitor to determine how much energy your appliance is consuming turned off and record the results.
- Most appliances use energy when they are plugged in, even if they are turned off. These are known as “energy vampires.”
- Use the chart below or create your own to track each item and the watts used when the item is turned on and off.
- Based on the results, ask participants to make goals for reducing energy consumption. Examples of goals include plugging electronics into a power strip that can be shut off when not in use or using high energy items less frequently.
- Encourage each participant to conduct the same energy meter test in their own home to find out which of their appliances are “energy vampires.”

Item	Watts used (on)	Watts used (off)
Example: toaster	1200 watts	200 watts

Discussion questions

- What did you learn from using an energy meter? What surprised you?
- What appliance or electronic used the most energy?
- What appliances or electronic items do you leave on all the time? Why?
- What other actions can you take to conserve energy in your house? (Turn your electronics off, set your computer to go on sleep mode, etc.)
- How can we reduce the amount of energy consumed by appliances and electronics?

Additional activity ideas

MN Energy Challenge (Center for Energy and Environment)

- Commit to energy efficiency with the MN Energy Challenge. Stay updated on energy saving tips and learn how to save on your energy bill, too. Learn more at www.mnenergychallenge.org.

TOLBY Program

- “Turn Off the Lights Behind You” for children in grades 1 through 5 to learn about energy efficiency.
- Program includes a 40 minute class visit and pre and post visit supporting activities.
- Learn more about the TOLBY program at www.mnenergychallenge.org/For-Teachers/About-A-Visit-From-Tolby.aspx.

CREATE A WINDSOCK AND WEATHER COLLAGE

One impact of climate change in Minnesota includes weather patterns changing. Weather patterns will become more extreme with increased frequency of both flooding and droughts. Heat waves could also increase, which could result in extremely hot summer days and an increase in incidence of heat-related illness and death. Milder winters with less snow will impact animal hibernation patterns, stressing food supplies and habitats. Learning about weather through creating a windsock or weather collage can help children understand its relationship to climate change and the predicted impacts in Minnesota.

Outcome

Parents and children will create a windsock or weather collage to learn about weather and understand how climate change will impact weather in Minnesota.

Audience

Youth (ages 4 - 8 years), parents and children

Time

30 minutes

Concepts

- Climate change will impact weather in Minnesota in many ways.
- Learn how weather and climate are connected.
- Windsocks are one way to observe and learn about weather.

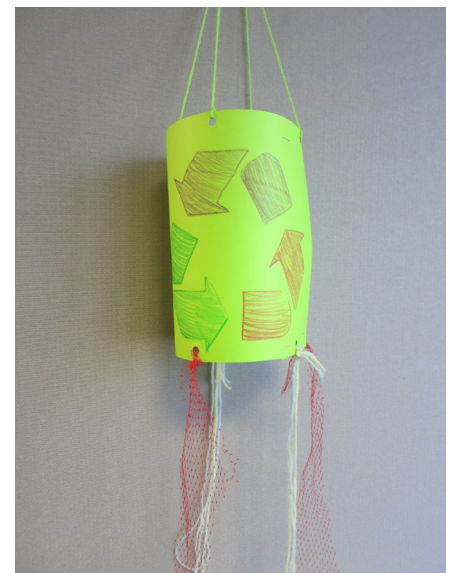
Supplies

Windsock

- Construction paper
- Art supplies for decorating (tempera paint, crayons, colored pencils, etc.)
- Scraps of colorful ribbon cut to about 5 to 12 inches
- Tape, glue or staples
- Hole-punch, pen, needle, or small screw to punch holes in paper
- Yarn or string

Weather collage

- Old magazines and newspapers
- Scissors
- Tape or glue



CREATE A WINDSOCK AND WEATHER COLLAGE

Preparation

- Gather materials in advance.
- Make an example windsock.

Procedure

Windsock

- Have participants go outside or look out a window to observe the weather.
- Ask children to observe the wind, is it blowing hard or just barely? Discuss how wind is an aspect of weather.
- Have children decorate the construction paper with the art supplies how they desire. Some ideas: animals, plants, their favorite outdoor spot, different types of weather, etc.
- Roll the construction paper up from end to end and then tape, glue or staple the ends together.
- Glue strips of ribbon around the bottom inside of the windsock.
- Punch two holes in the top of the windsock, directly across from each other.
- Feed yarn or string through the two holes to create about a 6 inch loop and tie a knot at the end.
- Hang the windsock outside where parents and children can easily observe the wind moving through the windsock.

Weather collage

- Choose magazine pictures or photographs that depict different types of weather and impacts of climate change. Use scissors to cut the photos from the magazines or newspapers.
- Encourage youth to sort and organize the pictures.
- With tape or glue, make a mural of weather images by fastening the photos together. Make one for your group or make individual collages for the youth to take home.
- Discuss the different types of weather that can occur at different times of the year.

Additional activity ideas

Taking the temperature

- Encourage children to learn about the weather by going outdoors and observing the weather. Monitoring observations over time can also help children recognize patterns and trends in nature.
- Bring children outside with note pads and writing utensils for observations. Ask the children to describe how the temperature feels (hot or cold), is there is any wind, is the sun shining?
- If the group has access to binoculars, look for animals and plants nearby. How does weather impact animals and plants?
- If children are able to write, have them write or draw their observations on a notepad, or else have an adult take notes.
- If a thermometer is available, have children check the temperature.
- Bring the children outside to the same area daily or weekly so they can observe weather changes over time. Ask children what differences they have noticed outside. Ask what patterns and trends they noticed in the weather over time.

RENEWABLE ENERGY SCAVENGER HUNT

Increasing levels of greenhouse gases in the atmosphere are warming the planet. Carbon dioxide is the major greenhouse gas contributing to climate change. Carbon dioxide emissions from human activity come primarily from the burning of fossil fuels, such as gasoline and diesel used by vehicles and coal burned to generate electricity. Renewable energy, includes energy sources such as wind and solar power, geothermal, hydropower, and forms of biomass. In 2015, only 10 percent of total energy consumed in the United States came from renewable energy sources. These energy sources are considered renewable because they are continually replenished on the Earth, unlike fossil fuel sources which are finite. Learning about renewable energy can help familiarize people with the sources of renewable energy and how these sources can help mitigate climate change. In this activity, students will build awareness of biomass, wind, solar and other local sources of renewable energy.

Outcome

Understand sources of renewable energy and how these sources are an environmentally-friendly alternative to fossil fuels.

Audience

Youth (ages 12+), adults

Time

60+ minutes

Concepts

- Learn how renewable energy sources are more sustainable than fossil fuels.
- Explore the outdoors to find local sources of renewable energy such as biomass, wind and solar.

Supplies

- Energy Scavenger Hunt worksheet (1 sheet for every 2-3 students, located in Appendix)
- Writing utensils
- Clip board (*optional*)



RENEWABLE ENERGY SCAVENGER HUNT

Preparation

- Find an outdoor area around your school or organization that you can investigate.
- Instructor note: assign clear physical boundaries and behavior expectations. Be sure to clearly explain that all students must return to you when you give a signal

that the activity is finished (a whistle, yell, etc.). Some of the scavenger hunt items may not apply to your location - you may add or subtract items from the list at your discretion.

Procedure

- In the classroom, lead a discussion about renewable energy. Make sure your students understand what renewable energy is and examples of renewable energy (wind power, solar energy, etc.). Discuss why renewable energy is a good alternative to fossil fuels because there is an infinite amount of renewable resources.
- Walk around the area outside your school or organization to note any local energy sources such as trees/timber, plants, animals (which we use for energy in the source of food), the sun, wind, even the moon (the moon controls high and low tide and capturing tidal energy is being explored in some coastal regions).
- Ask the students to explain “if this is an energy source, then what is its purpose?” and “who does it give energy to? Where does it get its energy from?”
- Have students form groups of 2-3 for an energy scavenger hunt. The groups will go out looking for

items, find the items and return as fast as they can. This scavenger hunt is made to work for many school yards but can be freely customized to fit your unique situation. Most of the items to be hunted for do not need to be picked-up or otherwise collected; students simply need to record what they find by recording it on the Energy Scavenger Hunt worksheet in the Appendix. They could also take photos of the items.

- As the students return, reflect on what everyone found. What did they notice? What was the easiest to find? What was the hardest to find?
- Back in the classroom, record your energy observations on the board and in their notebooks. Then reflect on: how would we use these types of energy? How do other living things use them? How could we capture this energy to use instead of fossil fuels? How do you think these local sources of energy are already being used in this way?

