



# Survival in the Home Emergency Preparation

Basic steps to prepare for a short-term survival experience, and thoughts on long-term survival

**Survivalist vs Prepper**

Ed & Marti McCullough

*Jesus and Mary send us understanding, that we may know how to serve you well. Fill our hearts with heavenly wisdom and grant that we may love it alone and scorn things of the world. Do not hinder our lips from crying out for these things:*

*Help us to wise as serpents and innocent as doves.*

*Help us to have knowledge of good but not of sin.*

*Help us to be wise against the snares of the devil.*

*Help us to order our lives wisely, following the examples of the saints.*

*Nourish us with the milk of the hidden wisdom of God and help us to seek it every day of our lives.*

*Help us to be worthy of the Kingdom of Heaven and make our children heirs of eternal blessings.*

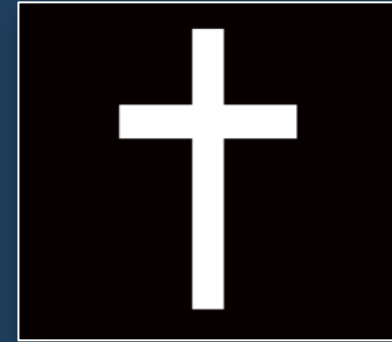
# Subject areas and class agenda

- Why am I qualified?
- Threats to our well being
- Faith and Prayer and your state of mind
- The basics: food, water, shelter, heat
- Beyond the basics: evacuation, medical considerations, long term
- Specific threats:
  - Man-made: nuclear, biological, chemical, terrorist, political, war, EMP
  - Natural: earthquake, storm, tsunami, volcano, flood
  - Financial
  - Long term survival (national emergency)
  - Evacuation (local or regional emergency)
- Q & A
- Demonstrations

**Feel free to ask questions as we go!**

# McCullough Qualifications

- U.S. Army Infantry officer (Airborne/Ranger)
- Nuclear, Biological and Chemical defense trained
- Geologist (B.S.)
- Trained to handle hazardous materials of all kinds (30 plus years)
- Past member of the Grays Harbor County (WA) Hazard Mitigation and Identification Team
- FEMA qualified
- Train 1st responders to respond to railroad emergencies
- Survival trainer
- Operations officer for U.S. Army Nuclear Inspection team in South Korea
- Operations officer for U.S. Army Non-combatant evacuation and Emergency Preparation organization in South Korea
- Map maker for hazard identification
- Catholic Christian

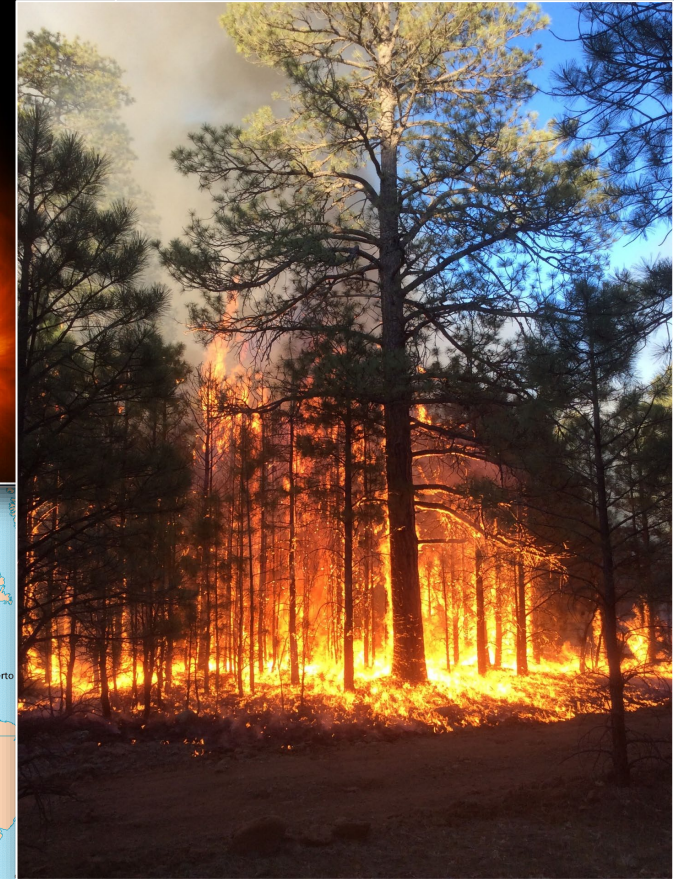
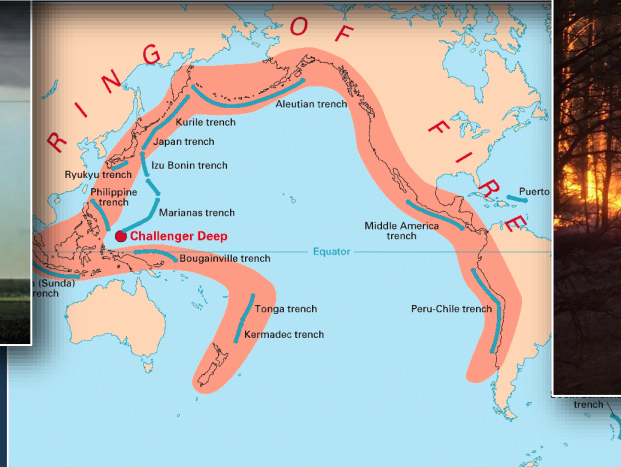
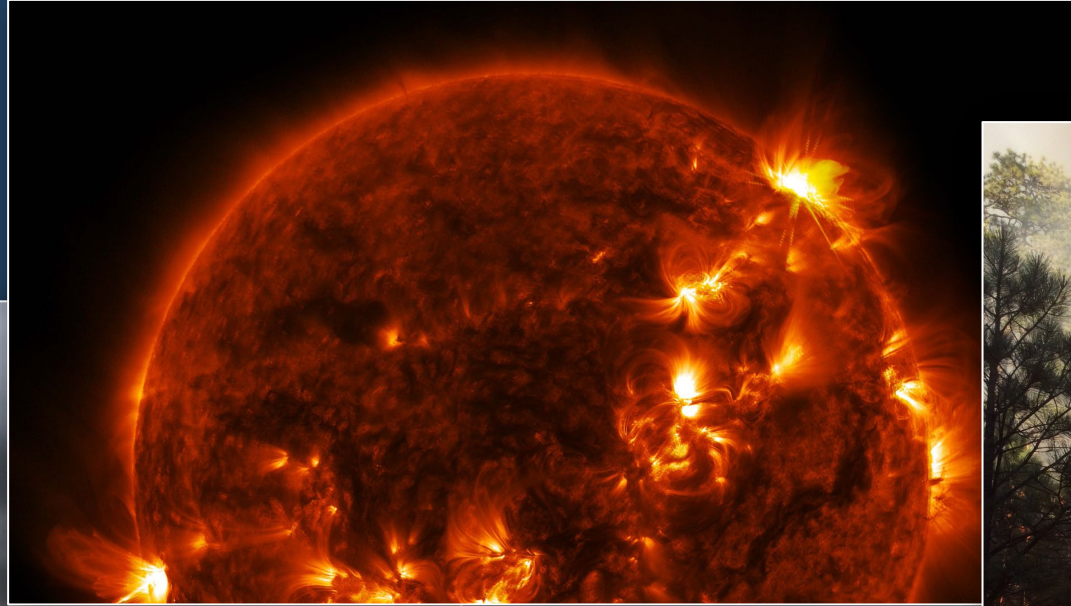




# Types of disasters (threats)

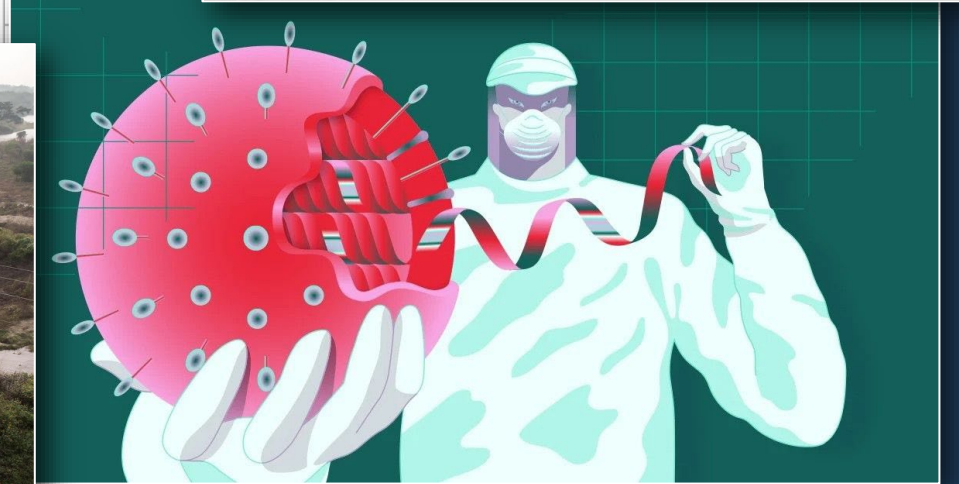
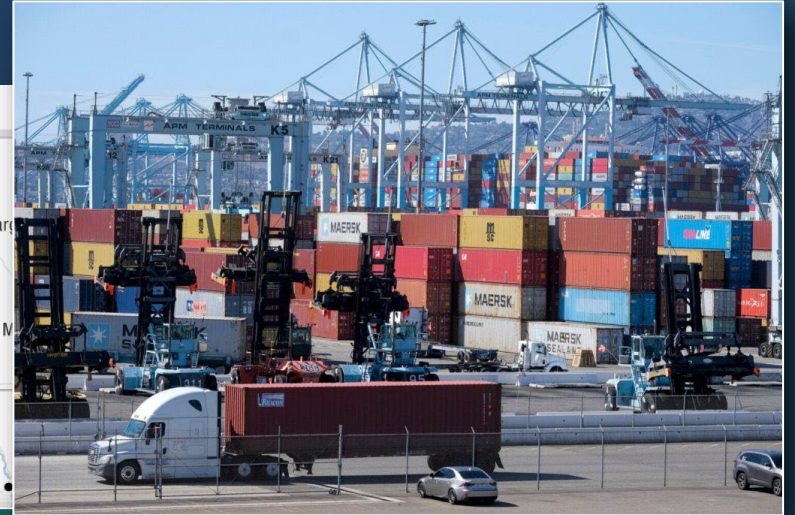
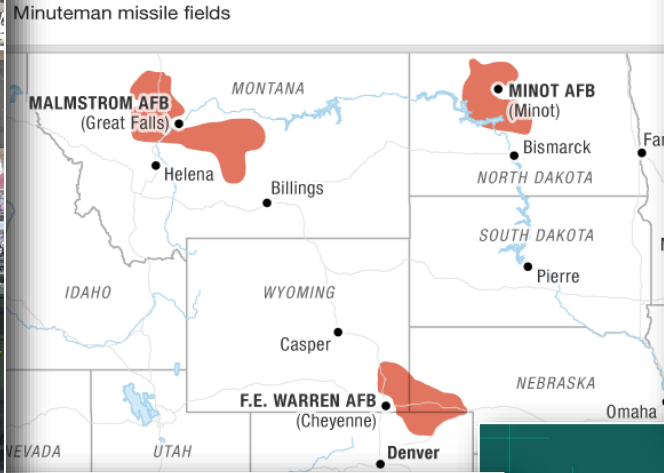
- Man-made
- Natural

# Natural threats





# Man-made threats



# EMP threat

- Natural
- Man-made (accident and weapon)



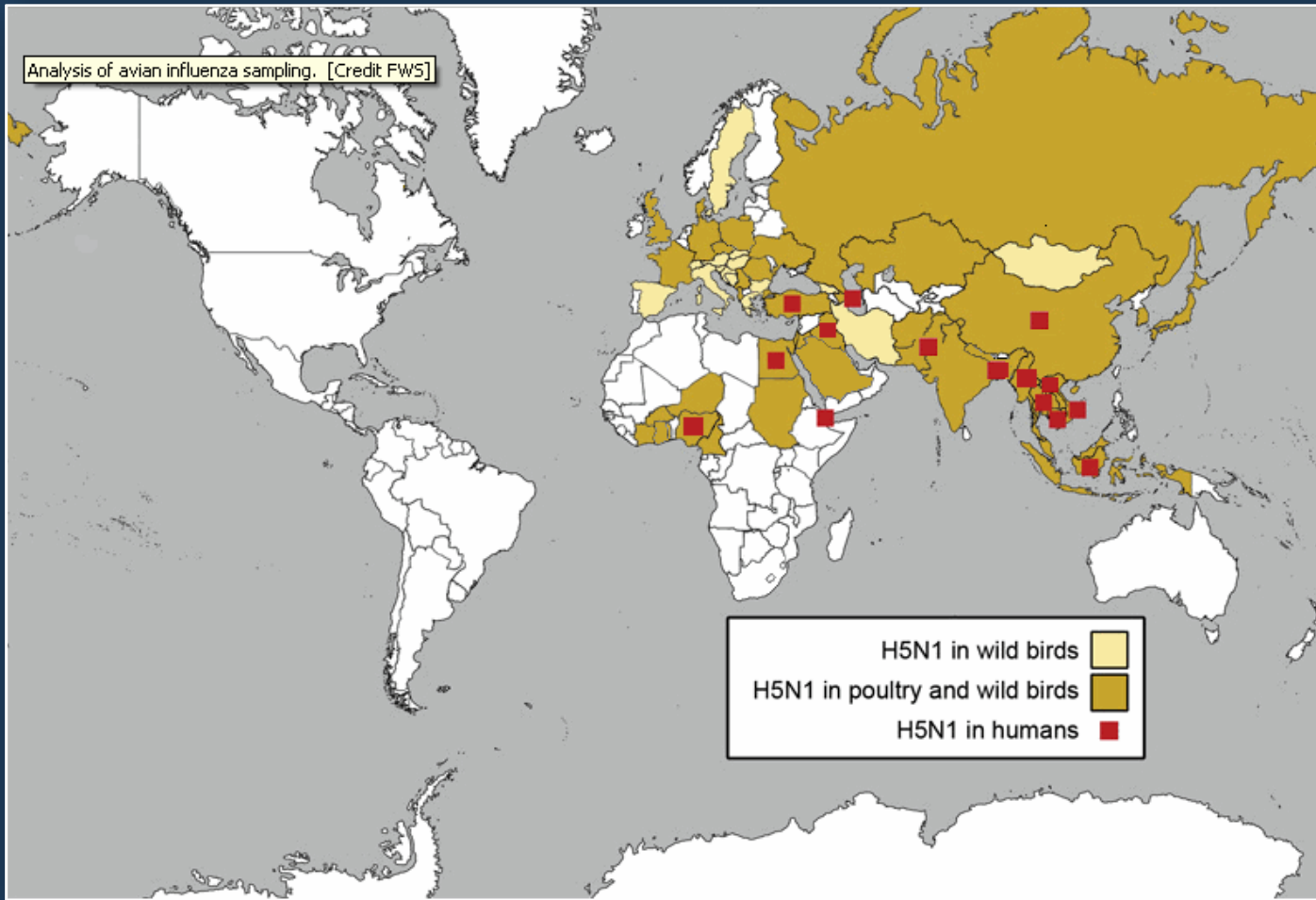


# Recent hazards

- Ebola fatality rates have varied from 25% to 90% in past outbreaks
- What Would Happen if a Massive Solar Storm Hit the Earth? What Would Happen if a Massive Solar Storm Hit the Earth? [\[Gizmodo\]](#)
- Nuclear attack? Duck & cover! It may be time for a Cold-War standby to stage a comeback [\[USA Today\]](#)
- A Chinese nuclear submarine designed to carry missiles that can hit the U.S. is likely to deploy before year's end, the Pentagon said, adding to Obama administration concerns over China's muscle-flexing in Asia



# Avian flu today



# COVID-19

- **Man made?** Done for a reason?
- Characteristics of a biological weapon: *US Army FM 8-9*
  - **Infectivity**- can it exist in target easily
  - **Virulence**- does it cause a medical problem
  - **Toxicity**- how severe is the medical problem
  - **Pathogenicity**- is it capable of causing a medical problem
  - **Incubation period**- how fast does it work (faster the better for military use)
  - **Transmissibility**- can it pass from person to person
  - **Lethality**- can it kill in a target population
  - **Stability**- can it survive in the target environment

