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LA UNION SCHOOLS DIVISION OFFICE
REGION I

AIRs - LM in
Physical Education and Health 4
Module 5

Physical Education and Health 4
Grade 12 Module 5
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Development Team of the Module

Author: Honorato P. Bugayong Jr., *T II*

Editor: SDO La Union, Learning Resource Quality Assurance Team

Illustrator: Ernesto F. Ramos Jr., *P II*

Management Team:

Atty. Donato D. Balderas, Jr.
Schools Division Superintendent

Vivian Luz S. Pagatpatan, Ph.D
Assistant Schools Division Superintendent

German E. Flora, Ph.D, *CID Chief*

Virgilio C. Boado, Ph.D, *EPS in Charge of LRMS*

Delia P. Hufalar, Ph.D., *EPS in Charge of MAPEH*

Michael Jason D. Morales, *PDO II*

Claire P. Toluyen, *Librarian II*

Physical Education and Health 4

Module 5

Target

Exercise and physical activity is good for health, but anything in excess or having poor execution is bad. Certain conditions such as dehydration, overexertion, hypothermia, and hyperthermia may occur if exercise and precautions are not in place.

This module aims to give safety guidelines and activities that will help you observe personal safety protocol to avoid dehydration, overexertion, hypothermia and hyperthermia when you participate in moderate to vigorous physical activity.

After going through this module, you are expected to:

1. Observes personal safety protocol to avoid dehydration, overexertion, hypo-
   and hyperthermia during MVPA participation **(PEH12FH-IIk-t-10);** and
2. Identify the conditions if exercise and precautions are not in place.

Before going on, check how much you know about this topic. Answer the pretest on the next page in a separate sheet of

Direction: Choose the correct answer. Write the CAPITAL LETTER of your choice on the blank provided before each number.

_____ 1. Which of the following groups is the **MOST** susceptible to heat illness?

A. the elderly
B. high school students
C. the highly fit
D. those jogging by themselves

_____ 2. Heat injury can occur when the activity heat load exceeds the body's ability to regulate body temperature. Which of the following is not a common type of heat injury?

A. heat stroke
B. heat cramps
C. heat exhaustion
D. heat evaporation

_____ 3. In order to minimize the possibility of overheating, exercise attires should be all of the following **EXCEPT**:

A. loose-fitting
B. dark-colored
C. lightweight
D. cotton or linen

_____ 4. When a person is losing too much water and heating up because of exercise, what injury is he experiencing?

A. Dehydration
B. Hyperthermia
C. Hypothermia
D. Overexertion

_____ 5. Who among the following is at the highest risk for hyperthermia?

A. Those who live in cities
B. Those with air conditioners
C. Those who live in the mountains
D. Those who live in the countryside

_____ 6. When does hypothermia occur?

I. When the body is exposed to cold air
II. When the body temperature rises above 104 degrees
III. When the body temperature drops below 95 degrees

A. I only B. I and II C. I and III D. I, II and III

_____ 7. What are some of the signs of hypothermia?

I. Shivering II. Weak pulse III. Drowsiness or very low energy

A. I only B. I and II C. II and III D. I, II and III

_____ 8. If you train in a cold environment, what would be the **MOST** possible injury or illness you might suffer?

A. Dehydration B. Hyperthermia C. Hypothermia D. Overexertion

_____ 9. What is the **MOST** common hazard for hyperthermia?

A. Being inside in hot weather
B. Being outside in hot weather
C. Being inside in cold weather
D. Being outside in cold weather

_____10. What is the safe range of temperature for bath water?

A. Between 58 and 70 °F
B. Between 98 and 100 °F
C. Between 68 and 80 °F
D. Between 158 and 200 °F

Module 5 Moderate to Vigorous Physical Activity

Figure 1. Moderate vs Vigorous Physical Activity

Figure 1 shows the different examples of physical activity and the difference of moderate and vigorous physical activity.

In this module, you will learn the safety protocols to avoid dehydration, overexertion, hypothermia and hyperthermia during moderate to vigorous physical activity participation.