Discussion questions

- Why is renewable energy important? Why is it important to have alternatives to fossil fuels?
- What types of local energy sources did you find on the scavenger hunt that could supply energy to people?
- Why do you think more fossil fuels are used to supply the world’s energy instead of renewable energy? How could we use more renewable energy?
- What else did you find on the scavenger hunt that was interesting?

Additional activity ideas

Renewable energy freeze tag

- Discuss forms of renewable energy, such as wind, solar, geothermal, etc. These are alternatives to fossil fuels like coal, oil and gas. Play a game similar to TV tag. One person is “it” and must try to tag others. A player is safe from being tagged if they call out a form of renewable energy before being tagged. If a youth is tagged, they become the new “it.”

Purchase renewable energy

- Many utility providers offer customers an option to purchase renewable energy, usually for an additional charge.
- Learn about home installations of renewable energy at www.energy.state.mn.us

Resources

- Energy activities and curriculum www.climategen.org/what-we-do/education/climate-change-and-energy-curricula.

ENCOURAGE BIKING AND WALKING

Biking and walking is a great alternative to driving your car because it helps reduce greenhouse gas emissions from vehicles. Biking and walking is also fun, great for your health and can save you money! Committing to biking or walking to work, the store or anywhere else can help mitigate climate change. Taking public transportation is also a great option, especially when combined with biking and walking. Getting familiar with local biking and walking routes, tuning up your bike, or biking with a friend or expert cyclist can help reduce your carbon footprint.

Outcomes

Reduce your carbon footprint by biking and walking more and driving less.

Audience

Youth (13+), adults, parents and children

Time

60+ minutes

Concepts

- Vehicles emit greenhouse gases, so biking and walking is a great alternative to driving.
- Get familiar with local biking and walking routes to encourage more biking and walking.
- Bike or walk with a friend or expert cyclist to help reduce your carbon footprint.

Supplies

- Bicycle and helmet
- Hardcopies of the Hennepin County Road & Bike Map (see Appendix)
- Tools for tuning up bicycles including a screwdriver or wrench (optional)
- Internet access to the Metro Commuter Challenge at www.mycommuterchallenge.org, Nice Ride bike rental at www.niceridemn.org or Bike Walk Twin Cities at www.bikewalktwincities.org (optional)



ENCOURAGE BIKING AND WALKING

Procedure

Bike tune-up party

- If you or someone you know is familiar with basic bicycle maintenance, offer to help others get their bikes out of the garage or basement and onto the road.
- Host a gathering of friends or neighbors in your backyard, alley, or driveway.
- Teach kids what they can do to help.
- Visit a local bike shop for more ideas and resources on basic bike tune ups.

Map your route

- Request free copies of the Hennepin County Road & Bike Map by calling 612-596-0352, or find it online at www.hennepin.us, search: bike map. Visit Metro Transit at www.metrotransit.org or call 612-373-3333 for bus and light rail maps.
- Bring these materials to the next meeting of your group and help people who are unfamiliar with bike trails and public transportation.
- Find options for getting to and from work, school, or other places they frequently drive.
- Visit www.bikewalktwincities.org for other resources and ideas.

Commuter captain

- If you or someone you know is a bike commuter, enlist them to bike with those new to commuting by bike. This can help people be more comfortable with the idea when they have encouragement and support from an experienced cyclist.
- Go over best practices, safety tips and map routes before commuting.

Bike or walk to _____ day

- Organize an event to bike or walk to your organization, school, event, work, etc.
- Coordinate meeting places for people to come together and ask for commitments to increase participation. Invite a bike ambassador who frequently bikes to teach members how to safely ride bikes in traffic.
- Make the event a weekly or monthly occurrence to encourage participants to bike or walk more often.
- Track the number of members who participate and follow up with a survey a few months later to see how many members have continued to bike and walk.

Discussion questions

- How familiar are you with nearby bike trails and public transportation routes?
- For what trips could you walk, bike or take public transportation?
- Are there any barriers that are stopping you? How could you overcome those barriers? How can you commit to biking to work? What do you need to bring with you so it can be part of your daily routine?
- How could you encourage your family and friends to increase the amount they bike?
- How is biking and walking related to climate change and energy conservation?

