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Introduction to Winter Sports: Snowshoe Curriculum Outline

Curriculum Format

Dr. G. Linda Rikard, Ed.D. (George Mason University) authored this snowshoe instructional unit, which is based on information developed for Winter Fit and Winter Kids and conforms to educational standards outlined by the Virginia Department of Education.

Presented by
SnowSports Industries America (SIA)
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Winter Feels Good: Snowshoeing for Grades 1-10

Section I: Snowshoeing Sample Lesson Plans

Fitness principles and activities are included in every lesson along with brief review of muscles involved and reason for activity choice. Students should be able to set appropriate personal goals of time, distance and grade in learning and participating in this activity in and out of school. The use of pedometers is encouraged in lessons for student goal-setting and accountability.

Lesson Objectives

1. Students will learn the benefits of snowshoeing as a lifelong physical activity and as a contributing factor to increased cardiovascular endurance, flexibility and muscle endurance.

2. Students will perform basic and advanced snowshoeing skills and apply those skills in a variety of activities.

3. Students will apply safety rules and state the importance of hydration.

4. Students will register online to participate in The President's Challenge (www.presidentschallenge.org) as a means of tracking their daily physical activity levels in a variety of activities including snowshoeing in physical education.

Snowshoeing: Grades 1-3, 30 minutes

Day 1

- Equipment
    - Snowshoes for each student
    - Music
    - Indoor floor protection

- Introduction to unit
    - Overview of a novel activity (historical overview of utilitarian activity that has evolved to winter recreational activity)
    - Expectations (ease of acquisition of skills necessary to master sport, all ages/all abilities, lifetime sport for wellness, low impact/heart healthy, caloric consumption)
    - Safety rules: Balance, space awareness, use of crampons

- Warm-up routine
    - Agility: skiers' jumps, grapevine, tuck jumps
    - Flexibility: calf/Achilles stretch, toe touches, hurdler stretch
    - Other related cardiovascular and strength exercises

- Cognitive content
    - Identify parts of a snowshoe: binding, crampon, frame, decking
    - Demonstration of attaching snowshoes to boots

- Skills
    - Putting on snowshoes
    - Walking technique
    - Maintaining balance
    - Additional practice experiences used across lessons
        - Stopping and starting
        - Walk forward and avoid others
        - Walk with good balance at own pace
        - Follow a marked course while walking up an incline and descend
        - Walk clockwise and counterclockwise in general space
        - Travel to open spaces

- Assessment
    - Teacher observation/feedback
    - Students verbally identify balance and walking techniques
    - Check sheet for basic skills

Snowshoeing: Grades 1 – 3 (cont.)

- Check for understanding and balance skills
    - Teacher observation
    - Use of learning cues (Kathy Murphy will provide sample cues)
    - List of safety factors

Day 2

- Equipment
    - Snowshoes for each student
    - Indoor floor protection, soft outdoor surface (grass)

- Warm-up Activity (See Day 1 and Appendices)

- Skill review
    - Knowledge check
    - Each child puts on snowshoes alone or with a partner
    - Teacher/student demonstration
    - Describe balance for basic walking activities on snowshoes

- Skill practice
    - Walk at different speeds (break your own trail vs. follow the leader)
    - Walk while tossing and catching a small ball to self
    - Walk and hand tag with five classmates, change direction and tag with five others
    - Walk with a partner- lead and follow, side-by-side
    - Walk your name
    - Count your steps; plot out a distance with your steps; measure 'results' as a function of hiking a 'local' mountain effectively building geography into the experience

- Assessment
    - Teacher observation/feedback
    - Students using proper body control, balance and weight transfer
    - Agility, changes of direction

- Check for understanding and skill achievement
    - Ability to move put on shoes
    - Students verbally describe the different movement patterns used
    - Describe walking with snowshoes

Snowshoeing: Grades 1 – 3 (cont.)

