

LESSON 4 REVIEW EXERCISE

A. Fill in the blanks below.

1. Name three sources of natural background radiation.

2. Name three sources of manmade radiation.

B. Indicate whether each statement is true (T) or false (F) by circling the correct letter. If the statement is false, correct it to make it true.

1. Radiation exists in nature.

T F

2. People who live at sea level are exposed to more background radiation than people who live at high altitudes.

T F

3. Nuclear and coal-fired powerplants contribute to manmade background radiation.

T F

4. A large source of background radiation is cosmic rays from outer space.

T F

5. Most of the radiation the average American is exposed to comes from nuclear powerplants.

T F

6. The human body is naturally radioactive.

T F

C. Explain how where you live affects the amount of exposure you receive from natural background radiation. _____

Where you live

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1. Cosmic radiation at sea level (from outer space).....
2. Select the number of millirems for your elevation (in feet)
up to 1000 ft. = **2** 1000-2000 ft. = **5** Elevation of some U.S. cities (in feet): Atlanta, 1050;
2000-3000 ft. = **9** 3000-4000 ft. = **9** Chicago, 595; Dallas, 435; Denver, 5280; Las Vegas,
4000-5000 ft. = **21** 5000-6000 ft. = **29** 2000; Minneapolis, 815; Pittsburg, 1200; Salt Lake
6000-7000 ft. = **40** 7000-8000 ft. = **53** City, 4400; Spokane, 1890; Washington, DC, 25
8000-9000 ft. = **70**
add this number:
3. Terrestrial (from the ground):
If you live in states that border the Gulf or Atlantic Coast, **add 23**
If you live in the Colorado Plateau area (around Denver), **add 90**
If you live in middle America (rest of the U.S.), **add 46**
4. House construction:
If you live in a stone, brick, or concrete building, **add 7**

What you eat and drink

5. Internal radiation (in your body):*
From food and water..... **40**
From air (radon)..... **200**

Other sources

6. Weapons test fallout (less than 1):**..... **1**
7. Jet plane travel:
For each 1,000 miles you travel, **add 1**
8. If you have porcelain crowns or false teeth, **add 0.07**
9. If you use gas lantern mantles when camping, **add 0.003**
10. If you wear a luminous wristwatch (LCD), **add 0.006**
11. If you use luggage inspection at airports (using typical x-ray machine), **add 0.002**
12. If you watch TV**, **add 1**
13. If you use a video display terminal**, **add 1**
14. If you have a smoke detector, **add 0.008**
15. If you wear a plutonium-powered cardiac pacemaker, **add 100**
16. If you have had medical exposures:*
Diagnostic X-rays (e.g., upper and lower gastrointestinal, chest), **add 40**
If you have had nuclear medical procedures (e.g., thyroid scans), **add 14**
17. If you live within 50 miles of a nuclear power plant (pressurized water reactor), **add 0.0009**
18. If you live within 50 miles of a coal-fired electrical utility plant, **add 0.03**

My total annual mrems dose:

Some of the radiation sources listed in this chart result in an exposure to only part of the body. For example, false teeth result in a radiation dose to the mouth. The annual dose numbers given here represent the "effective dose" to the whole body.

*These are yearly average dose.

**The value is actually less than 1.