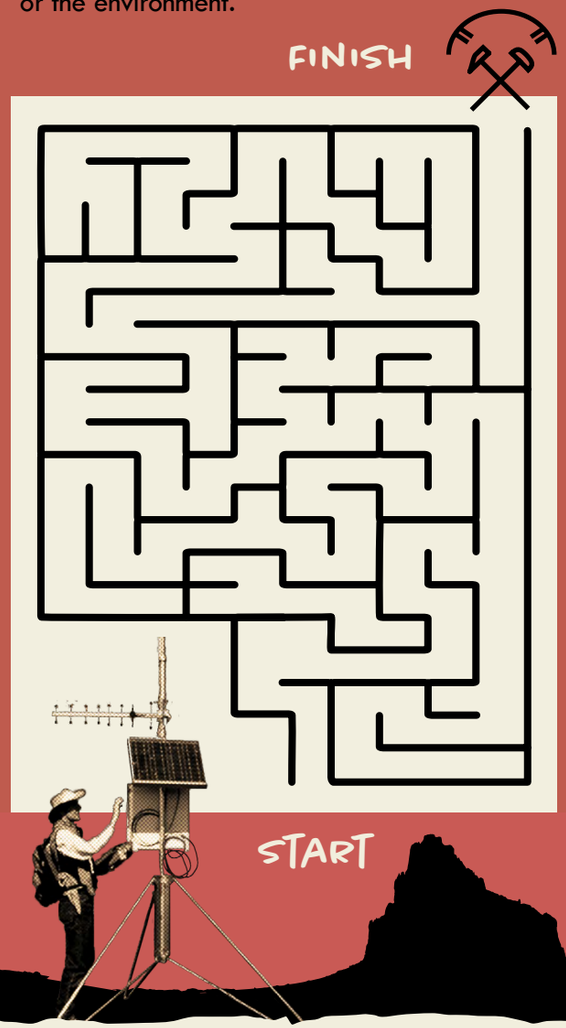
URANIUM MAZE

HELP THE LEGACY MANAGEMENT TEAM FIND THE ABANDONED MINE

There are more than 4,000 abandoned uranium mines throughout the western United States, many in hard-to-reach remote locations. Legacy Management is currently working to find all of these mines and ensure they don't pose a risk to people, wildlife, or the environment.



RADIATION

FACT OR FICTION

1. People who live in Denver, Colorado, receive more exposure to cosmic radiation than people living in Florida.

FACT: People who live at higher altitudes receive more radiation from space than people who live at lower altitudes.

2. Radiation exposure will cause you to glow.

FICTION: While many movies have portrayed it this way, radiation does not cause you to glow.

3. Cigarettes are a source of radiation exposure.

FACT: Naturally occurring radioactive materials accumulate on the sticky surface of tobacco leaves as the plant grows.

4. Radioactive waste remains radioactive forever.

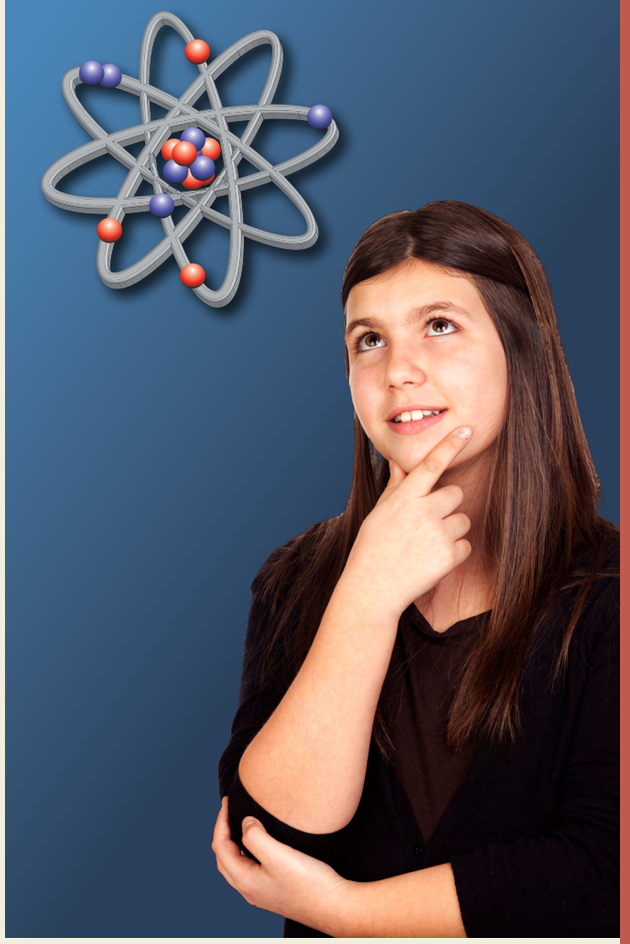
FICTION: Some radioactive materials and waste may remain radioactive for hundreds or thousands of years, while others only remain radioactive for seconds or days.