Day 3

- Equipment needed
  - Snowshoes for each student
  - Suitable shoes or boots
  - Outside grassy area

- Warm-up Activities
  - Flexibility- side bends, sit and twist, knee to chest, groin stretch, hurdler stretch, back flexibility, cat and camel
  - Muscle strength –curl, right angle push-up, rope climb, pull-up
  - Aerobic – with or w/out snowshoes

- Skill review from Days 1 & 2

- Skill Practice
  - Increase and decrease speed while moving around objects
  - Stepping over low objects and moving under objects.
  - Take heart rate and record

- Assessment
  - Use puzzle maker to design written assignment on terms
    See www.makeworksheets.com and www.qualint.com

- Check for understanding
  - Students rehearse safety rules, benefits of snowshoeing and movement concepts that apply, e.g. levels, space awareness, direction and speed

Day 4

- Equipment
  - Snowshoes for each child
  - Objects used as obstacles

- Warm-up
  - Practice taking heart rates while walking alone or with a partner using simple locomotors activities with snowshoes

Snowshoeing: Grades 1 – 3 (cont.)

- Skill Practice
  - Small group games using throwing and catching skills, tag games or modified snowshoe volleying activities with balloons/nerf balls

  - Encourage students to improve fitness test scores for flexibility, muscle and cardiovascular endurance using snowshoe activities

- Assessment
  - In pairs, have students peer assess and provide cues on use of skills.

- Check for understanding
  - Teacher observation
  - Peer observation and assessment on two –three cues

Snowshoeing: Grades 4-6, 30 minute classes

Day 1

- Equipment
    - Snowshoes for each student
    - Grassy outside area
    - Cones for boundaries

- Warm-up (modify Instant activities found at www.pecentral.org)
    - run in place, stretches, agility activities
    - run/fast walk while following the leader

- Introduce snowshoeing as a lifelong, dynamic activity for the out-of-doors.
    - Describe how shoes are designed for mobility and safety
    - Demonstrate how to put on shoes

- Skill Development
    - Practice balancing and walking using different pathways
    - Change directions and modify speeds using good balance
    - In groups of 3-5 students, set up a walking trail outside with easy and more difficult parts
    - Use pedometers to monitor distance and time if available
    - Record in student portfolio if applicable

- Introduce, demonstrate and practice horizontal movements such as:
    - Striding
    - Stamping
    - Turning “kick or step”

- Application:
    - Walk on paths or trails using horizontal movements for 10 minutes.
    - State the name of each movement to a “buddy” as you perform
    - Try different movements and have your “buddy” identify them.

- Assessment/feedback
    - Constant focus on safety, skill development, increase in workload and fun

Snowshoeing: Grades 4-6 (cont)

- Check for understanding
  - Ask students to explain their trails and sketch them for their portfolio

Day 2

- Equipment
  - Pedometers
  - Cones, ropes & hoops to develop courses
  - Snowshoes
  - Snowshoe Poles

- Warm-up activity: Students enter the area, put on snowshoes and begin working on horizontal moves in different directions, using curved pathways and working with a partner – lead and follow. Increase and decrease speed.

- Safety
  - Body control for increasing speed
  - Space awareness

- Skill Development: Horizontal moves
  - Introduce terms: breaking trail & bushwhacking
  - Introduce the purpose and use of poles
  - Discuss the importance of hydration

- Activities
  - Students demonstrate horizontal moves
  - Student use volleying, throw and catch skills using snowshoes
  - Work on changing speed, direction and levels in general space

- Assessment/ feedback
  - Teacher observation – coordination of snowshoes and poles

- Out of school activities
  - Encourage students to initiate family trip to local parks or the Shenandoah mountains for hiking with and w/out snowshoes

Snowshoeing: Grades 4 – 6 (cont)

Day 3

- Equipment
    - Same as above
    - Heart rate monitors and/or pedometers if available
    - Create vertical slopes (Kathy Murphy will make suggestions)
    - Ropes, hoops and other useful objects

- Warm-up routine: Layout pathways with ropes and hoops for making pathways to follow in small groups

- Skills

    - Review all horizontal moves
    - Introduce vertical moves
        - Switch-backing
        - Side-stepping
        - Herringbone stepping
        - Jumping
        - Glissade

    Introduce:
    The President's Challenge Awards in snowshoeing (Section VII)

- Practice:
    - Students use skills on a course with different vertical challenges
    - Combine all horizontal skills with new vertical ones.