Jumpstart

For you to understand the lesson well, do the following activities. Have fun and good luck!

Activity 1: Read Me! Understand Me!

Direction: Read the conditions such as dehydration, overexertion, hypothermia and hyperthermia. Understand what you are reading.

Dehydration is a state that happens when the loss of body fluids, mostly water, exceeds the amount that is taken in. With dehydration, more water is moving out of our cells and bodies than what we take in through drinking.

Overexertion injuries can occur when the body is hard-pressed further than its limits during exhausting or extreme exercise and may come in the form of any exercise greater than the capacity of an individual to handle.

Hypothermia is a life-threatening and serious condition that occurs when your body loses heat faster than it can produce heat, causing your body temperature to drop below 95 °F (35 °C). Exposure to cold air or water are the most common causes of hypothermia which is why it afflicts unprepared campers, hikers, or swimmers.

Hyperthermia refers to a group of heat-related conditions characterized by an abnormally high body temperature. Hyperthermia is a result of the body being over heated. The condition occurs when the body's heat-regulation system becomes overwhelmed by outside factors, causing a person's internal temperature to rise. People with some level of hyperthermia have a body temperature of more than 100.4°F (38°C). The safe range of temperature for bath water is between 98–100 °F.

Directions: Choose your answer from the given choices.

Q1. What is the condition of having an abnormally low body temperature, typically, one that is dangerously low?

A. Dehydration B. Hyperthermia C. Hypothermia D. Overexertion

Q2. Which of the following condition is the loss of fluids that occurs in exercise through sweat, breath and urine.

A. Dehydration B. Hyperthermia C. Hypothermia D. Overexertion

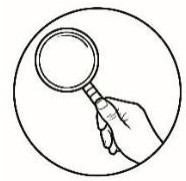
Q3. What condition comes in the form of any exercise greater than the capacity of an individual to handle?

A. Dehydration B. Hyperthermia C. Hypothermia D. Overexertion

Q4. Which of the following condition marked by fever and often by unconsciousness, caused by failure of the body's temperature-regulating mechanism when exposed to excessively high temperatures?

A. Dehydration B. Hyperthermia C. Hypothermia D. Overexertion

For Q5. Concept Map; Write the words that come to your mind upon reading the words



Discovery

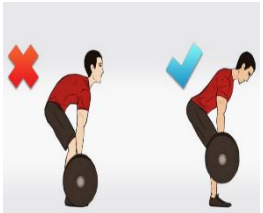
Dehydration can be a severe condition that can lead to problems ranging from swollen feet or a headache to serious illnesses such as heat stroke.

The signs and symptoms of dehydration range from minor to severe and may include;

- Increased thirst
- Dry mouth swollen tongue
- Weakness
- Dizziness
- Palpitation or the feeling that the heart is jumping or pounding
- Confusion
- Slowness
- Fainting
- Incapability to sweat
- Decreased urine excretion

Below are steps you can take to prevent **OVEREXERTION.**

- Know your limits – pace yourself and know when to say "enough"
- Stretch and warm-up before heavy lifting
- Lift properly – Avoid back injuries by lifting with your legs bent, keep the object close to your body.
- Set obtainable goals



- Proper nutrition Listen to your body – If something hurts never ignore it as taking a small injury or a small ache or pain for granted may end up turning into a much bigger problem.

Signs and Symptoms of Hypothermia?

- Shivering, which may stop as hypothermia progresses (shivering is actually a good sign that a person's heat regulation systems are still active.)
- Slow, shallow breathing
- Confusion and memory loss
- Drowsiness or exhaustion
- Slurred or mumbled speech
- Loss of coordination, fumbling hands, stumbling steps
- A slow, weak pulse
- In severe hypothermia, a person may be unconscious without obvious signs of breathing or a pulse

Treatment

- Remove any wet clothes, hats, gloves, shoes, and socks.
- Protect the person against wind, drafts, and further heat loss with warm, dry clothes and blankets.
- Move gently to a warm, dry shelter as soon as possible.
- Begin rewarming the person with extra clothing.
- Offer warm liquids, but avoid alcohol and caffeine, which speed up heat loss. Don't try to give fluids to an unconscious person.

