Master of Public Health

Applied Practice Experience

by

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MPH Candidate

submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Margaret Kincaid, PhD
Justin Kastner, PhD
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Applied Practical Experience Site:
Claire's Community
June 2025 – October 2025
Frontier Field Trip program
September 2025 – November 2025

Applied Practical Experience Preceptor:
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Frontier Field Trip program co-director

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2025

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Chapter 1 - Portfolio Products

During the Summer of 2025 through the Fall of 2025, I completed a hybrid field experience. The combination of programs and in-person experiences I attended included events for Claire's Community, with Shannon VanLandingham, the executive director of the #Bemorelikeclaire initiative. I was also able to conceptualize and organize and ultimately execute a *Frontier* Field Trip to Council Grove, Kansas, with Dr. Justin Kastner, a K-State professor and the co-director of the *Frontier* Field Trip program.

Table 1.1 Summary of Portfolio Products

Portfolio Product		**Description**
1	Parent/Caregiver resource brochure 0-5 age group.	This brochure was created as a printed resource for parents and caregivers of children aged 0-5, focusing on the early development of healthy relationships, emotional expression, and personal boundaries. Developed in partnership with Claire's Community, the material emphasizes building trust, emotional security, and bodily autonomy from an early age. It provides practical, evidence-based guidance on creating nurturing routines, modeling respectful behavior, and fostering social-emotional skills. The brochure serves as an accessible, visually engaging tool to support families in promoting safe and healthy development during childhood.

2	Series of Blog Posts on Claire's Community website dedicated to the 0-5 age group.	This web-based resource, part of Claire's Community's blog post series, was created to support parents and caregivers of children aged 0-5 in fostering safe, loving, and emotionally healthy home environments. Drawing on the Social Ecological Model, the content emphasizes how family dynamics and community support systems collectively influence early childhood well-being. Topics include the impact of adult relationships on child development, preventing abuse and neglect, recognizing Adverse Childhood Experiences (ACEs), and promoting positive communication and emotional modeling. Practical strategies and a curated list of books and podcasts provide accessible, evidence-based tools to help caregivers build resilience and strengthen family bonds. By increasing caregiver knowledge and self-efficacy, this resource contributes to broader public health goals of ACE prevention and improved early emotional development.
3	Parent/Caregiver Listening and Storytelling Event with Lawrence Public Library	This event was developed in partnership with the Lawrence Public Library to provide a welcoming space for parents and caregivers to openly share their experiences, concerns, and

		questions related to raising children ages 0-5. In addition to the facilitated discussion, the program featured a local storyteller who read carefully selected children's books connected to the events core themes, including healthy relationship modeling, early childhood emotional development, and boundaries and consent. These story sessions not only engaged children who attended but also gave parents and caregivers practical examples of how to use books as tools for introducing sensitive topics in age-appropriate ways. Designed as a two-way conversation, the event emphasized listening to lived experiences of parents and caregivers while offering accessible, trauma-informed guidance rooted in Claire's Community's core messaging. Participants were also introduced to practical strategies for conflict resolution, self-care, and community support. The event included resources from Claire's Community, the library's parenting and children's collection, and the featured storybooks. This program helped strengthen trust between families and community organizations while promoting shared learning and

		support in a safe, inclusive environment.
4	Presentation/program of the Cascadia Subduction Zone (Emergency Management)	This educational program was developed to raise public awareness about the Cascadia Subduction Zone (CSZ)—a highly active undersea fault line capable of producing catastrophic megathrust earthquakes and tsunamis in the Pacific Northwest of the United States. Despite mounting scientific evidence, the region remains critically underprepared. This presentation translated complex geologic and emergency science into accessible language through plain-language explanations (Ex: Paleo-seismology = Study of old earthquakes), visual diagrams, and relatable analogies. Participants explored the CSZ's geological history, including the 1700 earthquake evidenced by tree-ring data, tsunami deposits, and Indigenous oral histories. The program also examined infrastructure vulnerabilities, emergency response gaps, and the psychological toll of large-scale disasters. Drawing from geophysics, behavioral science, Indigenous knowledge, and climate forecasting, the session emphasized practical preparedness. This was done

		by guiding participants in creating emergency kits, exploring retrofitting options, and understanding trauma-informed response principles. The presentation was delivered as part of the 46th *Frontier* Field Trip designed with Dr. Kastner.

Table 1.2 Portfolio Products and Competency Addressed

Portfolio Product		**Number and Competency Addressed**	
1 & 2	• Parent/Caregiver resource brochure 0-5 age group • Series of Blog Posts on Claire's Community website dedicated to the 0-5 age group.	9	Design a population-based policy, program, project or intervention
3	• Parent/Caregiver Listening and Storytelling Event with Lawrence Public Library	13	Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
1, 2 & 3	• Parent/Caregiver resource brochure 0-5 age group • Series of Blog Posts on Claire's Community website dedicated to the 0-5 age group. • Parent/Caregiver Listening and Storytelling Event with Lawrence Public Library	14	Advocate for political, social or economic policies and programs that will improve health in diverse populations

1 & 2	• Parent/Caregiver resource brochure 0-5 age group • Series of Blog Posts on Claire's Community website dedicated to the 0-5 age group.	18	Select communication strategies for different audiences and sectors
1, 2, & 4	• Parent/Caregiver resource brochure 0-5 age group • Series of Blog Posts on Claire's Community website dedicated to the 0-5 age group. • Presentation/program of the Cascadia Subduction Zone (Emergency Management)	19	Communicate audience-appropriate public health content, both in writing and through oral presentation to a non-academic, non-peer audience with attention to factors such as literacy and health literacy