- Assessment:
    - Students self-assess in pairs based on cognitive and/or psychomotor material covered

Day 4

- Equipment
    - Snowshoes for each student
    - Poles
    - Grassy outdoor area

Snowshoeing: Grades 4 – 6 (cont)

- Warm-up activities
  - Apply skills used from simpler to more complex
  - Set goals with student for walking with snowshoe that are achieved in class

- Application tasks
  - In small groups, have students create games simple tag, throw-catch and volleying games that include snowshoeing skills. Share games in class and add to portfolio if applicable.

  - Check heart rate monitors and record results use pedometers to record steps during class activities or just take and record pulse by hand.

- Assessment
  - Teacher observation for increasing and decreasing the challenge of activities

- Out of school field trips
  - Take your parents/friends to the slopes

Snowshoeing: Grades 7-10 (50-90 minutes)

Day 1

- Equipment
    - Heart rate monitors
    - Pedometers
    - Frisbee (volleyball, whiffleball/bats, soccer ball)
    - Poles
    - Compass (geo cache concept)

- Pretest students on performance of basic skills listed in the 4-6 grade sections to determine what needs to be re-introduced.

    - Horizontal movements
    - Vertical movements

- Skill Development

    - Walking, fast walking and jogging in snowshoes based on skill and experience
    - Small group games in snowshoes – Frisbee, obstacle courses, trail adventures
    - Combine snowshoeing with use of poles
    - Introduce Orienteering using snowshoeing for advanced skill application
    - Introduce the concept and science of hydration

- After school/weekend excursions for snowshoeing
    - Combine camping and snowshoeing
    - Hike and snowshoe at nearby parks and Shenandoah Mountain
    - Backcountry snowshoeing/snowboarding

- Assessment
    - Determine student skill levels and interest in a “novel” activity

- Check for understanding
    - What needs to be introduced from beginning level to more advanced levels of skill?
    - What is the interest level of students?

Snowshoeing: Grades 7 – 10 (cont)

Day 2

- Equipment
    - Heart rate monitors
    - Pedometers
    - Frisbee (volleyball, whiffleball/bats, soccer ball)
    - Poles
    - Compass (geo cache concept)

- Review horizontal and vertical movements.

- Review and expand activities from previous lessons, add use of the compass and heart monitors as appropriate.

- Introduce The President's Challenge Awards (Section V)

    - Presidential Active Lifestyles Award
    - Presidential Champions Bronze Award
    - Presidential Champions Silver Award
    - Presidential Champions Gold Award

- Activity
    - Students sign on and learn to post participation scores on the President's Challenge website at www.presidentschallenge.org/earn_awards
    - Students begin earning points toward the Presidential Active Lifestyle Award as part of their physical education class
    - Practice snowshoeing on grassy areas with increased speed and change of direction.
    - Play modified snowshoe volleyball, whiffleball and soccer.

Day 3

- Equipment
    - Heart rate monitors
    - Pedometers
    - Frisbee (volleyball, whiffleball/bats, soccer ball)
    - Poles
    - Compass (geo cache concept)

Snowshoeing: Grades 7 – 10 (cont)

- Warm-Up
  - Have students develop a variety of travel patterns specific to snowshoeing.
  - Practice going over low obstacles and under obstacles.
  - Apply downhill and uphill walking experiences if possible.