Signs and Symptoms of Hyperthermia?

The symptoms of hyperthermia depend on the stage it has reached or how much the body is overheated. Symptoms of overheating may develop very quickly or over the course of hours or days.

Types of hyperthermia and their associated symptoms include:

Heat fatigue and cramps - This stage of hyperthermia causes:

- excessive sweating
- exhaustion
- flushed or red skin
- muscle cramps, spasm, and pain
- headache or mild light-headedness
- nausea

Treatment

- Rest briefly and cool down
- Drink clear juice or an electrolyte-containing sports drink
- Practice gentle, range-of-motion stretching and gentle massage of the affected muscle group

- Don't resume strenuous activity for several hours or longer after heat cramps go away
- Call your doctor if your cramps don't go away within one hour or so

Heat exhaustion

Heat exhaustion, if left untreated, can lead to **heat stroke**, which is a life-threatening condition.

Symptoms of heat exhaustion include:

- cold, pale, wet skin
- fast but weak pulse
- headache
- exhaustion
- dizziness
- extreme or heavy sweating
- nausea, vomiting, and diarrhea
- muscle cramps
- temporarily fainting or losing consciousness
- weakness
- intense thirst
- difficulty paying attention or concentrating
- less frequent urination and dark urine

Treatment

- Rest in a cool place
- Drink cool fluids
- Try cooling measures
- Loosen clothing

Heat stroke

Without treatment, heat stroke can lead to dangerous complications, especially in young children, those whose immune system is compromised, and people over 65 years of age.

Temperature and many of the other early signs of heat stroke are the same as those for heat exhaustion.

- fast, strong pulse or very weak pulse
- fast, deep breathing
- reduced sweating
- hot, red, wet, or dry skin
- nausea
- headache
- dizziness
- confusion
- disorientation
- blurred vision
- irritability or mood swings
- lack of coordination
- fainting or losing consciousness

Treatment

- Move the person into a cool place, out of direct sunlight.
- Remove the person's unnecessary clothing
- Cool the person's entire body by sponging or spraying cold water
- Apply ice packs in each armpit and on the back of the person's neck.