Chapter 2 - Competencies

Table 2.1 Summary of MPH Foundational Competencies

Number and Competency		Description
9	Design a population-based policy, program, project or intervention	The Parent/Caregiver Resource Brochure and Blog posts on Claire's Community website were intentionally designed as complementary tools that combine evidence-based strategies with accessible, culturally sensitive content. Together, they represent a planned, population-level intervention that reaches families through both print and digital platforms. The design process highlighted the importance of balancing depth with readability. Guided by the Social Ecological Model, the intervention addressed multiple levels of influence: at the individual level, it increased parent/caregiver knowledge and self-efficacy; at the interpersonal level, it promoted healthy parent-child and adult relationships; and at the community level, it connected families to supportive local resources. These layers work together to foster safe, nurturing, and emotionally supportive environments for young children.
13	Propose strategies to identify stakeholders and build coalitions and	The listening/storytelling event co-developed with the Lawrence Public

	partnerships for influencing public health outcomes	Library demonstrated how trusted community partners can be engaged to foster collaboration and shared learning. By combining the library's literacy mission with public health goals, the partnership/program, built trust and participation among parents, grandparents, guardians, and caregivers. This program serves as a workable strategy for engaging diverse members of the public to support a shared learning experience for early childhood health and wellbeing.
14	Advocate for political, social or economic policies and programs that will improve health in diverse populations	The brochure, blog posts, and listening/storytelling event collectively served as advocacy tools to promote supportive policies and programs for young children and their caregivers. These initiatives highlighted priorities such as caregiver education, bodily autonomy, and equitable access to resources. While effective at the community level, future efforts should directly connect these initiatives to policy discussions at local and state levels to strengthen systematic impact.
18	Select communication strategies for different audiences and sectors	The brochure and blog posts demonstrate purposeful selection of communication formats to meet audience needs. The brochure emphasized visuals, brief written

		messages, and accessibility for distribution in community settings, while the blog posts provided depth and interactivity for digitally engaged caregivers.
19	Communicate audience-appropriate public health content, both in writing and through oral presentation to a non-academic, non-peer audience with attention to factors such as literacy and health literacy	The Cascadia Subduction Zone program and the caregiver resources translated complex concepts into plain language, actionable strategies, and culturally sensitive messaging. These efforts demonstrated the ability to adapt communication for non-academic audiences and highlighted the importance of clarity, accessibility, and practical application across different literacy levels. The Cascadia Subduction Zone presentation (as well as the *Frontier* Field Trip itself) afforded an opportunity to communicate practical public health guidance regarding emergency preparedness, a neglected area of public health.

Competency #9: Design a population-based policy, program, project or intervention.

The Parent/Caregiver Resource Brochure and the Blog Posts on Claire's Community website were developed to support parents and caregivers in fostering safe, healthy, and emotionally supportive environments for young children. These resources address the critical developmental period of birth to age five, emphasizing the importance of healthy relationships, emotional expression, personal boundaries, and bodily autonomy. Both tools incorporate evidence-based strategies, practical tips, and accessible language to ensure applicability across diverse members of the community. The design process required planning, strategic alignment with best practices (refers to the process of designing, implementing, or evaluating a program, policy, or intervention in a way that matches established evidence-based standards, guidelines or widely recognized frameworks in the field), and attention to sustainability.

Together, the brochure and website section form a multifaceted intervention designed to reach a population-based audience through both printed and digital platforms. By integrating engaging visuals, culturally sensitive content, and actionable guidance, the products equip parents/caregivers with the knowledge and skills to promote social-emotional health, prevent abuse and neglect, and to break harmful cycles. To ensure sustainability, Claire's Community will continue to use these materials and update them as new research and best practices emerge, maintaining their relevance and effectiveness over time. This approach demonstrates the design of an intervention that is inclusive, sustainable, and responsive to the needs of families and communities with young children.

Competency #13: Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes.

In partnership with the Lawrence Public Library, I developed a community listening/storytelling event for parents and caregivers of children aged 0-5. The program combined open discussion on healthy relationships, early emotional development,

boundaries, consent, and fostering social skills with a library-led storytelling session featuring books that reinforced these themes. This collaboration leveraged the library's trusted role and resources to engage community members, promote shared learning, and provide developmentally appropriate materials. Stakeholders were identified based on their direct engagement with families of young children and their expertise in early literacy in child development. Key partners included Lauren Taylor (Head Children's Librarian), Hannah Parks (Children's Librarian), and Jenny Cook (Youth Services Supervisor), each contributing to event planning, book selection, and facilitation. These collaborative strategies—identifying aligned community partners (early childhood educators, public health departments, family services agencies), defining clear roles, and co-developing content—can be replicated or scaled to strengthen future coalition-building efforts aimed at improving early childhood outcomes.

Competency #14: Advocate for political, social, or economic policies and programs that will improve health in diverse populations

Through a series of interconnected projects, I advocated for policies and programs that promote healthy development and reduction of harm in children ages 0-5. The Parent/Caregiver Brochure and the Blog Posts on Claire's Community website provided accessible, evidence-based guidance for families. These products emphasized trust building, emotional security, bodily autonomy, and respectful communication. By promoting early intervention and positive relationship modeling, these resources support public health priorities that foster safe, nurturing environments and address the root causes of abuse and neglect.

The listening/storytelling event, in collaboration with Lawrence Public Library, created a space to elevate lived experiences in discussions of child wellbeing. Core themes such as boundaries, consent, emotional development, and fostering social skills, were addressed using a trauma-informed approach that empowered families and strengthened community partnerships.

These initiatives align with broader advocacy efforts supported by the One Love Foundation, a national nonprofit dedicated to preventing violence through education and policy change. By connecting local programming to One Love's national framework—focused on early prevention, healthy relationship education, and systemic reform—this work contributes to a unified public health movement. Together, these initiatives advocate for social policies that prioritize caregiver education, early childhood support, and equitable access to resources that help children grow up safe, loved, and strong.

Competency #18: Select communication strategies for different audiences and sectors.

To address this competency, I developed the Parent/Caregiver Resource Brochure and the Blog Posts on Claire's Communitys website, targeting parents and caregivers of young children. The brochure uses clear, accessible language, engaging visuals, and practical guidance to communicate strategies for fostering trust, emotional security, and healthy relationships. The web-based resources provide more detailed content, interactive tools, and community support, covering topics such as Adverse Childhood Experiences (ACEs), conflict resolution, and respectful communication. The brochure and blog posts demonstrate purposeful selection of communication formats to meet audience needs. The brochure emphasized visuals, brief written messages, and accessibility for distribution in community settings, while the blog posts provided depth and interactivity for digitally engaged caregivers.