- Activities
  - Pursue snowshoeing as an aerobic activity that involves continuous movement
  - Vary the terrain on outdoor trails and walking courses if possible
  - Have students work in pairs to vary the difficulty of snowshoeing
  - Discuss and demonstrate laws of motion and biomechanical principles of balance, production of force using levers, motion, pacing, torque and friction
  - Integrate activities with math, science, ecology, geography, history, and leadership skills

- Out of School activities
  - Field trips to parks and nearby resort areas
  - Gather specific information about snowshoeing by visiting an outdoor equipment store and interviewing an expert

- Assessment
  - Teacher observation and feedback
  - Varying the level of student challenge
  - Written test
  - Peer assess techniques, agility and balance when performing activities

- Check for understanding
  - During this unit, an important goal is to raise student interest about snowshoeing as a physical activity during winter months. Reiterate this activity option with your class.
  - Determine whether the activities are sufficiently challenging and that students are achieving an aerobic level of activity.
  - Give an assignment for their use of the President's Challenge. Awards website (Section V).

Snowshoeing: Grades 7 – 10 (cont)

Day 4

- Equipment
    - Snowshoes
    - Poles
    - Outdoor trails designated by spray paint

- Out of School experiences
    - Share outcome of field visits, what was learned and participation in activities
    - Plans for future outings and learning experiences
    - Ways to make snowshoeing a part of personal activity choices

- Activities
    - Snowshoe scavenger hunt
    - Have students set up stations of different distances that represent countries (or some other destination) and walk/jog to those stations.
    - Participate in a modified version of frisbee golf using snowshoes.

- Assessments
    - Require or encourage students to register for participation in The President's Challenge. They can use continuous snowshoeing time in their PE classes as part of the President's Challenge

- Check for understanding
    - Students discuss the valuing of learning and pursuing snowshoeing as a physical activity and how they might try this activity on snow during the upcoming winter months

References:

Get Fit! A Handbook for Youth Ages 6-17 (2001) The President's Challenge, PCPFS.

Instructional Services, Fairfax County Public Schools (2004) On the Move: A Roadmap to Fitness and Wellness

Tubbs Snowshoes Winter Fit Program, Tubbs Snowshoes, Stowe, VT

Winter Kids Outdoor Learning Curriculum (2nd ed.), (2003) ME: Portland

Section II. Snowshoeing Terminology

Binding
The part of a snowshoe that attaches to footwear. Bindings should control and stabilize the boot, and center the heel, to enable a comfortable, efficient stride in all types of terrain and snow conditions. A key feature of snowshoe bindings is adjustability and fit, as bindings should mold to the boot without creating pressure points.

Breaking Trail
The task of a lead snowshoer who steps or stomps through the snow to make a solid path or track for the others to follow. Breaking trail can be tiring, and typically burns about 50% more calories than following in the tracks of the lead snowshoer, therefore switching off the leader enables a rest period.

Bushwhacking
Snowshoeing through an uncut trail and bushes. May need to do this if following compass bearing

Bushwhack Course
A type of snowshoe course designed to be off-trail and to cut through untracked snow and bushes

Carrying surface
The surface area of a snowshoe; the larger the surface area, the more flotation and support for the snowshoer

Claw
Another name for crampon (see below)

Cleat
Another name for crampon (see below)

Crampon
Traction device that may be attached to a snowshoe's pivot rod to prevent slippage in steep terrain or icy conditions. Crampons are typically located under the ball of the foot and at the heel; as the snowshoer is centered on the snowshoe, the snowshoer's body weight fully 'engages' the crampon enabling the crampons on the underside of the snowshoe to penetrate the snow's surface for security throughout the stride, whether ascent, descent or side slope traverse.

Snowshoe Terminology (cont)

Decking
The solid piece of rubber-like material attached to the
Snowshoe frame that provides flotation for the snowshoer. Modern snowshoes are ‘decked’ vs. traditional wood frame snowshoes that are ‘laced’. On balance, a snowshoe that is ‘decked’ can be smaller in size yet provide comparable flotation to a larger laced snowshoe.

Flotation
The amount of loft provided by a snowshoe’s surface area. Two factors impact flotation; 1.) the amount of weight to be supported, body weight with gear, from poles and packs, to power bars and extra socks.; 2.) the second and more important factor to consider is the type of snow. Heavier, wetter snow, with a higher moisture content will support more weight. Conversely, lighter, drier snow supports much less weight. Therefore, the dryer the snow, the larger the snowshoe to support comparable snowshoe weights.

Glissade
A controlled slide, in either a standing or sitting position, used in descending a steep incline

Herringbone
A climbing method used for moderate slopes with toes pointing out and heels together; often used by snowshoers with traditional wood frame snowshoes with the absence of toe crampons. Today’s modern snowshoes, with toe and heel crampons, enable uphill climbing with toes and heels aligned to the ascent

Kick Turn
A simple snowshoe maneuver to turn around and go backwards in a direction when conditions prevent a semi-circle. To perform a kick turn: plant your poles firmly at your sides for balance. Lift one foot, turn it 180 degrees, and place it down. Make sure your foot is planted firmly and then shift your weight down. Your feet are facing opposite directions. Pick up your second foot and swing it all the way around so it is parallel to your first foot – and start walking in the new direction.

Snowshoe Terminology (cont)

Points
The sharp and sturdy spikes or teeth on a crampon or cleat used for traction, especially with climbing. Also called spikes. The depth and penetration of the crampon's points below the snowshoe frame is how traction is measured in a snowshoe. For steep ascents and descents, and variable snow conditions, longer, stronger teeth will maximize grip. In rolling terrain or packed trails, a lower profile 'tooth' optimizes efficiency and comfort at a walking pace.

Poles
Poles can be used to aid balance and enhance upper body strength and conditioning. Adding poles to snowshoeing increases metabolic rate and endurance.

Shoeing
The act of snowshoeing

Shuffle-step
Snowshoe running style in which you take weight off the snowshoe and shuffle it ahead. Used only on well-packed trails over moderately sloping terrain, this stride is best used for long-distance snowshoe runs or tramps

Side stepping
A climbing method used when slope is too steep for switch backing. The snowshoer side steps up the hill.

Snowshoe sliding
A downhill technique similar to a glissade, with the snowshoes acting as modified skis. The feet may take either a parallel or diagonal stance.

Stamping
A technique used to pack down the snow with snowshoes. Packing the snow down makes it easier for those who follow especially if heavy loads are being carried.

Striding
A walking technique that differs with type of snowshoe. The snowshoer must adopt a gait to avoid hitting snowshoes together

Switch backing
A technique used to climb steep terrain. Rather then climbing up the fall line, the snowshoer work up the slope in a zig-zag pattern. This is a common technique used for snowshoes without crampons.

Snowshoe Terminology (cont)

Toe Hole
The opening in the front of the decking that allows the forefoot to pivot through a complete range of motion.

Tracks
The marks of a snowshoe, or any winter animal or bird, in the snow created by the weight consolidating the snow and packing it down.

Turning
An exaggerated wide turn with the foot.

Webbing
The interwoven lacing that serves as the carrying surface for traditional snowshoes, usually made of rawhide or neoprene

Section III. Developmentally appropriate games and activities and numerous assessment examples.

Go to your 2002-2004 edition of On the Move: A Roadmap to Fitness and Wellness, Physical Education Program of Studies, Instructional Services, and Fairfax County Public Schools.

Additional Resources include the Tubbs' Winter Fit program and the Winter Kids Outdoor Recreation Curriculum

Section IV. Safety and Proper Dress

Weather – expect the unexpected as a rule of thumb. Weather conditions change quickly in the winter.

Hypothermia – When the body is no longer able to maintain a temperature of 98.6 degrees F. (Discussion of the five causes of cold – conduction, convection, radiation, evaporation, respiration)

The ABCs of Layering (see www.winterfeelsgood.com)

Staying warm and dry is the key to winter outdoor activity. Layering is important. Ideally your students should wear the following:

Wicking Layer:

- The layer next to the skin, usually thermal underwear. The purpose of this layer is to draw moisture away from the body.

Insulating Layer

- The middle layer includes sweaters, sweatshirts, vests and pullovers. The purpose of this layer is to keep heat in and cold out.

