

Quiz: AERIAL PHYSICS & AERIAL SKIING!

Use the information provided in the THE NBC Learn Video: Aerial Physics Aerial Skiing to answer the following questions:

1. In the sport of Freestyle Aerials, skiers are judged on their ability to perform complex jumps in the _____.
2. It is a sport of seemingly endless _____ and turns.
3. In Olympic Freestyle Aerials, skiers plummet down a steep ramp at up to 45 miles an hour before launching almost _____ feet into the air.
4. Any rotating mass has a property known in physics as _____ momentum. Created when torque, a force causing a free body to rotate is applied to a mass, in this case an aerialist. Aerial skiers call this "contact twisting," and they create it in the way they push off the _____.
5. The push-off is crucial, once in the _____, aerialists cannot change their angular _____. So how do they control their motion to execute the best spin in the air? By controlling what is called their "moment of _____" which they do by moving their arms and legs in and out.
6. For more than a century, scientists have studied why a falling cat almost always lands on its _____. Slow-motion photography reveals that by tucking its front legs and spreading its back ones, all while rotating the upper and lower torso in opposite directions, the cat can _____ without touching anything. One part of the cat is turning one way and the other part is turning the other. By changing the position of the mass, they can actually turn in the air.
7. Aerialists perform the "cat twist" by making a hula-hoop motion with their _____. If you picture yourself in a pool and you bend yourself at your waist and you just kind of swivel yourself around, eventually you'll start _____.
8. The last technique, called "tilt-twisting," uses precise _____ movements to alter the speed and orientation of the spin. If I were to go off the jump, I have both of my arms up, and if I were to drop my left arm, if you think about every action has an equal and opposite _____, my body is going to go the other way.

Answers:

1. air
2. twists
3. 50
4. angular, ramp
5. air, momentum, inertia
6. feet, twist
7. hips, twisting
8. arm, reaction