To ensure cultural appropriateness and literacy sensitivity, both resources were written at an accessible reading level, incorporated inclusive imagery representing diverse families, and were reviewed for plain language and tone. Content was designed to be adaptable for future translation and distribution through community partners serving multilingual populations. This dual-format approach proved effective in broadening reach—printed resources successfully reached families without reliable internet access, while the blog posts supported tech-comfortable parents/caregivers. Looking forward, a systematic evaluation—such as caregiver surveys, focus groups, or

pre- and post-intervention assessments—would provide deeper insight into how families apply these resources in daily caregiving practices.

Competency #19: Communicate audience-appropriate public health content, both in writing and through oral presentation to a non-academic, non-peer audience with attention to factors such as literacy and health literacy.

The Cascadia Subduction Zone (CSZ) program and caregiver resources translated complex scientific and developmental concepts into plain language, actionable strategies, and culturally sensitive messaging. The CSZ presentation/program simplified emergency management principles, specifically regarding earthquakes and tsunamis risks, using visual, analogies, and preparedness examples to make concepts like paleo-seismology and plural epistemology understandable for non-experts. The brochure and blog posts provided written guidance for families on emotional development, boundaries, and caregiving practices, translating trauma-informed approaches into clear, step-by-step strategies. Across these projects, content was adapted to be accessible regardless of literacy or health literacy levels, ensuring clarity and usability for diverse audiences. A key strength of this work was using multiple delivery formats (oral, written, visual) to enhance inclusivity. Together, these projects illustrate the ability to communicate public health content effectively across diverse audiences and formats, ensuring clarity, relevance, and usability for non-academic participants. The CSZ presentation/program allowed for the opportunity to communicate practical public health practices regarding emergency management/preparedness, giving breath to an underserved area of public health.

Table 2.2 MPH Foundational Competencies Course Mapping

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		

Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	x
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815				
20. Describe the importance of cultural competence in communicating public health content		x			x
Intreprofessional Practice					
21. Perform effectively on interprofessional teams		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue			x	x	

Appendix 1 Products

Parent/Caregiver Resource Brochure 0-5 Age Group

BUILDING HEALTHY RELATIONSHIPS IN THE EARLY YEARS STARTS WITH YOU

Create a supportive environment where children feel safe, loved, and understood.

ABOUT US

CLAIRE'S COMMUNITY
RELATIONSHIP VIOLENCE PREVENTION

We envision a community where everyone enjoys safe, supportive relationships in which they can thrive and where no one is a victim — or perpetrator — of interpersonal violence. It's a big dream, we know. But prevention is possible. Educating and empowering individuals of all ages to build healthy, respectful, nonviolent relationships has a powerful ripple effect that brings transformative change to our communities.

www.claires-community.org

GROWING TOGETHER

Nurturing Healthy Bonds With Children Ages 0-5

Building strong, supportive connections with your child in the earliest years.

NURTURING THE PARENT-CHILD BOND

Create Comfortable Routines: Try building simple, predictable moments into each day, like bedtime stories or mealtimes.

Tune Into Their Needs: Whether it's a cry, a giggle, or a glance, your child is communicating. Being present helps them feel understood.

Share In Their World: Find fun things you can do together. Get curious about what they love.

CONSENT, BOUNDARIES, AND BODILY AUTONOMY

Support Their "No": Let your child know it's okay to say "no" to hugs, kisses, or touch that doesn't feel right. Respecting their choices helps them feel safe and in control of their own body.

Speak Simply and Clearly: Use the correct terms when talking about body parts and privacy. This helps your child feel comfortable and confident speaking up if something doesn't feel okay.

Practice Kindness and Consent: Model asking consent with your child (like before giving a hug) and encourage your child to ask before touching others. It's a great way to teach respect and kindness from an early age.

Learn more and find resources at www.claires-community.org

PRACTICING SOCIAL SKILLS

Create Space to Connect: Give your child time to play with others through playdates, family time, or at the park to naturally build sharing, listening, and turn-taking skills.

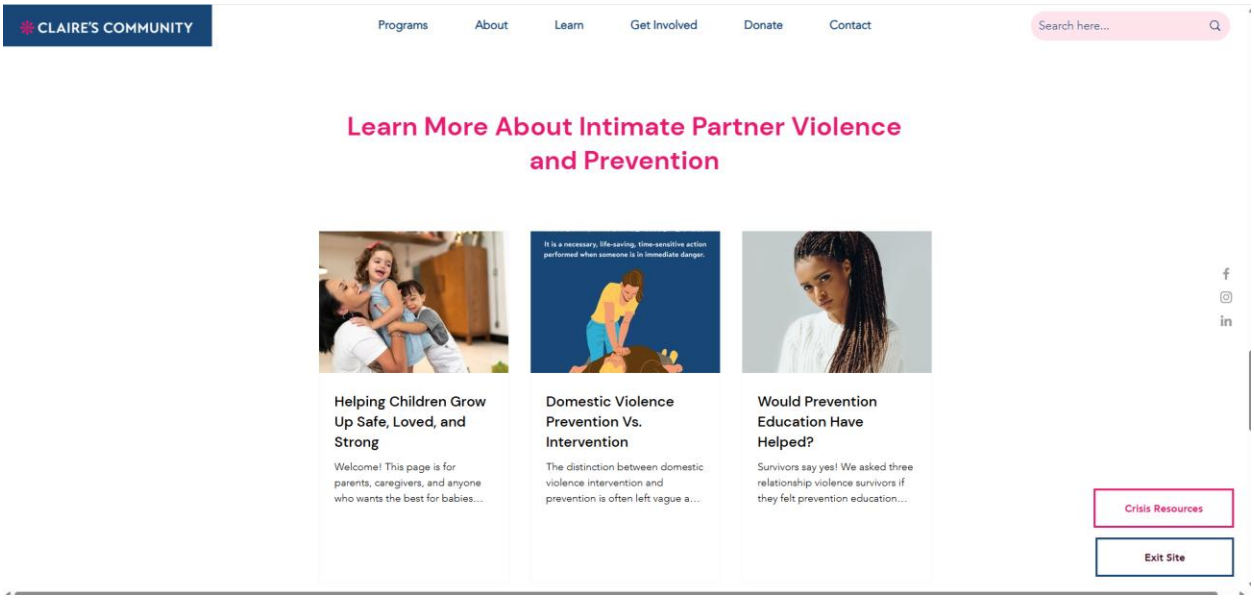
Show by Example: Kids learn by watching. Show kindness, empathy, and peaceful problem-solving through everyday actions like saying "thank you" and staying calm.

