

S3 H3 GLO 9-12: Exercising in Extreme Temperatures
OKLAHOMA ACADEMIC STANDARDS: Physical Education

Source:

<p align="center"><u>Objectives/ Student Targets</u></p> <p><u>Cognitive:</u> Students will identify the issues associated with exercising in heat and cold.</p> <p><u>Affective:</u> Students will demonstrate respect for others and sportsmanship during the activities.</p> <p><u>Psychomotor:</u> Students will participate in a Bingo game to review their knowledge of the subject matter.</p>	<p><u>Equipment & Technology Needed:</u></p> <p>Pens/pencils Notebooks Something to do research on (computers/phones) Bingo cards for every student Markers for bingo cards Prizes</p>
<p><u>Academic Vocabulary:</u> Heat Stroke, Heat Exhaustion, Dehydration, Shivering, Frostbite, Hypothermia</p>	
<p><u>Introduction / Anticipatory Set:</u> Ask your students if they have had any experience exercising outside in extreme weather. This could be running, weightlifting, playing sports, etc. What did they experience when they did. For heat they may say they needed more water, they got dizzy, got tired much quicker, sweat more, extreme cases would be nausea or passing out. For cold they may say shivering, needed layers, still sweat, pain in ears or chest, etc. (5 minutes)</p> <p><u>Instant Activity:</u> Have the students write down on a piece of paper ways they could prevent these experiences of exercising in extreme weather. Examples are wear lighter clothing, wear layers, keep a wet towel, drink lots of water, have hand warmers, cover your ears, etc. Let's see how many they came up with compared to what we talk about in the lesson. (3-4 minutes)</p>	<p><u>Classroom Layout:</u> Classroom setting with desks or enough space for students to have bingo cards and markers. Teachers standing with questions for bingo game.</p>
<p><u>Lesson Focus:</u></p> <p>I. <u>Lesson Procedures - Teaching the skill or concept activities</u></p> <p>Show your students the following videos:</p> <p>https://www.youtube.com/watch?v=IWDUZq0VvXk</p> <p>This video states the effects our body goes through in extreme heat. It adds a few more scientific facts than what are stated in the lesson.</p> <p>- What is <u>dehydration</u>? (a harmful reduction in the amount of water in the body)</p>	<p><u>Teaching Cues:</u></p> <p>First one to say Bingo!, Read carefully</p>

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- How can we prevent dehydration from happening? (drink water before, during, and after you are exercising in the heat, avoid salty food)
- If you would like, you can have your students do their own research to find ways to prevent dehydration.
- What is heat exhaustion? (a condition of physical weakness or collapse often accompanied by nausea, muscle cramps, and dizziness, that is caused by exposure to intense heat)
- What do you do when you are showing signs of heat exhaustion? (Find a shady or airconditioned place to rest, elevate legs and feet slightly, drink fluid with no caffeine- preferably water, cool yourself by spritzing water on face or fanning.)
- Student research optional.
- What is heat stroke? (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)
- Heat stroke is the most serious and has the same starting symptoms as heat exhaustion. Heat stroke is also accompanied by confusion, disorientation, seizures, and/or unconsciousness. 911 should be called immediately if someone is suspected of having heat stroke.
- What do all of these things have in common? They are consequences that can happen when an individual exercises in intense heat.

<https://www.youtube.com/watch?v=KFczOX4oui8>

This video explains what our bodies go through in extreme cold temperatures.
What are consequences for exercising in extreme cold? Shivering (not in video), frostbite, hypothermia. Shivering is usually the first sign of dangerous cold exposure. As the body is trying to generate it's own heat you will develop uncontrolled muscle contraction.
Frostbite describes the freezing of superficial tissues of the face, ears, fingers and toes.
What are warning signs of frostbite? Prickling feeling, numbness, blueish/greyish skin, hard skin, muscle stiffness.
Student research optional.
Hypothermia is a more severe response to cold exposure that is defined as a significant drop in body core temperature.
Warning signs of hypothermia? Lack of coordination, slurred speech/mumbling, low energy, confusion.
Student research optional.
How can we prevent any of these from happening? Dress in layers (so you can take off layers as needed), protect hands, head, feet, and ears, and stay hydrated!

Modifications:

- Bingo game is optional.
- Students may research each topic on their own or in partners.
- iPads are a good substitute for smartphones or computers.
- If a student needs it, they may partner up with another student during the Bingo game.

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II. Lesson Instructional Activities:

Below is an example of a BINGO card for a review activity if you choose.

Here are examples of the questions that can be asked. The answers to these questions are on the card.
(Not in order on the card.)

1. What is the condition of physical weakness or collapse caused by exposure to extreme heat?
2. What is the first sign of dangerous cold exposure?
3. How often should an individual drink water?
4. What are warning signs of frostbite?
5. What do you do if someone is showing signs of heat stroke?
6. What is a harmful reduction in the amount of water in the body?
7. Working out in which extreme causes a drop in blood pressure? Hot weather or cold weather?
8. What is caused by failure of the body's temperature-regulating mechanism when exposed to excessively high temperatures?
9. What is a more severe response to cold exposure that is defined as a significant drop in body core temperature?
10. According to the video, where on the human body is frostbite more prevalent?
11. Working out in which extreme causes your body heat to move to the center of your body? Hot weather or cold weather?
12. What describes the freezing of superficial tissues?
13. What kind of clothing is optimal in hot temperatures?
14. What kind of clothing is optimal for cold temperatures?
15. What is accompanied by heat stroke?
16. Where should you rest if showing signs of heat exhaustion?
17. What are some warning signs of hypothermia?
18. 65% of heat in the skin is lost through _____ during cold weather.
19. What is our body's built in adaptation to warmer weather?
20. What is our largest organ?
21. What is it called when our skin is damaged and cannot let sweat out properly?
22. Heat slows down the _____ making us feel tired.
23. What does an individual blood pressure do in hot weather?
24. What is the worst fluid to drink in hot weather?

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Source:

B	I	N	G	O
Shady or airconditioned place	Heat Exhaustion	Lightweight, light colors	Skin	Hot Weather
Cold Weather	Anything with caffeine	Radiation	Hypothermia	Always
Call 911	Fingers, toes, tip of nose	Free Space	Sweat	Layers
Heat Stroke	Sunburn	Prickling feeling, numbness, stiff muscles	Shivering	Central Nervous System
Slurred speech, low energy, confusion	Dehydration	Fever, confusion, and unconsciousness	Lowers	Frostbite

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These questions may be easy for your students but a hint of competition and games may be fun for some of your classes. You can add other questions/answers. And the answers will of course need to be shuffled to insure not everyone wins at the same time.

Prizes may also be awarded if you choose.

Assessment:

Assess based on classroom discussion and also paying attention to how the students are participating during Bingo review game.

Closure:

Check for understanding:

Name some ways we can stay safe exercising in hot weather.

What are some warning signs of heatstroke and heat exhaustion?

Why is sweating important?

What are some ways we can stay safe during the cold weather?

Which body parts do we need to be most aware of to protect against frostbite?

Why is it important to wear layers in cold weather?

It is important for students to understand these tips are easy to apply to their own lives and encourage them to share what they learned with their loved ones.