



SKI UTAH
THE GREATEST SNOW ON EARTH_{TM}

School Fitness Program



PE Lesson Plans
Ready-to-Use

plus

A Fitness Award
that easily integrates with other
fitness challenges

**Promoting grade school
fitness and healthy lifestyles
through sport.**

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How the Program Works

Ski Utah has recently revised its fitness program to make it easier for teachers to integrate the information with their yearly PE curriculum. It encompasses *three training phases* and includes *sample lessons* that can be followed in their entirety, or simply used as reference. The *appendix* gives teachers additional ideas for creating lessons that work for them.

Periodization

The section on methods under “Program Design” clarifies the three phases of fitness; base training, building and peaking.



- Children should begin the school year in the *base* phase with 4-6 weeks of aerobic endurance and flexibility.
- *Build* fitness by adding muscular strength and endurance and more difficult aerobic workouts for another 4-6 weeks.
- *Peak* for skiing by spending 2-3 weeks on skill development, with at least 1-3 days of skiing specific drills. A ski teacher will help on one of those days.

This method of breaking fitness training into specific areas is called “periodization” and the philosophy is used in all sports.

Creating Your Own Lessons

Warm up: When putting together a lesson plan, always begin with several minutes of warm-up activity. The children should move with enough intensity to begin to break a sweat. Some light stretching is also appropriate, although a thorough stretching session is more effective at the end of the lesson.

Main activity: Next choose a “main activity” that offers 8-15 minutes of continuous large muscle activity. The amount of time you spend in this part of the lesson will depend upon the age and level of your students, but try to increase time as the children become more fit.

Cool down: Include a good stretching session during the cool-down.

Base Phase

At the beginning of the school year, and during the “base phase,” aerobic activity and flexibility will be the focal point of the fitness lessons. Traditional activities like walking and jogging as well as dance activities, “aerobics”, and one-on-one lead-up games (two to a ball keeps them moving for longer periods of time) work well here. Include flexibility training during the warm-up or after the main activity (or both).

Build Phase

As the year progresses and children become accustomed to continuous large muscle activity, increase the intensity by choosing activities and games that encourage students to move more quickly for shorter amounts of time. Give them brief rest periods between each bout of hard running or intense locomotor movement. Lead-up games in soccer and basketball generally fall into this category of exercise. In addition, add muscular strength and endurance exercises either after the warm-up or after a slightly shorter main activity period, and remember to stretch. This is the “build” phase of the program where students advance beyond basic fitness.

Peak Phase

As children reach the skill development phase or “peak phase” of the fitness program, their stamina and strength will allow them to perform the balance, agility and coordination drills (see appendix), which tend to be anaerobic in nature. Practicing sport related skills like kicking, dribbling, passing and shooting would also enhance general skill development in the above areas. The US Ski Team often plays soccer and basketball as part of their dry-land program. Ask the children who play organized soccer and football for drill and lead-up game ideas.

Integrating the Program Into PE

The appendix offers several lesson plans in each fitness phase but teachers and PE specialists are encouraged to create lessons that fit their curriculum.

For example, if the school has planned a soccer unit from mid-September until mid-October, a lesson in the base phase may look like this:

- 5-10 min. of walking or jogging for warm-up
- 8-12 min. of moderately paced dribbling and passing drills with a partner; when partners reach the end of the field they pick up the ball and jog back to the start and begin again without stopping until they hear the signal.
- 8-12 min. of “new skills”
- 5-10 min. of stretching and cool-down

If the children have at least two PE days, use one day for a traditional fitness lesson and then incorporate the lesson above on the second day.

A soccer lesson during the build phase may look like this:

- 5-10 min. of walking or jogging and stretching for warm-up
- 5 min. of fast paced partner drills
- 5-10 min. of a lead-up game
- 7-8 min. of resistance training
- 5 min. of stretching

A soccer or basketball lesson during the “peak phase” of fitness may look like this:

- 5 min. of easy jogging
- 10 min. of agility and coordination drills plus a couple of resistance exercises
- 10 min. of lead-up games
- 5 min. of stretching

To help put the entire year into perspective, consider that athletes often have two or even three “peak phases” throughout the year. That means that the “base” and “build” phases are also repeated, often after a brief rest period or a break from training. Consider repeating the “base phase” for a short time after Christmas and again after spring break before building and peaking in other sport areas.

Please be sure to contact the program director if you have any questions. Remember that Ski Utah is willing to provide fitness training if teachers are interested.

Suggested Fitness Time Line

Weeks 1 to 4

Base

*Weeks 1-4: Aerobic
Endurance
(Base Phase)*

- Walking
- Dance
- Jogging
- Aerobics
- Cycling
- Swimming
- Continuous Movement Games

Weeks 5 to 8

Build

*Weeks 5-8: Muscular
Strength and Endurance
and Advanced Aerobic
Endurance
(Build Phase)*

- Walking with fast paced ace-walk intervals
- Jogging with fast paced running intervals
- Movement games with fast paced intervals
- Soccer
- Basketball
- Hockey
- Lacrosse
- Football
- Advanced Aerobics
- Resistance Training
- Light Weight Training

Weeks 7 thur 10

Peak

*Weeks 7-10:
Skill Development
(Peak Phase)*

- Advanced Aerobic Training (see weeks 5-8)
- Resistance Training
- US Ski Team Agility and Coordination Drills
- Gymnastics



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School Fitness Program



Sample Lessons

Base Phase
Build Phase
Peak Phase



Sample Lesson 1

Content: Introduction to aerobic endurance and components of fitness; assessment of abilities (may wish to assess on another day).

Grades: 4-6

Lesson length: 25-30 min.

Objectives:

Students will demonstrate increased awareness in the area of aerobic endurance.

Students will demonstrate an understanding of the F.I.T. principle and target heart rate.

Instructor will have obtained knowledge concerning the level of development of the class with respect to lesson content.

Begin this class with a brief mini-lesson about aerobic endurance. Challenge the students with a few easy questions.

- Pretend that your fist is your heart. How fast does your heart beat while you sleep? While you run? While you ski?
- Do you know what a healthy heart is?
- How do we keep a heart healthy?

Note: Instructor should note the student's level of understanding. Now briefly discuss the F.I.T. principle and target heart rate (see appendix).

Instructional Activity

Check pulse rates (see appendix for instructions on taking exercise pulse) before exercise and, if available, put a heart rate monitor on one child. Observe beating heart. Note beats per minute (BPM). Ask children to follow you, or choose a leader, to see if BPM increase. Walk at a medium pace. Hop. Jump. Increase to 120-130 BPM. Stop briefly and observe heart rate or take pulse or partner's pulse. Now increase intensity and try to increase BPM to 150-180. Try to maintain heart rate for 2-4 minutes. Ask kids, "how long can you keep moving at the high end of your target heart rate before you get tired? Ask them to stand and stretch or sit quietly if they get tired.

Make sure that children understand that they should be concerned with their personal THR and time on task, and not others in the class. There will be different levels of fitness and that is "OK". The challenge is for them to improve how long they can exercise within the THR zone or improving their ability to exercise at a higher level within the zone.

The classroom teacher could also administer a three-minute step test (see appendix) or a timed run (see how far they can get in 12 min. and recheck in 4-6 weeks). You will need some kind of running course where children can count laps to see how many they can do in 12 min. It would probably be best to do this activity during another class period.

Sample Lesson 2

Content: Aerobic endurance; flexibility; review body awareness and spatial awareness skills if necessary

Grades: 4-6

Lesson length: 25-30 min

Objectives:

Students will demonstrate an increase in ability to sustain aerobic activity.

Students will show an increase in ability to perform exercises designed to increase flexibility.

Students will show an understanding of body awareness and spatial awareness skills as they relate to skiing.

Warm-up: 5-10 min of light jogging or walking; teacher leads stretching

Aerobic Endurance Activity

Use games like “Muscle Simon Says” for body awareness review. Adjust for difficulty in each grade. Grades 4-6 should also be able to name some of the muscles associated with skiing (quadriceps, hamstrings, gastrocnemius, glutes) in addition to big toe/little toe side of foot, arches, ankles, heels, hips, knees etc. (see video). Drills could also be combined with a game like slow, medium, fast. On signal to stop, students perform body and locomotor movement with heel, arches, big toe side of the foot, little toe side of the foot etc.

Children may need work with spatial awareness also. Be sure they understand pathways and shapes etc. before giving them more complicated drills. A simple follow the leader will work initially. Then, with a partner, make the following shapes: circle, triangle (symmetrical and asymmetrical), lines, curves, twisted paths. Follow partner first and then mirror partner.

Spatial Awareness Game

Move on whistle and within preset boundaries (use cones) without touching anyone; make zigzag paths, twisted paths, straight lines and curves. Start slowly and then increase pace. To further increase difficulty, decrease the size of the playing area by moving boundary markers in. Relate pathways to skiing on the slope and the safety code that states that each skier must watch out for the person in front of him.

Aerobic Activity (8-15 minutes)

If the children haven't had enough aerobic activity by this time, try continuous movement drills (see appendix). Or choose another aerobic game from the appendix. During non-locomotor time, perform various stretches.