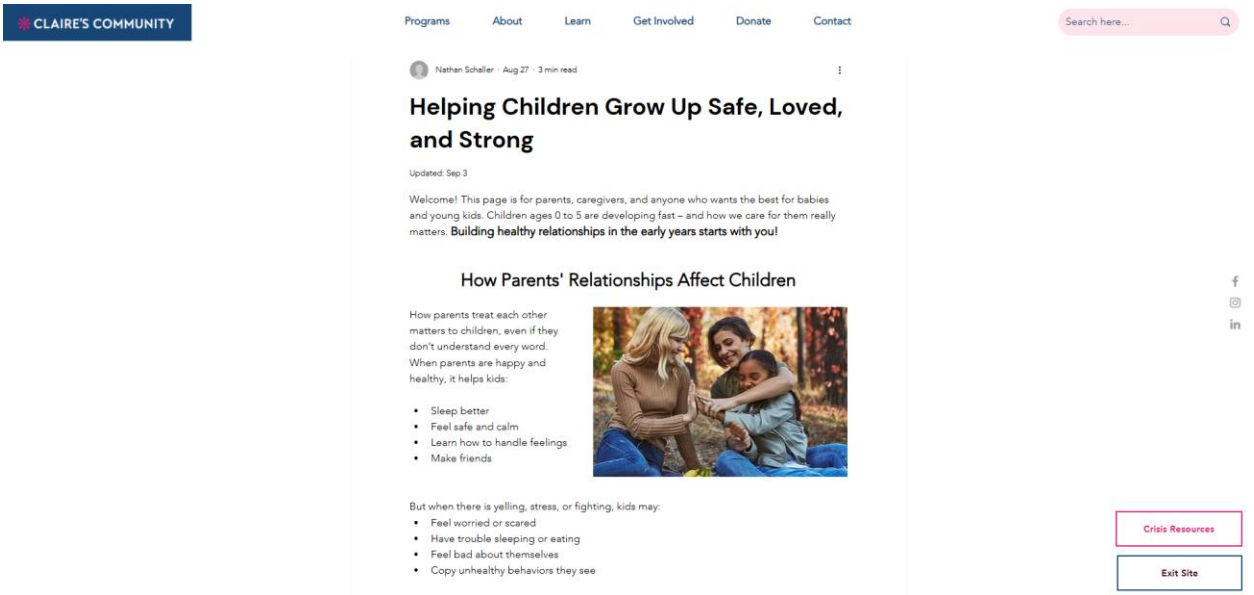
Support Big Feelings: Help your child name and express emotions. Use tools like emotion charts or gentle words to guide them through tough moments.

CLAIRE'S COMMUNITY

Appendix 2 Products

Series of Blog Posts on Claire's Community Website





CLAIRE'S COMMUNITY

Programs About Learn Get Involved Donate Contact

Search here...

Understanding Abuse and Neglect

1 in 7 children in the U.S. are abused or neglected each year.

Abuse isn't just hitting. It can also be:

- Yelling all the time
- Ignoring a child's needs
- Leaving them alone or unsafe
- Not helping with food, sleep, or love

Children in low-income or high-stress homes are at greater risk. Abuse can hurt their minds, hearts, and bodies for years to come – but there is help.

What You Can Do To Keep Kids Safe and Strong

1. Build a safe, loving home

- Stick to simple routines like bedtime and meals
- Talk and listen with kindness
- Ask for help when you are feeling stressed

2. Get support when you need it

- Talk to a doctor or counselor
- Reach out to friends, family, or parenting groups
- Make use of local services (Like childcare help or food programs)

Crisis Resources

Exit Site

CLAIRE'S COMMUNITY

Programs About Learn Get Involved Donate Contact

Search here...

Breaking the Cycle of Hurt

Many parents/caregivers with tough childhoods want to do better for their children. Therapy can help you heal, parenting classes can give you new tools, and YOU can stop the cycle and build a better future.

Tips to Handle Conflict in Healthy Ways

Even loving parents disagree. Here are some ways to do it safely

1. Stay calm
2. Listen to each other
3. Apologize when needed
4. Talk in private, not in front of kids
5. Get help if things feel too hard

Resource Hub

Parenting & Family Podcasts

The PedsDocTalk
With Dr. Mona Amin

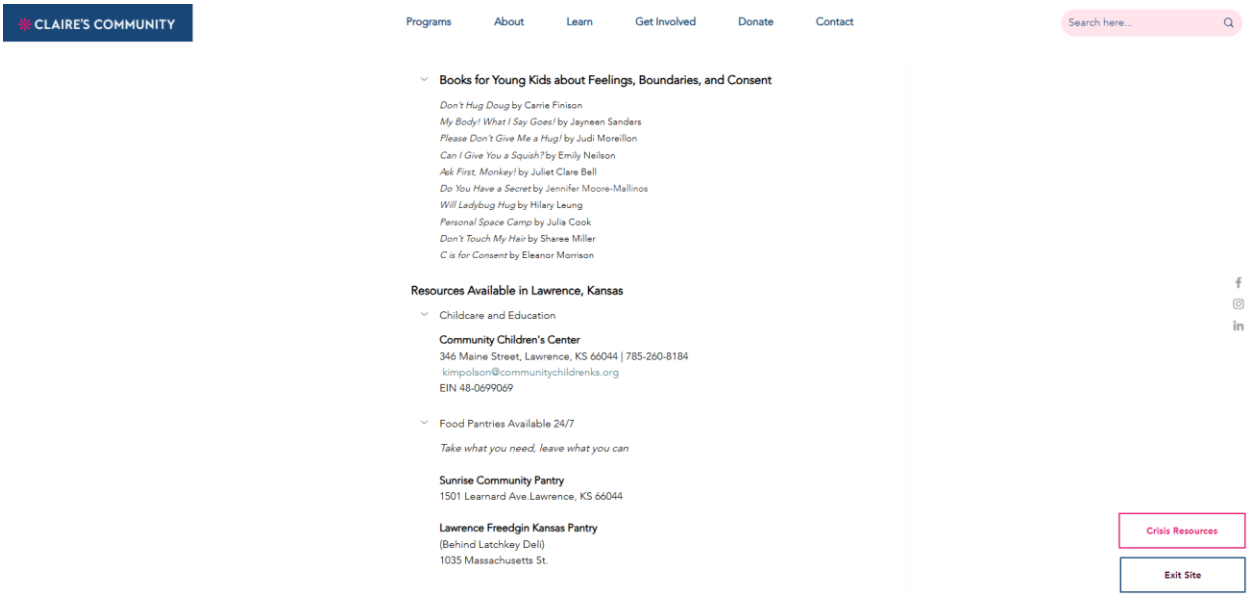
Good Inside
With Dr. Becky Kennedy

We Are Family
Parenting stories and tips

Care and Feeding
Real talk for real parents

Crisis Resources

Exit Site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Programs
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Search here...
Books for Young Kids about Feelings, Boundaries, and Consent
Don't Hug Doug by Carrie Finison
My Body! What I Say Goes! by Jayneen Sanders
Please Don't Give Me a Hug! by Judi Moreillon
Can I Give You a Squish? by Emily Neilson
Ask First, Monkey! by Juliet Clare Bell
Do You Have a Secret by Jennifer Moore-Mallinos
Will Ladybug Hug by Hilary Leung
Personal Space Camp by Julia Cook
Don't Touch My Hair by Sharee Miller
C is for Consent by Eleanor Morrison
Resources Available in Lawrence, Kansas
Childcare and Education
Community Children's Center
346 Maine Street, Lawrence, KS 66044 | 785-260-8184
kimpolson@communitychildrenks.org
EIN 48-0699069
Food Pantries Available 24/7
Take what you need, leave what you can
Sunrise Community Pantry
1501 Learnard Ave.Lawrence, KS 66044
Lawrence Freedgin Kansas Pantry
(Behind Latchkey Deli)
1035 Massachusetts St.
Crisis Resources
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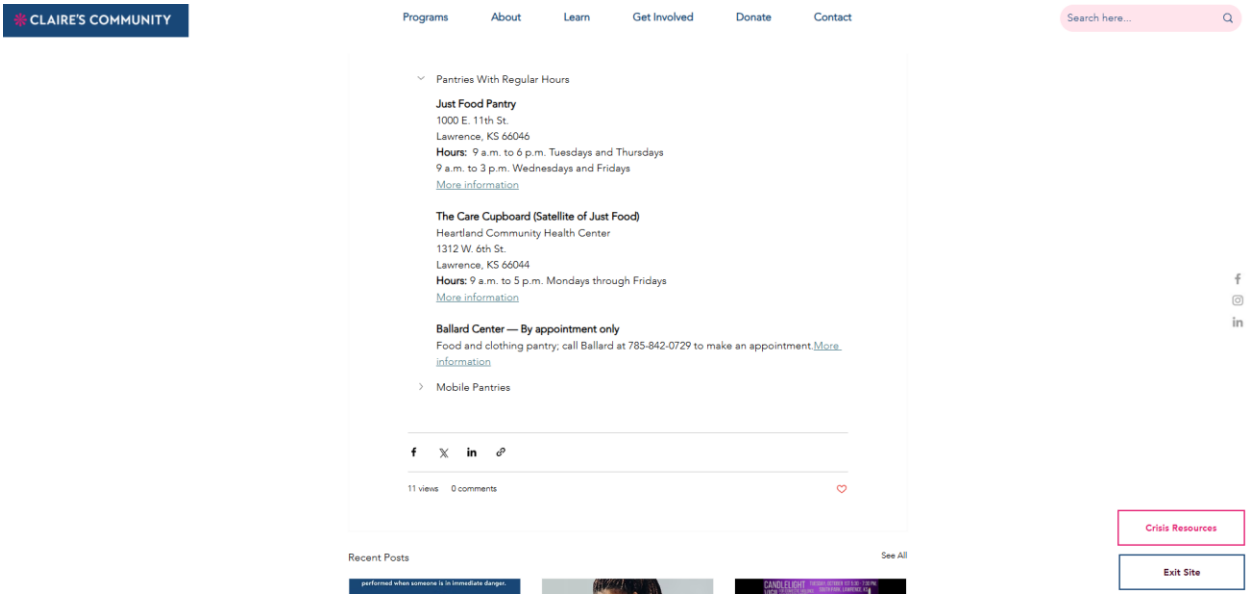
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Programs
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Search here...
Pantries With Regular Hours
Just Food Pantry
1000 E. 11th St.
Lawrence, KS 66046
Hours: 9 a.m. to 6 p.m. Tuesdays and Thursdays
9 a.m. to 3 p.m. Wednesdays and Fridays
More information
The Care Cupboard (Satellite of Just Food)
Heartland Community Health Center
1312 W. 6th St.
Lawrence, KS 66044
Hours: 9 a.m. to 5 p.m. Mondays through Fridays
More information
Ballard Center — By appointment only
Food and clothing pantry; call Ballard at 785-842-0729 to make an appointment.More information
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Appendix 3 Products

Parent/Caregiver Listening and Storytelling Event with Lawrence Public

Photo 1: Featured books that were read during the Storytelling

Photo 2: Far Left Nathan Schaller, Middle Hannah Parks Librarian, assorted adults and children in attendance

Photo 3: Far left Hannah Parks, Middle Shannon VanLandingham, assorted adults and children in attendance

