Welcome!

2021 ITCA Tribal Voices Presentations

THE UNIVERSITY OF ARIZONA

Land Acknowledgement

We respectfully acknowledge the University of Arizona is on unceded land of Indigenous peoples. Today, Arizona is home to 22 federally-recognized tribes, with Tucson being home to the O'odham and the Pascua Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with Arizona's Native Nations and tribal communities through education offerings, partnerships, and community service.

Today's Agenda

- Introduction to SWEHSC
- Icebreaker- Who are you?
- College Panel
- Indigenizing Environmental Health Presentation
  - Intro to EH
  - Tribal Ecological Knowledge
  - Air Quality & San Carlos Stop Burning Project

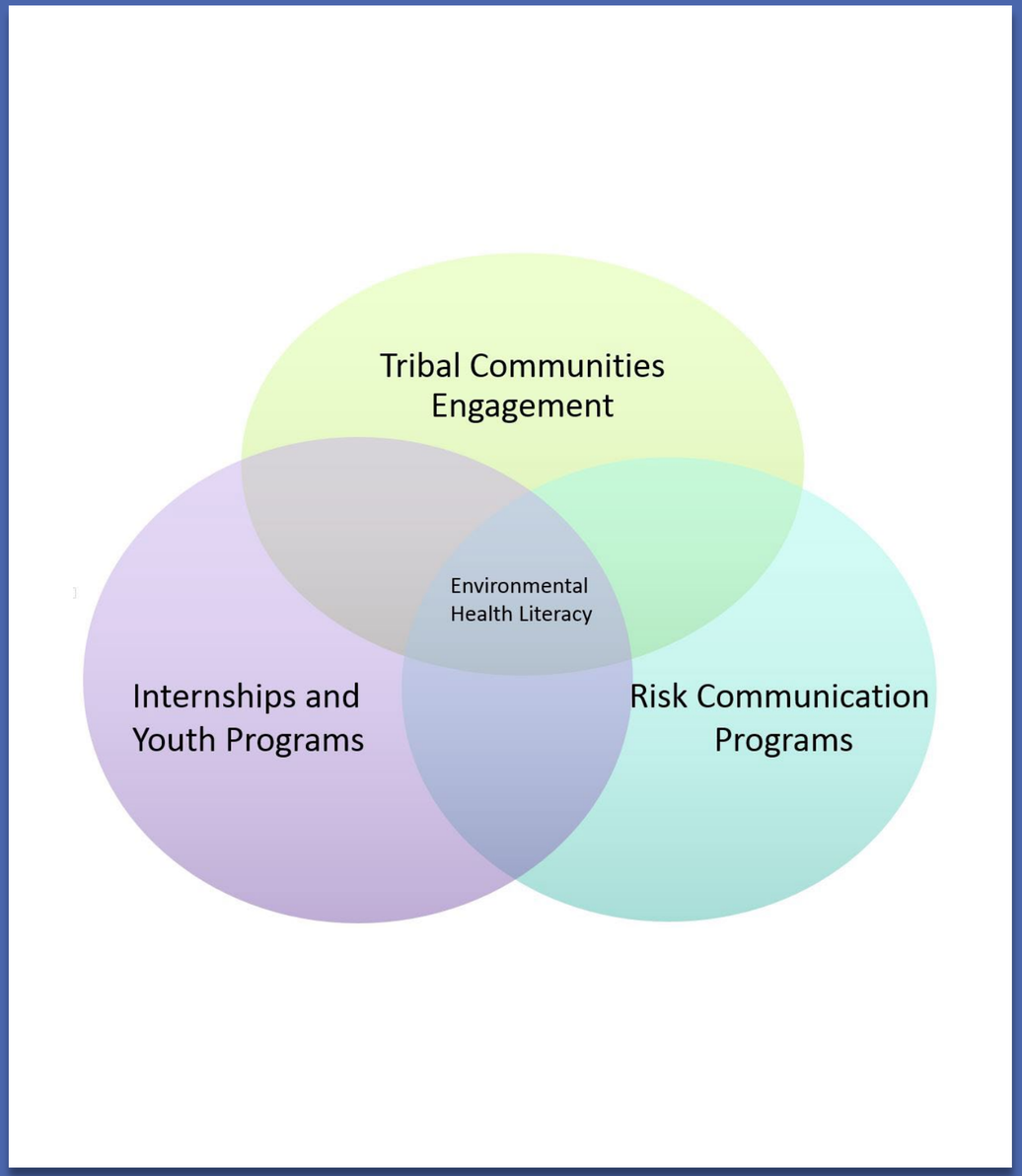
About the SWEHSC-CEC

- Southwest Environmental Health Sciences Center – Community Engagement Core