Cool down: instructor leads class in flexibility exercises being sure to cover those specifically designed for skiing. Instructor should give instruction for proper static stretching techniques. Class can also test flexibility on sit and reach test designed for children.

Sample Lesson 3

Content: aerobic endurance—concept of paced aerobic activity vs. intervals; flexibility

Grades: 4-6

Lesson length: 25-30 min

Objectives:

Students will show an increase in knowledge about pace and its relationship to exercise.

Students will show an increase in ability to perform exercises designed to increase flexibility

Warm-up: 5-10 min. of light activity such as walking or an easy aerobic game plus stretching

Aerobic Activity

Set up a measured course outside on playground or inside school; have students choose a jog/walk partner and see how far they can go in 9 min. Students should count laps and then figure distance at end. Emphasize pace to children. They must last for 9 min. Check pulse at end (gather all children at end of 9 min. even if they are in the middle of a lap, and measure pulse). Be sure that children are allowed to perform the activity at their level and stress that this is not a contest or a race. They are looking for personal improvement only.

Or, simply time the children and have them try to keep moving at a moderate pace for 8-10 minutes without stopping.

Also, if you have a pulse rate monitor, have a different child wear it each week (ask around - runners often have their own pulse monitors although the strap will need major adjustment for a 9-10 yr. old).

Note: Children do not pace themselves well; they either go a million miles per hour or they stop. It may take a few practice minutes before the actual 9-min. trial and even then they will need coaching. The goal is to for them to find the intensity that allows them to last for 9 min. As they get better, they will be able to last 9 min. at a higher intensity (or if you are measuring laps or distance, they will go farther in 9 min.).

Cool-down: Stretch and bend with class as a group; teacher leads exercises.

Sample Lesson 4

Content: advanced aerobic endurance and muscular strength and endurance

Grades: 4-6

Lesson length: 25-30 min.

Objectives:

Students will continue to show an increase in knowledge about pace and its relationship to exercise.

Students will demonstrate an increase in ability to perform activities designed to enhance strength.

Warm-up: 5-10 minutes; use easy walking/jogging or light aerobic games and some light stretching.

Strength

Initially, strength should be introduced in small doses of 8-12 min. or about 25% of the class time. It is best to combine a few strength activities with an aerobic endurance activity and a flexibility activity.

Use partner resistance exercises. Perform one to two sets of 10-15 repetitions for each exercise. Begin with one set and progress to two as strength increases (see video and appendix).

Exercise	Muscle Group
Arm curl:	biceps and triceps.
Fist pull apart:	shoulders
Leg stretcher:	abductors and adductors.
Knee curl:	hamstrings.
Leg extensions:	quadriceps
Back stretcher:	back.
Curl-ups:	abdominals.

These resistance exercises could also be used as part of a circuit or performed between bouts of aerobic activity.

For more muscular strength and endurance activities, look in the appendix.

Aerobic Activity

Instructor can use a variety of fitness games during this session such as, hexagon hustle, parachute play, continuous movement drills. Strength training can be done after a continuous 8-10 minutes of aerobic endurance or during intervals between shorter, more

intense aerobic endurance activity. The hexagon hustle works well for that. Resistance exercises can be performed on the instructor's signal.

Cool down: group stretch session with instructor or student leading.



Hexagon Hustle

A large hexagon is formed using six cones. Students move around the hexagon, changing movement patterns every time they reach one of six points. On teacher's command, the "hustle" stops and selected exercises are performed.

Posters should be placed at each cone to inform children of the new movement to be performed.

Change direction of hustle after every exercise segment. Faster children should pass on the outside.

Sample Lesson 5

Content: advanced aerobic endurance, anerobic endurance, and muscular strength and endurance

Grades: 4-6

Lesson Length: 25-30 min.

Objectives:

Students will demonstrate an understanding of the term interval training

Students will demonstrate increased ability to sustain faster paced aerobic activity

Warm-up: 5-10 minutes; see appendix for warm-up activities

Aerobic Endurance Activity (advanced)

Explain the term interval training; teach children how to properly use a stopwatch and discuss what it means to cooperate in a group.

You will need 8 cones and 4 stopwatches or watches with a stopwatch feature (any sports watch). Divide the children into four groups. Each group has its own set of cones designating a lane or area to run in, and a stopwatch. Each group lines up at the end of their running lane (about 40 yards long, depending upon fitness levels of the children). On your signal to begin, each group runs down their lane to the finish. One child carries the stopwatch and keeps track of the elapsed time. After everyone in the group has reached the finish line, the stopwatch is stopped and reset and the group rests for a period equal to the running time. After the rest period the children run back in the other direction.

Start with five intervals. Group the children according to ability so that they can stay relatively close together. Always alternate the directions of runners in adjacent lanes so that the activity does not look like a relay race. Each group should work at their own pace.

You can also do this activity without using a watch. Rest time is based on recovery heart rate (at least 21-22 beats per 10 sec.). Children run back as soon as everyone reaches recovery heart rate. Children must be good at taking pulse or use heart monitors.

Strength

After the interval activity, have students perform basic core strength exercises. These should include some or all of the following: stomach crunchies, curl-ups, bear walks, ball push-ups, crab push-ups, leg squats, standing long jumps. Be sure to do at least one stomach exercise, one upper body and one lower body.

Cool-down and Stretch

Sample Lesson 6

Content: motor skill development drills, exercises and games to enhance balance agility and coordination

Objectives:

Students will demonstrate an increased ability to perform exercises designed to enhance motor skills as they relate to sport.

Warm-up: See appendix for warm-up games; use easy jogging in place or simply work with drills and exercises that gradually increase in intensity.

Activity

Note: although these drills and exercises are designed to develop skill, most of them will also require good aerobic endurance and strength. Therefore, students with a solid fitness base will enjoy these activities much more.

Organize group in a circle or squads so there is ample room to move safely. Challenge the children for time, distance or number of repetitions, but make intervals relatively short, at least initially, so that they do not get overly tired or hurt, or bored. Make it fun!

Start with simple exercises like “karate kid”, heel-toe rollers and a few balance squats; progress to backwards running, grapevine, skier’s jumps, lateral leaps and tuck jumps. Play downhill racer (see appendix).

Use a 1:1 or 2:1 work/rest interval. In other words, the rest interval should be at least as long as the drill and on very difficult ones, double the drill time. For example, have class perform tuck jumps for 15 sec., and then rest for 30 sec. Use rest periods for light stretching or explaining the next task. Try to alternate running or balance drills with jumping drills.

Play a short aerobic game after 8-12 min. of skill work.

Cool-down

Stretch: Since drills are often high intensity and require strength, be sure to allow ample time to stretch.

Note: ski specialists will do a lesson similar to this one, but will also add ski specific dry-land exercises, instruction on balanced stance, a brief session on equipment and possibly a question/answer period. If any of your teachers or parents are skiers, Ski Utah will be glad to train them to teach dry-land ski specific drills like wedge, sidestep, herringbone and dry-land slalom etc. Then the ski instructor can review or perhaps organize a circuit course that might be more fun and interesting for the children. Please call if a parent or teacher has an interest in learning some of the basics of ski teaching, or check Ski Utah information for an organized “learn to coach” session.

Sample Lesson 7

Content: motor skill development, aerobic endurance and strength

Objectives:

Students will show continuing ability to engage in sustained activity.

Students will show continuing ability to engage in activities designed to enhance strength.

Students will show continuing ability to engage in activities designed to enhance motor skills as they relate to sport.

Warm-up: Explain and demonstrate the activity. Review drills when necessary by having children briefly practice each station in a group setting.

Activity

Circuit training is a method that uses a number of different exercises at assigned stations. The stations are designed so that children move in a sequence in a clockwise or counterclockwise manner. Circuit training allows you to mix exercises of different intensities or areas of fitness. You can control intensity by changing the allotted time on task or add aerobic endurance by requiring a lap around the circuit before moving to the next station. Be sure to explain this thoroughly and even have children repeat it so there is no confusion if you decide to do this.

Here are a few hints for a successful circuit:

- Station cards can be made with construction paper, magic markers and tape.
- Use any combination of strength, flexibility, agility, balance, coordination, and ski specific exercises from all three fitness phases for circuit stations.
- Offer three levels of the drill or exercise at each station so that the activity is “inclusive.”
- Encourage children to exercise at their own pace.
- Have children do one lap of any locomotor activity (skipping, hopping, and sliding, running etc.) before advancing to the next station.
- Have enough stations so that no more than five children occupy any one station, and preferably, only two or three to a station.
- Remind them to allow ample room between themselves when exercising at each station.
- You may want a whistle or music for signaling station changes.

Note: Some tasks like trying on a ski boot or ski are too slow for a circuit. Review this in cool-down and let only those who have never worn a ski boot try one on. Have children who ski bring their boots and possibly a ski to school so that those who have never skied can try them on. Let the “skiers” help with instructing their peers. This is especially important at schools where equipment is picked up at the ski area.