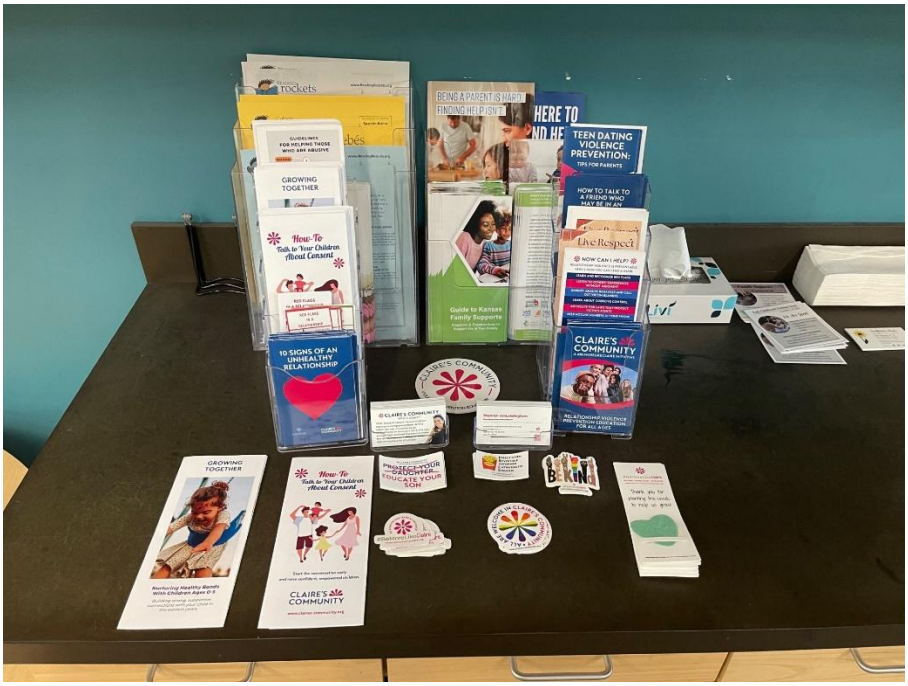


Photo 4: Printed resource spread for parent's/caregivers

Appendix 4 Products

Presentation/program of the Cascadia Subduction Zone (Emergency Management)

What is Emergency Management?

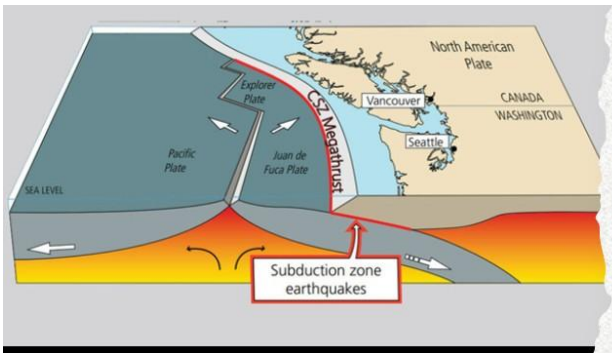
- Definition: Emergency management is the managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters. (FEMA).
- Mission: Emergency Management protects communities by coordinating and integrating all activities necessary to build, sustain, and improve the capability to mitigate against, prepare for, respond to, and recover from threatened or actual natural disasters, acts of terrorism, or other man-made disasters. (FEMA)
- Phases of Emergency Management

1. Mitigation – Prevent future emergencies or minimize effects.
2. Preparedness – Plans, trainings, exercises to ensure readiness.
3. Response – Actions to save lives, protect property, and meet basic needs.
4. Recovery – Long-term rebuilding of communities and economies.

- In Cascadia, Emergency Management (EM) is critical due to low-frequency but high-consequence hazards.

How EM Applies to Natural Disasters

- Earthquakes, tsunamis, wildfires, and floods require integrated planning.
- Emergency Management connects scientific research to real-world policy and infrastructure.
- In the Cascadia Subduction Zone (CSZ) context: EM plans must address both shaking and tsunami impacts.
- The National Incident Management System (NIMS) – guides all levels of government, nongovernmental organizations, and the private sector to work together to prevent, protect against, mitigate, respond to and recover from incidents (National Incident Management System, 2025).

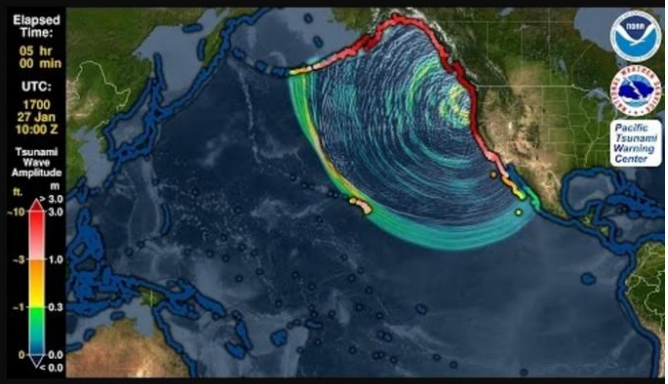


The Cascadia Subduction Zone: Overview

- A 700-mile fault line offshore from Northern California to British Columbia and is about 70-100 miles off the Pacific coast shoreline (Oregon Department of Emergency Management, OEM).
- Tectonic plates: "Juan de Fuca plate is subsiding underneath the North American plate" (OEM).
- Capable of producing megathrust earthquakes M8.0-M9.0 and trans-Pacific tsunamis.
- Geologic evidence shows repeated massive ruptures over millennia (Goldfinger et al, 2012).

Why Cascadia is Unique and Dangerous

- Entire fault can rupture in one event, releasing massive energy.
- Tsunami arrival times to some coastal areas: "can hit shore in under 20 minutes" (Oregon Office of Emergency Management, 2017).
- Urban centers (Seattle, Portland, Vancouver) and coastal towns (Westport, Seaside, Newport) are all in hazard zones.