5. Radiation is around us all the time.

FACT: We are exposed to "background radiation" every day from natural sources—the air, cosmic rays, the soil, and even our food. This level of radiation exposure is low and not harmful.

Legacy Management

MANAGING THE PAST, PROTECTING THE FUTURE



U.S. DEPARTMENT OF ENERGY | Legacy Management

Legacy Management sites across the country have played important roles in U.S. history.

The race for the atomic bomb during World War II and the arms race during the Cold War (1940s to 1990s) involved mining a natural radioactive metal called uranium at sites across the western United States and using it to build and test nuclear weapons at other locations across the country. Many of these sites were contaminated by hazardous materials, meaning the materials were radioactive or contained harmful chemicals.

The U.S. Department of Energy, or DOE, took responsibility for cleaning up these sites and storing the hazardous materials in safe areas, so radiation or chemicals could not spread through the air and water and harm people, animals, and the environment. DOE's Office of Legacy Management has the job of managing these sites, and ensuring they remain safe.

Legacy Management employees monitor the sites through inspections and water sampling to make sure protections are still working properly to prevent harmful materials from getting into our water or air. They also work to put sites back into use for communities as natural areas where people can bike, hike, and enjoy wildlife.

Legacy Management will continue to watch over these sites into the future until LM is certain there is no risk of harm to human health or the environment.

RADIATION

WORD-SEARCH

A	M	A	L	P	H	A	U	I	N
X	A	M	J	U	B	R	F	S	O
Y	L	X	Q	G	A	M	M	A	I
Z	J	E	U	N	A	J	K	R	T
X	P	C	I	T	O	T	E	D	C
Q	I	U	O	J	W	L	E	X	E
S	M	Y	X	C	L	U	X	B	T
N	O	I	T	A	I	D	A	R	O
W	X	B	W	K	Z	L	R	S	R
E	R	B	M	N	A	Y	G	B	P

Can you find the following in the word search?

Beta **Uranium**

Alpha **Radiation**

Gamma **Protection**

You've probably heard the term "radiation" before, and you may wonder what it is.