Resources

- Order the Hennepin County Road & Bike Map by calling 612-596-0352, or find it online at www.hennepin.us, search: bike map
- Bike Walk Twin Cities www.bikewalktwincities.org
- NiceRide www.niceridemn.org
- Transit for Livable Communities www.tlcmnnesota.org

ENERGY DEFINED IN A DAY

We all use energy every day in countless ways. Where does the energy come from? Learning about where energy comes from is important to conserving energy. This activity is from TOLBY (Turn Off the Lights Behind You) to help students learn about daily activities that use energy and brainstorm ways to incorporate energy conservation into their daily lives.

Outcomes

Learn about daily energy use and how to conserve energy.

Audience

Youth (ages 11+)

Time

30+ minutes

Concepts

- Understand that many daily activities use energy.
- Learn what energy is and where it comes from.
- Brainstorm ways to conserve energy every day.

Supplies

- Notebook paper
- Writing utensil
- Whiteboard, blackboard or large piece of paper for mind map



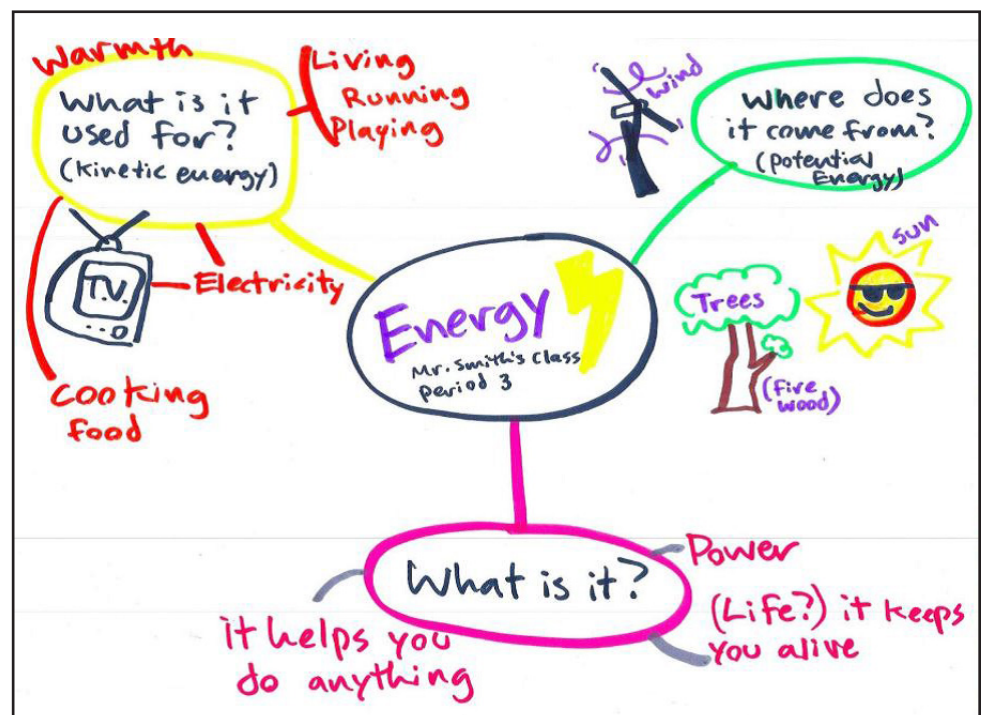
ENERGY DEFINED IN A DAY

Procedure

- Take about five minutes to have students make a list of everything they have done today since they woke up. Yes, everything.
- Then, ask the students to circle everything on the list that used energy. If students are having trouble brainstorming, make suggestions such as turning the lights on when they woke up, getting food from the refrigerator or riding the bus to school.
- Next, have the students share their lists with one another and then share a few examples with the large group.
- What is something they circled?
- In what ways does this activity use energy?
- Do all things use energy? What is something you did today that didn't use energy?
- Ask the class "what is energy?"
- As a class, use the whiteboard or blackboard or large piece of paper to make a mind map of energy. Use words, colors and images. If students run out of ideas, you can ask "how can we tell if something is using energy?" or "what sources of energy can you think of?"
- Ask students to think about the fundamental laws of energy. Add "energy is never created or destroyed" to the mind map. And ask, "If this is true, what happens to energy? Where does it go?" Answer: Energy is just a quantity that passes from system to system. When we think it is "gone" or for example, when our gas tank is empty, it's not because that energy has completely disappeared. Rather, it transferred into heat and motion to move your vehicle. The energy still exists; it has just transferred to a different system. Physicists know this as the Law of Conservation of Energy, the First Law of Thermodynamics.