# Is our government a threat?

- Tucker Carlson reports Bank of America is turning over private information about its customers to federal law enforcement officials without the knowledge or consent of its customers. This is all related to the crackdown on “domestic extremism”
- China's push to control Americans' health care future
- U.S. officials say the Chinese government is trying to collect Americans' DNA, and they believe a recent offer from a Chinese company for assistance in COVID-19 testing was suspicious
- Biden cancels Elon Musk's adventures in space

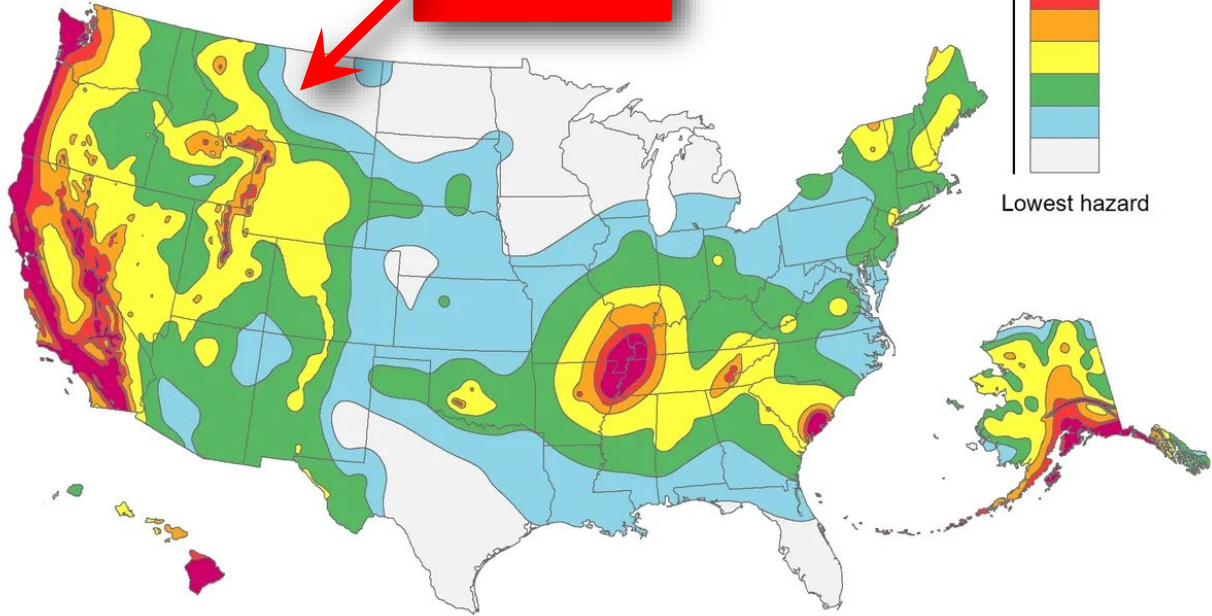
# The future?

- GreatReset.com: “The challenge is that as we emerge from the pandemic the pressure to go back to ‘Business As Usual’ will intensify. ... Right now we have a small window of opportunity to shape the future we want.”
- “The pandemic represents an unusual, short term opportunity to reflect, rethink and reboot our world,” Charles Schwab

# Earthquakes

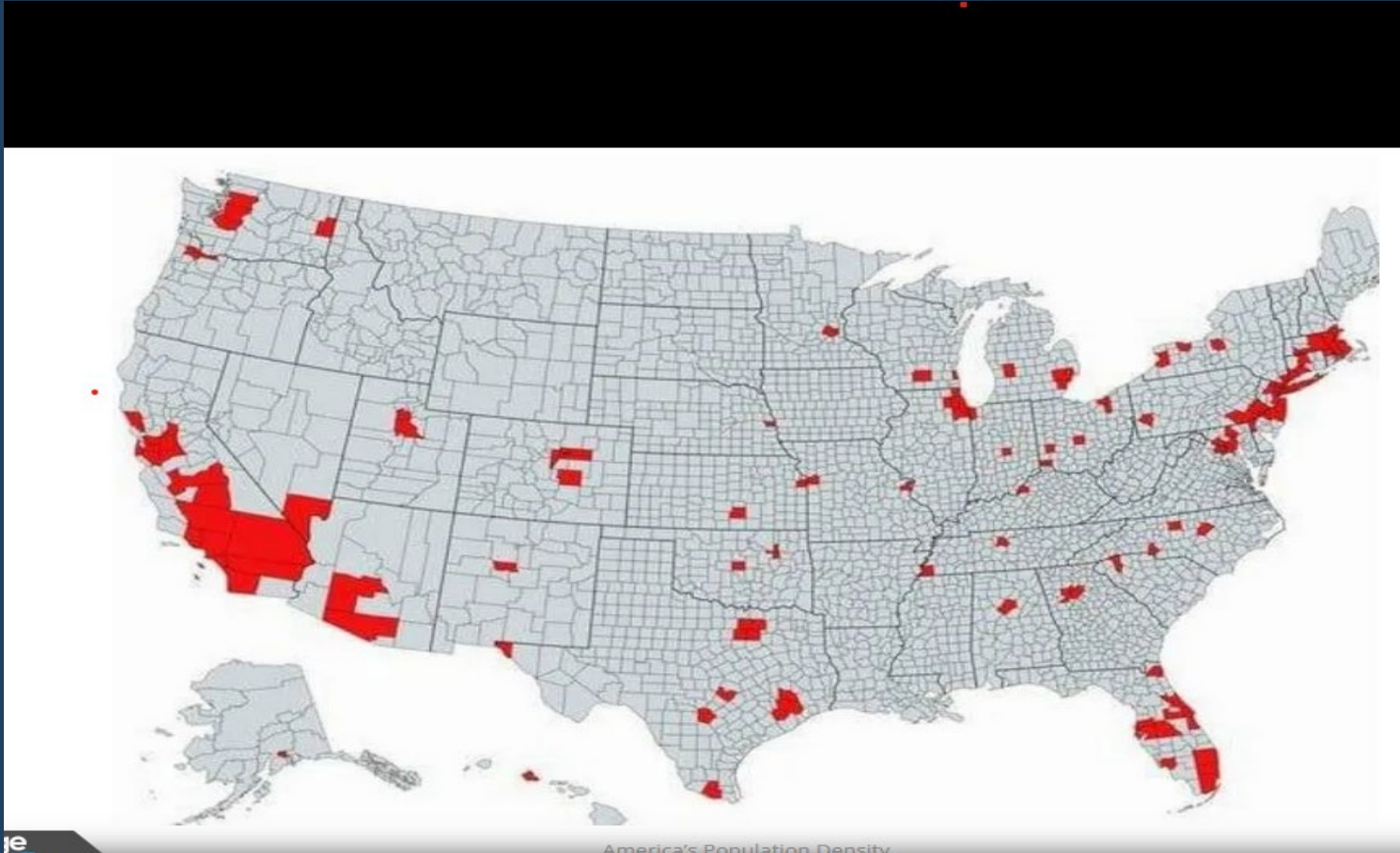


Montana



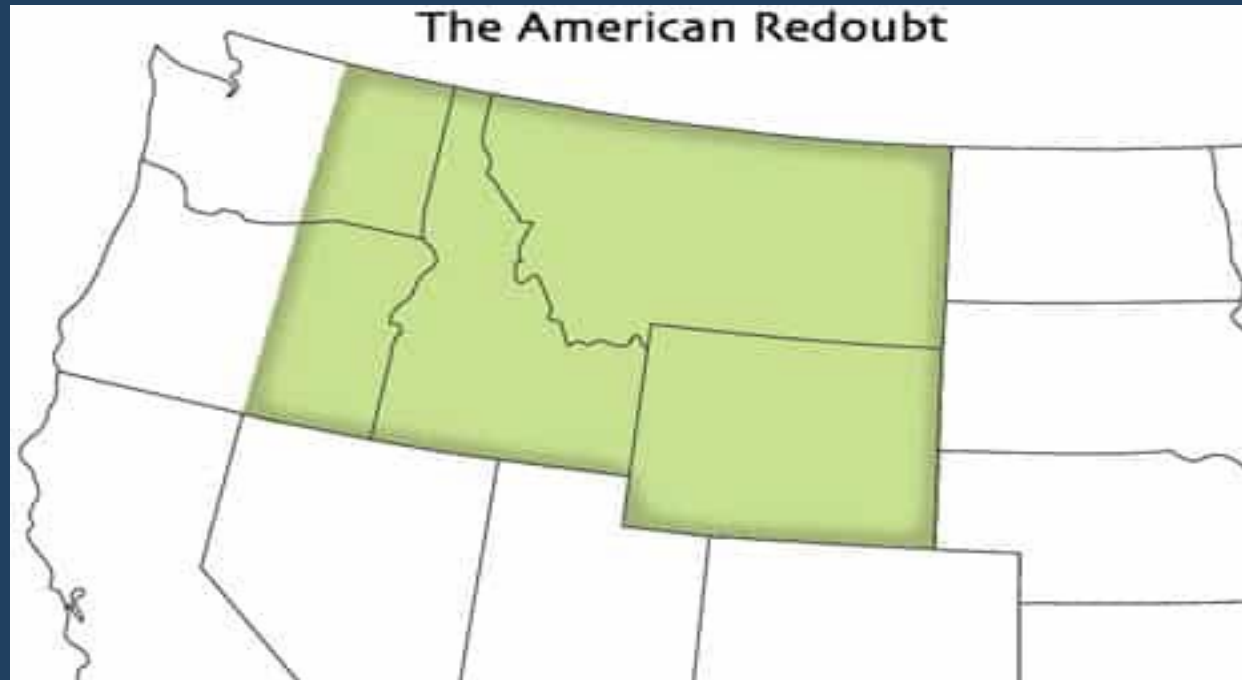


# Where you live








# National Redoubt

- Something that holds or defends a belief or a way of life, especially one that is disappearing or threatened. (mention Canada)





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- 
 Cities with one airport among the top three busiest in the world, and at least one within the top 30 (2004)
- 
 30 busiest airports in the world (2004)
- 
 30 busiest airports in North America
- 
 50 busiest airports in North America
- 
 Cities with one airport among the 30 busiest and at least one among the 50 busiest (2004)



# If you are less than one gas tank away from a city or in a city

- Trust in God
- Bless land and house
- Holy Cow story
- Hospitality- St. Gregory the Great “offer hospitality now to Christ the stranger...”
- The pecking order theory, take care of the weakest of us
- Those you can help- becomes a community
- Be prepared to protect yourself and family

# Hazards in Montana

Natural:

- Yellowstone, storms, earthquake, fires

Man made:

- Refinery, transportation, nuclear
- Discus National Redoubt





# Hazards

All of this seems like a lot to think about and handle...

- How do I sort it all out?
  - Identify risk and probability
- Examples
  - Nuclear war is **high risk** but **low probability**
  - Winter storm is **low risk** but **high probability**
- Some are harder to discern
  - Solar storm, pandemic, man-made disaster...
- All hazards have some basic preparation needs in common

# Threat and probability

## Billings, MT:

Type	Event	Probability	Risk	Action
Man-made	Government overreach (federal)	2 (High)	2 (High)	• Spiritual, prep, <b>convention of states</b>
Man-made	Terrorism (national)	2 (High)	4 (Low)	• Self defense
Man-made	Pandemic (real)	2 (High)	2 (High)	• Prep
Natural	Volcano fallout	4 (Low)	2 (High)	• Prep • Evac
Natural	EMP (natural)	4 (Low)	3 (Medium)	
Natural	High winds	3 (Medium)	3 (Medium)	
Natural	Hail	3 (Medium)	3 (Medium)	
Man-made	Government overreach (state)	3 (Medium)	4 (Low)	• Fellow citizens unite
Man-made	Government overreach (city)	3 (Medium)	4 (Low)	• Fellow citizens unite
Man-made	Terrorism (local)	4 (Low)	2 (High)	• Self-defense, fellow citizens unite
Natural	Tornado	4 (Low)	2 (High)	• Prep • Rehearse
Man-made	Long term power outage (non-war)	4 (Low)	3 (Medium)	• Prep • Small generator • Rehearse
Man-made	Train accident (hazmat)	4 (Low)	3 (Medium)	• Rehearse
Man-made	Refinery (hazmat)	4 (Low)	3 (Medium)	• Rehearse • Research Laurel emergency plans
Natural	River flood	4 (Low)	3 (Medium)	• Check frequency for area
Natural	Wildfire	4 (Low)	4 (Low)	
Natural	Earthquake	4 (Low)	4 (Low)	
Man-made	Nuclear war	5 (Very low)	1 (Very high)	
Man-made	EMP (nuclear war)	5 (Very low)	1 (Very high)	• Prep • Evac
Man-made	Non-nuclear war (invasion)	5 (Very low)	1 (Very high)	• Self-defense • <b>Wolverines!</b>

# Our Disasters

- Mt. St. Helens (1980)
- Chernobyl (1986)
- Ten-day ice storm
- Nisqually earthquake (2001)





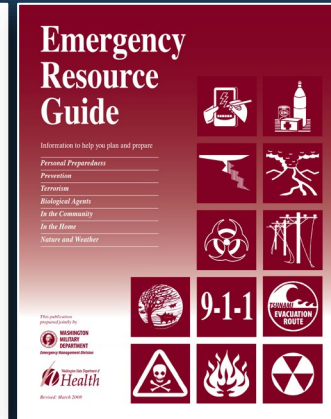
# Washington state government resources

- Washington State Emergency Management Division

- <https://mil.wa.gov/preparedness>
- <https://mil.wa.gov/publications>
- **Prepare in a Year** guide:
  - <https://mil.wa.gov/asset/5f171cc0a935f>

- Washington State Department of Health

- <https://www.doh.wa.gov/Emergencies/BePreparedBeSafe>
- <https://www.doh.wa.gov/Emergencies/BePreparedBeSafe/Publications>
- **Emergency Resource Guide:**
  - [https://www.doh.wa.gov/Portals/1/Documents/Pubs/821-001\\_ResourceGuide.pdf](https://www.doh.wa.gov/Portals/1/Documents/Pubs/821-001_ResourceGuide.pdf)



# Montana state government resources

## Montana DPHHS (Department of Public Health and Human Services)

- Public Health Emergency Preparedness:

- <https://dphhs.mt.gov/publichealth/PHEP>

- Ready and Safe:

- <https://readyandsafe.mt.gov/>

The screenshot shows the Montana DPHHS website page for Public Health Emergency Preparedness. The header includes the Montana.gov logo and navigation links for Services, Agencies, and Login. The main content area features a search bar and a navigation menu with options like 'I am looking for' and 'I am a'. The main heading is 'PUBLIC HEALTH EMERGENCY PREPAREDNESS' with a sub-heading 'Public Health and Safety Division'. Below this, there is a list of programs and services including 'Public Health Emergency Preparedness', 'DPHHS Health Alert Network (HAN)', 'HHS Emergency Operations Plans', 'Healthcare Preparedness Program (HPP)', 'Strategic National Stockpile (SNS)', 'MIMAS - MT Healthcare Mutual Aid System', 'Particount® Respirator Fit Testing Program', 'Public Health Summer Institute', 'Training & Distance Learning', 'Your Preparedness', 'PHEP Contacts', and 'PHEP Activations'. There is also a link for 'Donations to Emergency Relief'.

The screenshot shows the Montana Disaster and Emergency Services (DES) website. The header includes the Montana.gov logo and navigation links for SERVICES, AGENCIES, and LOGIN. The main content area features a large banner with the text 'Creating a Disaster Resilient Montana' and the DES logo. Below the banner, there is a navigation menu with options like 'DES Home', 'Grant Programs', 'Preparedness', 'Mitigation', 'Response', 'Recovery', 'SERC', and 'Quick'. There are two main sections: 'Quick & Helpful Links' and 'Current Situation Report'. The 'Quick & Helpful Links' section includes 'Welcome to Montana Disaster and Emergency Services' and 'Montana Disaster & Emergency Services (MT DES) is the lead agency coordinating comprehensive emergency management'. The 'Current Situation Report' section includes 'News and Announcements' and 'FEMA Public Notice'.



# Federal government resources

- Make A Plan:
  - <https://www.ready.gov/plan>
- Shelter In Place:
  - <https://www.osha.gov/SLTC/etools/evacuation/shelterinplace.html>
- FAS **ready.gov** analysis:
  - [https://daretoprepare.com/FAS\\_full\\_analysis.ready.gov.pdf](https://daretoprepare.com/FAS_full_analysis.ready.gov.pdf)
- Other articles:
  - [https://www.americanthinker.com/articles/2021/02/first\\_steps\\_for\\_surviving\\_whats\\_coming\\_our\\_way.html](https://www.americanthinker.com/articles/2021/02/first_steps_for_surviving_whats_coming_our_way.html)



# Other resources

## Emergency and Disaster Information Service ([rsoe-edis.org](https://rsoe-edis.org))



### Event list

Order by...

- All events
- Biological origin
- Critical infrastructure
- Social incident
- Ecological disaster
- Explosion
- Fire
- Geological
- Hydrological
- Industrial

#### Traffic incident

##### Airplane accident (2)

United States - 2 killed in small plane crash near Lake Kemah, New Jersey	2021-11-12 07:29:02	United States, North America	...
Russian Federation - Helicopter crash-lands in Siberia, crew survives, Emergencies Ministry says	2021-11-11 16:39:08	Russian Federation, Asia	...

##### Public road accident (4)

Nigeria - Six persons burnt to death in Ondo auto crash	2021-11-12 21:06:48	Nigeria, Africa	...
Nigeria - Five killed, three others injured in Bauchi auto crash	2021-11-12 14:24:58	Nigeria, Africa	...

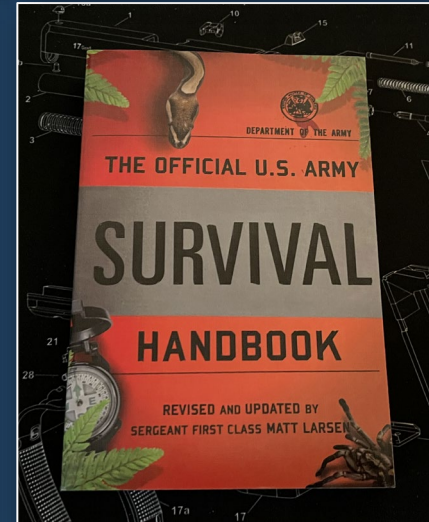
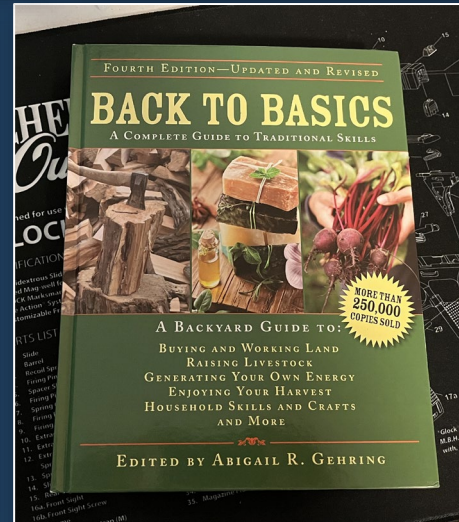
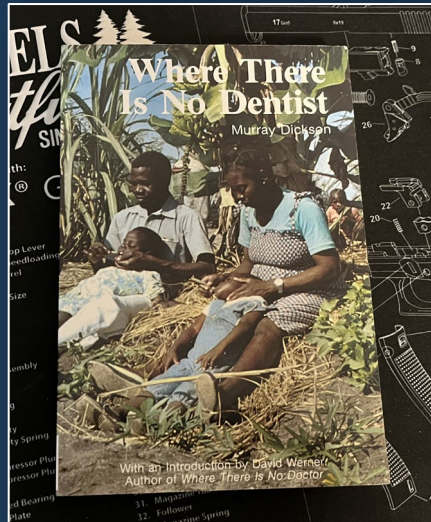
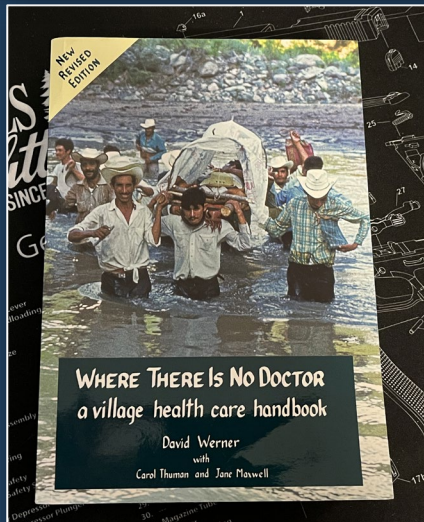
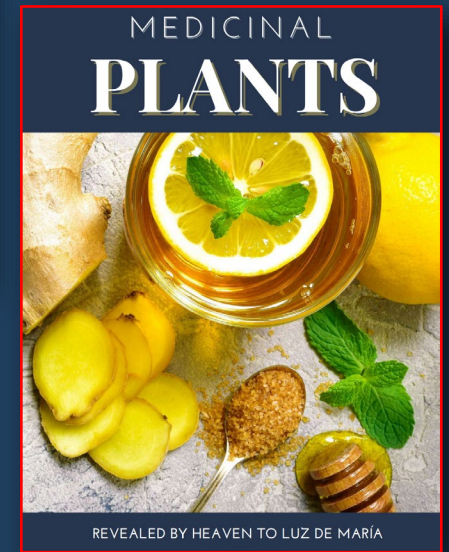
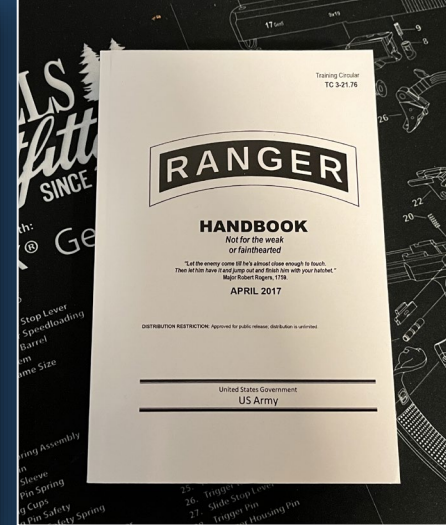
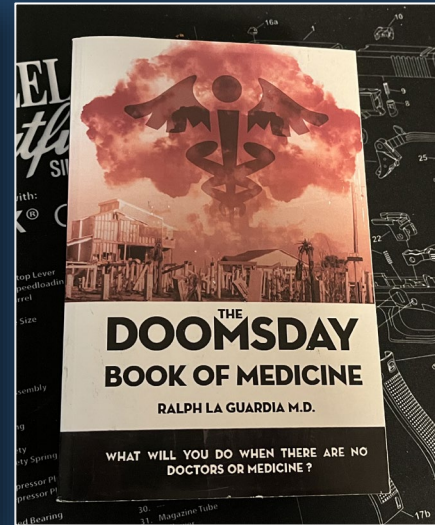
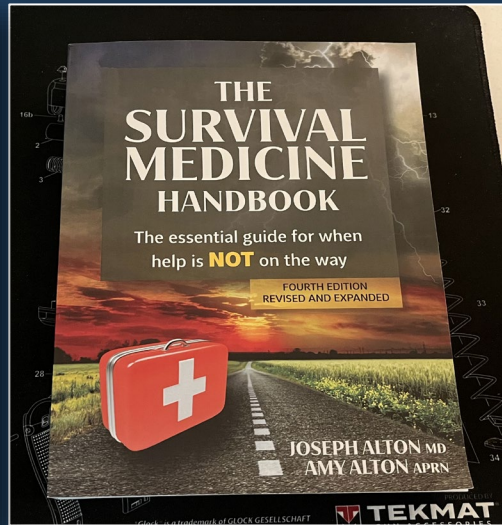
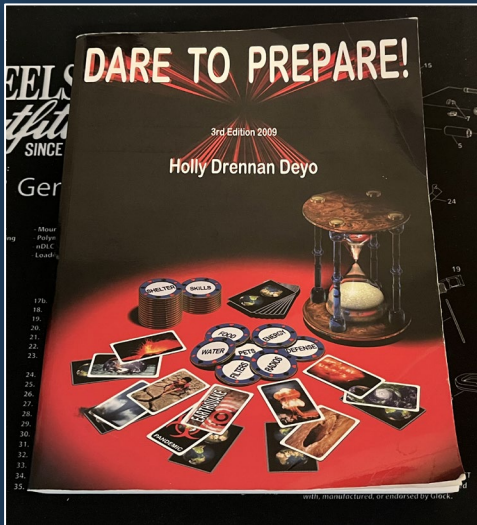


# Survival library





# Survival library





# Survival library

- Dare To Prepare (6th Edition)
  - [ISBN 0985294582](https://www.amazon.com/dp/0985294582) | [standeyo-cart.com](http://standeyo-cart.com) | [Amazon](https://www.amazon.com)
- The Survival Medicine Handbook
  - [ISBN 9780988872509](https://www.amazon.com/dp/9780988872509) | [Amazon](https://www.amazon.com)
- The Doomsday Book of Medicine
  - [ISBN 0996461590](https://www.amazon.com/dp/0996461590) | [doomsdaybookofmedicine.com](http://doomsdaybookofmedicine.com) | [Amazon](https://www.amazon.com)
- Where There Is No Doctor
  - [ISBN 0942364155](https://www.amazon.com/dp/0942364155) | [Amazon](https://www.amazon.com)
- Where There Is No Dentist
  - [ISBN 9780942364057](https://www.amazon.com/dp/9780942364057) | [Amazon](https://www.amazon.com)
- Back to Basics
  - [ISBN 1629143693](https://www.amazon.com/dp/1629143693) | [Amazon](https://www.amazon.com)
- The Official U.S. Army Survival Handbook
  - [ISBN 1493023764](https://www.amazon.com/dp/1493023764) | [Amazon](https://www.amazon.com)
- US Army Ranger Handbook
  - [Army Publishing Directorate](https://www.armypublishing.com) | [Amazon 1](https://www.amazon.com) | [Amazon 2](https://www.amazon.com)
- Las Plantas Medicinales (“Medicinal Plants”)
  - <https://www.revelacionesmarianas.com/en/MEDICINAL%20PLANTS.pdf>

# Your state of mind





# Experience of a disaster

- **We saw it coming.** We all made it into the basement. There is nothing above us; it is all gone. We knew that we could be hit by a tornado, but we didn't get around to doing anything about it, other than knowing where to go and hide. Now what?

OR

- **It's over.** In less than a minute, the earthquake did its damage. Your home and all your possessions have been reduced to rubble. It begins to sink in. What do I do now? My family is safe but shaken. My smallest one is curled up into a knot. His sister is crying. But we've never had an earthquake!

# Initial and later responses to trauma/stress - children?

Initial Responses, pre-impact to three days post-impact:

## Physical Responses

- Increased heart rate
- Shortness of breath, or asthma
- Hyperventilation
- Nausea and Vomiting
- Extreme trembling or shaking
- Excessive sweating
- Dizziness
- Feeling faint (light-headedness and unsteadiness)
- Blurry vision
- Hot flashes or flushing
- Tingling sensations in arms or hands (paresthesia)
- Diarrhea or Urinary problems
- Ringing in the ears
- Headaches

## Mental and Emotional Responses

- Disbelief or denial
- Disorientation
- Helplessness
- Nervousness
- Outbursts of anger
- Inability to remember recent events
- Restlessness
- Hypersensitivity to sudden or rapidly changing stimuli (noise, light)
- Sleep disturbances
- Nightmares
- Irritability
- Difficulty in concentrating
- Difficulty in making decisions
- Feeling that familiar things are strange or unreal.



# Psychology of disaster

- For the first 2½ hours, journalist [Amanda Ripley](#) discussed the **psychology of disaster response** and her book, [The Unthinkable](#). When a person encounters a disastrous circumstance, they may first react with **disbelief** or **denial**, as the brain tries to **normalize** the situation, she explained. Under extreme stress, a person can experience time distortion, with events slowing down or speeding up
- In a **desperate situation**, strangers often become **more generous** with each other, and people support each other as a group, she detailed. Blue collar men **without children** are the most likely to perform risky, heroic acts, while women are **more likely to survive** severe storms such as hurricanes, because they are **willing to evacuate**, Ripley reported
- Agencies in charge, such as FEMA, tend to **distrust how the public will respond** to disasters, she said. Assessing your risks in advance in advance of calamity is helpful, Ripley commented, and people who take an active role in responding to a disaster tend to have a quicker emotional recovery than those who remain passive



# Spiritual preparedness

- **Detachment through prayer-** You were born & chosen for these times- **Nothing is worth Hell!**
- **Consecration to the Blessed Virgin Mary** (*MMP book #287*)
- **The Armor of God-** Baptism & Sacraments
- **The only thing evil needs is for good & holy people to remain quiet!**
- **We are not Orphans-** *With the death of the last Apostle, Public Revelation ended. All that is necessary for salvation has been revealed. However, God has not ceased to speak to His creation! The Catechism of the Catholic Church states that "even if Revelation is already complete, it has not been made completely explicit; it remains for Christian faith gradually to grasp its full significance over the course of the centuries" (n. 66). Prophecy is God's eternal voice, continuing to speak through His messengers, whom the New Testament calls "prophets" (1 Cor 12:28). Can anything God says be unimportant? There is a process in the Church to discern credible voices of prophecy. We believe the Church needs this gift of the Holy Spirit more than ever—a light in the darkness—as we countdown to the coming of Christ's Kingdom. Therefore, our Lord has sent his mother more times in the 20th Century than all the other centuries put together and she continues to lead us and guide us. These are her times!*





# Spiritual preparedness

- “But if any man have not care of his own, and especially of those of his house, he hath denied the faith, and is worse than an infidel” -*Timothy 5:8*
- **TAKE CHARGE OF YOUR FAMILY AND YOUR HOME SPIRITUALLY**
- **GET OUT OF YOUR HOME ANYTHING THAT IS QUESTIONABLY EVIL!**
- Blessed Holy Water, Blessed candles, Blessed Salt, Holy Oil, Images of the Sacred & Immaculate Hearts of Jesus & Mary, Divine Mercy image, Image of the Holy Family, crucifixes, prayer books, Bible, the rosary, St. Benedict & Miraculous medals for over the doors and on your bodies with your scapulars. Items for a priest to offer the Holy Sacrifice of the Mass
- Healing of the family tree. Bless your perimeters of your property and bury St. Benedict medals and Miraculous medals and dried Easter Palms (for storms). Consecrate your property to St. Joseph (this is the Year of St. Joseph with special blessings!)
- Our Lady of Abundance
- Glorious Suffering!
- Love your neighbor/Community



# Group behaviors

- **My personal theory- the pecking order.** Groups divide into three sets, or groups. Leaders must recognize this and make sure the **bottom** group is taken care of. If we can take care of the weakest of us, **all of us will survive and thrive**. This is how I successfully led Infantry units for 21 years worldwide!
- People in a group want:
  - Safety
  - To belong
  - To matter



# Group behaviors

The weakest among us:

- The **elderly**
- The **infirm**
- The **very young**

- **THE PECKING ORDER**



# The rule of 3's

You can't live:

- **3 seconds** without the will to live
- **3 minutes** without air
- **3 hours** without shelter
- **3 days** without water
- **3 weeks** without food
- **3 months** without hope
- **3 years** without human contact?

# Steps to prepare

- **Believe you can survive** (*improvise, adapt, overcome*)
- **Do something to get ready** (*start today*)
- Visualize
- Get ready in a year guideline (***use it!***)
- Review potential hazards
- Review current status of your home and its contents
- Prepare an evacuation kit (*when, why, where*)
- Prepare for long term survival (*when, why, how*)
- Maintain and review threats and kits
- Take a CPR and First Aid class
- Rehearse and visualize

# Preparation is the key to survival

- Action plan
- Contacts
- Water
- 72-hour kit
- Documents
- Extended survival
- Supplies
- Utility safety
- Drop, cover and hold
- Fire safety
- Shelter in place
- If you leave?
- Home hazard hunt



# Rehearsals

- Visualization
- Fire
- Earthquake
- Volcano
- Tsunami
- Storm
- Power outage
- Flood
- Terrorism
- Information
- Man-made hazard (shelter in place)
- Drop, cover and hold
- Children

# Contact plan

- Local plan Cell phones, house phones
- Out of state contact, everyone calls and check in
- Pay phones, need quarters, often work when other systems do not
- Computer IM or e-mail
- Set up meeting point
- Plan to pass notes
- How to get and pass information
- CEOI (more on this later)

# Water

- Treating Water with a 5-6 percent liquid Chlorine Bleach solution
- See [Emergency Resource Guide](#)





# Water





# 72-hour kit

Rubber gloves

Food

Air filters & flu kit

Propane stove

1<sup>st</sup> aid gear



# Extended survival

- How do you know?
- If you decide its extended, what then?
- What order should we eat food?
- What do we do about water?
- Can we do it alone?
- Safety and defense?



# Extended survival

Flu kit



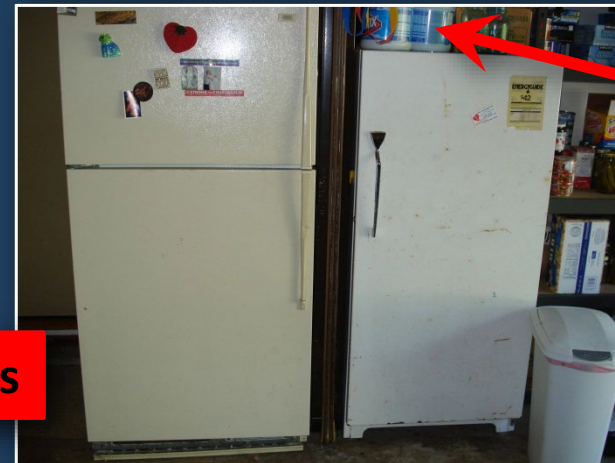
Salt



Food (oats, flour, corn meal, barley, rice, beans, corn grits)



Vitamins



Clorox

# Extended survival

Propane  
(two sizes)

Heaters

Emergency  
candles

Vitamins



Generator



Food in air-and-  
water-proof  
buckets. With  
CO<sub>2</sub> and bay  
leaves added



# Iron rations

- Original WW1 ration: **3-ounce cakes** (made from a concoction of bullion powder and parched and cooked wheat), **three 1-ounce bars of sweetened chocolate**, and **packets of salt and pepper**
- Daily ration of...
  - **0.8 lbs. whole wheat**
  - **0.25 lbs. powdered milk**
  - **¼ teaspoon salt**
  - **¼ teaspoon of honey**
  - **Multi-vitamin**
  - **...Will keep you alive indefinitely**
- Use “lite salt” to receive sodium and potassium
- Per person per year: 300 lbs. of whole wheat, 100 lbs. of powdered milk, 10 lbs. salt and 10 lbs. of honey and 365 multi-vitamins



# Shortages

- I was reading with interest a thread on Countryside Families titled “*Top 100 Things to Disappear in A National Emergency*”
- I disagreed with many things on the list, although did agree with some
- **What do you think?**
- This list was put together by the people in the forum. Also, look at how people in Bosnia survived the war



# Money

- Long-term or extreme emergency
  - **Money will not have much value**
- Short-term or less extreme
  - **Money may have some value**
- Plan to trade and barter
- Purchase some survival item for use or trade

# The list

If I may begin the list... *(of course, this is only my opinion)*

- Water - I think the safe water we take for granted from our faucets would be in danger of no longer being safe or even be available. And of course, during an emergency, water is one of the first things to disappear on a grocery shelf. Right now, I store water all the time. I am working toward a long-term solution, but do not have the means to do it yet
- Batteries - Every time a hurricane or emergency weather situation hits, batteries fly off the shelves at an alarming rate. I stock up on batteries
- Food that needs no cooking, such as canned soup, chili, crackers, beans and fruit
- Coffee & tea
- Paper towels - Yes, I use cloth napkins, and wash rags now but with limited water to wash these, I would want the paper towels
- Toilet paper



# The list

- Cash - Been through several hurricanes and ice storms, nothing beats cash
- Hand knitting materials for hats and gloves, scarves for those of us who can knit
- Also, books to read in any “downtime”
- Snowshoes and skis
- A dock box for the outside (mine would be on my back porch) like they use at marinas for the storage of things that need to be cold or frozen if you live in that climate... like I do
- Over the counter medications
- Duct Tape
- Dust Masks
- I don't have a baby in the house, but I would bet that baby supplies would disappear quickly. Things like diapers and formula. Breast feeding would be a big help in this area if the mother had a nutritious diet

# The list

- Baby formula, baby food and diapers
- Fresh foods like milk, juice, bread, lunch meats, and anything that is frozen or needs refrigeration
- Plywood, tarps, plastic sheeting
- I had read somewhere that over in Kosovo that soaps were in short supply and missed dearly
- I would say some sort of entertainment i.e., cards, a board game, etc.
- Eyeglasses - The cheap 'drugstore' reading glasses
- Tuna Fish (in oil?) - Now I like the taste/flavor of tuna in oil but is it better in oil than water. Better for you & lasts longer
- Salt and spices
- Tobacco
- Chocolate and candy
- Liquor, beer, and wine
- Paper plates
- Matches and lamp oil

# The list

- Coleman camp fuel
- Magnifying glass (fire starter)
- Fuel
- Flashlights
- Maxi pads/tampons
- Candles
- Staples like sugar, flour, salt, etc.
- Ice and an ice chest to keep the lunch meat in
- Blankets
- Warm clothing if it's cold weather
- Port-a-potty

People think in terms of "what do I need right now" not in terms of "what will I need if this lasts a long time" so I think the items to vanish first will be quick consumables, not items for long term use



# Fire and signal





# Shelter





# First-aid and longer

Fish/horse meds, trauma first aid, when there is no doctor...





# Cleanliness is next to Godliness

- Your **mouth** sets the **tone** for your **overall health**
- **Hydrogen peroxide** - one of two “miracle” fluids



# Enteric infection

- Disease of the intestine caused by any infection
- Diarrhea, vomiting, cramping
- Escherichia coli, Vibrio cholerae, and several species of Salmonella, Shigella, and anaerobic streptococci
- Survivable without antibiotic
- Oral rehydration therapy (ORT):
  - 1 liter of water, 1 tablespoon of salt, 3 tablespoons of sugar to replace fluids and **wash out** infection
- Good nursing

# Medicine

- **Cool storage-** make a natural refrigerator
- **Fish meds-** same antibiotics that humans use
- **Horse meds-** same Ivermectin that humans use



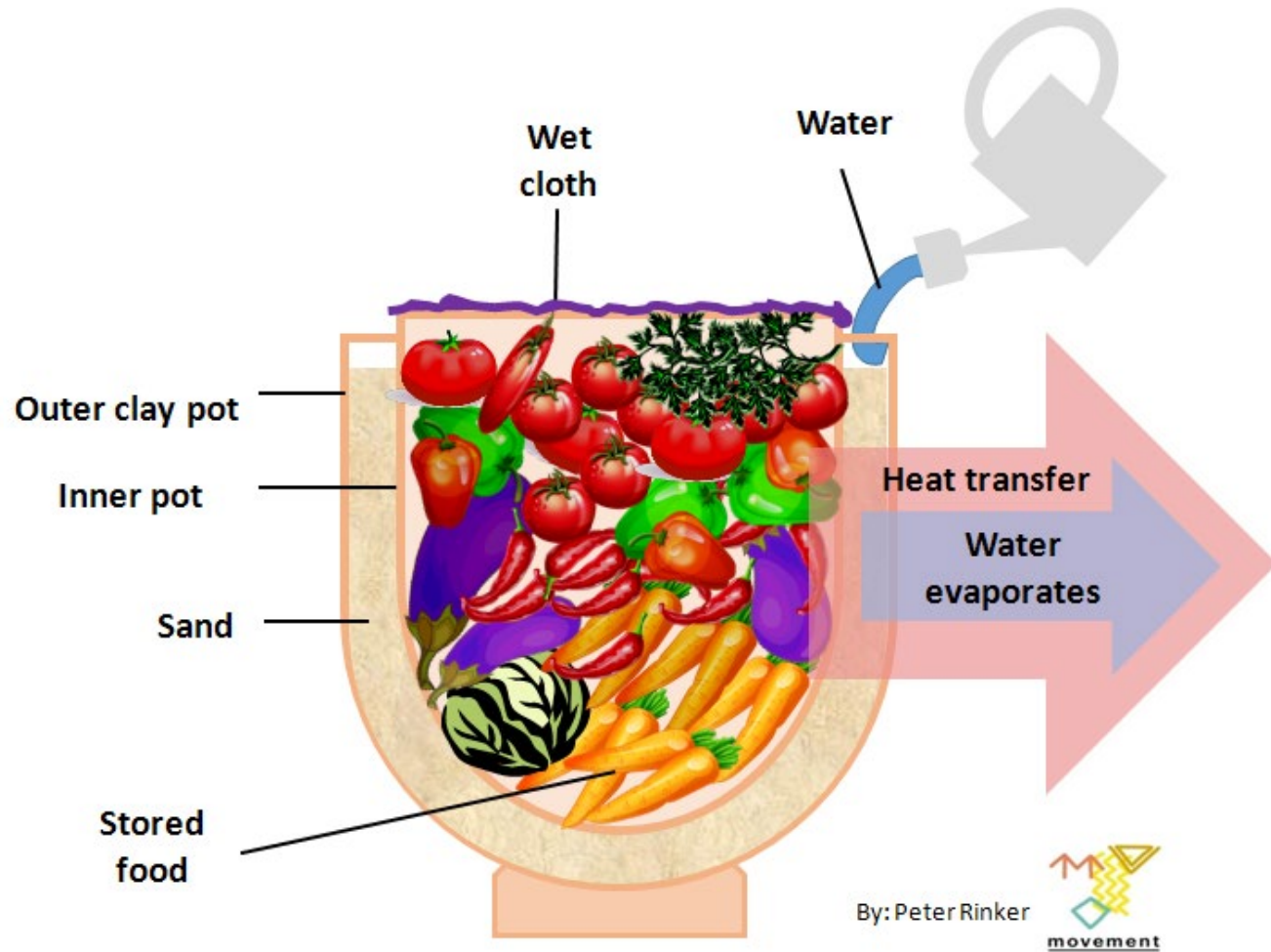
# Intermittent Fasting

- <https://www.hopkinsmedicine.org/health/wellness-and-prevention/intermittent-fasting-what-is-it-and-how-does-it-work>
- Not for children, pregnant, type 1 diabetes
- <https://jasemedical.com/>

# Refrigeration



# Refrigeration





# Serious illness

- Sick room and decontamination
- Care-taker protection
- Clorox- **DS 2** 40-70 % for all chemicals, radioactive material and bio-weapons
- Commonly known as **bleach** (make sure it has no soaps)
- Smaller amounts are needed for virus/bacterial



# Bleach

- **Sodium Hypochlorite** is a chlorine compound often used as a disinfectant or a bleaching agent
- **Sodium hypochlorite** in 0.5% w/v solution is called **Dakin's solution**, and is used as an antiseptic to clean infected topical wounds



# Use to purify water

Bleach may contain **6%** or **8.25%** *sodium hypochlorite*:

Volume of Water	Amount of 6% Bleach to Add*	Amount of 8.25% Bleach to Add*
1 gallon	8 drops	6 drops
2 gallons	16 drops (1/4 tsp)	12 drops (1/8 teaspoon)
4 gallons	1/3 teaspoon	1/4 teaspoon
8 gallons	2/3 teaspoon	1/2 teaspoon



# Sanitation

Mouth health:



# Field sanitation

- Human waste = **disease**
- Clean food prep and eating areas, and utensils
- Clean living and sleeping areas
- Avoid "depression"

# Human waste

- Bury outside
- Inside: decontaminate with lime or salt
- Dead

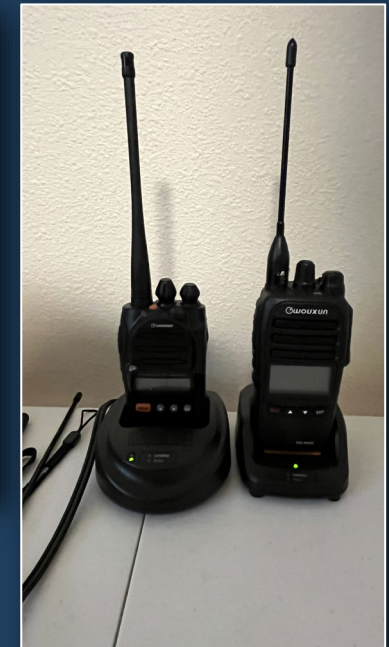
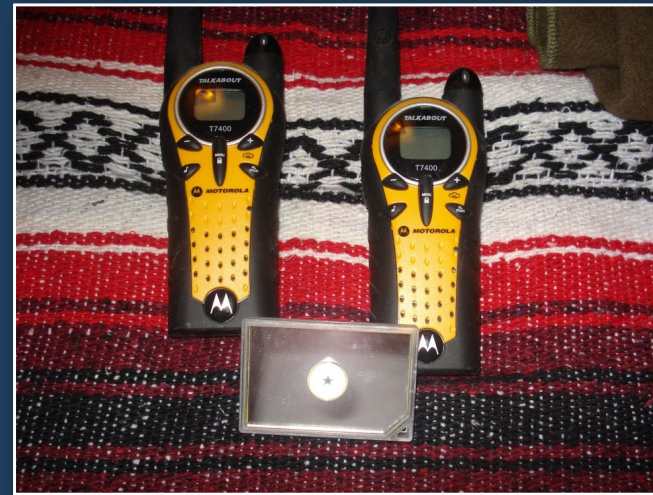


# Communications

## • Where There Is No Cellphone...

- No license required:
  - AM/FM radio
  - Weather radio
  - FRS
- License required:
  - GMRS (no test required)
  - HAM (test required)
    - Advanced: Digital Mobile Radio (DMR)
  - Business band

## • Communications-Electronics Operating Instructions (**CEOI**)





# Light and heat



# Utility safety

- Electric
- Water
- Gas



# Gas shut-off



# Car





# Nutrition

- Determine your family's **Minimum Daily Requirement**
- Load up on vitamins, **especially children**
- Have a way to make foods palatable for children
- Women- **2400**, men- **2700**
- Prepare and store
- 1 Cup of:
  - Dried beans = 670 calories
  - Dried rice = 735 calories
  - Dried corn = 900 calories









# Nutrition

Life Stage Group	Total Water <sup>a</sup> (L/d)	Carbohydrate (g/d)	Total Fiber (g/d)	Fat (g/d)	Linoleic Acid (g/d)	$\alpha$ -Linolenic Acid (g/d)	Protein <sup>b</sup> (g/d)
Infants							
0-6 <u>mo</u>	0.7*	60*	ND	31*	4.4*	0.5*	9.1*
6-12 <u>mo</u>	0.8*	95*	ND	30*	4.6*	0.5*	11.0
Children							
1-3 <u>y</u>	1.3*	130	19*	ND <sup>c</sup>	7*	0.7*	13
4-8 <u>y</u>	1.7*	130	25*	ND	10*	0.9*	19
Males							
9-13 <u>y</u>	2.4*	130	31*	ND	12*	1.2*	34
14-18 <u>y</u>	3.3*	130	38*	ND	16*	1.6*	52
19-30 <u>y</u>	3.7*	130	38*	ND	17*	1.6*	56
31-50 <u>y</u>	3.7*	130	38*	ND	17*	1.6*	56
51-70 <u>y</u>	3.7*	130	30*	ND	14*	1.6*	56
> 70 <u>y</u>	3.7*	130	30*	ND	14*	1.6*	56
Females							
9-13 <u>y</u>	2.1*	130	26*	ND	10*	1.0*	34
14-18 <u>y</u>	2.3*	130	26*	ND	11*	1.1*	46
19-30 <u>y</u>	2.7*	130	25*	ND	12*	1.1*	46
31-50 <u>y</u>	2.7*	130	25*	ND	12*	1.1*	46
51-70 <u>y</u>	2.7*	130	21*	ND	11*	1.1*	46
> 70 <u>y</u>	2.7*	130	21*	ND	11*	1.1*	46
Pregnancy							
14-18 <u>y</u>	3.0*	175	28*	ND	13*	1.4*	71
19-30 <u>y</u>	3.0*	175	28*	ND	13*	1.4*	71
31-50 <u>y</u>	3.0*	175	28*	ND	13*	1.4*	71
Lactation							
14-18	3.8*	210	29*	ND	13*	1.3*	71
19-30 <u>y</u>	3.8*	210	29*	ND	13*	1.3*	71
31-50 <u>y</u>	3.8*	210	29*	ND	13*	1.3*	71

Life Stage Group	Vitamin A ( $\mu$ g/d) <sup>a</sup>	Vitamin C (mg/d)	Vitamin D ( $\mu$ g/d) <sup>b,c</sup>	Vitamin E (mg/d) <sup>d</sup>	Vitamin K ( $\mu$ g/d)	Thiamin (mg/d)	Riboflavin (mg/d)	Niacin (mg/d) <sup>e</sup>	Vitamin B <sub>6</sub> (mg/d)	Folate ( $\mu$ g/d) <sup>f</sup>	Vitamin B <sub>12</sub> ( $\mu$ g/d)	Pantothenic Acid (mg/d)	Biotin ( $\mu$ g/d)	Choline (mg/d) <sup>g</sup>
Infants														
0-6 <u>mo</u>	400*	40*	10*	4*	2.0*	0.2*	0.3*	2*	0.1*	65*	0.4*	1.7*	5*	125*
6-12 <u>mo</u>	500*	50*	10*	5*	2.5*	0.3*	0.4*	4*	0.3*	80*	0.5*	1.8*	6*	150*
Children														
1-3 <u>y</u>	300	15	15	6	30*	0.5	0.5	6	0.5	150	0.9	2*	8*	200*
4-8 <u>y</u>	400	25	15	7	55*	0.6	0.6	8	0.6	200	1.2	3*	12*	250*
Males														
9-13 <u>y</u>	600	45	15	11	60*	0.9	0.9	12	1.0	300	1.8	4*	20*	375*
14-18 <u>y</u>	900	75	15	15	75*	1.2	1.3	16	1.3	400	2.4	5*	25*	550*
19-30 <u>y</u>	900	90	15	15	120*	1.2	1.3	16	1.3	400	2.4	5*	30*	550*
31-50 <u>y</u>	900	90	15	15	120*	1.2	1.3	16	1.3	400	2.4	5*	30*	550*
51-70 <u>y</u>	900	90	15	15	120*	1.2	1.3	16	1.7	400	2.4 <sup>h</sup>	5*	30*	550*
> 70 <u>y</u>	900	90	20	15	120*	1.2	1.3	16	1.7	400	2.4 <sup>h</sup>	5*	30*	550*
Females														
9-13 <u>y</u>	600	45	15	11	60*	0.9	0.9	12	1.0	300	1.8	4*	20*	375*
14-18 <u>y</u>	700	65	15	15	75*	1.0	1.0	14	1.2	400 <sup>i</sup>	2.4	5*	25*	400*
19-30 <u>y</u>	700	75	15	15	90*	1.1	1.1	14	1.3	400 <sup>i</sup>	2.4	5*	30*	425*
31-50 <u>y</u>	700	75	15	15	90*	1.1	1.1	14	1.3	400 <sup>i</sup>	2.4	5*	30*	425*
51-70 <u>y</u>	700	75	15	15	90*	1.1	1.1	14	1.5	400	2.4 <sup>h</sup>	5*	30*	425*
> 70 <u>y</u>	700	75	20	15	90*	1.1	1.1	14	1.5	400	2.4 <sup>h</sup>	5*	30*	425*
Pregnancy														
14-18 <u>y</u>	750	80	15	15	75*	1.4	1.4	18	1.9	600 <sup>j</sup>	2.6	6*	30*	450*
19-30 <u>y</u>	770	85	15	15	90*	1.4	1.4	18	1.9	600 <sup>j</sup>	2.6	6*	30*	450*
31-50 <u>y</u>	770	85	15	15	90*	1.4	1.4	18	1.9	600 <sup>j</sup>	2.6	6*	30*	450*
Lactation														
14-18 <u>y</u>	1,200	115	15	19	75*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*
19-30 <u>y</u>	1,300	120	15	19	90*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*
31-50 <u>y</u>	1,300	120	15	19	90*	1.4	1.6	17	2.0	500	2.8	7*	35*	550*

\* Taken from NIH [Dietary Reference Intakes \(DRI\) Summary Tables](#)

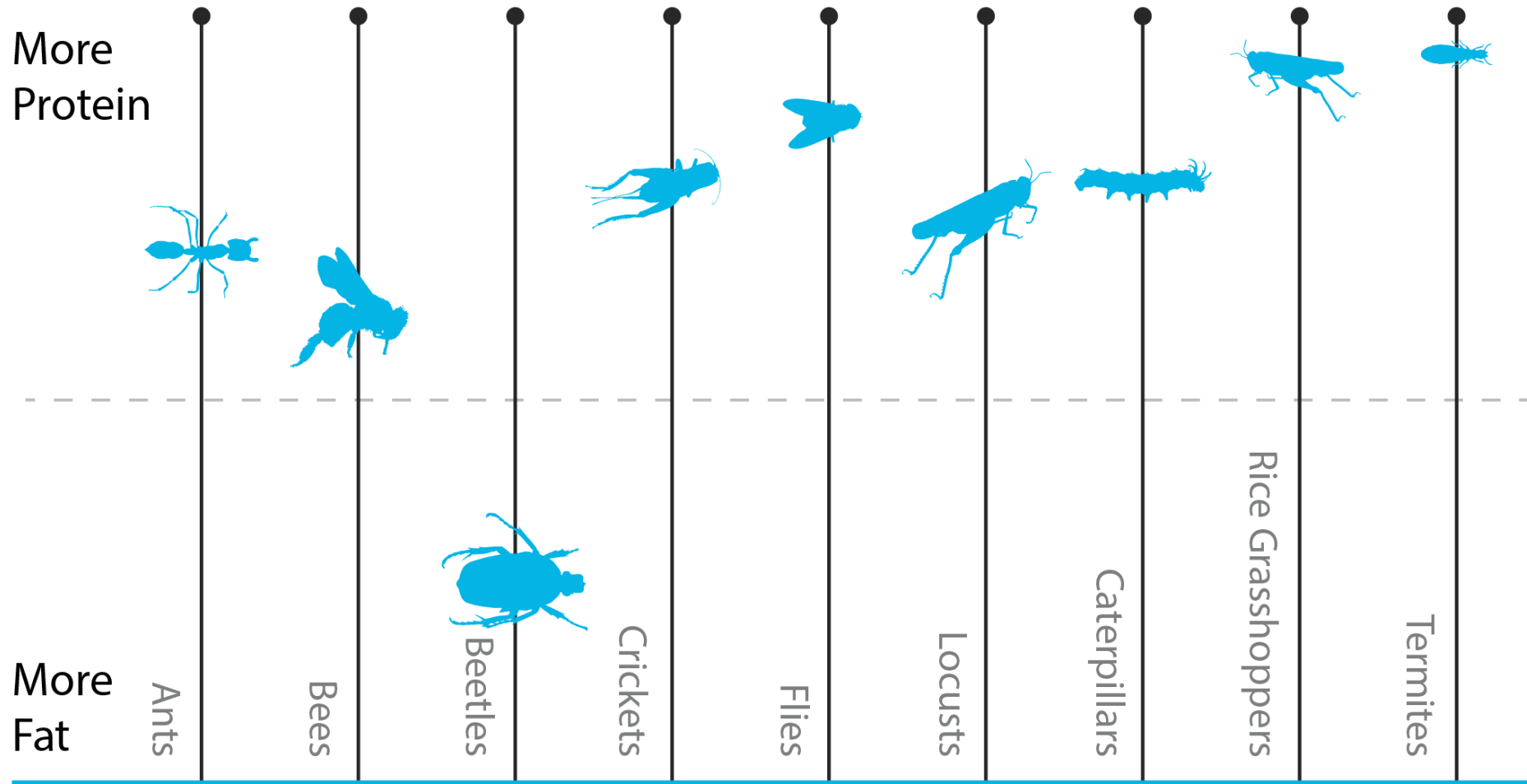
# Protein

Insect order	Images	Protein content (%)
Coleoptera Beetles, weevils		23–66
Lepidoptera Butterflies, moth		14–68
Hemiptera True bugs		42–74
Hymenoptera Bees, wasps, ants		13–77
Odonata Dragonflies Damselflies		46–65
Orthoptera Grasshoppers Locust, crickets		23–65

	Insect	Scientific name of insect*	Protein (grams)
1	Giant water beetle	<i>Lethocerus americanus</i>	19
2	Red ant	<i>Solenopsis geminata</i>	13
3	Silk worm pupae	<i>Bombyx mori</i>	9
4	Meal worms	<i>Tenebrio molitor</i>	20
5	Wax worm	<i>Galleria mellonella</i>	15
6	Super worms	<i>Zophobas morio</i>	17
7	Dung beetle	<i>Circellium bacchus</i>	17
8	cricket	<i>Brachytrypes ssp.</i>	21
11	June beetle	<i>Phyllophaga crinita</i>	13
13	Termite	<i>Reticulitermes sp.</i>	14

Source: Berenbaum (1996) \*Content in column is ours.

# Protein





# Protein



Grasshoppers  
100 Grams

Protein - 14 grams

## CRICKETS VS. COWS

Nutritional Value Comparison Of 200 Calories of Crickets vs 200 Calories of Beef



CRICKET



BEEF

60%-65%  
pure protein

31 grams  
of protein

8g fat

7g fiber

17%-40%  
pure protein

22.4 grams  
of protein

11g fat

0g fiber

# Fat

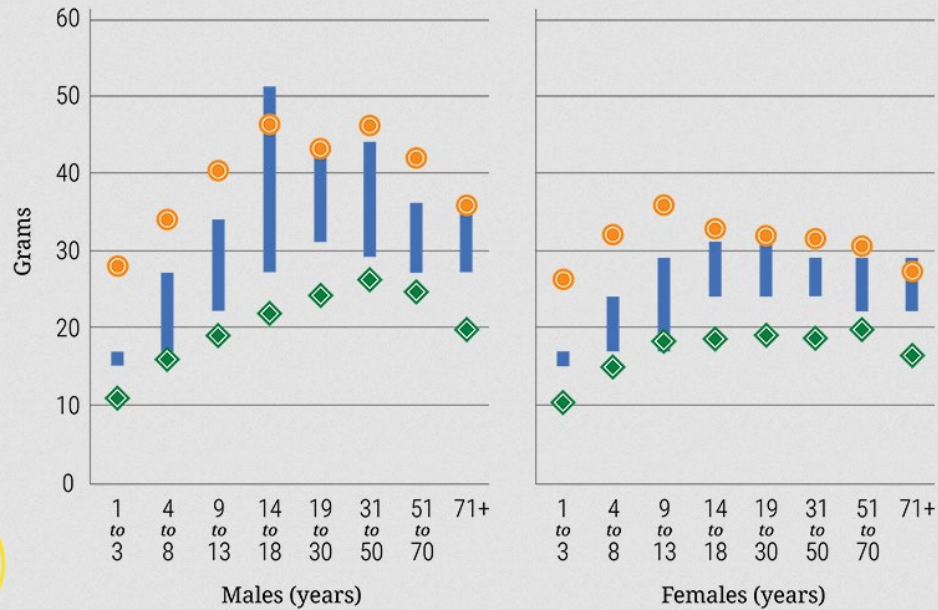
Recommended Oils Intake Range

Average Oils Intake

Average Solid Fats Intake



## Oils and Solid Fats



English name	Latin name	Stage	Fat content (% in dry matter)
Silkworm	<i>Bombyx mori</i>	Pupa	29
Western honey bee	<i>Apis mellifera</i>	Brood	31
African migratory locust	<i>Locusta migratoria</i>	Nymph	13
Wax moth	<i>Galleria mellonella</i>	Caterpillar	57
Jamaican field cricket	<i>Gryllus assimilis</i>	Nymph	34
Yellow mealworm	<i>Tenebrio molitor</i>	Larva	36
Giant mealworm	<i>Zophobas atratus</i>	Larva	40

# EMP demo

- Build a **Faraday cage**
- Example
  - Steve & Marion Kojder



# Food preparation



# Food preparation





# Food preparation



Earthquake ready





# Food preparation



# Two survival superfoods

- Potato
- Kale

# Potato

- The potato is a fulfilling starchy crop with a **grand amount** of **potassium, fiber, and iron**
- It is **low in fat, sufficient in protein,** and **solid in certain vitamins**
- A potato-only diet would leave you **deficient in calcium, riboflavin, and zinc** though. Add sweet potato for those minerals and vitamins





# Kale

- Kale is an insane superfood that helps you do everything from **slowing age** to **fighting cancer**
- A 100-gram portion of kale serves up way more than the recommended daily amount for **Vitamin C (200%)**, **Vitamin A (300%)**, and **Vitamin K1 (1000%)**
- Kale has a few problems, however, such as **too easily absorbing a toxic heavy metal (called thallium)**, which is a problem if you're devouring it in large quantities
- Eating raw kale can **inhibit absorption of iodine**, which can lead to **hypothyroidism**



# Money

- Cash
- Barter

# Evacuation

- Destination
- Hazard analysis
  - **Who lives where?**
- Contact?
- Route?
- Meeting place (if needed)?



# Evacuation

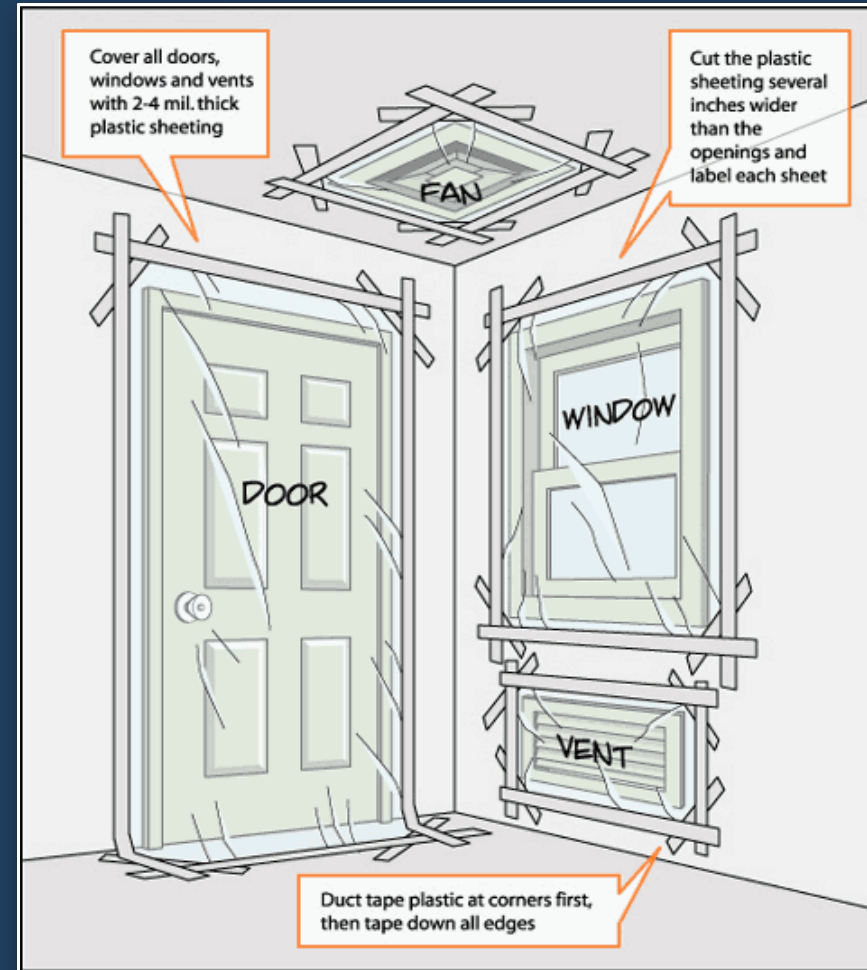


# Defend what you have

- Scenarios- large city evacuations?
- **One gas tank theory**
- Geography
- Local issues?
- **Generosity- prepare to share**

# Shelter in-place and sick room

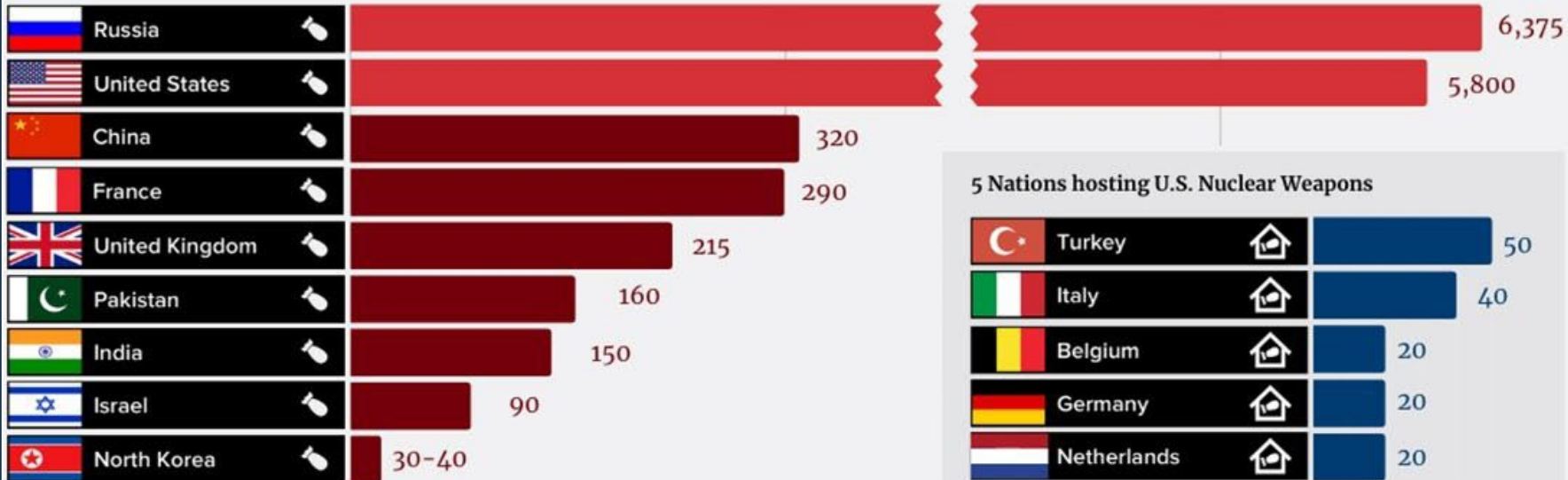
- Were a **chemical agent attack** to occur, authorities would instruct people to either **seek shelter where they are and seal the premises (“shelter-in-place”)** or **evacuate immediately**. If the order is to remain in your home, office or school, you will need to follow the directions for shelter-in-place
- Chemical agents are **poisonous gases, liquids, or solids that have toxic effects on people, animals and plants**. Most chemical agents cause **serious injuries or death**
- Severity of injury depends on the type and amount of the chemical agent used, and the duration of exposure





# Nuclear

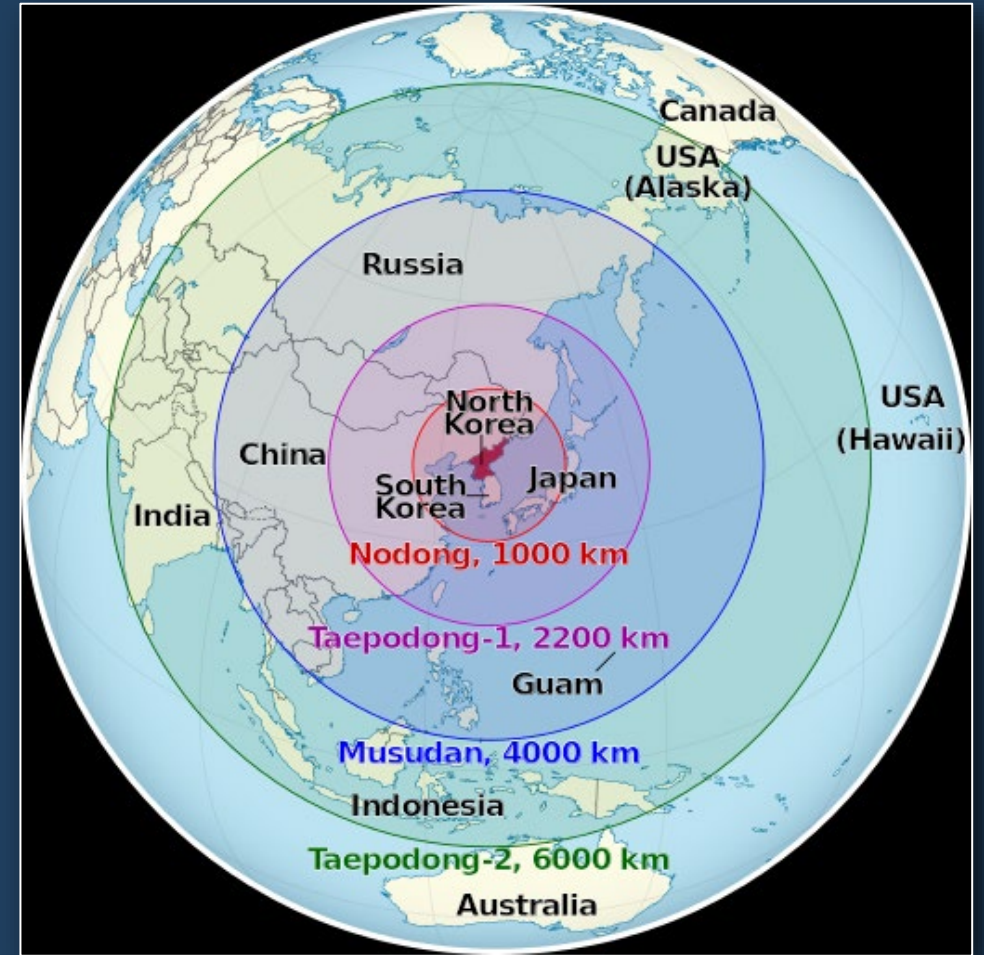
13,400 warheads in the world Source: SIPRI Yearbook 2020, Federation of American Scientists



1 nuclear weapon detonated over NYC would cause 583160 estimated fatalities Source: NUKEMAP

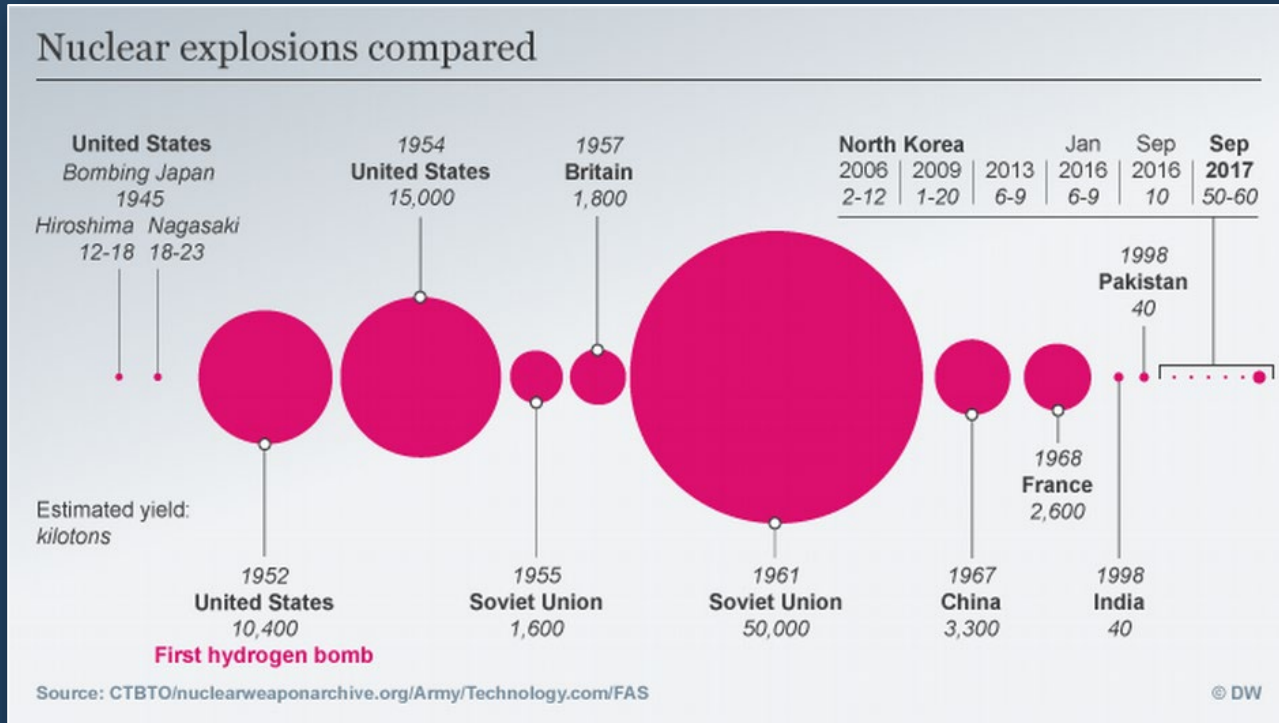
# Nuclear

- Example: Estimated NK missile ranges
- Estimated **6-9 kt**



# Nuclear

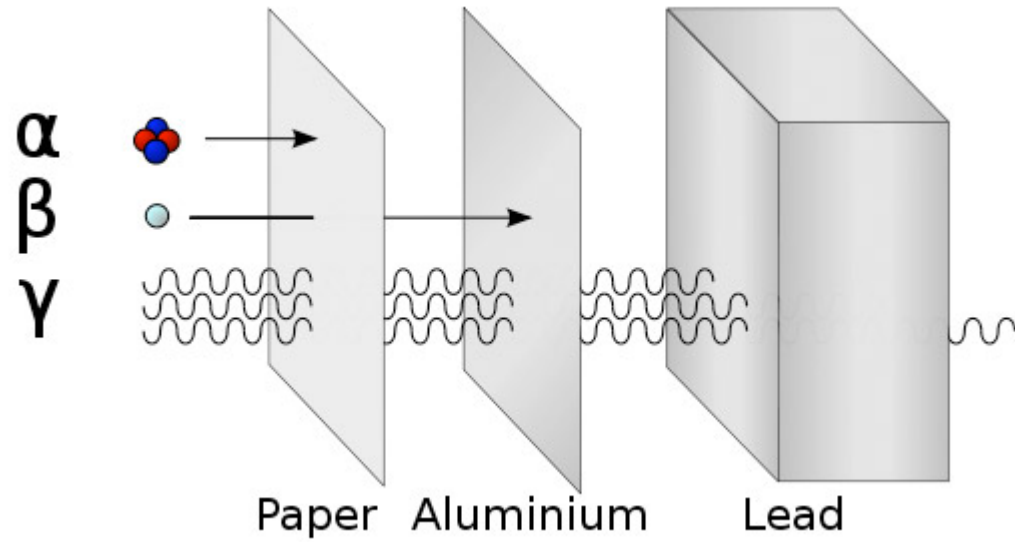
- Worst case
- Current: Minuteman missile up to **1.2 MT**
- Russian missiles up to **20 MT**





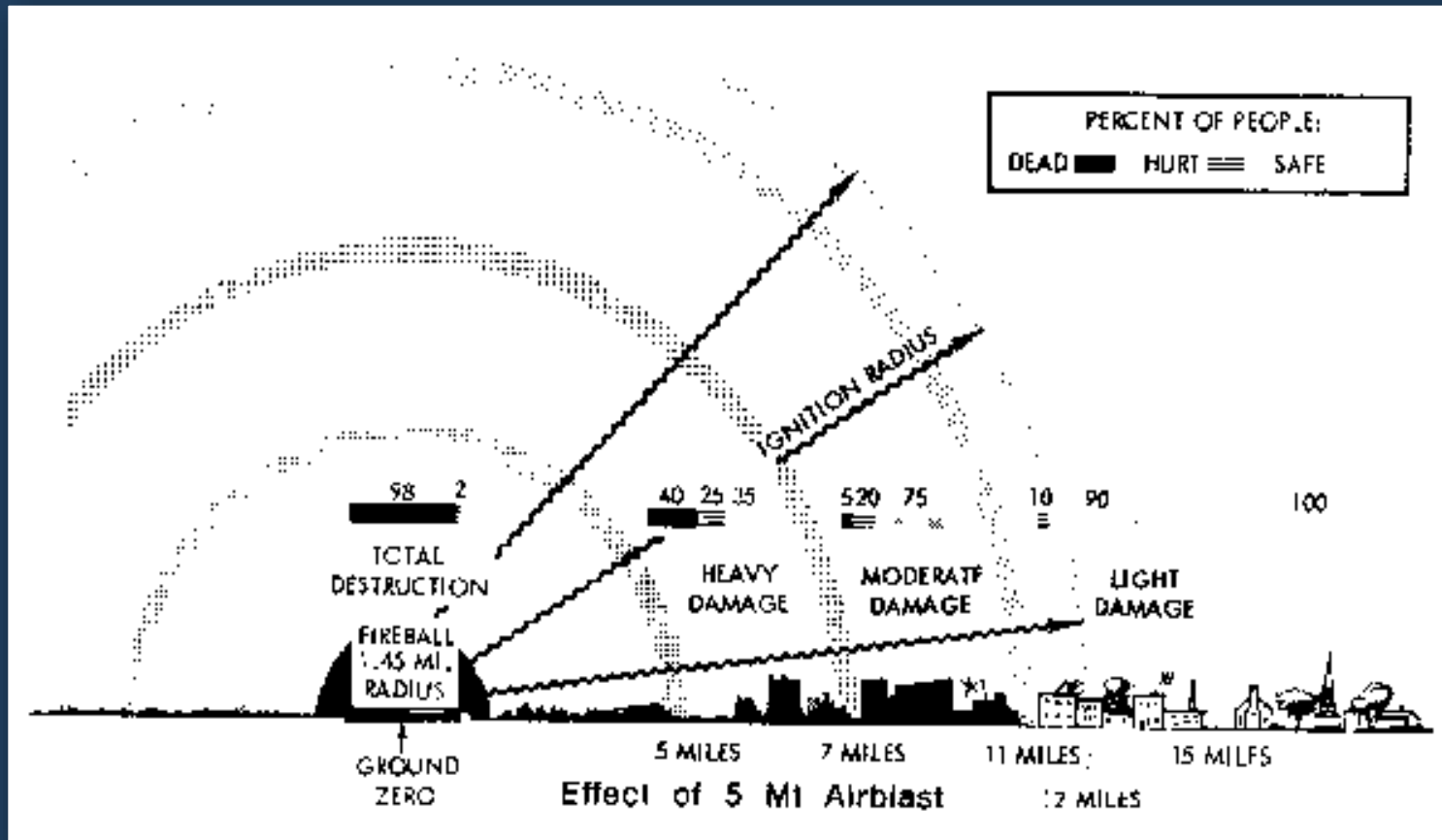
# Nuclear

Ionizing radiation:



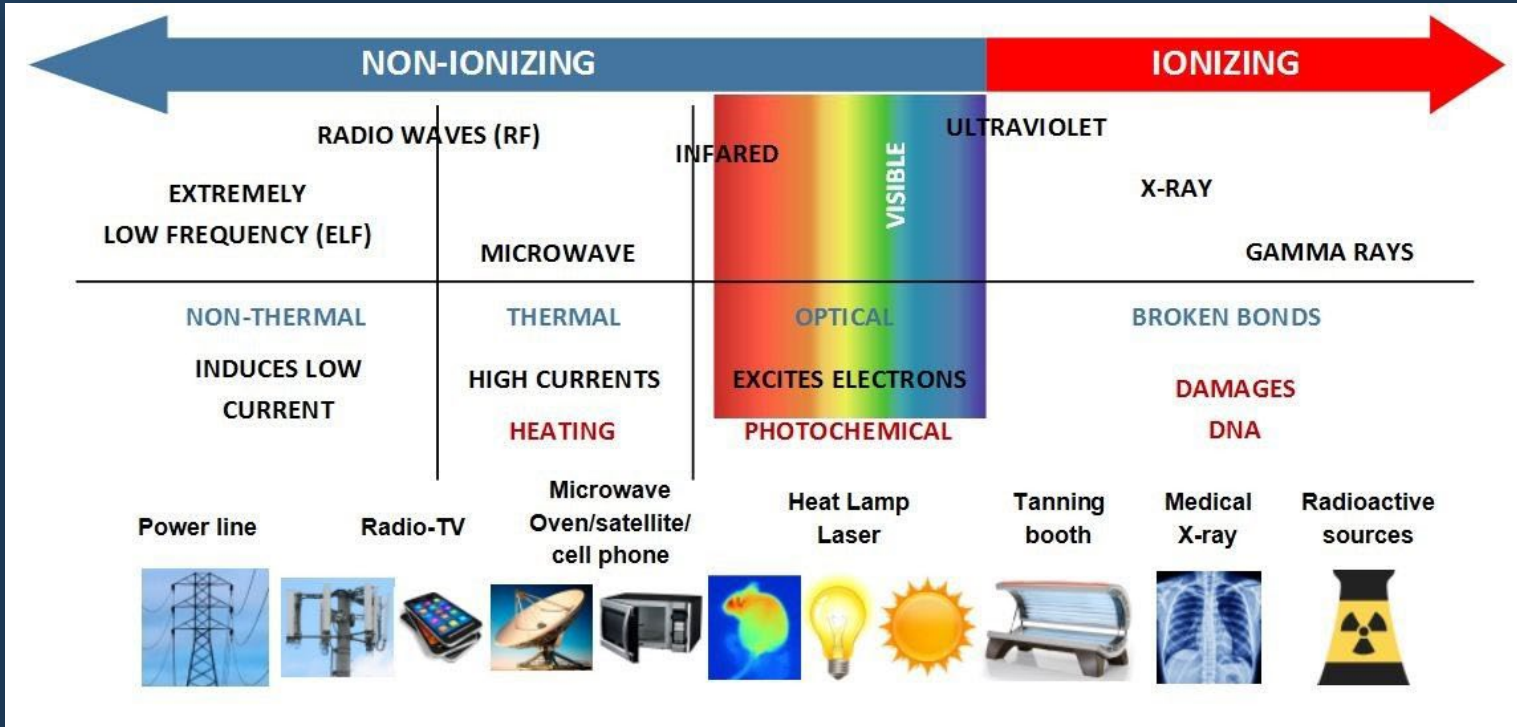
# Nuclear

- A nuclear explosion
- 5 MT air-blast



# Nuclear

## Radiation:





# Nuclear

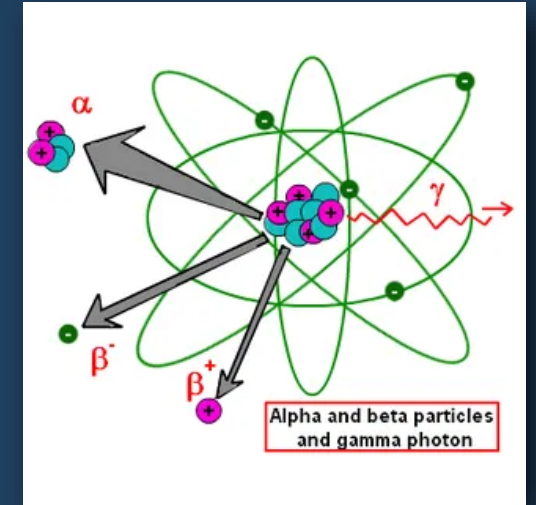
- Examples of the Effects of Radiation on Humans
  - **Dose is cumulative**

Roentgens per hour	Duration of exposure	Total dosage of radiation	Number that will die...	Deaths will occur in...
5-10	2-5 hours	10-50R	none	-
50	1-4 hours	50-200R	less than 5%	60 or more days
100	2-4 hours	200-400R	less than 50%	30 to 60 days
100	4-6 hours	400-600R	more than 50%	about one month
100	6-10 hours	600-1000R	all	less than 2 weeks
200 plus	3 hours plus	600R plus	all	the more intense the radiation the shorter the time before death
1.0	1 week	150R	none	-
0.3	1 month	200R	none	-
0.1	4 months	300R	none	-
1.5	1 week	250R	5%	3 months
0.5	1 month	350R	5%	6 months
0.2	4 months	500R	5%	9-18 months
2.7	1 week	450R	50%	1-3 months
0.8	1 month	600R	50%	2-6 months

# Nuclear

## Alpha radiation:

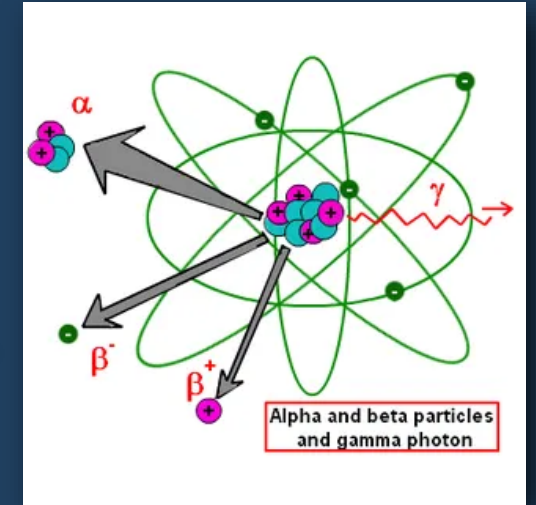
- Alpha radiation is a heavy, very short-range particle and is an ejected helium nucleus. Some characteristics of alpha radiation are:
  - Most alpha radiation is not able to penetrate human skin
  - Can be harmful to humans if the materials are inhaled, swallowed, or absorbed through open wounds
  - Travels only a short distance (a few inches) in air but is not an external hazard
  - Not able to penetrate clothing
- A variety of instruments have been designed to measure alpha radiation. **Special training in the use of these instruments is essential for making accurate measurements**
- A thin-window Geiger-Mueller (GM) probe can detect the presence of alpha radiation
- Instruments cannot detect alpha radiation through even a thin layer of water, dust, paper, or other material, because alpha radiation is not penetrating



# Nuclear

## Beta radiation:

- Beta radiation is a light, short-range particle and is an ejected electron. Some characteristics of beta radiation are:
  - Beta radiation may travel several feet in air and is moderately penetrating
  - Beta radiation can penetrate human skin to the "germinal layer," where new skin cells are produced. If high levels of beta-emitting contaminants are allowed to remain on the skin for a prolonged period, they may cause skin injury
  - Beta-emitting contaminants may be harmful if deposited internally
  - Clothing provides some protection against beta radiation
- Most beta emitters can be detected with a survey instrument and a thin-window GM probe (e.g., "pancake" type). Some beta emitters, however, produce very low-energy, poorly penetrating radiation that may be difficult or impossible to detect. Examples of these difficult-to-detect beta emitters are hydrogen-3 (tritium), carbon-14, and sulfur-35
- Examples of some pure beta emitters: strontium-90, carbon-14, tritium, and sulfur-35

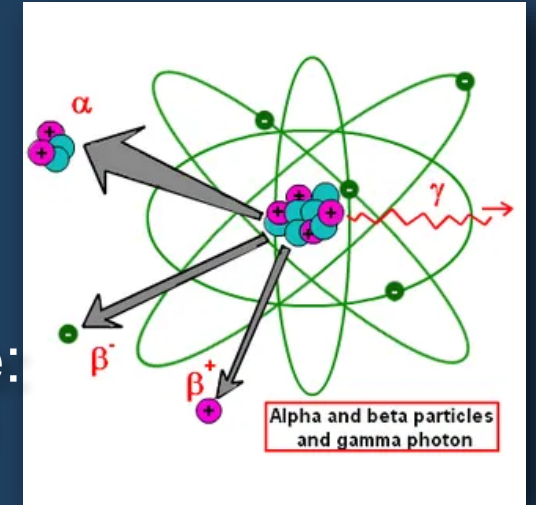




# Nuclear

## Gamma and X radiation:

- Gamma radiation and x-rays are **highly penetrating electromagnetic radiation**. Some characteristics of these radiations are:
  - X-rays are like gamma rays. X-rays, too, are penetrating radiation. Sealed radioactive sources and machines that emit gamma radiation and x-rays respectively constitute mainly an **external hazard to humans**
  - Can travel many feet in air and many inches in human tissue. **They readily penetrate most materials** and are sometimes called “penetrating” radiation
  - Are electromagnetic radiation like visible light, radio waves, and ultraviolet light. These electromagnetic radiations differ only in the amount of energy they have. Gamma rays and x-rays are the most energetic of these
  - Dense materials are needed for shielding from gamma radiation. Clothing provides little shielding from penetrating radiation, but will prevent contamination of the skin by gamma-emitting radioactive materials
  - Easily detected by survey meters with a sodium iodide detector probe
  - Frequently accompany the emission of alpha and beta radiation during radioactive decay
- Examples of some gamma emitters:
  - iodine-131, cesium-137, cobalt-60, radium-226, and technetium-99m



# Nuclear

Types of exposure:

- **External Irradiation**

- External irradiation occurs when all or part of the body is exposed to penetrating radiation from an external source. During exposure this radiation can be absorbed by the body or it can pass completely through. A similar thing occurs during an ordinary chest x-ray. Following external exposure, an individual is not radioactive and can be treated like any other patient

- **Contamination**

- The second type of radiation injury involves contamination with radioactive materials. Contamination means that radioactive materials in the form of gases, liquids, or solids are released into the environment and contaminate people externally, internally, or both. An external surface of the body, such as the skin, can become contaminated, and if radioactive materials get inside the body through the lungs, gut, or wounds, the contaminant can become deposited internally.

- **Incorporation**

- The third type of radiation injury that can occur is incorporation of radioactive material. Incorporation refers to the uptake of radioactive materials by body cells, tissues, and target organs such as bone, liver, thyroid, or kidney. In general, radioactive materials are distributed throughout the body based upon their chemical properties. Incorporation cannot occur unless contamination has occurred.

# Nuclear

## Biological effects of acute, total body irradiation:

Amount of Exposure	Effect
• 50 mGy (5 rads)	No detectable injury or symptoms
• 1 Gy (100 rads)	May cause nausea and vomiting for 1-2 days and temporary drop in production of new blood cells
• 3.5 Gy (350 rads)	Nausea and vomiting initially, followed by a period of apparent wellness. At 3-4 weeks, there is a potential for deficiency of white blood cells and platelets. Medical care is required
• Higher levels of exposure can be fatal. Medical care is required.	



# Nuclear

- Natural cosmic and terrestrial radiation: U.S. average:
  - 600 microSv/yr (60 mrem)
- Natural radioactivity in body tissue:
  - 400 microSv/yr (40 mrem)
- Air travel round trip (London-New York):
  - 40 microSv each way (4 mrem)
- Chest X-ray:
  - 100 microSv per test (10 mrem)
- Radon in the home:
  - 2 milliSv/yr (200 mrem) variable
- Man-made (medicine, other):
  - 600 microSv/yr (60 mrem)

# Nuclear

Keeping exposure low:

- Radiation protection guidelines:
  - **Time**: The shorter the time in a radiation field, the less the radiation exposure. Work quickly and efficiently. A rotating team approach can be used to keep individual radiation exposures to a minimum
  - **Distance**: The farther a person is from a source of radiation, the lower the radiation dose. Do not touch radioactive materials. Use shovels, brooms, etc., to move materials to avoid physical contact
  - **Shielding**: Although not always practical in emergency situations, shielding offered by barriers can reduce radiation exposure
  - **Quantity**: Limit the amount of radioactive material in the working area to decrease exposure
- Emergency responders have never received exposures of medical concern in any radiation accident in the United States

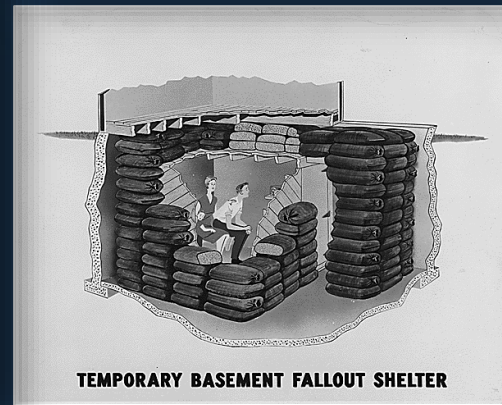
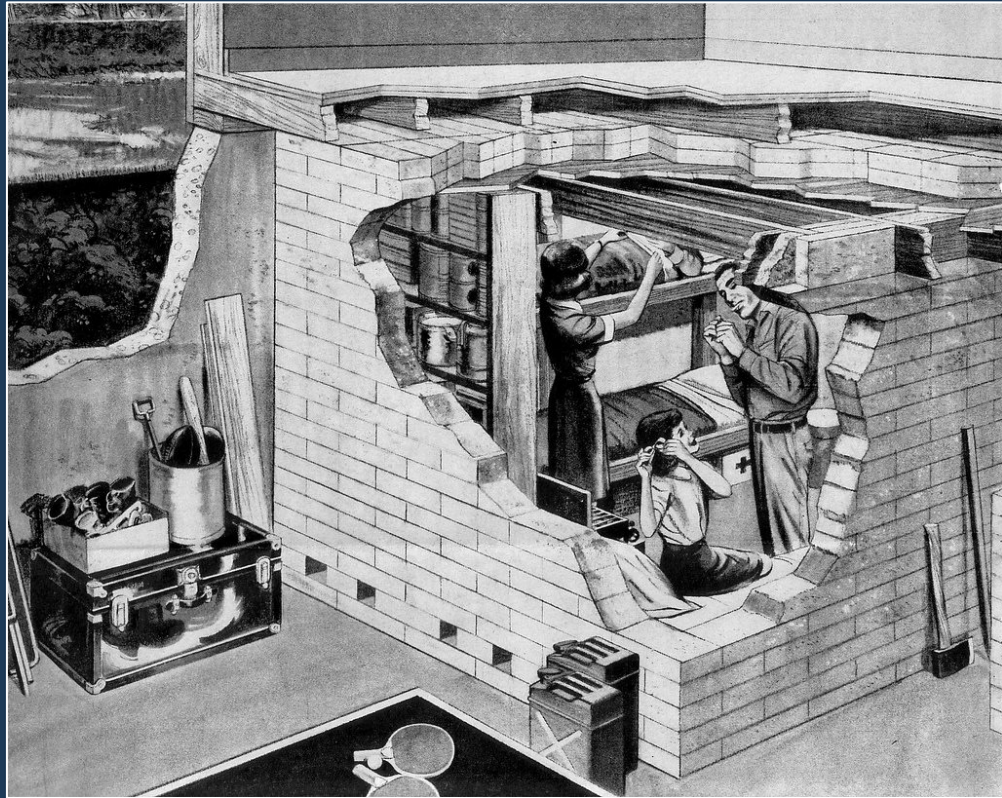
# Nuclear

- Emergency services
- Avoid contact with contaminants
- Wear protective clothing (such as fire turnout gear, coveralls, gloves, and boots) that, if contaminated, can be removed
- Use full respiratory protection if fire, smoke, fumes, gases, or windblown dusts are present
- As soon as possible after proper care of the victim and resolution of the emergency, wash any part of you that may have met contamination
- Assume that all materials, equipment and personnel have been contaminated if they were in the immediate area of the incident. Radiological monitoring is recommended before leaving the scene
- Do not eat, drink, smoke, rub eyes, or apply makeup within contaminated areas
- If in doubt, assume contamination