✓ The CEC promotes environmental health outreach with AZ communities by:

- Collaborating with tribal communities to address environmental health (EH) concerns raised by members, community leaders, and environmental quality and public health professionals

- Assessing the EH information needs of Arizona communities to identify topics for outreach campaigns in new areas



The Community Engagement Core

SWEHSC Team Introductions

- Benjamin Richmond, MPH – *Associate Director*
- Alex Benavides – *Senior Program Coordinator*
- Zonnie Olivas - *Program Coordinator*
- Dais Umuhoza – *SWEHSC Public Health Intern*

SWEHSC

THE UNIVERSITY OF ARIZONA College of Pharmacy

Tell us about yourself

Introduce yourself by stating your name and class year.

Indigenizing Environmental Health

Ice breaker

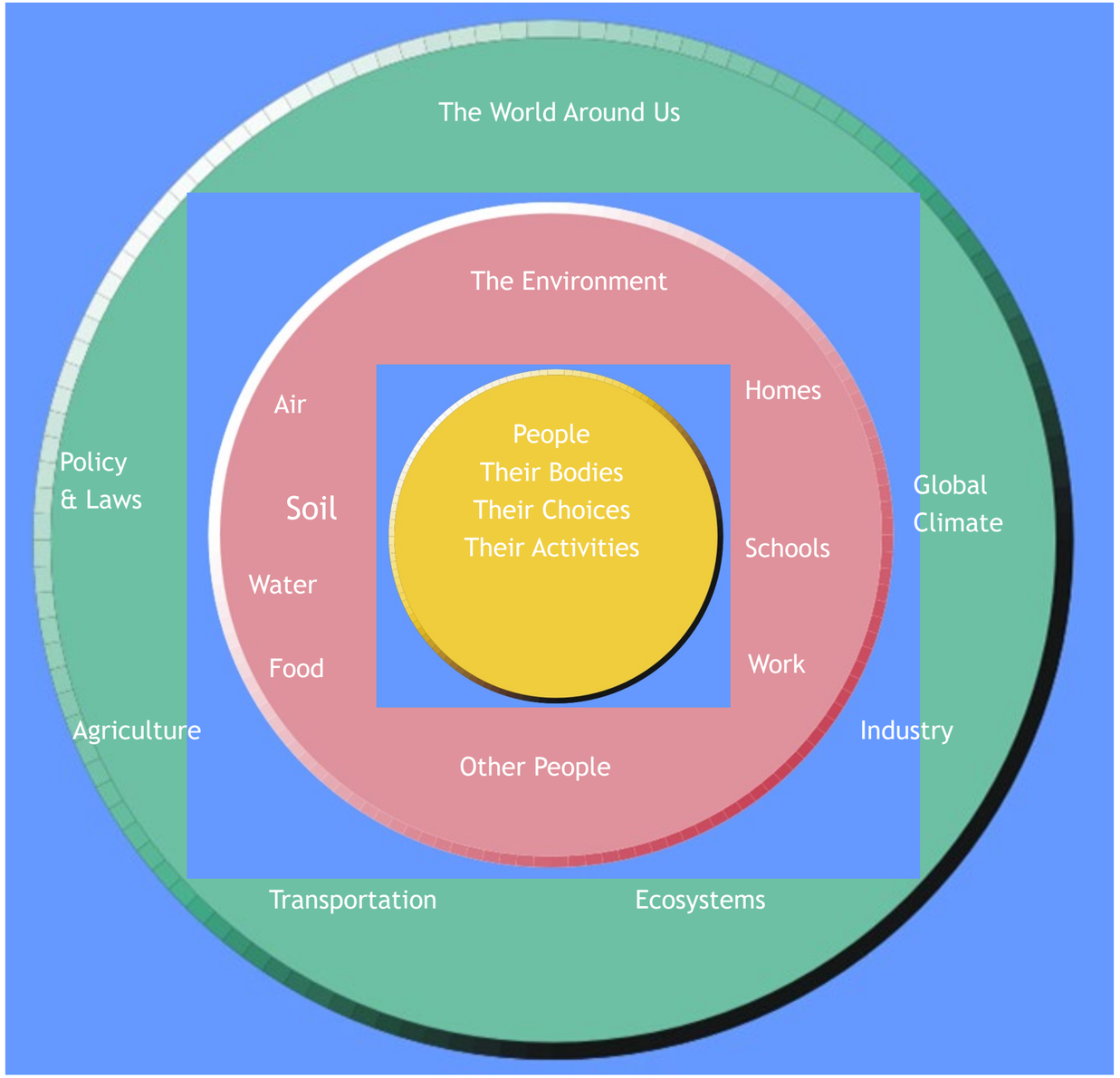
- What is environmental health?

