Problem Set 8: Conservation of Energy: Restoring Forces and Harmonic Motion, Center of Mass, Momentum, Impulse and Newton's Second Law

Design Engineering Challenge: "The Big Dig" 2.007 Contest
Ball Pyramid Breaking Strategies

The pyramid of balls is a tempting collection of mass units, because they could a) help to get your paddle spinning, b) be directed to your mass scoring bin. However, when the pyramid breaks, some of the balls could be directed to your opponent's side and help them! What's a designer to do?

1. How many different ways can you think of breaking the pyramid and directing the flow of balls (there are at least 4 distinct strategies)
2. What are the physics associated with each of these strategies?
3. How can you mitigate the risk (what countermeasures can you devise) of the balls rolling onto your opponent's side?