# Nuclear

## Basement shelter:



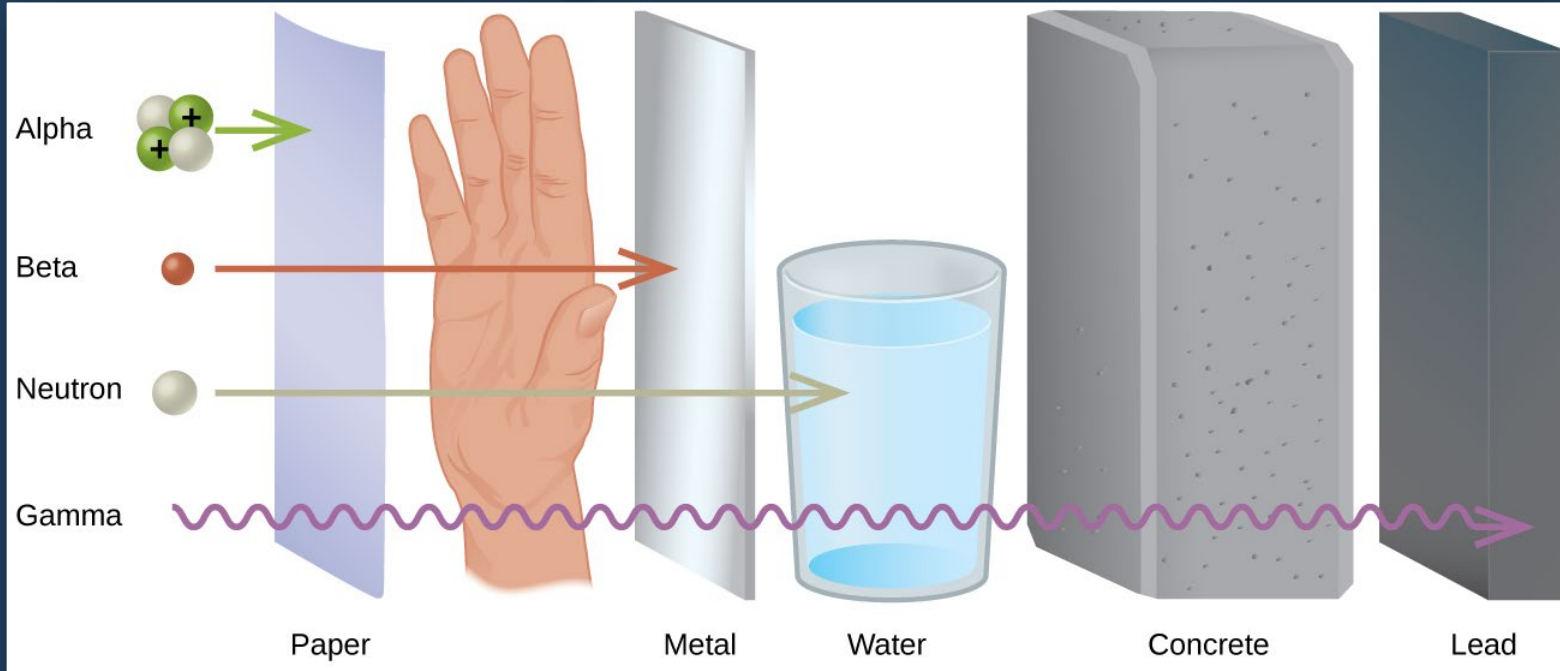
# Nuclear

Who remembers this sign?



# Nuclear

Effect of shielding:





# Nuclear

Effect of shielding:

- **Any material can be used for shielding against radiation.** Even feathers. There is nothing magical about lead. It is only the density of the material that matters. A pound of lead and a pound of feathers weigh the same. But it takes a much bigger stack of feathers than it does of lead to make a pound
- Neither feathers nor lead are generally particularly cheap to obtain, so it is usually better to use some other material like dirt or concrete. The more dirt or concrete in the barrier, the greater the protection. Since concrete is denser (heavier) it only takes about 24 inches of concrete to give the same protection as 36 inches of dirt
- Thirty-six inches (three feet) of dirt will give good protection. Five feet of dirt will give better

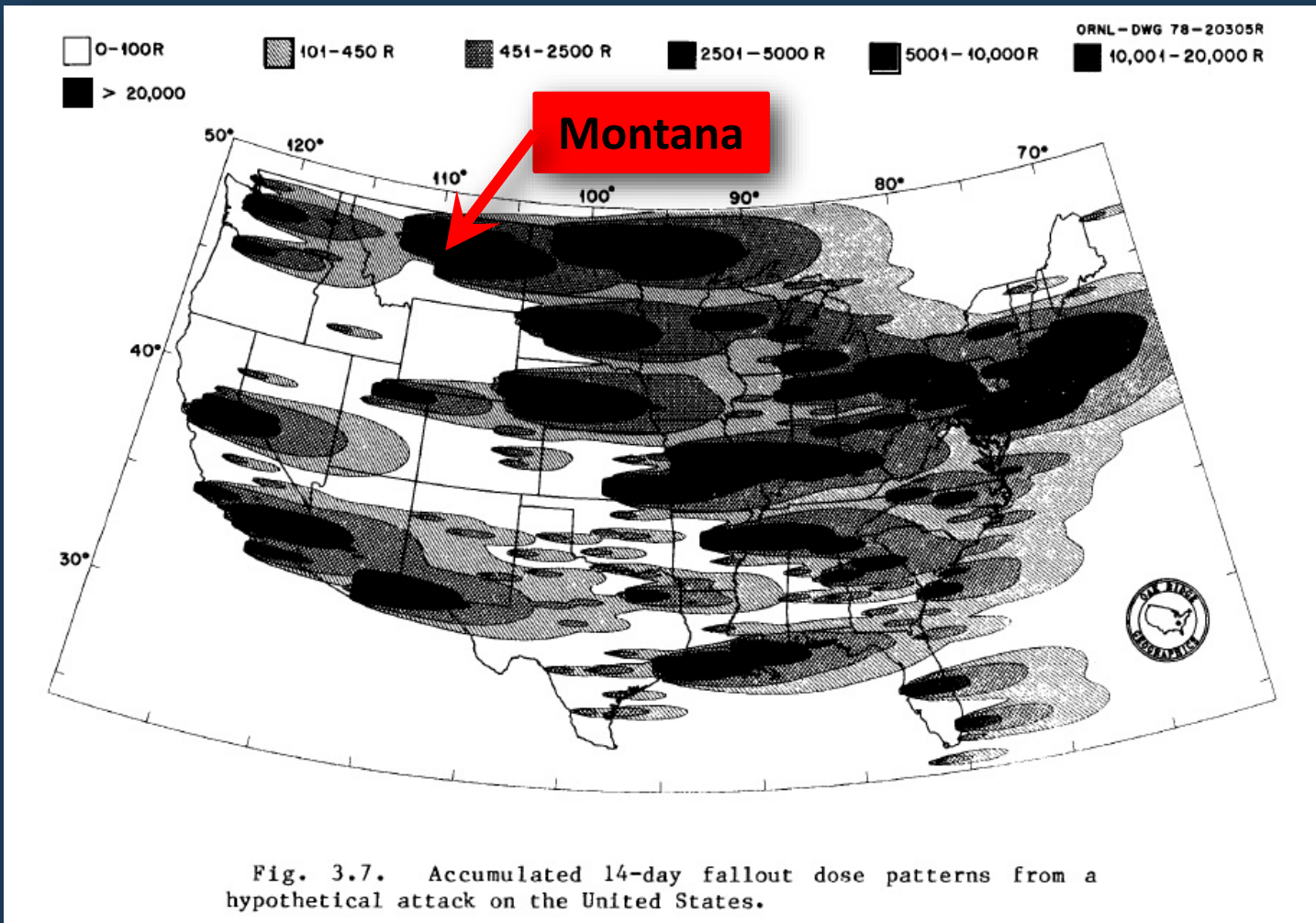
# Nuclear

## Radioactive decay:

- 1 hour ----- 1000 roentgens/hour
- 7 hours ----- 100 roentgens/hour
- 49 hours (2 days) ----- 10 roentgens/hour
- 2 weeks ----- 1 roentgens/hour
- 14 weeks ----- 0.1 roentgens/hour
- 98 weeks (2 1/2 years) -- 0.01 roentgens/hour

# Nuclear

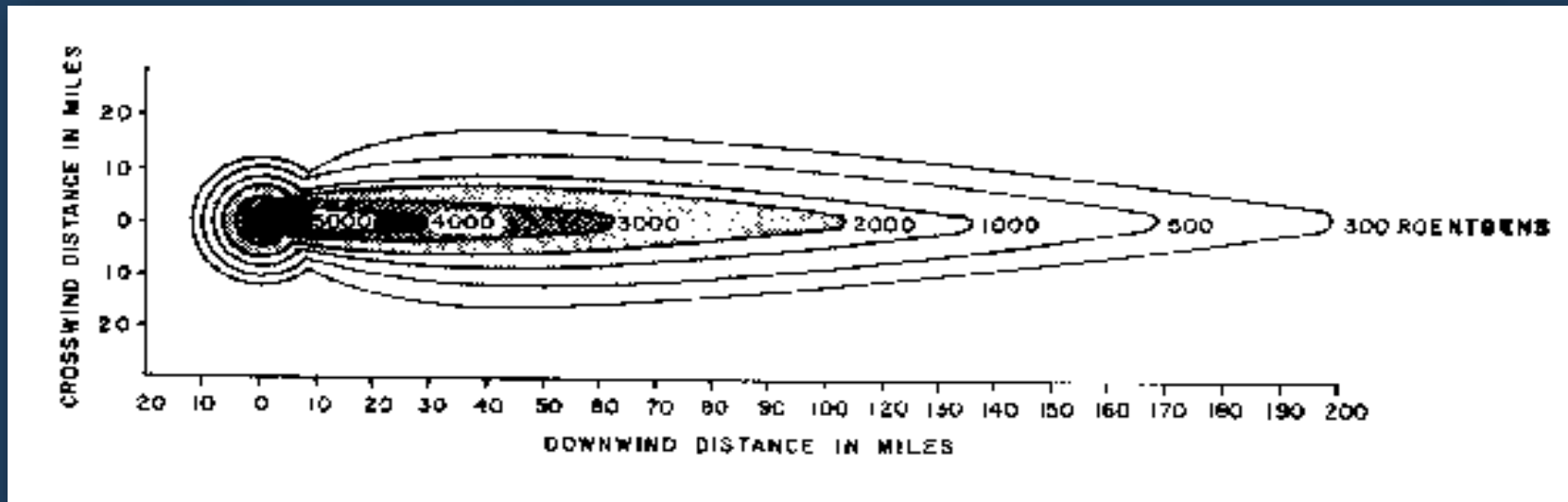
Down wind hazard (fallout shelters):





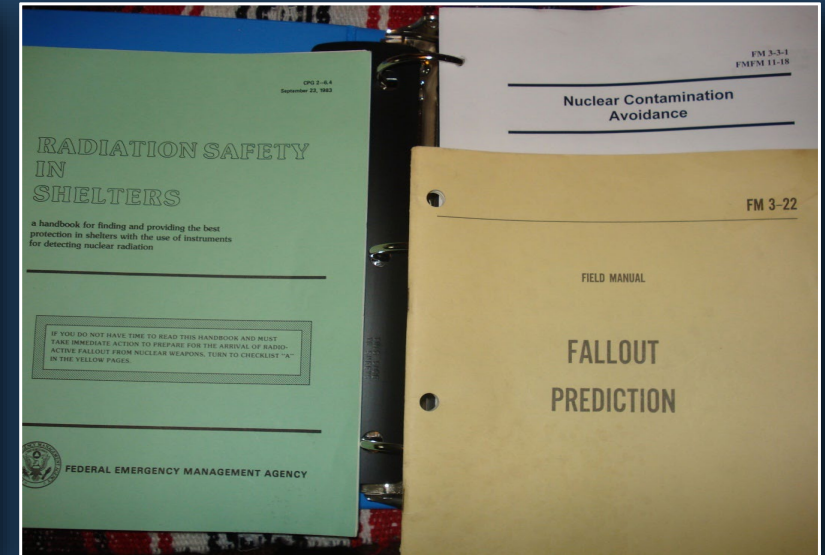
# Nuclear

- Dirty bombs
  - Radiological dispersal device
  - Most likely terrorist weapon
  - Designed to disperse radioactive material over a large area



# Nuclear

## Protection:





# Nuclear

EMP protection:





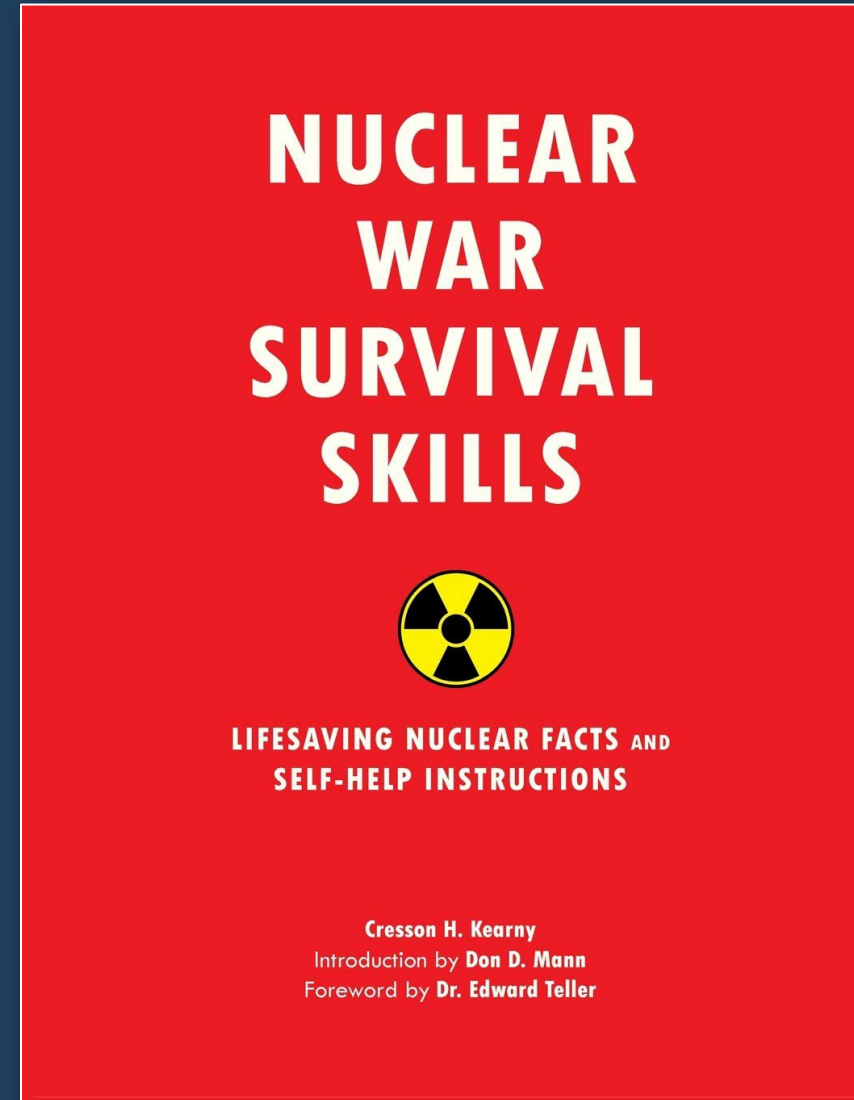
# Nuclear

Other EMP information:

- At an April 7<sup>th</sup> Pentagon news conference, Norad Commander Adm. William Gortney noted that Norad is going back underground “*because of the very nature of the way that Cheyenne Mountain’s built. It’s EMP-hardened.*” He explained that North Korea now has mobile intercontinental ballistic missiles, the KN-08, armed with nuclear warheads, that can strike the U.S. While the KN-08 is inaccurate, it could be used to launch a high-altitude nuclear EMP attack. -*WSJ April 2015*
- EMP, Debunked: The Jolt That Could Fry The Cloud [\[InformationWeek\]](#)

# Nuclear

- **Nuclear War Survival Skills**
  - [ISBN 9781634502979](https://www.amazon.com/dp/B000APR004)
  - [Amazon](https://www.amazon.com/dp/B000APR004)



# Final thoughts and ideas

- Seeds
- Waste
- Long term prep- seeds that grow in your area, alternate food sources (not normal to you)
- Hunting, trapping, local plants
- Team up with trusted others
- Barter



# The End

- Q & A
- More demos

Ed & Marti McCullough