|  |  |  |  |
| --- | --- | --- | --- |
| **Learning outcome** | **I understand this** | **I can recall this** | **I need to revisit this** |
| I know the three types of levers. |  |  |  |
| I know the mechanical advantages and disadvantages of the levers. |  |  |  |
| I know the calculations and definitions of the principles of linear motion. |  |  |  |
| I know what angular motion is. I know how angular motion is created. ( I know what an eccentric force is). |  |  |  |
| I know the axis of rotation |  |  |  |
| I know how to calculate angular displacement 0/ angular velocity. (w) |  |  |  |
| I know how to create angular velocity. (w) |  |  |  |
| I know what a moment of inertia is and what impacts the MI. I know this represents **MI (kgm2)** = **∑m (kg)** x **r2 (m2)** |  |  |  |
| I know the relationship between MI and w. |  |  |  |
| I know what Angular Momentum (kgm2 rad/s) = moment of inertia (kgm2) x angular velocity (rad/s) |  |  |  |
| I know how angular momentum is created |  |  |  |
| I know what Angular Analogue of Newton’s First Law is. |  |  |  |

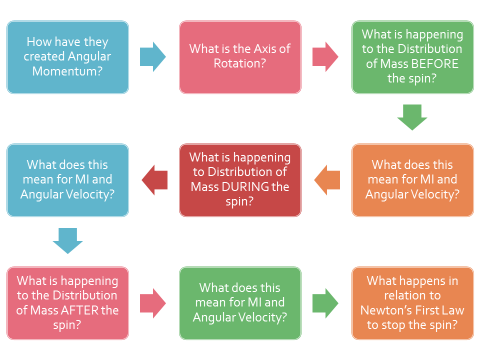
**Task sheet 2 Biomechanics**

1. Complete the question for the ice skater creating angular momentum. (Mon)
2. Use the grid and complete a biomechanics analysis of the somersault, and the skier. (Tue/Wed)
3. Revise all angular motion (Mon) 30 min test
4. Prepare notes for Fluid motion. What is it? What are the factors that affect fluid motion?



**How does an ice skater create Angular Momentum?**

1. How do they create an eccentric force?
2. What axis do they rotate around?
3. What is their Distribution of Mass like before they enter the spin? How does this affect MI and the Angular Velocity? What speed is the spin at this point?
4. What does the performer do as they jump to reduce MI? What happens to Angular Velocity and speed of the spin in mid-air?
5. As they prepare to land, what does the performer do in order to increase stability? How does this affect MI and Angular Velocity?
6. Why does the spin reduce as they land? Think about the change in Newton’s 1st Law here..



Complete a biomechanics analysis of the somersault and the skier round the pole

A slalom skier rotating around the pole to change direction: