

9. Physics of hockey

A Skating

9Aa p. 90

1. a
2. a
3. c
4. b
5. c

9Ab p. 90

1. in order to gain speed
2. like second nature
3. for instance
4. glide over its surface
5. since the friction of the blade with the ice is almost zero
6. at the same time
7. this prevents him from falling
8. it is accomplished
9. due to heavy use

9Ac p. 91

1. glide: liukua
2. offensive: hyökkäävä
3. maneuver: ohjata taitavasti
4. makeup: koostumus, rakenne
5. figure: kuvio
6. increase: lisätä
7. prevent: estää
8. maintain: säilyttää, (yllä)pitää
9. accomplish: saada aikaan

Homework 9Ad p. 91

1. How do hockey players gain/increase speed?
2. Why is the makeup of ice optimal for skating?
3. Do hockey players skate differently when they play offensive or defensive positions?
4. The players crouch when they accelerate/speed up. Why do they have to do that?
5. How are the bottoms of the blades ground to accomplish optimal performance?

6. Due to heavy use the blades become dull. Why is this dangerous?

B The hockey stick

9Ba p. 94

1. b
2. b
3. b
4. c
5. a
6. c

9Bb p. 94

1. while also being lightweight and strong enough
2. sit for the brief duration of impact
3. for the sake of fairness
4. for example
5. is defined as follows
6. personal preference is a main factor
7. this makes it more likely
8. get it airborne
9. comes down to the personal preference
10. allows more ability to control the puck at the tip

9Bc p. 95

1. feature: piirre/ominaisuus
2. withstand: kestää
3. affect: vaikuttaa
4. brief: lyhyt
5. consistent: yhdenmukainen
6. limit: rajoittaa
7. define: määrittellä
8. apply: asettaa, laittaa
9. stance: asento

Homework 9Bd p. 95

1. What properties does a well-designed hockey stick have?
2. For the sake of fairness the maximum curvature of a hockey stick has been defined. What is it in the NHL?
3. What type/kind of blade makes it easier to get/take the puck away from another player?
4. Why do some players apply tape on / tape the blade?
5. What helps to get the puck airborne?
6. What kind of toe allows more ability to control the puck?

Suggested 9f p. 96

1. Ski boots are designed to transfer your movements into your skis as well as support and protect your feet, ankles, and lower legs. In order for the boots to transfer forces well, they have to be stiff and restrict the movement in your ankles. A forward lean prevents a skier from falling backwards especially at high speeds.
2. The fuzzy surface provides more friction so the racket can get a better grip on the ball and give a better spin.
3. The skis don't need to be broad as they are usually used on readymade tracks where there is no danger of sinking in the snow. The narrow ski creates less friction and enables faster movements.
4. Long and wide skis catch air and help the athlete fly and create lift.
5. Flat bottoms create less friction and allow more speed. Heavier skis give a better grip when a skier needs to turn or brake.
6. The football was never truly designed, it just sort of happened but it has been made slimmer and longer over time.
7. The soft rubber of a glove gives a better grip than skin. The gloves keep hands warm and dry. Some players use gloves to prevent injuries.
8. How far a golf ball flies depends on aerodynamics and gravity. A golf ball without dimples would travel only about half as far as a golf ball with dimples does.
9. Wood is more flexible and softer than concrete so it doesn't put so much stress on players' feet as they jump and run. Wood is also best for shock absorption and ball bounce.
10. Pebbled ice creates less friction than flat ice. As the stone moves, it melts some ice and creates humidity underneath. The pebbled ice allows the stone to move straightforward more easily than on a flat surface.
11. Loose clothes cause more air resistance and decrease speed. Loose clothes aren't safe as they might get tangled.
12. The toe pick is most commonly used for certain jumps in figure skating, such as the Lutz jump and toe loop as well as starting a backspin.

9g p.96

1. in which
2. at
3. gravity
4. shape
5. gains
6. torque
7. as if
8. acquired
9. guide
10. Simultaneously
11. tilt
12. Ideally
13. Sometimes

9i p. 97

1. amount
2. determines
3. hypothesis
4. position
5. direction
6. exerted

7. surfaces
8. resist; resist
9. environment
10. transfer
11. resistance
12. quantity