Next,

Go to Menti.com

Type in the following code ”7197 3137 " and answer the question below:

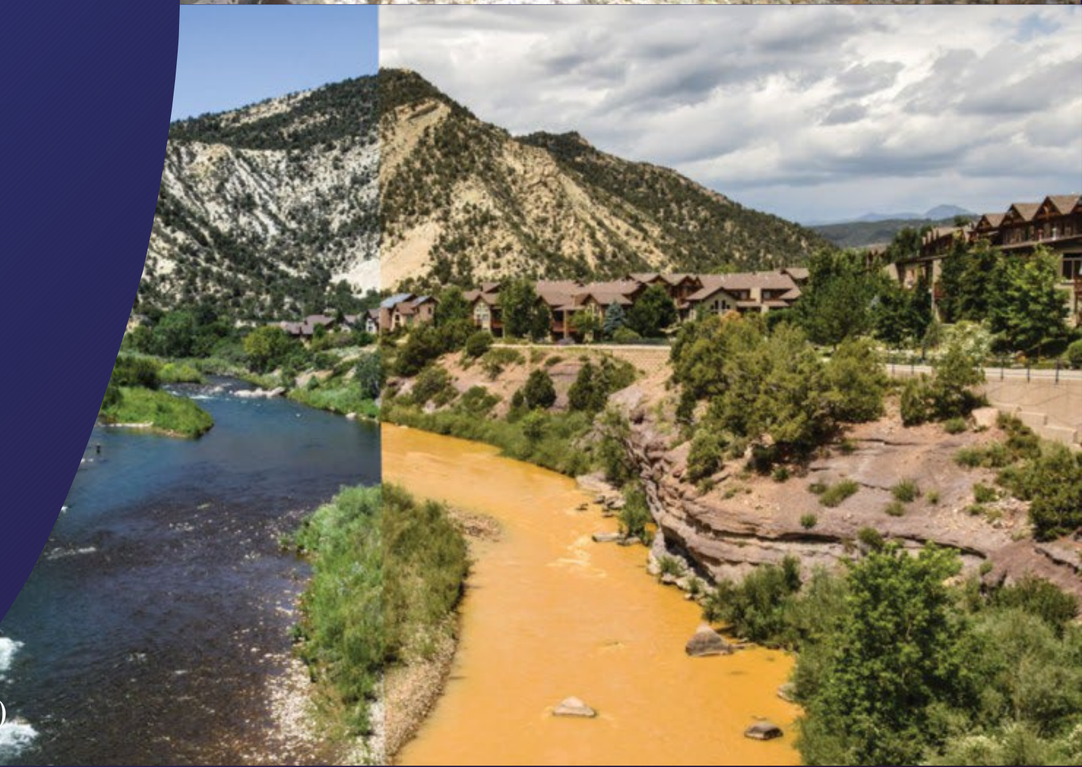
  - Give an example of an environmental issue and briefly describe the effects of this issue?