Here are a few circuit training variations:

- Allow children to choose which station they want to go to next. It will seem a bit chaotic at first, but it will work if you limit the number of children at each station.
- Number stations randomly instead of moving children in a circle. Have them perform a locomotor movement around the area until they find the next numbered station in the sequence.
- Use stations as an obstacle course at the end of class. Send children through one at a time, spacing them 15-30 seconds apart.



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Appendix

Games

Basic Principles of Fitness
Junior and Middle School
Program Design



Games

Games are grouped according to their emphasis on cardiorespiratory or strength conditioning.

Cardiorespiratory Games: The following games emphasize aerobic fitness.



Figure Eight Fitness

This game is perfect for the first lessons in the aerobic phase of training. Have children monitor their pulse every 3-5 minutes.

Equipment: 8 cones; music

Formation: Cones in large figure eight

Rules: Children move in single file around the cones while performing the locomotor movements that you call out, such as skip, hop, gallop, crab walk, bear walk, race walk, run, slide and jump. Encourage the students to keep moving throughout the entire activity to maintain their target heart rates. Start the music at the beginning of the activity. Students should immediately stop (but remain standing) and find their pulse when music stops. Take a 10 sec. count. Note: jumping and leaping activities will also improve strength.



Cross-Country Run

This activity would be great for a sustained 9-10 min. run. It could also improve muscular strength and endurance depending on what type of activities you put into the course.

Equipment: Instruction sheet

Formation: Students gathered near instructor

Rules: Give each student a sheet of instructions with a description of a cross-country run on it; for example:

1. Jog across the soccer field.
2. Jog to the furthest goal.
3. Jump and touch the goal post three times.
4. Jog to the basketball hoop.
5. Jog to the baseball field and run the bases.
6. Jog to the playground.
7. Jog back to your teacher.

8. Start again and run the course as many times as you can until your teacher says stop.

Students can do the run individually or with a partner whose fitness level is close to theirs. Also, when you write your own cross-country course, use the outdoor facilities and equipment available to you.



Four Corners

This game works as a warm up or for aerobic activity at the beginning of the base phase.

Equipment: 4 movement task signs to be placed in each corner of the gym; music optional for motivation

Formation: students in 4 groups, one at each corner

Rules: Students perform the first movement on their signs while traveling to the next corner, where they begin the first movement on that sign, and so on, as they progress from corner to corner. When they return to their starting corner, they begin the second movement listed and continue working their way through the lists around the gym, until they have completed all the tasks. Task signs should have 4-5 movements on each card.



Fun Partner Relays

This is another good warm up or early base phase game.

Equipment: None

Formation: Students paired, one behind the other, in double line along one side of the gym.

Rules: Those in the front lines choose exercise movements and perform them across the gym and back. Those in the second line copy their partners movements. For example, a student might gallop to the center line, do 5 mountain climbers (push-up position with one leg extended and one pulled up to chest, quickly alternate legs), and then gallop to the other side; or skip to the center line, roll once, and skip to the other side; or run to the center line, leap once, and run to the other side. Have partners take turns making up and copying each others movements patterns. Challenge older students to invent more difficult moves.

**Repeat Relays**

This game involves short quick intervals and is a good activity for the “build phase of training” (higher intensity aerobic training and muscular strength and endurance) when children have a good aerobic base.

Equipment: None

Formation: Students paired, on opposite sides of the gym facing each other

Rules: Call out movement tasks for partners to do. For example, at your call, High Fives, Partner A runs over to Partner B and gives a high five, and then runs back. Partner B then repeats this. The variety of movement tasks is unlimited, and you should be able to cue most with one or two words. For example, Leap Frog: A runs over to B, steps or jumps over B who is curled in a ball and then runs back; B repeats.

**Slow - Medium - Fast**

This is an easy game that keeps students moving and is a good one to help introduce the concept of aerobic fitness and pacing.

Equipment: None

Formation: Students should spread out over the gym or playing field.

Rules: On one whistle, the children move at slow pace; on two whistles they move at medium pace and on three, the children move at a fast pace. You will have to coach them. Often, the children start out at a pretty fast pace on one whistle. To make the game more interesting, change the form of locomotor activity in addition to the speed. Try skipping, hopping, jumping, galloping, sliding, backwards running etc. Use your imagination.

**Continuous Movement Drills**

This game is actually a variation of Slow - Medium - Fast. However, it can also be used to perform various strength drills within an aerobic workout.

Equipment: None

Formation: Students should form a circle. Use a circle on the floor if possible. Slower children can be moved to the inner part of the circle so that faster children can pass them on the outside.

Rules: The class is instructed to walk in a circle, always maintaining a safe distance between their classmates. Throughout the game, the teacher will change the locomotor movements, direction of movement, and frequently stop the class to perform selected exercises (see strength and balance exercises).



Aerobic Task Card

Another good aerobic game for continuous movement as well as some muscular strength and endurance.

Equipment: music; 8-15 aerobic task cards and cones.

Organization: Place children in small groups of two or three or have them perform individually. Give each group or individual a task card. Set up cones in an oval in the center of the area (50-75 feet long and 30-40 feet wide), or use lines on the floor. When the music begins, the students perform in order the activities listed on their task cards. When they finish, they return the card to you and if time permits, they choose another one.

Making Task Cards: Select agility drills, locomotor movements, and various strength and balance exercises for the task cards. End each card with a slow activity like walking. Vary the order of exercises so that each group is working on a different one, and select music that is 144-150 beats per minute. Although many children will not perform the exercises to the beat, it will keep them motivated. Look in the appendix for explanations of many of the drills and exercises.

Sample Task Cards:

- Jog 2 laps around the cones
- Do 12 knee slaps
- Skip 1 lap around the cones.
- Do 10 jumping jacks
- Do 20 downhill skiers
- Gallop 2 laps around the cones
- Do 8 leg kicks
- Jog 3 laps around the cones.
- Do 18 stride jumps
- Walk 2 laps around the cones.



Distance Running and Walking

Discuss duration and intensity as they relate to distance running (pacing), and if necessary, review graphing skills. This is great activity for the base phase of training as well as the build and peak phases. Simply adjust intensity to fit area of training. Also, children should use this course at least twice per week all year. Have them use it at lunch and recess when other units are being taught in PE.

Equipment: cones (unless you have a permanent run/walk course at school); graph paper and colored pencils or markers.

Organization: Determine a running course around the grounds preferably $\frac{1}{8}$ to $\frac{1}{4}$ mile. Scatter the children around the course and have them run or walk around it at their own pace for the time you have allotted. Start with 4-6 minutes and progress to 10-12 as children improve their aerobic endurance. The children keep track of the number of laps they complete around the course and fill in their graphs.

Teaching Hints: Let children move in small groups and talk with each other. Give children rubber bands to help keep track of laps, although this is more difficult if they all start in different places. (Starting in different places helps keep slower children less obvious). Use the graphs to track individual fitness. Do not post them as it may embarrass some children and encourage others to be dishonest about their laps.

Strength Games: The following games emphasize muscular strength.



Garbage Aerobics

This game could be used for strength training days when you wish to incorporate both aerobic and muscular strength and endurance activities.

Equipment: 1 grocery bag and 10 scrap paper balls per student; exercise poster; music optional

Formation: personal space with bags in front of them

Rules: Students do the exercise task listed on the poster and collect a paper ball for each completed exercise task. They work their way through the list until all the garbage is gone and then count the number of pieces each collected.

The exercise list might include 20 jumping jacks, 10 knee push ups, 10 ball push ups, 10 stomach crunchies, etc. For variation and a little more aerobic work, have students jog once around the gym after each completed task.



Strength Challenge

Be sure that students have warmed up for a few minutes first.

Equipment: several mats; 2-4 stopwatches (many of the children will have a watch with a stopwatch mode, or use the second hand on the clock); 1 score sheet and pencil for each student; climbing rope and chin-up bar if possible.

Formation: 1 station for each exercise you have chosen to include; examples include stomach crunchies; push-ups; vertical jump; standing broad jump; crab walk; pull-ups; rope climb, and even some of the partner resistance exercises.

Rules: Students should work in pairs and go to every station. Explain each station and the scoring (see exercises for points) and give each student a Strength Challenge score sheet that you have designed.

Push-Ups

Each push-up completed earns one point. Students have 30 seconds (1 minute for older or more fit children) to do as many push-ups as possible. Have partners time each other.

Stomach Crunchies

Every third repetition earns one point. Students have one minute to complete as many as possible. (Note: crunchies are actually curl-ups and are a much better exercise for stomach strength than sit-ups. Have children lie on back with knees up and feet flat on the floor. Then have them cross arms over their chest. They should curl about halfway up, or until shoulder blades and upper back are off the floor.) Students time each other.

Vertical Jump

On a strip on masking tape stuck to the wall, mark off a baseline about 4 feet above the floor and each inch above that to 6-8 ft. From a standing position, students jump up and touch the tape. The number of inches touched above the baseline equals the number of points earned. Let students have unlimited attempts.

Standing Broad Jump

Mark off sections on a strip of tape on a mat to designate points earned. From a standing position, students push off with both feet.