The 1700 Earthquake: Forensic Evidence

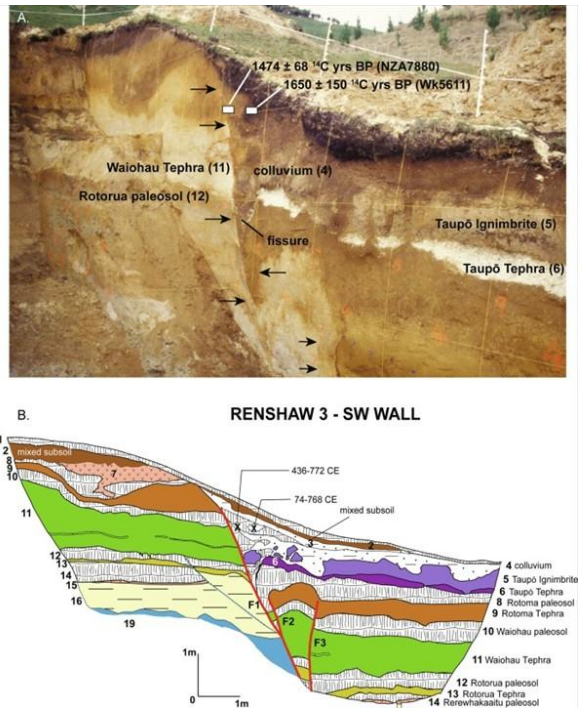
- Tree-ring “ghost forests” killed when coastal land suddenly dropped (Atwater et al., 2005).
- Tsunami sand deposits found inland, far above normal tide lines.
- Japanese records document an “orphan tsunami” (no quake felt) January 26th of 1700.
- Indigenous oral histories describe “the night the seas swallowed the land” (Valamontes, 2025).

Modern Science and Indigenous Knowledge

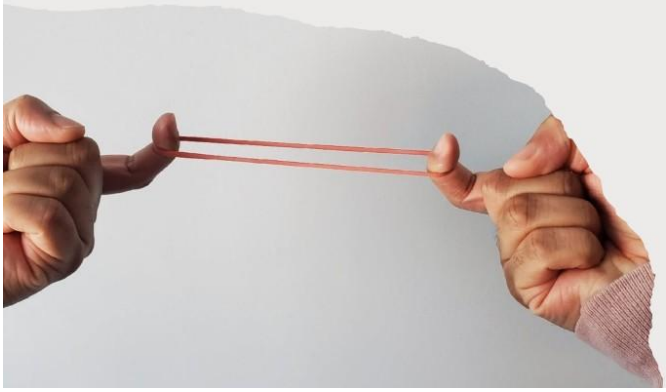
- *Paleo seismology confirms major CSZ quakes occur ever 300-500 years (Goldfinger et al., 2012).
- Indigenous stories provide precise accounts of timing, sequence, and local impacts.
- *Plural epistemology approach: Treat oral histories as empirical data alongside geophysical evidence (Valamontes, 2025).

*“Paleo” means old and “Seismology” is the study of earthquakes.

*Plural epistemology, also know as epistemic pluralism, is the philosophical position that there is no single, unified, or absolute way of knowing the world. It is the view that different facts or methods can constitute knowledge and that multiple, potentially valuable, ways of knowing can coexist.



Recurrence and Probability



- The Cascadia Subduction Zone has not produced an earthquake since 1700 and is building up pressure. Scientists are predicting that there is about a 37% chance that a megathrust earthquake of 7.1+ magnitude in this fault zone will occur in the next 50 years. This event will be felt throughout the Pacific Northwest (OEM).
- Low-frequency, high-consequence risk means urgency in preparation.
- Past ruptures reshaped coastlines, rivers, and ecosystems – effects lasting decades or centuries.

The Awareness Gap in Earthquake Preparedness

"We find that PDX residents are generally aware (i.e. have the "gist") of the earthquake threat for their region but are less aware of the level of shaking they could expect at their homes. They also seem to be uncertain or unaware of liquefaction hazards. In addition, the majority of respondents say they will take some action other than the recommendation of 'Drop, Cover, and Hold On' (DCHO) when earthquake shaking starts."(MacPherson-Krutsky et al., 2021).

- No living memory of the last full rupture fuels complacency.
- Awareness campaigns help but must be paired with actionable steps and drills.
- Behavioral science shows messaging should be local, vivid, and repeated.

Real-World Comparison Tohoku, Japan 2011

- **Earthquake magnitude:** On March 11th, 2011, a magnitude 9.0 megathrust earthquake struck off the coast of Tohoku, Japan, making it one of the most powerful earthquakes ever recorded globally (USGS, 2011).
- **Tsunami details:** The earthquake generated a massive tsunami. The tsunami first reached the Japanese mainland 20 minutes after the earthquake and ultimately affected a 2000 km stretch of Japan's Pacific coast and inundated over 400km^2 of land (Mori et al., 2011).
- **Casualties:** July 27th, 2011, official fatalities were 15,641 with an additional 5,007 missing (Mori et al., 2011). August 8th, 2012, 17,500 dead, 2.848 missing, and 6,109 injured. (World Bank, 2012).
- **Economic damages:** 16.9 trillion: Buildings 10.4 trillion, Public Utilities 1.3 trillion, Social Infrastructure 2.2 trillion, Other (agriculture, forest, fisheries) 3.0 trillion (World Bank, 2012).

Infrastructure Vulnerabilities

- High-risk assets: I-5 bridges, coastal highways, ports, airports, hospitals, drinking water systems, oil/fuel depots.
- Many structures built before modern seismic codes – prone to collapse.
- Loss of transportation corridors that will significantly slow aid delivery and evacuations.
- Seismic retrofits are costly but would significantly reduce casualties and economic disruptions.

Environmental Vulnerabilities

- Ghost forests, drowned marshes, and shifted river channels show past quake impacts.
- Disruption to fisheries and *estuaries could last years.
- Landslides could dam rivers, creating secondary flooding hazards.
- Infrastructure planning must integrate ecological resilience.

*Estuaries and their surrounding wetlands are bodies of water usually found where rivers meet the sea (National Oceanic and Atmospheric Administration [NOAA], 2025).

Climate Change Complications

- Coastal erosion threatens evacuation routes and protective dunes.
- The CSZ earthquake can lower land elevations, increasing vulnerability to tidal and storm flooding.
- Sea-level rise compounds earthquake impacts, multiplying potential damages to infrastructure and homes.

"Earthquake-driven subsidence in combination with sea-level rise significantly increases flood exposure in the Pacific Northwest, highlighting the need for climate contingent preparedness." (Dura, Chilton, Small, and Horton, 2025).