The World Around Us
The Environment
People
Their Bodies
Their Choices
Their Activities
Air
Soil
Water
Food
Homes
Schools
Work
Other People
Policy
& Laws
Agriculture
Global
Climate
Industry
Transportation
Ecosystems

What's Environmental Health?

- The science and practice of preventing human injury and illness and promoting well-being by identifying and evaluating environmental sources.
- Limiting exposures to hazardous physical, chemical, and biological agents found in air, water, soil, food, and other environmental media or settings that may adversely affect human health.

Example: The Gold King Mine Spill



https://www.neha.org/about-neha/definitions-environmental-health (National Environmental Health Association)

Environmental Health Goals & Objectives

EH Goal: Promote healthier environments to improve health.

EH objectives:

1. Reduce exposure to Lead, Arsenic, and Mercury
2. Reduce amounts of toxic pollutants release into the environment
3. Reduce number of days people are exposed to unhealthy air
4. Reduce health and environmental risks from hazardous sites

(Environmental Health - Healthy People 2030 | health.gov, 2020)

Environmental stewardship is woven into our culture, our way of life.

Tribal Ecological Knowledge

Indigenous people have been here for centuries.

Tribal Ecological Knowledge (TEK) refers to traditional knowledge about the land, its inhabitants, and its resources.

Based on a cumulative body of knowledge shared across generations.

Includes beliefs about people's relationship with the land/ecosystem.

Promotes an understanding of the historic relationship between people and their environment.

Intro to Tribal Ecological Knowledge

What's the connection between EH and TEK?

- TEK is valuable since it shows how local knowledge can complement research efforts
- Effectively addresses tribal environmental health concerns and disparities.

- https://youtu.be/gY03C0ST23o

Indigenous Environmental Justice

- **Environmental Justice** (EJ) means that everyone has a right to live in an environment that doesn't make them sick, regardless of their race, culture, or income.