The longer the jump, the greater the number of points earned. Be sure the mat is secure!

Pull-Ups

If you do not have a chin-up bar, use playground equipment or do partner pull-ups (see appendix). Each repetition earns 2 points. Arms should be fully extended on the down phase of the pull-up. No time limit.

Rope Climb

Section the rope off into thirds with pieces of tape. Each section climbed is worth 1 point. Touch the ceiling and earn 4 points. Be sure there are mats or a crash pad and adult spotter below.



Partner Resistance Exercises

(Examples found in appendix under “Principles of Strength Training”.)

Have the children perform as many repetitions as possible in 30 seconds to 1 minute. Use leg curls and leg extensions; biceps and triceps curls could be done with surgical tubing.



Muscle Simon Says

This is also a great activity to teach older children about the muscles used in skiing.

Equipment: 4 cones; 5 jump ropes; exercise list

Formation: Personal space facing the instructor; cones section off an exercise area or gym; jump ropes and exercise list in the gym.

Rules: The activity is played just like the traditional Simon Says. If you begin an activity with the words Simon Says, the students touch the muscle or body part you called out. If they touch a muscle without you first saying Simon Says, they must go to the gym and do one exercise from the list (push-ups, curl-ups, mountain climbers). Then they may return. Commands you may use are limitless; for example, Simon says touch your hamstring; Simon says touch the muscle that extends your ankle (calf); Simon says touch the muscle that straightens your leg (quadriceps). Add aerobic activity like jogging in place or ski strength and balance exercises. Use your imagination. For variation, let a student be Simon.



Grass Drills

Here is a good continuous movement game for outdoors. It essentially incorporates interval training.

Equipment: Whistle

Organization: Divide children into groups of three and scatter the groups around the area. Each group begins by jogging around the area in a single-file line. On a signal (whistle), the child at the end of the line drops and touches his or her stomach to the ground. The other two members of the group continue jogging and the “dropper” jumps up and quickly runs to the front of the line. On the next signal, the next child at the end of the line drops to the ground. Continue the activity until each group member has several opportunities to drop to the ground.

Teaching Hints: Remind the groups to jog at one continuous pace so that the child who dropped to the ground does not have a difficult time catching up. For variety, have the child who dropped to the ground run to the front of a different group.



Exercise Task Cards

This is essentially the same as the aerobic task card game except that the task cards include exercises designed to increase muscular strength and endurance.



Downhill Race

This is a very intense game and good for general leg strength.

Equipment: none

Organization: Have children get into a ski racer’s tuck with arms in front holding imaginary poles. Then lead the group through a series of turns, jumps, steep drops, etc., simulating a downhill race. Let a student lead a second series of jumps and turns.

Games taken from Fitness Fun by Emily R. Foster, Karyn Hartinger and Katherine A. Smith, and Fitness For Children by Curt Hinson. For more advanced games, see Alpine Skiing: Conditioning Skills by Ellen Post Foster.

Principles of Fitness

I. Principles Of Aerobic Fitness—FIT Principle

Frequency: how many; 3 days per week are minimum; 4-5 are better; have children do 1-2 workouts on their own and keep an exercise diary.

Intensity: how hard; within your target heart rate zone (see formula below)

Time: duration; 8-15 minutes at target heart rate; with children just learning about fitness, 8 minutes is a good place to start

How to find your target heart rate (THR) zone—a basic formula

$220 - \text{age} = \text{maximum heart rate}$

$\text{Max heart rate} \times .50 - .90 = \text{target heart rate zone}$

The target heart rate range of 50-90% is huge. Target heart rate is actually divided into several different levels, with each level or zone representing a different type of training.

Children who are less fit will need to exercise at 50-60% of maximum heart rate for the purpose of building general endurance. Fit children can exercise at 60-70% for general endurance. Optimal aerobic training takes place at 70-80%, but it is best to work up to this level with children who have not had much aerobic training. At 80-90%, the body generally reaches the anaerobic threshold and it begins working without oxygen. The buildup of lactic acid prevents the body from working at this level for too long. However, it is possible to raise the threshold, thus allowing the body to go faster for longer periods of time.

Interval training usually takes place at 80-90% of maximum heart rate. The next zone (90-100%) should be reserved for experienced athletes only.

II. How To Take Your Pulse

Use only your first two fingers and take your pulse on the thumb side of your wrist or in your neck (start behind the ear and slide two fingers down the jaw-line until you feel the carotid artery). Press lightly and begin your count with 0.

To take your resting pulse, count for 30 seconds and multiply by two.

To find an exercise pulse, stop for a few seconds, find your pulse and take it for a 10 second count. If you multiply that number by six, you will get the beats per minute.

These directions were also covered in the video, but it does take practice. Have the children take their pulse often during the first two weeks.

III. Modified Step Test

One way to determine the level of aerobic fitness of your students is to administer a step test. You can also use it as a baseline figure to check for improvement.

Objective: To complete 3 minutes of stepping at 24 steps per minute.

Directions:

1. Find a stopwatch.
2. At the signal to begin, step up (start with either foot) on a stair or bench that is 8 inches from ground level and then step down again. Continue stepping up and down, alternating feet, for three consecutive minutes at a rate of 24 steps per minute - about two steps every five seconds. (A metronome can help you maintain rhythm.)
3. Stop at exactly three minutes and immediately sit down.
4. At exactly one minute after you complete the test, count your pulse for thirty seconds and multiply by two to obtain your one-minute pulse recovery score.
5. Determine the rating for your score by consulting the table Heart Beats Per Minute.

Note: Stage stairs in elementary schools will work for a step.

Table: Heart Beats Per Minute

Age	Very high	High	Moderate	Low	Very low
Female					
10-19	Below 82	82-90	92-96	98-102	Above 102
20-29	Below 82	82-86	88-92	94-98	Above 98
30-39	Below 82	82-88	90-94	96-98	Above 98
40-49	Below 82	82-86	88-96	98-102	Above 102
Over 50	Below 86	86-92	94-98	100-104	Above 104
Male					
10-19	Below 72	72-76	78-82	84-88	Above 88
20-29	Below 72	72-78	80-84	86-92	Above 92
30-39	Below 76	76-80	82-86	88-92	Above 92
40-49	Below 78	78-82	84-88	90-94	Above 94
Over 50	Below 80	80-84	86-90	92-96	Above 96

IV. Principles Of Strength Training.

Many experts do not advocate weight training until a child reaches puberty, although light weights with high repetitions are usually not a problem. However, basic strength exercises using ones own body, a partner, or surgical tubing for resistance will certainly help improve muscular strength and endurance at the elementary and junior high school level.

Strength exercises should be done at least two times per week for best results. Always leave at least one day between specific strength exercises, so the schedule for strength training might be Tues./Thurs., or Mon./Wed., or even Mon./Fri.

In addition, many of the games and ski activities used will also enhance muscular strength and endurance as well as aerobic fitness. Here are a few definitions and exercises to help you understand strength training.

Repetitions or reps: the number of times an exercise is repeated; on most exercises, begin with 10-15 reps or simply do them for an allotted time like 30 seconds.

Set: a group of repetitions of the same exercise.

Resistance: the weight the exerciser is moving i.e. your own body weight as in push-ups, or the resistance of a piece of surgical tubing or even a partner.

Overload principle: a system of giving the body greater work loads than it is accustomed to in order to increase strength. *In our case, we do not increase the weight or resistance. Rather, we will increase the reps and/or sets in order to induce overload.*

Exercise List

Stomach Crunchies

Lie on the floor or a mat with knees bent and feet flat on the floor. Cross your arms over your chest, tighten or flatten your stomach and curl-up until your shoulder blades are off the floor and then lower yourself back to the starting position.

Do not hook your feet under anything or have someone hold them down. If you do, you will also be working your back muscles as opposed to isolating your stomach muscles.

Push-ups

Start from modified knee position before progressing to full push-up. Keep back flat.

Pull-ups

Underhand and overhand grips work slightly different muscles. Lower body until arms are straight.

Crab walk

Works both upper and lower body. Walk forwards and backwards on all fours, stomach facing up.

Squat Thrust

Works trunk and abdominal region; start in standing position; drop to squat with hands flat on the floor about shoulder width apart (count 1); fully extend legs back, keeping them together (count 2); pull legs to squat position (count 3); return to start (count 4).

Arm Circles

Works shoulder area; do forward and backward circles.

Mountain Climbers

Works whole body; start in full push-up position with one leg pulled up to chest and one leg fully extended; quickly alternate legs.

Ski Specific Exercises

Lateral leaps, skiers jumps, grapevine or cariocas, stork stands or Karate Kid, one legged squats, and heel-toe rollers all enhance leg strength, balance, agility and coordination (see video).

Partner Resistance Exercises**Pull-ups**

One partner stands erect, feet shoulder width apart and arms extended towards the floor. The other child lies on back underneath the person standing and grasps the partners hands. Keeping the body rigid and using only arms, the partner on the floor pulls up approximately 12-18 inches.

