

CROSS-COUNTRY SKIING

Lesson Plan

Objectives:

1. To learn and practice a sport that can be enjoyed for a lifetime as evidenced by participation in a brief ski expedition.
2. To learn skills that improves coordination and balance.
3. To experience the natural world during the winter season.
4. To learn some of the physics behind cross country skiing.
5. To learn that there are different types of skiing including Nordic, jumping, alpine, and slalom

Standards

Indiana-Science

- 5.2.6 Write instructions that others can follow in carrying out a procedure. **Post class assessment material only**
- 5.3.11 Investigate and describe that changes in speed* or direction of motion of an object are caused by forces*. Understand that the greater the force, the greater the change in motion and the more massive an object, the less effect a given force will have.
- 5.3.13 Demonstrate that Earth's gravity pulls any object toward it without touching it.
- *speed: the rate per unit time at which an object moves
force: a push or a pull that can cause a change in the motion of an object
*motion: the change in position of an object in a certain amount of time

Michigan-Science

- I.1.6 Write and follow procedures in the form of step-by-step instructions, formulas, flow diagrams, and sketches. **Write Only**
- IV.3.3 Describe the non-contact forces exerted by magnets, electrically charged objects and gravity **Only gravity**

Location and Equipment:

Ski equipment in the ski shop.

Procedure:

**Note Ski History and Information Sheet in Folder*

1. Make sure that everyone is dressed properly - gloves/mittens, hat.
2. Demonstrate how to select the right size equipment using the guides in the ski shop
Shoes first
Poles
Skis

3. Demonstrate how to put the skis on (outside on snow) and how to hold the poles.
4. Demonstrate moving sideways and turning around (step turn).
5. Demonstrate the stride/glide without poles and then with poles.
6. Demonstrate how to stop and slow down.
7. Practice these skills on the upper flat.
8. Proceed to the trails (stay in single file).
9. As the group reaches more rolling country stop and discuss the different ways of going up and down small hills
 - A. Uphill
 - go up sideways
 - make a V of skis with the tip of skis out and use edges
 - go straight up by taking small steps, keep weight forward, keep poles close in to body
 - B. Downhill
 - go down sideways
 - do a modified snowplow as in downhill skiing
 - go straight down by tucking knees and keeping them loose, trail poles behind body
10. Once all the students have successfully (hopefully to some degree) skied. Go over some of the physics that they experienced. Gravity is first force and pulls objects toward it without touching it. This was experienced in going down any hills. Using the poles, and legs the students were able to use forces to change speeds. Explain to them that the greater the force, the greater the change in motion and the more massive an object, the less effect a given force will have.
11. If time prevails go over some skiing history and uses (attached sheet).

Cross County Skiing Review Sheet

1. Give detailed directions on the proper way to Cross Country Ski. _____

2. What was the hardest part of cross country skiing? Why? _____

3. Name three different types of skiing. _____

4. What equipment was required to CC ski? _____

5. Name one way to stop/slow down. _____

Skiing History and Information

- fastest method of traveling on foot in the snow
- primary uses: travel, hunting, and military (used in battle)
- first used in Scandinavian countries
 - a primitive ski was found in a peat bog dated to 3000 BC
- types of skiing
 - Nordic - cross-country (developed in Scandinavia)
 - jumping (developed in Scandinavia)
 - Alpine - downhill (developed in middle Europe)
 - slalom (developed in middle Europe)
- cross-country skiing was developed first with others following
- Alpine skiing developed as an adaptation to the hillier Swiss terrain
- shortest skis ever found were 3 ft. long and were used in 16th century warfare
- introduced into the US in the 1840's probably by Scandinavians
- they used to be called snowshoes
- caught on among miners going to California and the gold fields after 1849
- 1840- ski ~jumping invented
- 1843 - first organized cross-country race in Europe
- 1850's - first organized ski races in the US in the gold fields with a poke of gold as prize
- mid-1850's - John Thompson carried US mail from Placerville, CA to Carson Valley, Nevada on skis (over the Sierras); trip took 3 days
- 1904 - National Ski Association begun in Ishpeming, MI
- 1911 first downhill competitions

Toboggan Information

- flat, runnerless sleds
- first used by North American Indians for hauling supplies
- first ones were simply skins attached to a frame
- then a base of 2-3 boards with a front end curled up and back to form a hood was used
- low railings around the sides and back were added to keep goods from sliding off
- kept narrow to go through forest and pulled by hand or by dogs

- in Europe sleds were first made of hide or bark
- runners were developed in Scandinavia
- sleds were used in northern Europe, Middle East, and Egypt
- pulled by reindeer or dogs