Name: _____

HEALTHY FOOD CAMPAIGN

In "Food Fright!" (p. 12), you read that the FDA recently published recommendations about reducing exposure to the chemical acrylamide. Suppose the FDA asked you to create a poster that informs people about this potentially dangerous substance. Use this work sheet to gather information from the article to complete your task.

CHEMICAL CULPRIT: What is acrylamide? Choose at least two facts from the article that explain what the substance is and why it may be dangerous.

1. _____

_____

2. _____

_____

RISK FACTORS: Find at least two facts from the article that explain which foods present the greatest risk for acrylamide exposure.

1. _____

_____

2. _____

_____

FOOD GUIDE: Find at least three recommendations from the article about how people can reduce their exposure to acrylamide.

1. _____

_____

2. _____

_____

3. _____

_____

HIGH-IMPACT IMAGE: What image(s) do you think would make the poster the most informative and eye-catching? Choose one from the article or describe your own. Explain your reasoning.

SAFETY MESSAGE: On a separate piece of paper, use the information you gathered to create a poster informing people about acrylamide.

Name: _____

CANCER FACTS

In "Food Fright!" (p. 12), you learned about a chemical in some cooked foods that may increase the chances of developing cancer. Read the passage below to learn more about this disease. Then answer the questions that follow.

OUT-OF-CONTROL CELLS

Every year, more than 1.5 million Americans are diagnosed with cancer—a family of more than 100 diseases. All types of cancer are characterized by the uncontrolled growth of abnormal cells.

Normally, the trillions of cells in the human body go through a cycle of growth, division, and death. As part of the *cell cycle*, a healthy cell divides into two identical daughter cells. The new cells replace worn-out ones and allow the body to grow. Normally this division stops when the cells receive a signal that no more new ones are needed.

Cancer develops because of *mutations*, or changes, in cells' *DNA*. These changes in the cells' genetic material prevent the "stop" signal from functioning properly. The cells divide out of control and a tumor forms.

Not all tumors are cancerous. Benign tumors are harmless. They are surrounded by a membrane that prevents the abnormal cells from invading other tissues. Malignant, or cancerous, tumors are not enclosed, allowing the abnormal cells to invade and destroy other tissues in the body.

QUESTIONS

1. How many cells are in the human body?

Ⓐ 1 million
Ⓑ 1.5 million
Ⓒ billions
Ⓓ trillions

2. What do all types of cancer have in common?

Ⓐ They are caused by uncontrolled cell growth.
Ⓑ The tumors are made up of old, worn-out cells.
Ⓒ They are not curable.
Ⓓ Many cells in one part of the body suddenly die.

3. A ____ tumor is ____.

Ⓐ malignant; surrounded by a membrane
Ⓑ malignant; non-cancerous
Ⓒ benign; able to invade other tissues
Ⓓ benign; surrounded by a membrane

4. Which of the following is NOT true about cancerous cells?

Ⓐ They divide out of control.
Ⓑ They can invade different tissues in the body.
Ⓒ They do not have changes in their DNA.
Ⓓ The signal to stop dividing does not function properly.

5. Describe one similarity and one difference between benign and malignant tumors.

Name: _____

REDUCING YOUR RISK

In "Food Fright!" (p. 12), you learned that the FDA has recommended that people limit their intake of acrylamide to help reduce cancer risk. Certain environmental exposures can also increase the chance of developing cancer. Read the following passage to learn more about the cancer risks and how to protect yourself. Then use complete sentences to answer the questions that follow.

ENVIRONMENTAL HAZARDS

Most people know that exposure to substances like the chemicals in cigarette smoke can lead to cancer. But many other *carcinogens* exist naturally in the environment. Fortunately, there are simple ways to reduce your exposure to these cancer-causing agents.

One famous culprit is *ultraviolet* (UV) *radiation* emitted by the sun. These high-energy waves cause changes to skin cells that may lead to melanoma and other types of skin cancer. Scientists recommend putting on sunscreen and wearing protective clothing to reduce your exposure to this carcinogen.

Other hazards are hidden beneath Earth's surface. *Radon* is a radioactive element that exists at low levels in most soil. When the element breaks down, it emits high-energy radiation that can damage cells. Radon naturally occurs as a gas, so it can seep into basements and reach dangerous levels. Ventilation systems can dramatically reduce the level of radon in homes.

One unavoidable factor is the ultra-high-energy radiation that enters Earth's atmosphere from space. But scientists believe these *cosmic rays* pose only a small cancer risk.

QUESTIONS

1. What are two carcinogens mentioned in the text?

2. Why do scientists recommend reducing your exposure to sunlight?

3. Why is it important that basements in homes have ventilation systems?

4. What are cosmic rays?

5. What is the central idea of this passage?

Name: _____

BRING ON THE HEAT

In "Food Fright!" (p. 12), you learned that high temperatures can create a potentially dangerous substance in some foods. From frying to boiling to baking, there are many ways to transfer heat to food. The chart below shows the different methods of heat transfer and how they relate to cooking. Study the chart and then answer the questions that follow.

HEAT TRANSFER IN COOKING

Process	How It Works	Cooking Examples
Conduction	Heat transfers through direct contact between two materials with different temperatures. Heat moves from the hot material into the cooler one.	• Heat moves from a hot pan into food through conduction. • Conduction moves heat from the outside of a piece of food to the middle. • Conduction heats water molecules touching the bottom of a hot pot.
Convection	Heat moves from one place to another within a fluid—a gas or liquid—by the movement of molecules. Hot fluids are less dense than cold ones. Hot air or liquid moves upward, carrying heat with it. As the fluid cools, it becomes denser and sinks.	• Heat moves through the air in an oven by convection. • Special "convection ovens" have fans that circulate hot air faster. • Convection transmits heat throughout the water in a pot.
Radiation	Heat is transferred through energy waves emitted by a source.	Microwaves emit high-energy waves to heat food. The waves cause the molecules in the food to move faster and heat up.

QUESTIONS

1. Which process transfers heat through direct contact between two materials?

2. What type of heat transfer is used to cook a bag of microwave popcorn?

3. In which two states of matter does convection occur?

4. Suppose you are frying an egg in a pan. What are two ways conduction contributes to cooking the egg?

5. Explain how conduction and convection contribute to boiling a pot of water.