Protection Layer

- The exterior layer serves as the guard against the elements of winter. It should repel moisture from snow and rain, block the wind but let perspiration escape out.

Section V. The President's Challenge

The President's Challenge is the Physical Activity and Fitness Awards Program of the President's Challenge on Physical Fitness and Sports. It offers a variety of ways to earn presidential recognition for adopting and maintaining a physically active and fit lifestyle.

Student's can earn awards by combining snowshoeing and other snow sports with a variety of every day activities such as running, walking and general exercises. The program is easy to use and it is something that your students can do with their parents. Progress can be tracked on-line.

The President's Challenge Web site includes instructions on how an award can be earned and offers a list of activities including snowshoeing, snowboarding, cross country skiing and alpine skiing**. (See www.presidentschallenge.org)**

A. The Presidential Active Lifestyle Award

This award is recognizes those children and youth who meet their daily activity goal of 60 minutes a day, 5 days a week for 6 weeks, as part of the Active Lifestyle Award, participants will also receive five star stickers; each time they complete the program, they can apply one to their certificate.

B. Physical Fitness Awards

American children and youth have been earning Presidential Physical Fitness Awards (PPFA) for fitness since 1966. Students who reach or exceed the 85th percentile, meaning the top 15% of their age group, on all five items of the test are eligible to receive the PPFA for outstanding achievement. The PPFDA is a round blue badge embroidered with and eagle. (See www.presidentschallenge.org/awards)

Students who complete the PPFD and exceed the 50th percentile on all test items qualify for the National Physical Fitness Award (NPFA). The NPFA is a round red badge embroidered with an eagle.

Students who complete but do not exceed the 50th percentile on all test items qualify to receive the Participation Physical Fitness Award (PA). The PA is a round white badge embroidered with an eagle.

Earning any of these awards is a proud accomplishment. We encourage you to use these awards to educate and reward your students with emblems from the President's Challenge, a program of the President's Council on Physical Fitness and Sport, U.S. Department of Health and human Services.

President's Challenge and Snow Sports (cont)

In addition to a snow sports activity, each of the five items in the President's Challenge physical fitness test measures a specific aspect of fitness.

a. Curl-ups OR Partial Curl-ups

b. Endurance Run/Walk

c. Pull-ups OR Right angle push-ups

d. Shuttle Run

e. V-sit reach OR Sit and Reach

Section VI. Resources

A. Purchasing equipment for your program

Request information on discounts for schools through special programs.

Snowshoe Suppliers

Atlas Snow-Shoe Company
115 10th St
San Francisco, CA 94103
(415) 703-0414
www.atlassnowshoe

MSR
4000 1st Ave S
Seattle, WA, 98134-2301
(206) 505-9500
www.cascadedesigns.com

Redfeather Snowshoes
47054 Oakland Street
Denver, CO 80239-2741
(303)375-0410
www.redfeather.com

Tubbs Snowshoe Company
52 River Rd.
Stowe, VT. 05672-4614
(802) 253-7398
www.tubbssnowshoes.com

Retailer Resources

A complete listing of area retailers is available at www.winterfeelsgood.com in the Gear Up Section.

General Web site resources

1. www.winterfeelsgood.com
2. www.presidentschallenge.org
3. www.winterkids.org
4. www.snowschool.org
5. www.pecentral.org
6. www.nsidc.org/snow
7. www.lidsonkids.org
8. www.snowmonsters.com
9. www.cdc.gov/youth campaign

Vibrant and proactive, SnowSports Industries America (SIA) is the intelligent partner of the snow sports industry. SIA annually produces the SIA SnowSports Show, the largest industry trade show and networking environment, and delivers invaluable data, support and marketing products. Celebrating its 50th Anniversary, SIA serves as the national, not-for-profit, member-owned trade association representing snow and winter sports companies. For more information, check out www.thesnowtrade.org. SnowSports Industries America, 8377-B Greensboro Drive, McLean, VA 22102-3587. Phone: (703) 556-9020, Fax: (703) 821-8276, E-mail: siamail@thesnowtrade.org