EM Strategies for Cascadia

Mitigation: Update building codes, relocate critical facilities, restore protective wetlands.

Preparedness: Public drills, emergency supply caches, evacuation signage.

Response: Regional mutual aid agreements, redundant communications.

Recovery: Pre-disaster recovery plans for housing, economy, and mental health.

Case Study: Seaside, Oregon

- Identified as high tsunami risk – all schools originally in inundation zone.
- Voter-approved bonds funded relocation of schools to higher ground.
- City adopted vertical evacuation structures for residents and visitors.
- Example of local initiative improving resilience (Oregon OEM, 2023).

Integrating Indigenous Knowledge

- Coastal tribes have tsunami evacuation traditions embedded in their culture.
- Oral histories used to refine hazard maps and evacuation zones.
- Partnership builds trust, cultural respect, and enhances science.

The Role of Public Education

- Teach Drop, Cover, and Hold On for earthquake response.
- Tsunami evacuation routes and assembly points must be clearly marked.
- Emergency kits should cover at least 2 weeks (14 days) of self-sufficiency.
- Education campaigns work best with repeated, community-based delivery.

Psychological Preparedness: Insight from Pearl S. Guterman Published Work, *Psychological Preparedness for Disaster*.

Mental readiness is as vital as logistical planning in response to a disaster. The concept emphasizes preparing individuals and communities for the emotional toll of disasters.

- Types of Disasters: Emergencies, disasters, and catastrophes all differ in scale and psychological impact.
- Terrorism vs. Natural Disasters: Terrorism cause deeper trauma due to unpredictability and intent.
- Public Misconceptions: Panic is rare; most will act rationally and help others.
- Stages of Response:

1. Rescue: Initial Shock, numbness and anxiety
2. Inventory: Assessment of loss; potential development of PTSD, depression/anxiety disorders
3. Reconstruction: Long-term coping; risk of survivor syndrome and even suicide

- Intervention Strategies:

1. Primary (Pre-event): Psychological first aid (PFA), stress inoculation, family crisis planning, and public education
2. Secondary (During event): Triage, implementation of PFA, and distribution of actionable information
3. Tertiary (Post event): Continued mental health support, therapy, and community cohesion

"How well one psychologically prepares for an event can have a bearing on the success of response and recovery efforts" (Guterman, 2005).

Call to Action

Invest in Infrastructure and Preparedness:

- Retrofit bridges, roads, hospitals, and critical lifelines to withstand earthquakes and tsunamis.
- Fund community preparedness programs, including evacuation drills, early warning systems, and emergency supplies for households.
- Support local governments and tribals nations in building resilient infrastructure.

Honor Science and Indigenous Knowledge:

- Combine geophysical research with Indigenous oral histories to understand historic seismic event.
- Use integrated knowledge to assist in urban planning, land use, and disaster education programs.
- Recognize Indigenous communities as essential partners in long-term resilience.

Prioritize Proactive Preparedness Over Reactive Recovery:

- Early action saves lives and reduces economic losses; disasters grow costlier the longer we wait.
- Develop multi-hazard plans that incorporate climate change, seismic risk, and psychological preparedness.
- Promote culture of readiness across households, schools, businesses, and government agencies.

Questions and Discussion

- Personal preparedness measures. Based on your geographic location what natural hazards are most likely to affect you? Technological? Human-Caused?
- Local vulnerabilities.
- How to better integrate community and scientific perspectives.

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2 Week Emergency Kit Basics

Creating Your Home/Work Emergency Plan/Kit
"Be 2 Weeks Ready"

Being "2 Weeks Ready" means having an emergency plan and enough supplies for you and everyone in your household to survive for at least two weeks following a disaster (OEM).

Your Emergency Plan:

1. Learn about the hazards in your area - Different places have different risks. Identify hazards where you live, like earthquakes, tornadoes, floods, wildfires, train-derailments, etc.…
2. Make a household communication plan – Talk to everyone in your household about what to do in an emergency. You might need to shelter in place or evacuate. What evacuation routes will you take from home, work, or school? Where will you meet after the disaster in not at home? How will you make contact if separated?
3. Make an emergency plan – Creating your emergency plan/kit is important, it needs to cover what to do if you need to leave or stay. In the event of an evacuation, you need to have a go-kit to take with you. (Example Emergency Kit on next slides).
4. Sign up for emergency alerts – Whether that is through a wireless emergency alert from your phone or through apps such as Facebook or X (With you following your areas emergency management office).
5. Practice – Once you have a plan, practice it! – Walk through and practice your plan every few months, test evacuation routes, take part in emergency management drills that are hosted by your areas EM team.

*Information Presented by the Oregon Department of Emergency Management

Example Emergency Go-Kit

When thinking about what to include in your go-kit, think about the Six P's

1. People and pets (Food, water, hygiene, sanitation, clothing, and comfort items).
2. Prescriptions (Medications, eyeglasses, medical devices).
3. Phones, personal computers, and chargers.
4. Plastic (ATM debit and/or credit cards) and cash.
5. Papers and important documents (Photo ID, birth certificates, social security cards, passports, insurance polices, etc...).
6. Pictures and other irreplaceable memorabilia.

*Information presented by Oregon Department of Emergency Management.

Example Emergency Go-Kit Cont.

A basic emergency kit could include the following items. Make sure to have these items in a carriable bag or wagon/container with wheels for easy mobility.

1. Water (One gallon per person per day for several days, for drinking and sanitation)
2. Food (Several-day supply of non-perishable food)
3. Battery-powered or hand crank radio
4. Flashlight
5. First Aid Kit
6. Manual can opener
7. Extra batteries and chargers
8. Dust mask (To help filter contaminants)
9. Prescription medications and non-prescription medication
10. Infant formula, bottles, diapers, wipes
11. Pet food and extra water for pet
12. Cash and debit/credit cards
13. Important family documents
14. Sleeping bag or warm blankets for each person
15. Change of clothes appropriate for climate and sturdy shoes
16. Matches
17. Feminine supplies
18. Mess kits, paper plates, cups, paper towels, and plastic utensils
19. Soap, hand sanitizer and disinfecting wipes
20. Local Maps