Arm Curls biceps and triceps

Exerciser keeps hands open with palms up, arms bent at elbows, keeping upper arms bent at sides. Partner places fist in exercisers palms. Exerciser tries to curl forearms upwards to the shoulders. To work opposite set of muscles, push down in opposite direction, starting at shoulder level.

Fist Pull-apart chest muscle

Exerciser places fists together in front of chest, and attempts to pull the hands apart while partner forces them together.

Leg Stretcher abductors (outer thigh) and adductors (inner thigh)

Can be done with both partners sitting facing each other (see video) or one standing and one lying. Exerciser places legs on inside of partners and tries to spread legs while partner resists. Switch to legs on outside. Hold each rep for 6-8 counts and repeat 3-5 times.

Knee Curls hamstrings or back of legs

Exerciser lies on stomach with legs straight, arms extended or under chin. Partner places hands on the back of the exercisers ankles and exerciser attempts to bend leg at the knee joint.

Knee or Leg Extensions quadriceps or front of legs

Exerciser can sit in a chair (see video) or perform exercise from same position as knee curls. Begin with knee at 90 degree angle and extend leg to straight but not locked position as partner resists.

Partner resistance exercises taken from Fitness in the Elementary Schools by Robert P. Pangrazi and Douglas N. Hastad.

Muscles to remember (see video):

- Quadriceps: front of thigh; straightens the leg
- Hamstrings: back of thigh; bends the leg
- Biceps: front of upper arm; bends the arm
- Triceps: back of upper arm; straightens the arm
- Gastrocnemius: calf; extends ankle
- Gluteal: butt or bottom; extends hip
- Deltoids: top of shoulders; moves arm up, forward and back
- Trapezius: back of neck and shoulders; raises shoulders (the I don't know muscle)

Circuit Training

Circuit training can be used in any phase of training by simple manipulating the exercises and drills. By adding a lap of locomotor activity between stations and keeping the children moving at all times, they can get an aerobic endurance workout.

Equipment: Music; 12 circuit training cards; 12 cones

Organization: Place cones, with the cards on them, in an oval or circle around the perimeter of the PE area. Place two or three children at each cone. When you begin the music, the children perform the exercise written on the card at their station. On a signal (stop in the music or whistle), children move one station counterclockwise and begin the next exercise immediately. Continue until children have completed all stations. For a variation, complete one lap of locomotor movement between each station. For circuit training card ideas, see appendix task card and circuit exercises.

V. Flexibility

Flexibility training should be done every day after exercising. You may stretch lightly before the workout, but the most important stretching session will be afterwards when muscles are warm. Most of the improvement in flexibility takes place at this time.

Children are generally pretty flexible, but it is important that they understand the concept and that flexibility training is an important part of fitness.

Always stretch slowly to a count of 10-30 seconds. You should feel tension but not pain. Repeat the stretches at least two times.

The examples of stretches at the end of the appendix were taken from Bob Anderson's book on Stretching.

Balance and Agility Drills (US Ski Team Training Manual).

These drills develop balance, coordination and quickness (skill development) and are suitable for the peak phase of training. Many of them are high-intensity exercises and will also help aerobic and anaerobic endurance. Several also develop strength.

Karate Kid - balance

This is simply a variation on the stork stand or one legged balance stand except that the children assume the position of the Karate Kid. Balance for 10 seconds and gradually increase the time. Perform exercise on both legs. To add difficulty and increase strength, try performing balance squats (see video). Start with 7-10 on each leg.

Heel Toe Rollers—balance

This exercise increases sensitivity and strength in the lower leg muscles (calf muscles are extremely important for maintaining balance). Slowly roll from heels over arch and up onto toes and then back over arch and onto heels again. Be sure to keep body aligned do not stick out buttocks! Continue the drill for 30-60 seconds. Then do two sets.

Backward Run—agility and strength

Run backwards from start to finish. Concentrate on staying low and pumping shoulders and arms. If possible, try to find a hill for this one. Backpedal up and walk back to start. Repeat 4-6 times.

Cariocas (or grapevine)—agility, quickness and coordination

Run sideways, crossing left leg in front of right, right in front of left and so on. Continue the drill for 30-60 seconds. Do one to two sets.

Skiers Jumps—leg strength and power; balance and agility

Jump laterally from right to left and left to right. Make the motion as smooth as possible and keep upper body movement to a minimum. Could lay hoops or lines on the floor or use a pillow to jump over. Continue drill for 20-30 seconds

and do 1-2 sets. For variation, jump in a high position, a low position or on one leg only.

Lateral Leaps—leg strength and power; balance, agility, weight transfer

Place two hoops on the floor or two tape markers and hop back and forth from one hoop to the other by springing from one foot to the other. Stay balanced over arch of foot and keep torso or upper body quiet.

Tuck jumps—leg strength and power; balance

Flex legs and explode upward and try to touch knees to chest. You can do this drill in one place or you can lay 4 or 5 hoops on the floor and tuck from hoop to hoop. Try to minimize landing time. Do 6 or 7 consecutive jumps. Rest completely and then do another set.

Exercise Descriptions for Task Cards and Circuit Training (Fitness For Children by Curt Hinson)

Exercises represent development for both aerobic endurance and muscular strength and endurance.

Downhill Skier

Jump side to side with both feet together. Lift alternate arms to the side.

Jumping Jacks

Stand erect with arms at sides. Jump up, landing with feet apart and arms extended overhead. Return to starting position.

Knee Slap

Alternate lifting the knees, touching both hands to the knee at the same time.

Lunge

Stand with the feet together. Jump to the right landing with the right foot extended forward and the left foot back. Return to the starting position, then jump immediately to the left, landing with the left foot extended forward and the right foot back. Extend arms overhead with each lunge.

Stride Jump

Stand with one foot in front of the other. Jump up and switch feet, landing with the other foot in front.

Leg Kicks

Alternating between legs, hop on one foot while kicking the other out in front.

Ball Push-ups

Support the body on hands and toes or knees with a foam ball positioned under the chest. Slowly lower the body onto the ball, pressing it down. Push up with arms and return to starting position.

Bear walk

Supporting the body on hands and feet, walk forward.

Crab Push-ups

With stomach facing the ceiling, support the body on hands and feet, with knees bent and arms straight. Bend the elbows and lower the buttocks to the floor. Straighten the arms and return to starting position.

Line walk

With fingertips next to the line, support the body on hands and feet with legs extended back. Place the right hand over the line, and then the left hand. Return the right hand, then the left.

Seal walk

Support the body on both hands with the legs on the floor and arms straight. Walk forward on the hands, dragging the legs.

Knee dips

Stand erect with hands on hips and one foot in front of the other. Bend the back knee and slowly lower it to the floor. Just before touching the floor, push up with the front leg and return to starting position. Alternate legs with each dip by switching feet. Stay erect and keep back straight.

JHS and Middle School

The majority of the middle school and junior high schools participating in the Ski Utah program have regular PE classes at least two times per week, so it is relatively easy to prepare students for skiing. The same principles of periodization are appropriate at all levels, although some of the suggested games and exercises will need modification for older children. However, the overall time line is the same. Develop basic fitness early in the school year, build on this fitness level by adding muscular strength and endurance and more difficult aerobic sessions, and work on skill development prior to the ski date.

Since a regular PE specialist usually teaches grades 7-9, students tend to follow a more specific curriculum in the form of several fitness and sport units throughout the year. In fact, many teachers at this level have aerobic endurance and muscular strength and endurance units already in the schedule. There is no need to be redundant, so PE specialists are encouraged to take the training information and use it as they see fit. However, as students get closer to the ski trip, spending some time on skill development will be helpful, especially for those students who have never skied.

As for the ski specific training, Ski Utah will send a ski specialist to the school for one session upon request. As an alternative, we will also train any teacher in the school who is a skier and would like to help with dry-land ski drills. Although this age group often decides that they already know how to ski without any help, we have found that those who have never skied do benefit from a pre-ski training session. Ski Utah will be glad to work with the entire class or simply work with those who have never skied. It's up to the school and PE teachers.

Objectives

The following goals and objectives have been correlated with the state's "Healthy Lifestyles Curriculum" for grades 7-9. If PE specialists follow the principles of training outlined in the "Program Design," objectives will be met for both the Ski Utah program and the state curriculum.

By completion of the unit, students will demonstrate a measurable increase in their ability to identify and describe the components of health related fitness and how they relate to competitive and recreational skiing. [National PE Curriculum Standard 6]

By completion of the unit, students will demonstrate a measurable increase in their ability to identify and describe the components of skill related fitness and how they relate to both competitive and recreational skiing. [National PE Curriculum Standard 1]

By completion of the unit, students will demonstrate the ability to choose and participate in activities designed to increase aerobic fitness. [National PE Curriculum Standard 3]

By completion of the unit, students will demonstrate a measurable increase in their ability to perform activities designed to increase muscular strength and endurance. [National PE Curriculum Standard 3]

By completion of the unit, students will demonstrate a measurable increase in their ability to perform activities designed to increase flexibility. [National PE Curriculum Standard 3]

By completion of the unit, students will demonstrate a measurable increase in their ability to perform activities designed to increase agility, balance, coordination and speed. [National PE Curriculum Standard 2]

By completion of the unit, students will demonstrate a measurable increase in their understanding of personal skier safety and their responsibility towards others. [National PE Curriculum Standard 5]

Program Design

Introduction

The following program was designed to correlate with the state of Utah's Physical Education and Health curriculum. All activities listed will help your students develop sound principles in the areas of health and motor fitness, and the majority of these principles are applicable to all sports.

