

# Lesson 1 Problem Set: "What is Cancer?"

## Teacher's answers

Short Answer:

1. Define cancer.

A: Cancer is a disease that is caused by uncontrolled growth of cells.

2. Although there are many different types of cancers, what is the one common mechanism by which cancer arises?

A: Although there are many kinds of cancer, they all start because of out-of-control growth of abnormal cells.

3. Define metastasis. Why is metastasis bad?

A: Metastasis is the process by which cancer cells can travel to other sites in the body where they can begin to grow and replace normal tissue.

4. Name two types of cancers that are not characterized by solid tumors. Where are these cancers in the body?

A: Leukemia is a malignant disorder of the body's blood forming tissue - mainly bone marrow, lymph nodes and spleen. Lymphoma is a cancerous tumor originating in the lymph system.

5. How does leukemia increase risk of infection?

A: In leukemia, the blood-forming tissues flood the bloodstream and lymph system with immature white blood cells. The immature cells are incapable of fighting infections. Uncontrolled leukemia, therefore, causes infections due to the lack of normal infection-fighting white blood cells.

True/False: State whether the following statements are true or false. If they are false, correct the portions of each statement that are incorrect.

1. Cancer is the first leading cause of death in the United States, followed by heart disease.

False: Cancer is the second leading cause of death in the US.

2. Benign tumors are highly metastatic.

False: Benign tumors are non-cancerous and non-metastatic.

3. Smoking increases your chance of developing lung cancer.

True

4. Diet and exercise are important in preventing heart disease, but not cancer.

False: Diet and exercise are important in preventing both heart disease and cancer.

5. Your genes can only be mutated through hereditary mechanisms.\

False: You can inherit mutated genes. Your genes can also become mutated after exposure to certain kinds of radiation, carcinogens, etc.

. Unlike normal cells, cancer cells do not continually grow and divide.

False: Normal cells do not divide continually after adulthood. Cancer cells are immortal and continue to grow and divide.

Fill in the blank:

1. **Chromosomes** are structures that carry the genes, the basic units of heredity.

2. Nearly **1/2** of all men and **1/3** of all women in the US will develop cancer over their lifetime.

3. Often times cancer is an age-related disease. In fact, about **77%** percent of cancers develop in patients 55 or older.

Definitions:

1. Malignant:

2. Incidence Rate:

A: The incidence rate is the number of cases of a disease diagnosed each year per 100,000 people in a population.

3. Carcinoma

A: Carcinoma is a cancerous tumor originating in the epithelial system (surface tissue of body organs).

4. Sarcoma

A: Sarcoma is a disease in which malignant tumors are found in the bone, cartilage, muscle, fibrous connective tissue, or fatty tissue.

5. Myeloma:

A: Myeloma is the uncontrolled growth of plasma cells in the bone marrow.

5. Risk Factor

A: A risk factor is anything that increases a person's chance of getting a disease