Discussion questions

- Which daily activities do you think use the most energy?
- Why isn't energy created or destroyed? Where does energy go?
- Where can you conserve energy in your daily activities?
- Are there any barriers that are stopping you? How could you overcome those barriers? How can you commit to conserving energy? What do you need to make it part of your daily routine?
- How could you encourage your family and friends to conserve energy?



AIR QUALITY ALERTS AND ACTIONS

The Minnesota Pollution Control Agency (MPCA) issues air pollution health advisory alerts when air pollution levels are unhealthy. This occurs most often when weather conditions change the rate at which air pollutants are formed or accumulate in the air. For example, ozone pollution, or smog, tends to increase on hot and sunny days with little wind. And fine particle pollution is commonly elevated in winter when conditions include high humidity, high pressure, and strong overnight temperature inversions. Those at risk during air pollution advisories include those with pre-existing respiratory or cardiovascular conditions, elderly, children, and those participating in outdoor activities requiring extended or heavy exertion. But even individuals who are otherwise healthy may experience health effects when ozone levels increase.

In this activity, participants will sign up for air quality alerts from the MPCA to be notified when air pollution levels are unhealthy. They will also learn about actions they can take during an air quality alert to improve air quality and protect health.

Outcomes

Sign up for MPCA air quality alerts and understand actions to take during an air quality alert.

Audience

Adults

Time

20 - 40 minutes

Concepts

- People can experience health effects when air pollution levels are unhealthy during an air quality alert.
- Individuals can take specific actions during air quality alerts to improve air quality and protect health

Supplies

- Computer(s) with internet access
- Sticky notes
- Writing utensils



AIR QUALITY ALERTS AND ACTIONS

Preparation

- Familiarize yourself with the Be Air Aware website at www.beairaware.org.

Procedure

- Have participants visit the MPCA's air quality website at www.pca.state.mn.us/air/current-air-quality-index and look at the current air quality index for Minnesota. Ask participants what the air quality index might mean for health and the environment.
- Explain that alerts are sent when the air quality is poor in Minnesota so individuals can take appropriate actions to protect health and improve air quality.
- Have participants sign up for MPCA's air quality alerts at www.pca.state.mn.us/air/current-air-quality-index.
- Discuss the following actions that can be taken during air quality alerts. Have participants commit to one or more actions by creating a pledge with a sticky note. Have participants place their sticky notes on a wall or board to display their commitments.
 - Use less energy at home: Generating energy can create air pollution. Save energy, improve air quality and save money.
 - Limit recreational backyard fires. Burning firewood is among the major sources of air pollution. If you must burn, burn wisely by following the tips from the Environmental Protection Agency at www.epa.gov/burnwise.
 - Cars that burn gas make a lot of pollution. Walk, bike, carpool or take public transportation instead of driving.
 - Reduce unnecessary vehicle idling. Idling increases air pollution, and all you're doing is wasting gas and increasing air pollution. Most cars don't need to warm up for 5 to 10 minutes.
 - Use hand-powered or electric lawn and snow care equipment. Gasoline-powered engines like those on lawnmowers and snow blowers often have no pollution control devices.
 - Fill up your gas tank after dark. Gasoline emissions evaporate as you fill up your gas tank and contribute to the formation of ozone. In the summer, fill up after dark to keep the sun from turning these gases into air pollution.
 - Encourage colleagues to use alternative transportation such as bus, train or bike and, on air alert days, to work from home.
 - Volatile organic compounds (VOCs)—found in inks, solvents, paint, gasoline and other chemicals are a major component of ozone and smog. On air alert days, limit the use of products that contain VOCs.
 - Encourage your workplace to become an Air Aware Employer at www.beairawaremn.org. The Air Aware program gives employers tools to empower their employees to improve air quality and protect their health.
- Take a photo of the sticky note pledge on the wall and have participants keep their sticky note pledge to remember their commitment to improve air quality and protect their health.

Discussion questions

- What surprised you about the air quality index in Minnesota?
- What action(s) did you commit to during air quality alerts? What action(s) do you think are the most impactful? Why?
- Are there any barriers that are stopping you? How could you overcome those barriers?
- How could you encourage your family and friends to sign up for air quality alerts and take action when air quality is poor?
- How is air quality related to climate change and energy conservation?