Week 26 CM & Rotation

Rotational Inertia

1. Watch the FIGURE SKATING VIDEO at mrmont.com. What do you notice about her spin rate every time she pulls inward?

- ☐ Goes faster.
- ☐ Goes slower.
- ☐ Stays the same.

2. When she puts her arms & legs back out at the end, what happens to her spin rate?

- ☐ Goes faster.
- ☐ Goes slower.
- ☐ Stays the same.

3. Watch the BACKFLIP VIDEO at mrmont.com. What happens to the gymnast's spin rate when he pulls his knees inward (tucks)?

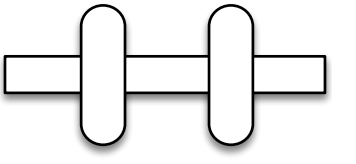
- ☐ Goes faster.
- ☐ Goes slower.
- ☐ Stays the same.

4. Matching:

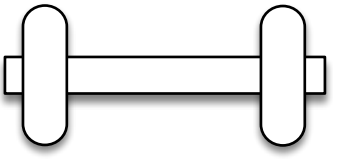
_____ Mass far out. A. Easier to get spinning.

_____ Mass close in. B. Tougher to get spinning.

5. Here are two dumbells. They have the same two weights attached. But if you were to spin them back & forth, which one would be more difficult to spin? Why?



A



B

6. One bike has tires that are smaller (have the mass close in.) The other has large radius tires (mass far out.) Which bike is for quick starts & stops & tricks? Which one is for long distance riding?

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Spin Stability

1.Watch the TOPS VIDEO at mrmont.com. Tops have a small base and high center of mass. They should be very unstable. What is it you can do to them to make them stay straight & stable? Does it work for large objects?

2. What do football quarterbacks do to a football to keep the ball moving straight and stable?

WAR	YEARS	DEAD
REVOLUTIONARY	1775-1783	4,435
CIVIL WAR	1861-1865	191,963

3. The Revolutionary War and the Civil War were both fought with muskets. Can you guess what it was that they did to make the muskets so much more deadly & accurate?