At the present time, we are targeting the fourth and fifth grades at the elementary school level, and seventh grade at the JHS Middle School level. Due to limited space in the program, we cannot realistically accommodate several grades. Perhaps in the future, expansion will reach more children. However, we are flexible and can work with a different grade level if the school or district chooses to do so.

The ski fitness program consists of three preparatory phases. The first phase is an aerobic endurance or base phase. The second one is an advanced aerobic and muscular strength and endurance or building phase. The last phase is a shorter peak phase where children work on general motor skill development and ski specific skills, while maintaining overall fitness. Classroom teachers and PE specialists can adapt all phases to fit their needs and school curriculum. With the exception of the ski specific day taught by a ski instructor, all games, drills and exercises are fairly generic and will enhance children's abilities to play several sports. There is also an interactive CD distributed by Ski Industries America that helps prepare children for the actual field trip. It covers clothing, equipment, ski lift use and the ski lesson.

In order to facilitate the program, Ski Utah is prepared to offer in-service training to elementary school teachers who wish to review the principles of health and motor-related fitness (aerobics, strength, flexibility, balance and agility). Schools with PE specialists can easily integrate the suggested pre-ski curriculum with current PE units.

At the end of the ski fitness unit, all participating students will be given the opportunity to take one, two hour morning or afternoon ski lesson at one of the local ski areas. The ski day is optional and the cost is approximately \$22.00-25.00 for JHS students and \$21-23 for elementary students. Costs may vary in different areas of the state. Ski Utah will arrange ski lessons for all schools in addition to scheduling transportation in the Salt Lake area. All Salt Lake area schools will, with a few exceptions, use Le Bus, Coach USA and Lewis Bros. for transportation. Outlying areas will use school buses, and will be responsible for scheduling them on their ski day.

Most ski areas offer economical programs for students, so continuing with the sport is easy to do in Utah.

Expanding the Program Opportunities

Ski Utah has gradually expanded the number of participating schools over the course of the last ten years and will continue to do so. If you know any teachers, principals or schools interested in participating in this program, have them call the Ski Utah office.

We also offer snowboarding on a somewhat smaller scale. At the moment, we cannot get enough smaller boards at reasonable rental rates to be able to offer it at every ski area. Consequently, only Snowbasin, Wolf Mt., Park City, Brighton, and The Canyons offer a snowboard option. We're working on others. Schools choosing a snowboard option generally have about 25-30 students who choose to board.

We are also discussing cross-country opportunities, and will keep you posted about any new programs. Our biggest hurdle is finding enough pairs of skis and boots for an entire grade, or even one-half of the grade.

I. Justification

Skiing offers Utah residents a recreational opportunity that cannot be challenged by any other area in the country. The proximity of the major portion of Utah's population to the Wasatch Mountains, and snow conditions that rival the best in the world, produce a unique situation for locals. Experiencing the mountains during the winter season is an excursion that should not be missed.

However, lifetime involvement in a sport often depends on early participation and exposure. Furthermore, successful, gratifying experiences enhance the possibility that there will be continued participation in the future.

Skiing is also a vital part of Utah's economy. It draws tourists from all corners of the continents and boosts the revenues of a business that has been here for more than fifty years.

Ski Utah is offering to address these factors and give elementary and middle school children the chance to put skiing into their "bag" of lifetime sports skills. Education does not stop with the three R's. It is our responsibility as members of the community to help the adults of tomorrow choose recreational activities that contribute to a safe, happy, healthy lifestyle. It is also imperative that youngsters understand that skiing is indeed a vigorous sport, and success in the sport would be more readily obtained if the participant is physically fit. Skiers need good general conditioning, basic motor skill development, and ski-specific skill enhancement to increase chances for success on the hill.

Therefore, Ski Utah has initiated an educational unit at the elementary and middle school levels that will develop an understanding of the components of fitness as they relate to all sports and skiing. Schools who already have "Learn

to Ski Programs” can also use the program. It will increase chances for safe and successful enjoyment of the sport.

Participation in fitness activities will benefit performance in many sports. Activities should be presented progressively and in moderation, with an emphasis on fun and learning. Developing good lifestyle habits associated with skiing and sport in general is the key issue. It is not the intention of the program to train children as world class athletes, but simply to instill in them the value of health and motor fitness as it relates to sports.

II. Program Goals

A ski fitness and learn to ski program will improve physiological and motor fitness levels of the students.

A ski fitness and learn to ski program will increase awareness of the accessibility of a recreational resource.

A ski fitness and learn to ski program will provide youngsters with the opportunity to learn lifestyle habits that would benefit their participation in the sport for years to come.

III. Objectives

By the completion of the unit, students will demonstrate the ability to identify several components of health-related fitness and how they relate to exercise and skiing. [National PE Curriculum Standard 4]

By the completion of the unit, students will demonstrate the ability to identify several components of skill related fitness as they pertain to snowsports. [National PE Curriculum Standard 1]

By the completion of the unit, students will be able to identify the Responsibility Code. [National PE Curriculum Standard 5]

By completion of the unit, students will demonstrate increased knowledge in spatial and body awareness as it relates to snowsports. [National PE Curriculum Standard 1]

By completion of the unit, students will demonstrate an increase in the amount of time spent in endurance activities. [National PE Curriculum Standard 3]

By completion of the unit, students will demonstrate the ability to identify and define the basic principles of conditioning that comprise the “F.I.T.” formula (frequency, intensity, and time). [National PE Curriculum Standards 4 & 6]

By completion of the unit, students will demonstrate the ability to identify and perform several exercises designed to increase flexibility. [National PE Curriculum Standards 4 & 6]

By completion of the unit, students will demonstrate the ability to identify and perform several exercises designed to increase muscular strength and endurance. [National PE Curriculum Standards 4 & 6]

By completion of the unit, students will demonstrate an increase in the ability to perform exercises and games designed to improve static and dynamic balance. [National PE Curriculum Standard 2]

By completion of the unit, students will demonstrate an increase in the ability to perform exercises designed to improve coordination, agility and specific ski related skills. [National PE Curriculum Standard 2]

IV. A Periodized Fitness Plan

Periodized Fitness Plan: a program with distinct phases that prepare for a peak event or series of events.

Most training programs are organized into several conditioning periods that build on one another. The phases usually overlap and many activities are appropriate for more than one phase of the fitness program. All it takes are simple modifications in time and intensity.

Although each phase has a recommended time frame, schools should adjust the program to fit their curriculum. Often, schools will have completed the “base phase” by October if they do any aerobic endurance training at the beginning of the school year. Schools can enter the Ski Utah Program as late as mid-November and still prepare the children adequately.

Phase I: aerobic endurance or “Base Phase”

This phase should last 4-6 weeks. Although children may not have covered the principles academically, most will be in this phase at the beginning of the school year if teachers are doing regular PE. Here are the components of the base phase:

1. Cardiovascular fitness—an important component of fitness whether one is cross-country or downhill skiing. Children should engage in various fitness games, exercises, and activities suited to their particular age group. Activities may include: obstacle courses, circuits, race walking, jogging, parachute play, and other forms of activity that require locomotor movement for a certain period of time. The “F.I.T.” principle of conditioning should also be introduced. The concept is as follows:

Frequency—children should be encouraged to participate at least three times per week, i.e. at least once in PE class and twice on their own. This is the minimum number of days required to increase fitness levels.

Intensity—in order for conditioning to take place, exercise must be carried out in the heart rate benefit zone; children can learn to monitor their heart rate in order to determine if they are in the proper training zone (126-180 beats per minute or 21-30 beats for a 10 second count—70-80 percent of max. for 9-11 year olds).

Time or duration—a minimum of 15-20 minutes (10 min. for younger children) of vigorous activity.

2. Flexibility—range of motion activities should be done during rest intervals or during warm up and cool down periods. They may also be included in circuit training. Children should understand the value of various stretches and how to properly stretch so as to avoid injury. Flexibility should be a part of all three phases.

Teachers should also check for students' body and spatial awareness at some time during the first two phases. Although these skills should be covered in grades K-3, some older children are still deficient in these areas. A short review of body parts, laterality, and the relationship of body positioning in space may be helpful for some students.

Phase II: advanced aerobic endurance and muscular strength and endurance or the "Build Phase"

This phase should also last 4-6 weeks. If children have some initial fitness, they will be ready to practice exercises, drills and games that require more intensity. Interval training and strength training can be introduced at least once per week and preferably twice. The third day can be a general endurance day. The following components should be part of the build phase:

Muscular strength and endurance—many exercises exist that are suitable for elementary age children. These include jumping activities, partner resistance exercises, and activities that utilize surgical tubing and/or elastic cords.