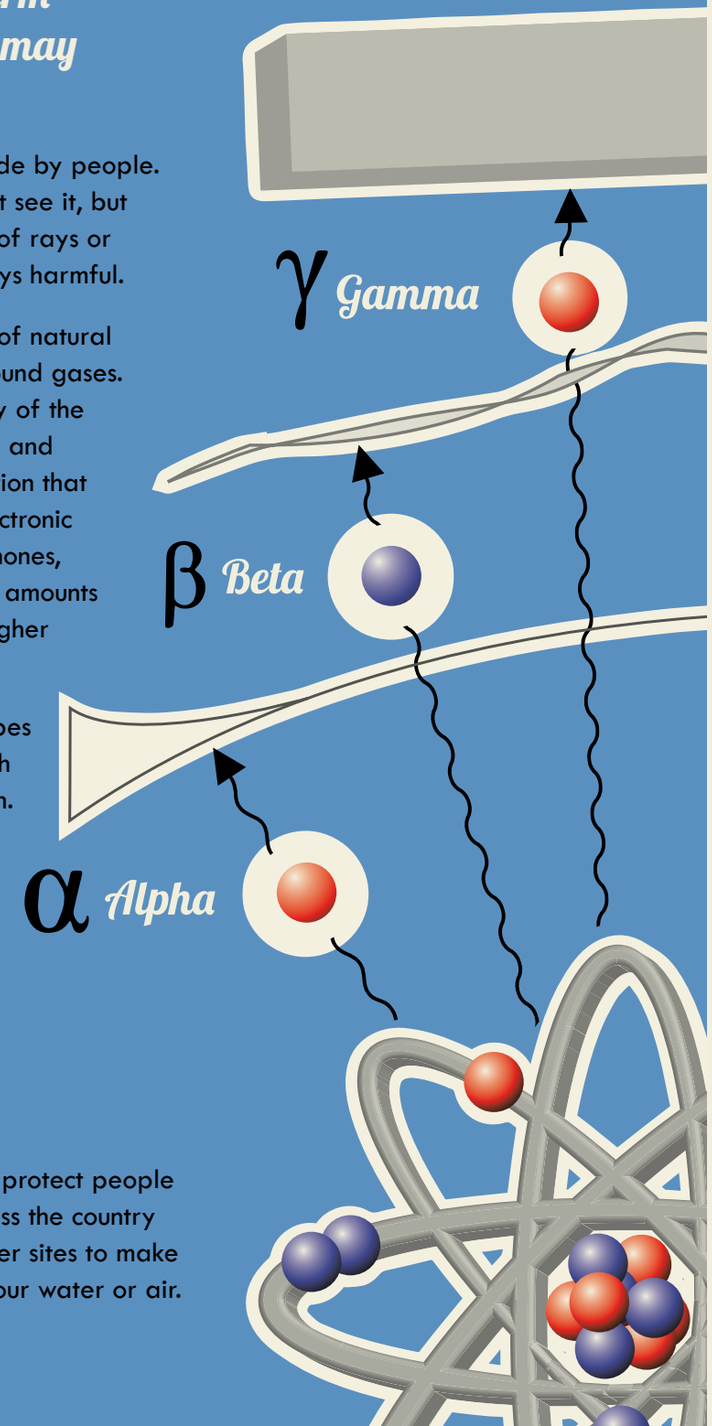
Radiation can be natural or it can be made by people. It is tricky to understand because we can't see it, but radiation is energy given off in the form of rays or high-speed particles. Radiation isn't always harmful.

Every day we are exposed to low levels of natural radiation from the sun, soil, and underground gases. This is called background radiation. Many of the foods we eat, such as bananas, potatoes, and carrots, contain naturally occurring radiation that is not harmful to people. Many of the electronic devices we use, such as televisions, cell phones, and microwave ovens, also give off small amounts of radiation. We need protection from higher amounts of radiation.

Legacy Management deals with three types of radiation. Each has a different strength and requires different forms of protection.

1. Alpha radiation isn't very strong. It can be stopped by paper.
2. Beta radiation is a little stronger. It can be stopped by aluminum foil.
3. Gamma radiation is much stronger. It can be stopped by lead, thick concrete, or packed dirt.

Legacy Management employees work to protect people and the environment at many places across the country using science and research. We watch over sites to make sure the harmful materials don't get into our water or air.



CALCULATE

WHAT IS YOUR DOSAGE?

A millirem, or mrem, is a unit used to measure the amount of radiation absorbed by tissues in the body. Answer the questions below, and add up the values to see how much radiation in mrems you're exposed to every year.

COSMIC RADIATION (from outer space)

1. What is the elevation where you live?

0 to 1000 ft. = 28	5000 to 6000 ft. = 55
1000 to 2000 ft. = 31	6000 to 7000 ft. = 66
2000 to 3000 ft. = 35	7000 to 8000 ft. = 79
3000 to 4000 ft. = 35	8000 to 9000 ft. = 96
4000 to 5000 ft. = 47	

+ ____ mrem

TERRESTRIAL RADIATION (from the ground)

2. Do you live:

In a state that borders the Gulf of Mexico or Atlantic Ocean?	15
In the Southwest U.S.?	75
Elsewhere in the continental U.S.?	35

+ ____ mrem

OTHER SOURCES

3. Food. **+10 mrem**
4. Water. **+5 mrem**
5. Do you use natural gas in your home? **+5 mrem**
6. Do you wear glasses? **+1 mrem**

TOTAL DOSAGE **____ mrem**

Average "background radiation" is 350 mrem per year. Medical procedures, such as X-rays or CAT scans, can increase dosage by a large amount.