Lesson Plan 14

Content Area: P.E.- Cross Country Skiing

Interval Basics- Level 4 VO2 Max intervals for skiers who have the basics of technique

**Time Estimate:** 60-90 minutes

**Summary:** Kids will understand the purpose of an interval workout and will have basic knowledge of how heart rate can be used to monitor training.

**Goals/Objectives:**

Athletes will be able to:

* Maintain a pace for a set amount of time
* Use appropriate technique for the terrain
* Record time and heart rate for each interval
* Explain why their heart rate works to monitor their effort

**Assessment:** Check students’ activity logs to see if they recorded the proper information of time, heart rate, perceived effort

**Equipment/Tools/Terrain:**

Heart rate monitor

Undulating terrain- a loop of approximately 3-4 minutes

**Get the Jitters Out:**

Run two laps of the gym, do 10 jumping jacks, and take a seat

**Instructional Input**:

We know skiing is hard, we sweat, breathe hard, our muscles burn. How do we get better? More efficient? Brainstorm ideas with kids. What happens when we workout? Our heart is made of muscle so, just as we might lift weights to get stronger biceps, we need to stress our heart to make it a stronger. The heart pumps blood that gets oxygen to the rest of the body to make the other muscles contract and release, propelling us forward. The stronger our hearts are, the more oxygen we can get through our body and the faster we can move! How do we get a stronger heart? The same way you might get stronger biceps. How would you get stronger biceps? Go to the gym, do some exercises that isolate your bicep, pick a weight that is challenging and do multiple repetitions of that exercise. Repeat this over time and your bicep will get stronger. For the heart, we pick a medium length of time 3-5 minutes in which we will work almost as hard as we can. Then, we take a rest to let the body recover for bit and repeat it. If we do 3-5 repetitions and continue to do this a few days a week, our heart will get much stronger.

Show the chart from the training basics page with the different levels of training. Explain how each level works a different aspect of the body’s efficiency. We can use heart rate as well as perceived effort to know we are working in different levels.

We can measure how hard our heart is working through a heart rate monitor. It counts the number of beats per minute that our heart is beating. The higher the heart rate, the harder our heart is working. For the purpose of understanding that heart rate increases with more intense activity, students can simply use their fingers to find their pulse on their neck and count beats for 6 seconds, then multiply by 10 for beats per minute.

To keep the fun level high, it is a good idea to set this up as a sprint relay. Athletes will be partnered, mixed gender and mixed ability is fine. The first leg will sprint the course then tag off to their partner. The partner will ski the course and tag back. This will continue until each person has done it 3-5 times. This is a good time to remind students about teamwork. Cheering on and encourage their partner is always helpful.

Remind athletes the importance of warming up and give them proper time to warm up. Warming up allows all the energy systems to start working and feeding the muscles before they are under too much stress.

**Modeling:** Put on a heart rate monitor and measure your heart rate standing still. Then start to do jumping jacks and show how your heart rate increases as you continue to jump.

**Guided Practice:** After the kids have had 20+ minutes to ski around and warm up. Have everyone ski a lap of the course at a good clip, not as fast as the intervals will be, but faster than the warm up pace in order to prepare the body one more step. Just as with a car, a body needs to shift through all the gears before getting to the top gear, you can’t shift from 1st to 5th.

**Independent/Group Practice and Differentiation:**

Run through the sprint relay, giving athletes some technical ideas to work on as they go. Record each athletes’ heart rate, time, and perceived effort.

Give kids time to cool down, ski around easy, after the workout. This is important because it allows the muscles to clear the waste that is created by moving at a rate that your heart and lungs can’t keep up with, meaning not enough oxygen is being brought into the body so energy is created from other sources which produce waste as well.

**Wrap Up**

Did your heart rate increase with perceived effort? Were you able to maintain your pace all of the laps? Did the heart rate increase each lap? What happened to your heart rate between laps? Remind athletes that this is supposed to be hard, but the more we do it, the stronger our heart becomes and the easier all endurance activities will become. Lastly, have athletes record this in their activity log. Write the number of minutes spent at the elevated heart rate. If you did 3 laps that were 4 minutes long, your notation would look something like 3x4min or 12 minutes at level 4. Refer to training basics to reference the different levels used in training. Older kids can even use some math skills to calculate the percentage of their max heart rate they were working at and what level that means.

Standards

Grades 3-5

**Standard D**   
Apply fitness concepts to achieve and maintain a health-enhancing level of personal fitness:  
  
1.    Participate in selected activities that develop and maintain the health-related components of fitness: muscular strength, muscular endurance, flexibility, body composition and cardiovascular endurance.  
  
2.    Compare target heart rate and perceived exertion during physical activity.  
  
3.    Measure, record, and compare the heart rate before, during, and after participation in physical activity of various levels of intensity.  
  
4.    Engage in appropriate physical activity that results in the development of cardiovascular endurance.  
  
5.    Recognize that physiological responses to exercise are associated with their own levels of fitness.  
  
6.    Choose to participate in activities to increase muscular strength and endurance.

8.    Maintain heart rate within the target heart rate zone for a specified length of time during an aerobic activity.

**Standard E**   
Exhibit personal and social behavior that respects self and others in physical activity settings:

1.    Demonstrate awareness and participate safely when involved in activity.  
  
2.    Form groups quickly when asked.  
  
3.    Recognize importance of individual responsibility in a group effort.  
  
4.    Encourage others by using verbal and nonverbal communication.  
  
5.    Accommodate individual differences. (e.g. ability levels, gender, ethnicity, disability among people, and physical activities of a variety of actions, culture, and ethnic origins).  
  
6.    Work productively with assigned or random groups without adult intervention.