Advanced aerobic endurance—intensity and speed of activity increases. Training involves more hard aerobic and anaerobic bouts of exercise in the form of fast paced intervals followed by brief rest periods. Tag, various running games, and sports like soccer and basketball are suitable for this phase and will help develop speed, and important component of many sports.

Power—explosive ability that is very important for downhill skiing or sprinting on cross-country skis. Power combines strength with speed. Various jumping and running exercises can be used as activities to develop this ability.

Phase III: motor skill development and sport specific drills or the “Peak Phase”

This phase is slightly shorter and should last 2-4 weeks. A ski instructor will help with this part of the fitness program, but classroom teachers should review the activities. If the ski teacher is not coming until just before the ski trip, classroom teachers should initiate this phase by starting with balance, agility and coordination drills. Ski instructors will primarily cover dry land drills for skiing. Components are as follows:

1. Balance —a key element in developing skiing skills. Children with good static and dynamic balancing abilities will learn to ski quickly. In the lower grades, movement on lines or low beams, one- legged hopping and stork stands are some of the activities that can be integrated in different locomotor games or station play. Older children will benefit from increasing distances and time on task for the above activities, or modifying them to increase difficulty (stork stand with eyes closed).

2. Agility —being able to move rapidly or accurately change body position in space is a necessary ability in ski performance. It increases one’s ability to perform shorter quicker turns or avoid obstacles like moguls, rutted tracks and people. Even five-year-olds can make short turns. Younger children will benefit from direction change and zigzag movements during continuous locomotor drills. Older children can increase agility skills with similar activities and exercises that are more difficult and selected sports skills like soccer exercises and football type drills.

3. Coordination —the ability to perform a skilled movement pattern. In skiing, this involves total body coordination and eye-foot coordination. Soccer and tumbling activities will help train coordination.

4. Dry-land ski exercises —a head start on the ski lesson. A ski instructor will teach this lesson and classroom teachers or PE teachers should review the skills. Even adults will benefit from indoor practice of wedge and sidestep movements and equipment familiarization, so don’t underestimate the importance of this activity.

V. Methods

- A.** Always set the stage for learning by stressing the “how” and “why” of a particular unit or phase. It may mean slightly less activity one day, but from an educational standpoint, it is extremely important.
- B.** Instruction periods should last approximately 25-45 minutes, depending on the grade level, and include the following phases:

- 1. Warm up**—approximately 5-10 minutes of low intensity activity i.e. light aerobic games and exercises, flexibility training or balance skill enhancement.
 - 2. Activity phase**—approximately 8-15 (20 minutes for JHS) minutes of vigorous activity in the form of games, exercises and drills.
 - 3. Cool down phase**—approximately 5-10 minutes of lower intensity activity; may include some free time.
- C.** Students should learn the “Skier’s Responsibility Code” as part of their safety training. Use the handout in the copy packet.
- D.** Classroom teachers will primarily be responsible for the ski fitness program. Ski instructors will teach one lesson during the peak phase of the conditioning program.
- E.** Instructors for the ski specific lesson will be supplied by the various ski resorts, local colleges and universities, and must have the following qualifications:
- 1.** at least a Level I certification or equivalent training from the Professional Ski Instructors of America, whenever possible.
 - 2.** children’s teaching experience in indoor and outdoor settings.
 - 3.** attendance at a one to two day training session conducted by ski teachers who also possess education degrees in Physical Education for grades K — 6 or post graduate work in related fields.
 - 4.** ski areas will be asked to utilize instructors who also possess education degrees if at all possible.
 - 5.** university students must be working towards a PE or Recreation degree, or related field.
- F.** All instructors will receive a copy of the program and instructional material to be covered.
- G.** All instructors will be under the coordination of a Program Director who possess both professional ski teaching certifications and experience in Physical Education and/or Recreation.

VI. Implementation

A. Syllabus

Sample lesson plans and appendices have been created to aid teachers and ski instructors with lessons. They include suggested games and activities for each area of fitness and their instructions. There is also a “teacher’s” video that shows examples of several lessons. Although it does not exactly follow the revised format of the program, it can still be a valuable tool for helping teachers inexperienced in PE with sample lessons. A second video reviewing clothing, equipment, and “first day skills” has been created for the children (1997).

B. Training

Instructors will attend training sessions and be assigned a school by early November.

C. Facilities/Equipment

Most elementary schools have sufficient facilities and equipment to accommodate the program. Instructors will visit their assigned schools to review the equipment and facilities and meet with classroom teachers.

D. Time Line and Lesson Outline (See Chart)

E. Costs and Logistics – what every teacher needs to know about the ski trip(see operations).

VII. Evaluation

A. Program Evaluation

- 1.** Ski instructors and teachers will be required to complete an evaluation addressing items such as training, facilities, logistics, and the educational value of the program.
- 2.** Ski instructors and/or teachers will keep weekly notes concerning attendance and class participation (optional).
- 3.** Parents will be asked to complete a survey designed to measure future participation in the sport. Completion of survey is voluntary (survey taken every two to three years).

B. Behavioral Evaluation

- 1.** At the teacher’s discretion, students will answer a short questionnaire designed to assess current understanding of the subject matter. They will answer the same one at the end of the unit. The questionnaire or pretest can be used at the teacher’s discretion; or,

have students write down three things they learned in the ski fitness unit that they did not know before beginning the unit.

- 2.** Students will complete an evaluation designed to assess their attitudes and response to the program.
- 3.** Grades 4 — 6 will keep exercise diaries and/or log books (if the teacher so desires).
- 4.** Instructors and teachers will observe and note initial skill levels in activity areas such as warm-up, cool-down and ability to measure pulse rate and compare them with student abilities at the end of the unit.
- 5.** Older students (grades 5 and 6 and 7) may be asked to “help” a friend with an activity learned during the unit.
- 6.** Ski areas may, at their discretion, issue skills cards at the end of the ski lesson.



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School Fitness Program



**Teacher
Program Guide**

PLEASE READ!

Operations

Cost
Payment
Disabilities
Liability
Rentals
Vouchers
Ski Day
Chaperones



General Operations



Fees

There is no fee for the dry-land lesson conducted by a ski specialist.

The fee for the on-snow day ranges from \$18.00-\$22.00 per student. **JHS fees vary. Please contact Ski Utah Program Director for fees in your area.** Fee includes:

- Transportation to and from the ski area (Salt Lake City area only)
- A two hour ski lesson
- A ski rental package

Schools outside of Salt Lake City are responsible for scheduling their own school buses.

Each school is responsible for collecting the money and sending it to Ski Utah with one check from the school. (Exception: Logan, Ogden, Provo and Cedar City will send all fees directly to the ski area.)

Ski Utah and ski areas in Logan, Ogden, Provo, Beaver and Cedar City prefer that schools make the payment for the ski day with one check from the school. Schools in the Salt Lake City area can send multiple checks made out to Ski Utah if the school's policy does not permit the school to handle the money.



Waivers

The Ski Utah Program must cover costs for lessons, lifts, and rentals, and in some areas, transportation. It is not a free program. Ski Utah does not have the means to subsidize or scholarship every child in the program. That would ultimately end this opportunity for all elementary school children.

Ski Utah appreciates any amount of money that parents can offer towards the fee as this keeps the program running. **However, Ski Utah will provide scholarships or partial scholarships for all those children who cannot otherwise afford the program.**



Where to Send Collected Fees

Please use the invoice supplied in the packet when you send your check to the ski area or Ski Utah.

All schools in Logan, Ogden, Provo, Beaver, and Cedar City areas should send a check **to the hosting ski area** (\$15-\$22 per student goes to the area; allot an extra \$2 to \$3 per student for bus).

All Salt Lake City schools should send a school check to the following address:

Ski Utah
150 West 500 South
Salt Lake City, Utah 84101



Students with Disabilities

If you have any mentally or physically challenged children who wish to participate, please give Ski Utah a list of the children and describe the exact nature and severity of the disability immediately. Several ski areas have excellent disabled skier programs and we may be able to bring some of those instructors to a couple of the smaller areas.

Parents of children with disabilities may be asked to sign additional releases.



Pre-ski Fitness

Teachers will be responsible for the pre-ski fitness program, with the exception of the ski-specific prep session. The sample lesson plans, appendix and video will give adequate instruction and information. Teachers with PE background are encouraged to be creative. Ski Utah will help with in-service training when requested.

Ski specialists will teach the ski-specific prep session. Scheduling of specialists will be done as soon as possible and schools will hear from the specialist no later than one week before arrival. Since the ski specialist may come as much as two to four weeks before the ski day, please review the skills with the children several times.

Classroom teachers should plan to start the fitness lessons as soon as possible. Ski specialists will be scheduled for the beginning to middle of November, and before Thanksgiving (possibly later in certain situations and some areas outside the Salt Lake Valley).

Middle Schools and Junior Highs participating in the program will have a ski specialist for a specific prep session if the school wishes. However, the session would most likely be beneficial to the students who have never skied.



Liability

Parents must sign the ski area release form. A chaperon is responsible for giving the release forms to the ski school supervisor in charge.

