PS100 Worksheet #4 Chapters 8 & 9 Date_____ Section_____ TA _____

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Title: Conservation Laws

Objectives: Students will describe how conservation laws apply to a real situation.

Instructions: Make the predictions then watch the video clips and animations. See if you understand the laws well enough to use them to make predictions.

If….write the law that applies best to the situation.	And…..	Then …..what do you predict will happen. Does the quantity increase, decrease or remain the same.	And/But….write your observations of what actually happened	Therefore….If the laws don't match your predictions, you need to explain what's wrong with your prediction, not what's wrong with the law.
	1. Two objects of unequal mass traveling at equal speed hit each other. (No friction, no deformation)	The total momentum after ▲ ▼ = The big block's speed after ▲ ▼ = The small block's speed after ▲ ▼ =	See: http://lectureonline.cl.msu.edu/~mmp/kap6/cd157a.htm or http://www.mrwaynesclass.com/teacher/Impulse/SimFriction/home.html Set the velocities for the red and blue blocks to 50 and -50 (or 5 and -5) respectively. Set the mass for the red block to 1 and the mass for the blue block to 2. Blue block speed before _____ after_____ Red block speed before _____ after_____ Total momentum before _____ after_____	
	2. An ice skater pulls her arms in as she spins	What happens to her speed? ▲ ▼ = What happens to her angular momentum? ▲ ▼ =	http://ps100.byu.edu/resources/unit1/chapter8/chapter8_5.aspx	

	3. Opposite charged balls are placed near each other and released	The total energy of the balls ▲ ▼ = The electric potential energy ▲ ▼ = The kinetic energy ▲ ▼ = The distance between the balls ▲ ▼ =	http://ps100.byu.edu/resources/unit1/chapter9/chapter9_3.aspx	
	4. Like charged balls are placed near each other and released	The total energy of the balls ▲ ▼ = The electric potential energy ▲ ▼ = The kinetic energy ▲ ▼ = The distance between the balls ▲ ▼ =	http://ps100.byu.edu/resources/unit1/chapter9/chapter9_3.aspx	
	5. A mass as it bobs up and down on a spring	Total energy: Elastic potential (internal) energy: Gravitational potential energy: Kinetic energy:	http://ps100.byu.edu/online_course/video/7spring2.flv	