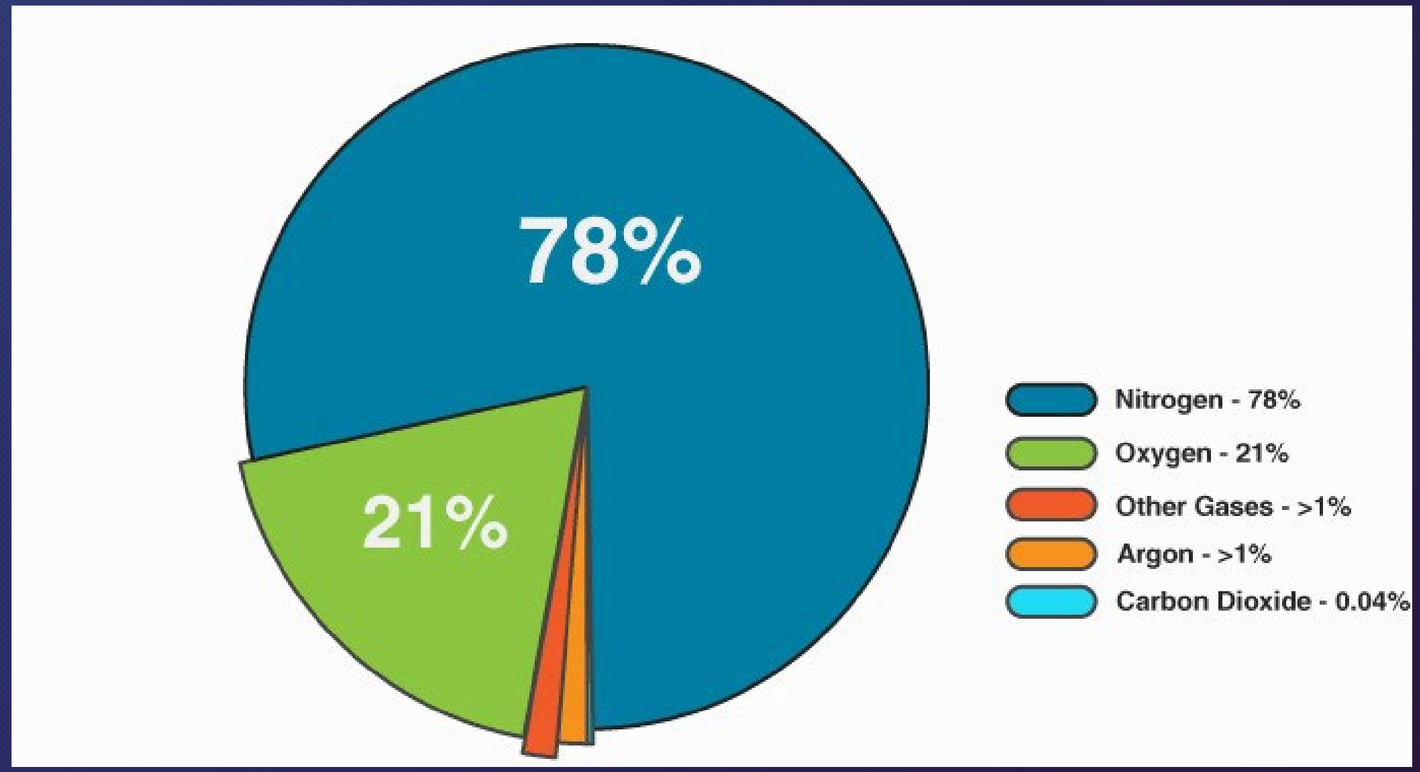
- Example: The fight for Oak Flat

Air Quality

What are we breathing in ?

Air composition

- Nitrogen — 78 %
- Oxygen — 21 %
- Argon — 0.93 %
- Carbon dioxide — 0.04 %
- Other gases-0.01 %



Air Pollution

WHO defines air pollution as the “contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere.” (WHO.int, 2021)

Outdoor air pollutants

- Carbon Monoxide
- Lead
- Nitrogen Oxides
- Ozone
- Particulate matter
- Sulfur dioxide

(CDC, 2019)