Please be sure that the child's name and address (street, city, state and zip code) are filled out properly on the release form. Ski Utah needs this information to fulfill grant regulations.

If the school also requires a school release form, be sure to include it in the packet that is sent home to the parents.

Each school is responsible for their own school release forms and Ski Utah does not need them!



Rentals

Children and parents in SLC will pick up skis and boots from designated ski shops on the list between 4:00 and 6:00 PM on the afternoon before they ski. Most snowboard rentals will be picked up at the ski area and will require a parent's signature on a rental form.

Don't forget the voucher!

Parents must accompany their children when equipment is rented. Only a parent or guardian may sign the rental form.

Equipment can only be rented on the afternoon before the child skis. If there is a problem with this, let Ski Utah know as soon as possible.

Skis should be returned between 4:00 and 6:00 PM on the ski day - As soon as the child returns from the ski area.

Some skis can be picked up at the ski area, but parents will have to fill out and sign a rental form **at least one week** before the ski day.

Schools using Beaver Mt., Snowbasin, Sundance, and Brian Head will probably use ski area rentals. Parents will pre-sign a rental release form and students may be measured for equipment at school.

Children may use their own equipment, but the price of the ski day remains the same. It is highly recommended that children using their own equipment have a ski shop service and safety check their skis, bindings and boots prior to the ski day.

On-Snow Day(s) Procedures



Dates

On-snow days will take place between November 15 and December 20, and between Jan. 2 and Jan. 31.

Ski area scheduling will be done as soon as possible and schools will receive final confirmation (phone or mail) by November 10.

Ski Utah needs a final head count **at least ONE WEEK before** the ski date.



Vouchers

Students will receive one voucher for an assigned rental shop. Do not give the voucher to the students until the night before the ski trip. Children may only use the rental shop whose name is printed on the voucher. Parents should not attempt to use the voucher at a different ski shop.

Chaperons and teachers who wish to rent skis will receive an ID voucher to present to the rental shop for a discounted rental package. They will pay the rental shop directly.

No vouchers are necessary for the bus or ski school. Teachers must give the bus driver a class list and must give the ski school a class list and the release forms. **DO NOT LEAVE SCHOOL WITHOUT THE RELEASE FORMS.**



The Ski Trip!

Have children put ski boots on before leaving school, or be sure their names are taped to the boots.

Be sure that all pairs of skis are strapped together and labeled with the child's name. This includes Junior High School Students!

Morning lessons should plan to leave by 8:30 to 8:45 AM and arrive at the ski areas between 9:30 and 9:45 AM. Lessons begin at 10:00 AM and end at approximately noon.

Morning groups should depart from the ski area at 12:15 PM, and arrive back at school at approximately 1:15 to 1:30 PM.

Afternoon lessons should plan to leave school by 11:45 AM to Noon. We are flexible, but would prefer to have the children back by 4:45 PM at the latest. Arrive at the ski areas between 12:45 and 1 PM. Lessons begin at 1:15 PM and end at approximately 3:15 PM.

Afternoon groups should depart from the ski areas at approximately 3:30 PM and arrive back at school at approximately 4:30 to 4:45 PM.



Snacks and Food

Salt Lake area students can bring snacks or lunch for the bus. Be sure to use sports bottles for drinks and clean the bus thoroughly before leaving it. Please do not encourage the children to buy snacks and food at the end of the lesson. It's pure chaos! They should board the bus immediately or we will be charged extra for the bus.



General Notes

All litter and clothing must be picked up before leaving the bus.

In order to facilitate ski group organization please bring class lists.

1. An accurate class list for the bus driver. This list will be used to track the number of children riding the bus and compensate the bus companies.

2. An accurate class list with children separated by skill level for the ski schools. (Never skied, skied 1 to 3 times, skied 4 or more times). The list and release forms will be used by the schools to organize classes and obtain compensation from Ski Utah.



Chaperons

Each bus should have one chaperon for every 20-25 children. If school policy dictates more, please speak to the Program Director.

Chaperons should help with student organization before skiing themselves. They should return to the ski school meeting area at least 10 minutes before the lesson ends. Chaperons are also responsible for picking up loose clothing and litter from the bus.

Teachers who wish to ski on this day will be given a complimentary ski pass if they are also acting as chaperons. Ski areas will not give passes to more than one adult per 20 students. If you have 60 children, three adults will receive passes. But, three teachers and three parents will not all receive passes. If there is a problem with this policy, please speak to the Program Director.

All parents are welcome to watch and ski, but they are on their own for equipment and ski passes.

Principals who wish to participate in the on-snow day need to make sure that the Program Director knows of their intent. They will not necessarily be counted as chaperons.



Lunch

Morning groups should bring a snack or bag lunch for the bus, but you may only bring water to drink—no soda, no juice, just water. Afternoon groups should eat lunch before leaving school. Please clean the bus of all litter and trash.



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School Fitness Program



2007 Additional Ideas

Sample Lesson 8
Cross Curriculum Ideas



Sample Lesson 8

Introduction to Aerobic Endurance

Heart Pump Circuit (Health Education Standard 7040-02; Objective 7040-0202)
Reference: *Physical Education Methods for Classroom Teachers*; Human Kinetics with Bonnie Pettifor

Suggested Age Range: 3rd through 6th grade

Objectives:

Identify parts of the cardiovascular system

Describe the flow of blood from the heart to the body (muscles) and back to the heart, to the lungs, back to the heart and body

Organization

The heart pump circuit (see diagram) must be set up before class in a space large enough for your entire class to move in and around. Boxes, hoops and rope tunnels represent major parts of the circulatory system. Tennis balls and racquetball balls represent oxygen and carbon dioxide.

Equipment

- Two cardboard boxes (lungs)
- Two hoops (heart pumps)
- Eight long ropes (vessels)
- One bicycle tire pump for pumping action
- 20 racquetball balls (carbon dioxide)
- 20 tennis balls (oxygen)
- American Heart Association poster of the circulatory system
- Heart Pump worksheet

Activity

Children will travel the path of the blood through the body (circulatory system). Look at the diagram for clarification. One side of the heart pumps blood to the lungs and the other side pumps blood to the body. Red blood vessels are called arteries and they carry oxygen to the muscles so that energy can be produced. The blue vessels are called veins and they carry carbon dioxide to the lungs and it leaves the body as you exhale or breathe out.

You will need some children to play the parts of the heart pump circuit. One person will use the tire pump and play the part of the heart. Another person will play the part of the lungs by taking the racquetball balls (carbon dioxide) and giving out oxygen (tennis

balls). Another person will stand at the body parts poster and take oxygen and give carbon dioxide as the blood passes through.

Have students begin at the lung pump and keep moving through the circuit until told to stop. Start a few children at a time and gradually introduce more children until all are participating. After they have gone through the circuit several times, have them go to another area to start filling out the heart pump worksheet. At times, stop the whole class and check for understanding by asking children to do things like, “Raise your hand if you are in the arteries,” or “Jump up and down if you are in the blood carrying oxygen.”

What to Look For

- Can children identify the part of the circulatory system they are traveling through?
- Can they correctly fill out the heart pump worksheet?

Varying the Lesson

- Focus only on the path of the blood by eliminating the oxygen and carbon dioxide and simplifying the circuit.
- Use the worksheet as a homework assignment
- Have students exchange oxygen for an equivalent amount of exercise printed on a card. After doing the exercises, the students pick up carbon dioxide and carry it back to the heart and then to the lungs to be removed.

Heart Pump Worksheet (diagram)

Cross-Curriculum Ideas

Integrate healthy lifestyles with other lessons

(correlating objectives have been listed for 4th grade science and health curriculums)



Science

Have students predict the weather for their field trip and discuss the accuracy of their prediction and how to adequately prepare for the day (clothing, sunscreen) (3040-0601).

Have students diagram the water cycle and explain the part that our mountains play in that cycle. Discuss how snowmaking may affect the cycle and which canyons are the primary source of water for Salt Lake City, Ogden, Logan, Provo and Cedar City.

Analyze and categorize a rock from the ski area or the canyon.



Health Education

Plan for balanced food intake on the ski day including breakfast, lunch, dinner and snacks.

Identify the parts of the circulatory system and the role it plays in aerobic endurance. The “Heart Pump Circuit” presents a great lesson for this objective.

Discuss safety and accident prevention for the ski day (Responsibility Code)(7040-0501)



Geography

Identify the ski area on a topographical map.



Language Arts

Record physical activity time in a journal. Log date, duration, intensity, and feelings about each activity.

For low-key public speaking, allow students to share journal entries.

Read about sports heroes and record in their physical education journals what these athletes do to be fit. Better yet, pick an Olympic athlete who will compete in Salt Lake City in 2002. Discuss how to scale down the hero’s choices to everyday life. Discuss the differences between skill-related and health-related fitness.

**Math**

Make use of multiplication tables when counting THR. Count pulse for 10 seconds and multiply by 6. Count pulse for 15 seconds and multiply by 4.

**Reading**

Look for a list of nonfiction books that you can use to enhance your teaching of health-related fitness. For example: *The Human Body* by Janice VanCleave.

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