Explore

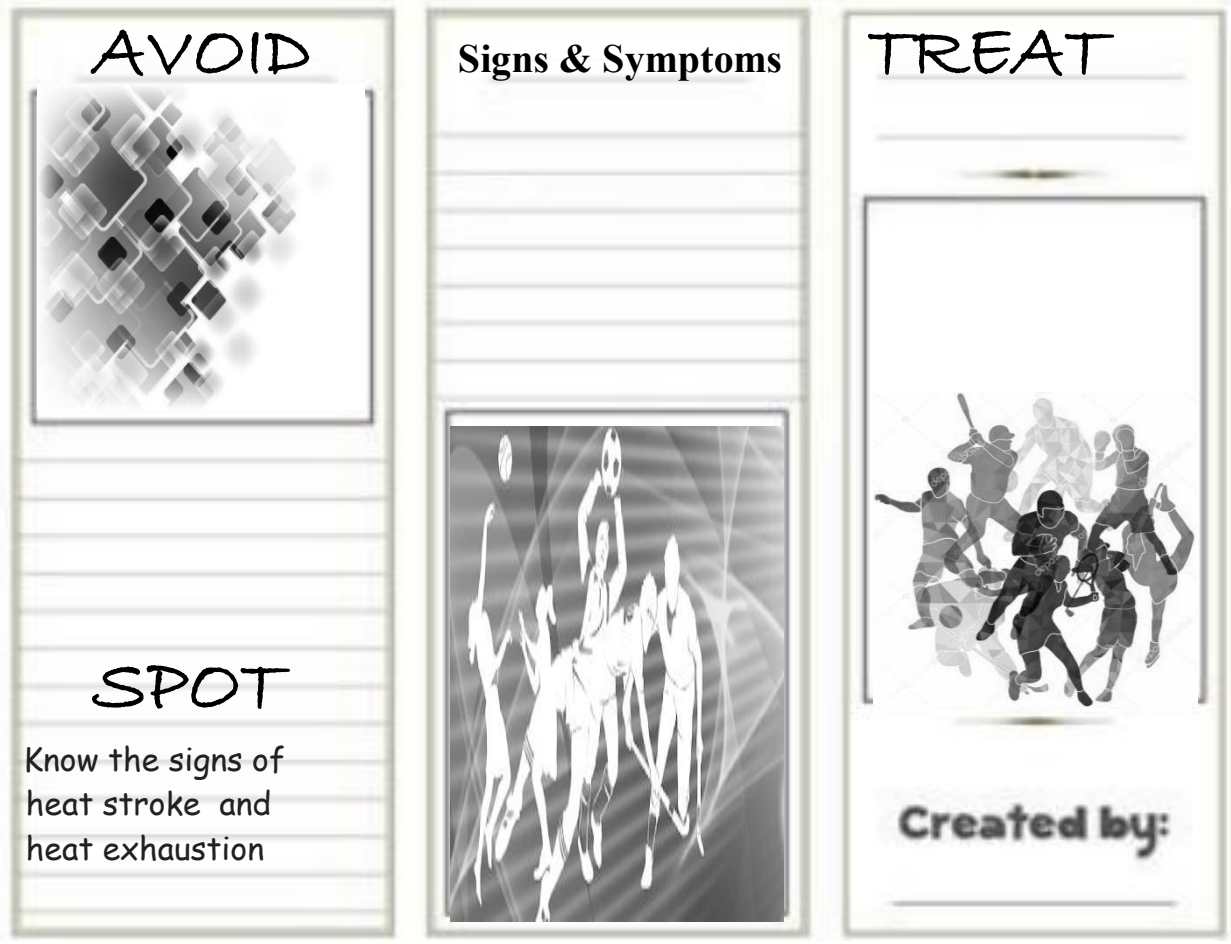
Here are some enrichment activities for you to work on to master and strengthen the basic concepts you have learned from this lesson.

Enrichment Activity 1: Beat the Heat

Direction: On a board paper, make a brochure that would discuss varied ways to avoid, spot, and treat heat stroke and heat exhaustion during MVPA participation. Use the following guide questions in making your brochure:

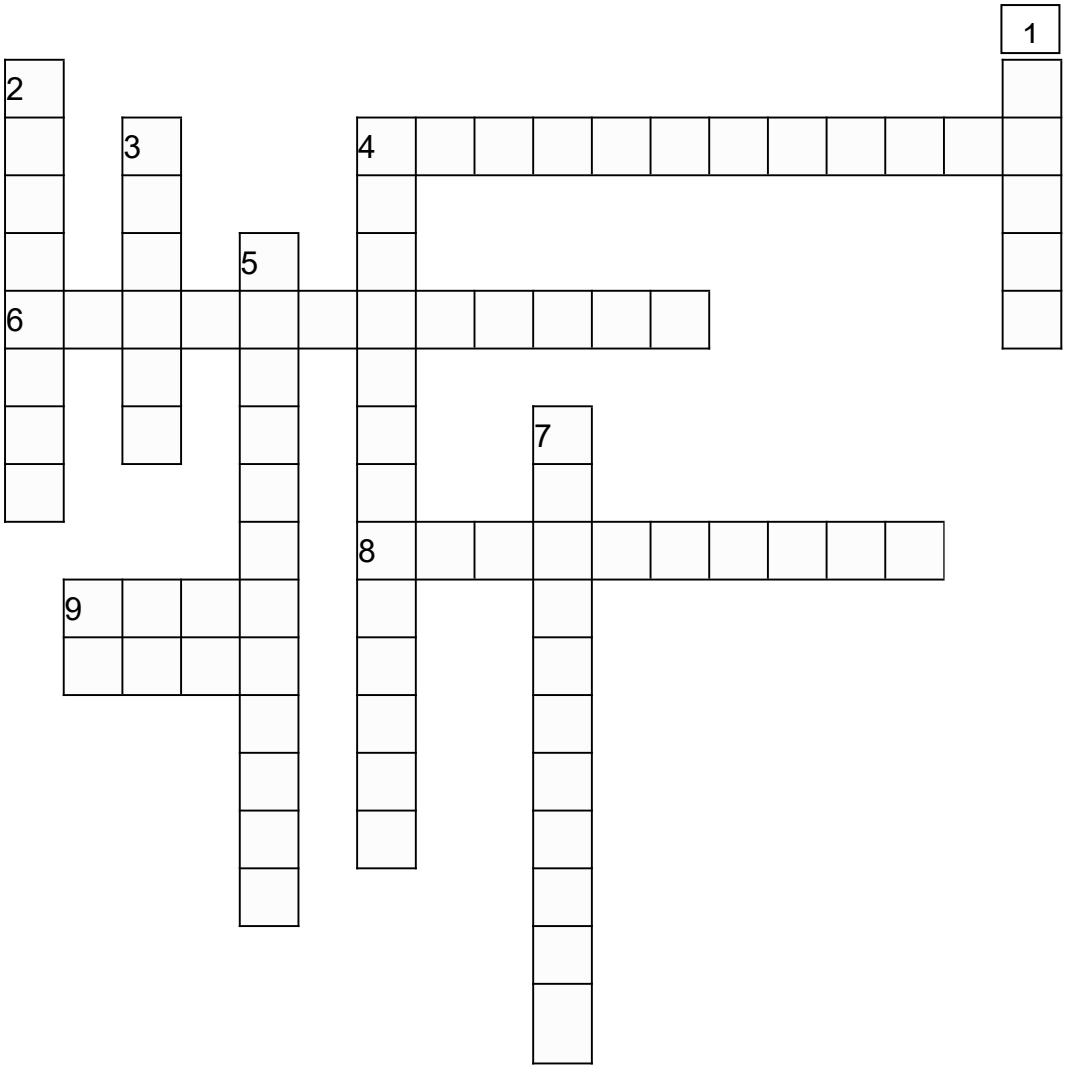
1. How to avoid heat stroke and heat exhaustion?
2. What are the signs and symptoms of heat stroke and heat exhaustion?
3. How to treat a person suffering from heat stroke and heat exhaustion?

Sample brochure



Assessment 1

Direction: Complete the crossword puzzle below. Write the term that is being described in each of the given definitions.



Across

4. This happens when the body loses temperature, particularly heat, faster than its ability to heat up.
6. It comes in the form of any exercise that is greater than an individual's capacity to handle.
8. It is the condition whose symptoms may include heavy sweating and a rapid pulse; A result of your body overheating. HEAT _ _ _ _ _ _ _ _ _ _
9. This activity refers to or includes activities that span from moderate to vigorous physical activities.

Down

1. It is a type of heat illness where muscle spasms occur as a result of the loss of a large amount of salt and water due to exercise.
2. This is the official procedure or system of rules.

3. The condition of being protected from or unlikely to cause danger, risk, or injury.
4. The opposite of hypothermia
5. This happens when the fluid in your body is used or lost more than the liquid you drink or intake.
7. A condition marked by fever and often by unconsciousness, caused by the failure of the body's temperature-regulating mechanism when exposed to excessively high temperatures.

Enrichment Activity 2: Face the Fears

Direction: Answer the following items briefly and concisely in 2 to 3 sentences. Write your answer on the blank provided.