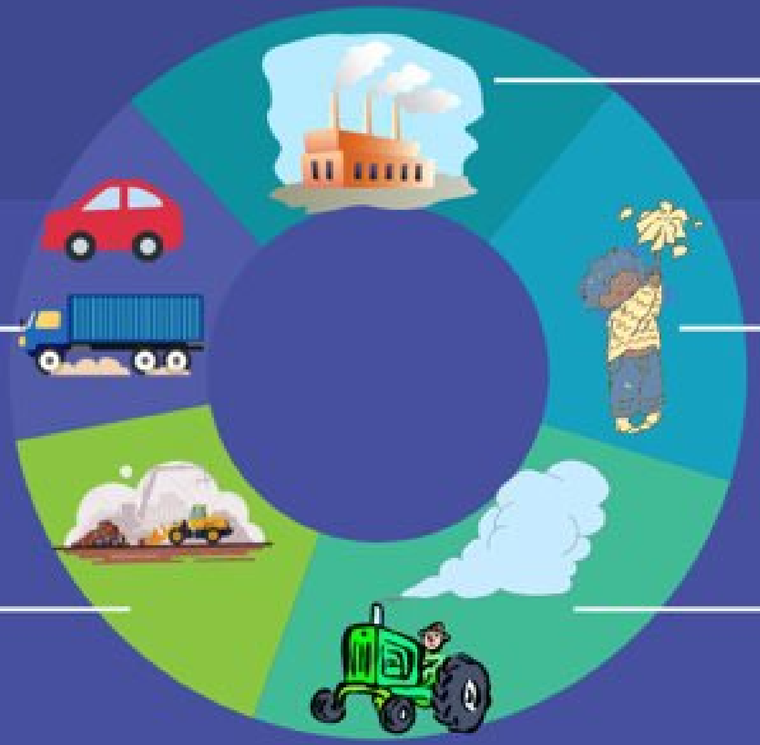
Indoor air Pollutants

- Tobacco products
- Second-hand smoke
- Dust and mold
- Asbestos
- Radon
- Residential wood burning

(American Lung Association, 2020b)

Sources of Air Pollution

OUTDOOR AIR POLLUTION AFFECTS BOTH URBAN AND RURAL AREAS.



INDUSTRY AND ENERGY SUPPLY

DUST

AGRCULTURAL PRACTICES

WASTE MANAGEMENT

TRASNSPORTATION

Air Pollutants in Arizona

Ozone air pollution

- A gas made up of three oxygen atoms.
  - Formed when nitrogen oxides and other volatile organic compounds combine under the sunlight.
- Sources:
  - when gas, diesel, coal, oil are burned
  - pollution from power plants and vehicles

According to AZ Dept of Environmental Quality (AZDEQ)

- Ozone levels
  - In Gila, Maricopa, Pima, Pinal and Yuma Counties were graded an "F" due to the high number of ozone days encountered.

Health Effects

- Respiratory system
  - S/S-chest tightness, coughing, shortness of breath
  - Asthma and COPD

(American Lung Association, 2020)

Air pollution can harm children and adults in many ways.

Wheezing and coughing
Shortness of breath
Asthma attacks
Worsening COPD
Lung cancer

Premature death
Susceptibility to infections
Heart attacks and strokes
Impaired cognitive functioning
Metabolic disorders
Preterm births and low birth weight

Who is More at Risk?

- Pregnant women and their developing babies
- Elderly people whose defense mechanisms are less efficient
- Sick people who have weakened immune systems
- Infants and children who are still developing

SCAT STOP BURNING TRASH PROJECT

- Engage: In 3 corners of the room have a material that would produce an odor such as a common perfume or bleach or scented candle. In the final corner of the room have a container such as water that should not have an odor. Have the students walk around the room and ask them to identify the odor in each corner of the room. Have them try to write down what they believe the particular scent is and how do they know that particular odor. The students should also list which one they think could cause them any physical discomfort. The students will be puzzled by the corner without any smell and most will probably state that if they cannot smell or detect anything it must not be harmful. Share with them the correct answers and point out that the perfume has an agent to carry the scent that is usually composed of an alcohol. Point out that common household bleach is made from chlorine which is hazardous. Tell the students if you had the candle lit that the products of combustion include carbon monoxide and carbon dioxide and nitrogen dioxide. Be aware of the one that you could not detect, it may be the most dangerous. Allow the students to volunteer by a show of hands if they have any of the things listed in their homes that are sources of indoor pollutants. Have the students reflect on what they may do to reduce or minimize the concentration of the pollutants in their homes. 7 Explore: Share with the students the Teacher information and pass out the handout on indoor air quality with the concentrations and health risk listed. Have the students do the following: 1. List the indoor air pollutants that are gases in order starting with the ones with the smallest concentration that cause health problems to the one with the highest concentration before it causes any health problems.
-
- - Discussion about the activity
- - Closing

- Have you heard of open trash burning or backyard burning?
- Know of anyone who burns their trash?
- Are you concerned about trash burning?

Raise your hand

How does trash burning impact your health?

Trash burning emits gases and particles containing hazardous chemicals that can have a negative impact on the respiratory system, nervous system, and cardiovascular system

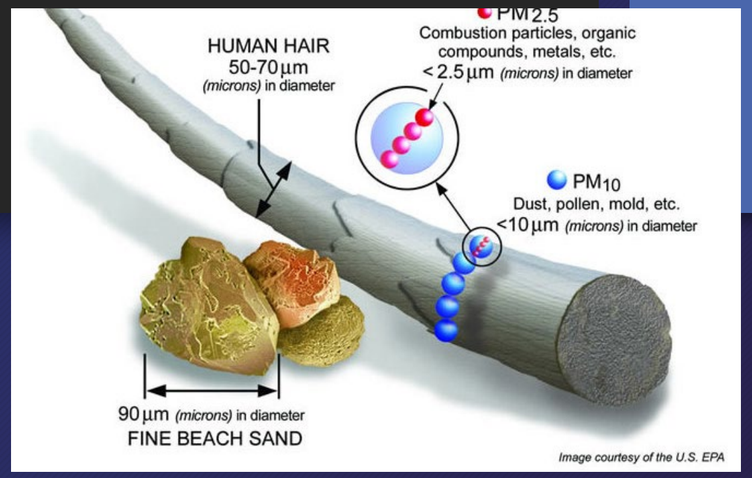
Toxic chemicals such as: PM 2.5, dioxins, volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAH)

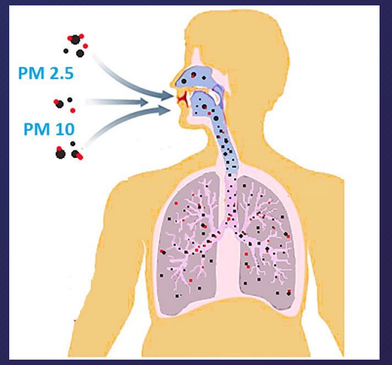
Ash

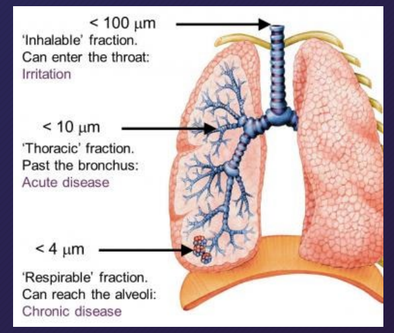
- Backyard burning produces ash residue
- Can contain toxic metals such as mercury, lead, chromium, and arsenic.
  - These metals can be toxic when ingested.
  - When a person ingests hazardous amounts of lead, for example, he or she may experience high blood pressure, cardiovascular problems, kidney damage, and brain damage.
- Unaware of the potential danger, some people scatter the ash in their gardens or bury it on their property.
  - Garden vegetables can absorb and accumulate these metals, which can make them dangerous to eat. Children playing in the yard or garden can incidentally ingest soil containing these metals.
  - Also, rain can wash the ash into groundwater and surface, contaminating drinking water and food.

Particulate Matter ($PM_{2.5}$)

- Solid fuel and trash burning emits high levels of respirable particulate matter ($PM_{2.5}$).
- The names come from their size
- Aerodynamic diameter < 2.5 micrometers.
- Impairs lung function through irritation and corrosion of alveolar wall
- Aggravate respiratory symptoms & susceptibility to disease
  - Shortness of breath
  - Asthma
  - Bronchitis
  - COPD
- Associated with cardiac arrhythmia (heartbeat irregularities) and heart attacks







Strategies to prevent air pollution exposure

1. Check daily air pollution in your area
2. Avoid being outdoors when pollution levels are high
3. Avoid smoking and second-hand smoke
4. Drive less, carpool, walk or ride bike
5. Use less electricity
6. Don’t burn wood or trash
7. Get involved in your community

(American Lung Association, 2021)

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questions?

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