1. Differentiate hypothermia from hyperthermia.

_____
_____
_____
_____

2. What are the early signs of hypothermia?

_____
_____
_____
_____

3. What happens to you when you have hyperthermia?

_____
_____
_____
_____

4. What actions may be done to relieve the conditions of hyperthermia?

_____
_____
_____
_____

RUBRIC	
Ideas and Content:	_____/5
Use of important terms:	_____/5
Personal Reflection:	_____/5
Completed task:	_____/5
Total:	_____/20

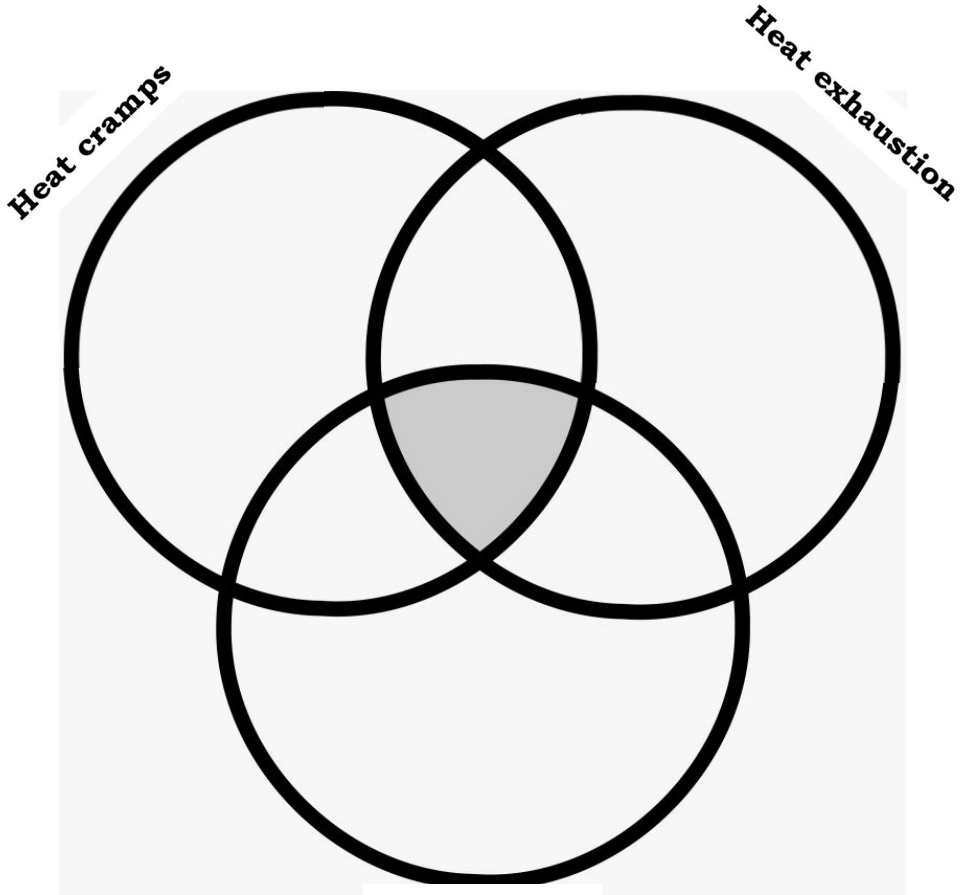
Assessment 2:

Direction: Match Column A with the correct answer in Column B. Write only the CAPITAL LETTER of your answer on the blank before each number.

Column A	Column B
___ 1. The condition of having an abnormally low body temperature, typically, one that is dangerously low.	A. Safety protocol B. MVPA's
___ 2. A condition marked by fever and often by unconsciousness, caused by failure of the body's temperature-regulating mechanism when exposed to excessively high temperatures.	C. Heat exhaustion
___ 3. A condition whose symptoms may include heavy sweating and a rapid pulse.	D. Exercise
___ 4. It is the loss of fluids that occurs in exercise through sweat, breath and urine.	E. Hyperthermia
___ 5. Comes in the form of any exercise greater than the capacity of an individual to handle.	F. Dehydration
___ 6. Also known as "Standard Operating Procedure"	G. Heat cramps
___ 7. A product of losing too much water and heating up because of exercise.	H. Overexertion
___ 8. Moderate to vigorous physical activities	
___ 9. The activity that requires physical effort, carried out to sustain or improve health and fitness.	I. Heat stroke
___10. The occurrence of muscle spasms that result from the loss of a large amount of salt and water due to exercise.	J. Hypothermia

Enrichment Activity 3: Heat Waves

Direction: Use the Venn diagram below to compare and contrast heat-related illnesses in terms of their signs and symptoms.



Rubric	4	3	2	1
Concept Arrangement	Each section of the diagram contains four facts easily identified.	Each section of the diagram contains three facts easily identified.	Each section of the diagram contains two facts that are somewhat identified.	Each section of the diagram contains very few facts that are not easily identified.
Primary Source Content	Student exhibits mastery of the material as evidenced by attention to detail.	Student illustrates a firmer understanding of most of the similarities and differences brainstormed.	Student displays a limited understanding with some details pertinent to the subject matter.	Students shows little or no understanding of topic. There are scant details.
Linking Content together	Reflects factual information that corresponds with appropriate sectiion of diagram.	Most of the information is factual and seemingly corresponds with appropriate section of diagram.	Reflects some factual information and attemps to put it in corresponding section of diagram.	Contains non factual information that does not correspond to the appropriate section of diagram

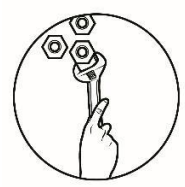
Assessment 3:

Direction: Complete the chart below. Write symptoms and first-aid measures for each heat-related illness.

Condition	Symptoms	First-aid and treatment
Heat cramps	1._____ 2._____ 3._____	1._____ 2._____ 3._____
Heat exhaustion	1._____ 2._____ 3._____ 4._____	1._____ 2._____ 3._____
Heat stroke	1._____ 2._____ 3._____ 4._____	1._____ 2._____ 3._____

Great job! You have understood the lesson.

Are you now ready to summarize?



Deepen

At this point, answer the following questions concisely. Write your answer on the blank provided. The scoring rubric below the questions will be used in assessing your outputs.

1. What is the importance of differentiating hypothermia from hyperthermia?

_____
_____
_____
_____
_____
_____
_____
_____

2. What additional information regarding heat related complications can you provide?

_____
_____
_____
_____
_____
_____
_____
_____

RUBRIC-Journal Reflection	
Critical Thinking	_____/5
Depth Reflection	_____/5
Completion(Task is 100% complete	_____/5
Total:	_____/15

Very well done! You are now ready to take your posttest. You may again go over the lessons, activities and maps to review for the final assessment.

Good luck!

Gauge

Directions: Read carefully each item. Use a separate sheet for your answers. Write only the letter of the best answer for each test item.

_____ 1. When a person trains or exercises greater than his/her capacity to handle, what would be the **MOST** possible injury he/she might experience?
A. Dehydration C. Hypothermia
B. Hyperthermia D. Overexertion

_____ 2. What is likely to happen when body fluids are lost during exercise through sweat, breath, and urine?
A. Dehydration C. Hypothermia
B. Hyperthermia D. Overexertion

_____ 3. Which of the following is a factor that can cause overexertion?
A. Loss of fluids
B. Training in a cold environment
C. Training might be too frequent
D. Losing too much water and heating up

_____ 4. How do you classify a person's injury of losing too much water and heating up because of exercise?
A. Dehydration C. Hypothermia
B. Hyperthermia D. Overexertion

_____ 5. During early stages of hypothermia, heart rate will _____.
A. stop B. increase C. decrease D. stay the same

_____ 6. What is the safe range of temperature for bath water?
A. Between 58 and 70 °F C. Between 68 and 80 °F
B. Between 98 and 100 °F D. Between 158 and 200 °F

_____ 7. Hypothermia is classified as a body temperature less than how many degrees Fahrenheit?
A. 95 °F B. 98.6 °F C. 100 °F D. 105 °F

_____ 8. Hyperthermia is defined as a temperature above which point in degrees Celsius?
A. 39 °C B. 41 °C C. 49 °C D. 38 °C

_____ 9. When a person is losing too much water and heating up because of exercise, what injury is he experiencing?
A. Dehydration C. Hypothermia
B. Hyperthermia D. Overexertion

_____10. If you train in a cold environment, what would be the **MOST** possible injury or illness you might suffer?
A. Dehydration C. Hypothermia
B. Hyperthermia D. Overexertion

Great job!

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