
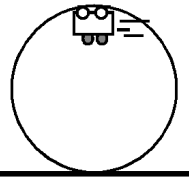
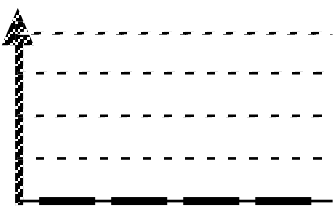
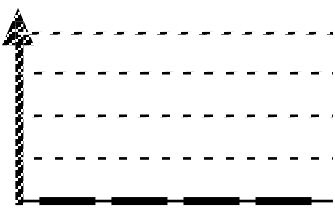


Unit VI: Worksheet 2a


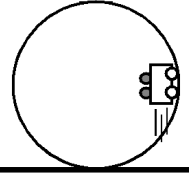
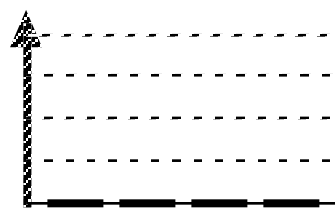
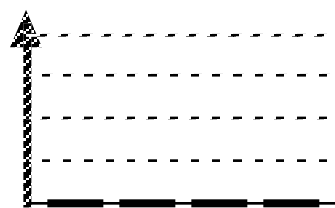
For each situation shown below:

1. Sketch an energy bar graph for the initial and final situation.
2. Then complete the analysis by applying the work-energy equation to that situation.



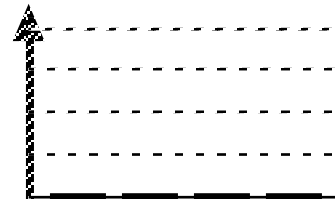
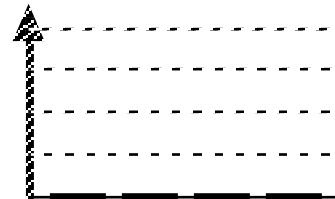
1. A car on a roller coaster track, launched by a huge spring, makes it to the top of the loop.

	Initial	Final	Initial Energy + work	=	Final Energy
			KE + GPE + EPE + W		KE + GPE + EPE + Heat
					

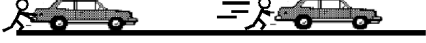

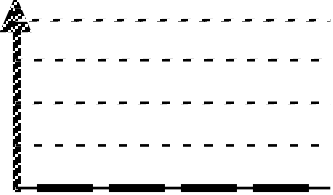
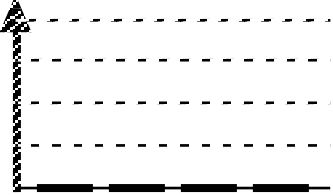
2. The same car is launched by the spring, but it is only half way up the loop.

	Initial	Final	Initial Energy + work	=	Final Energy
			KE + GPE + EPE + W		KE + GPE + EPE + Heat
					

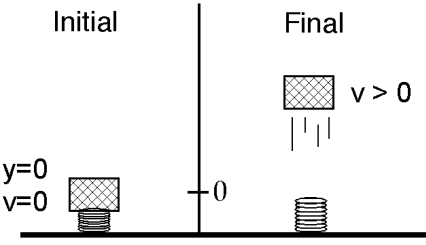
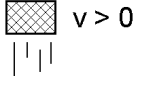
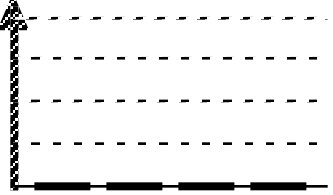
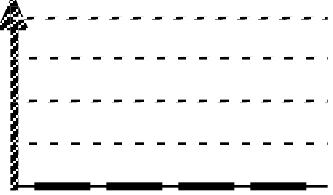
3. A moving car, moving up a hill, coasts to a stop up.

	Initial	Final	Initial Energy + work	=	Final Energy
		$v = 0$ $y > 0$	KE + GPE + EPE + W		KE + GPE + EPE + Heat
$v_0 > 0$ $y = 0$					

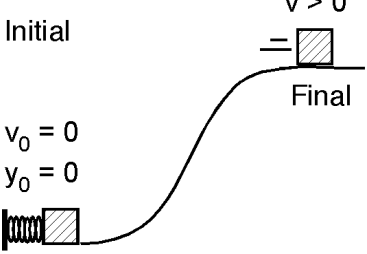
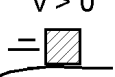


4. A person pushes a stalled car to get it to the service station.

	Initial Energy + work	=	Final Energy
	KE + GPE + EPE + W		KE + GPE + EPE + Heat
Initial	Final		
			
			

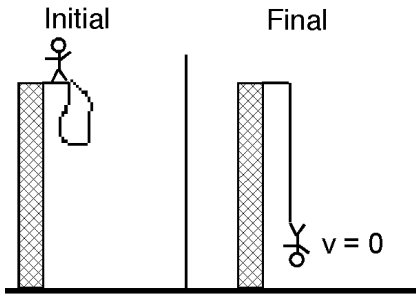
5. A load of bricks, resting on a compressed spring, is launched into the air.

	Initial Energy + work	=	Final Energy
	KE + GPE + EPE + W		KE + GPE + EPE + Heat
Initial	Final		
			
			

6. A crate, starting at rest, is propelled up a hill by a tightly coiled spring.

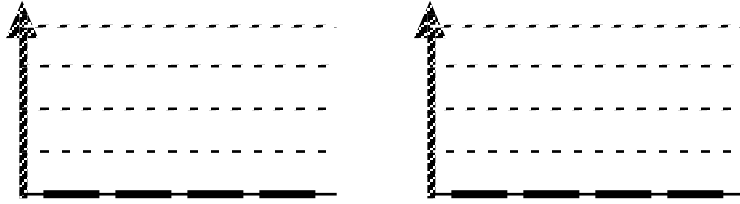
	Initial Energy + work	=	Final Energy
	KE + GPE + EPE + W		KE + GPE + EPE + Heat
Initial	Final		
			
			

7. A bungee jumper falls off the platform and reaches the limit of stretch of the cord.

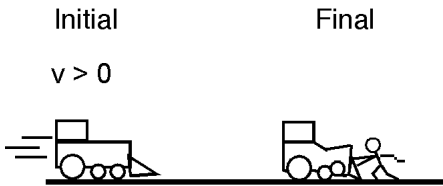


$$\text{Initial Energy + work} = \text{Final Energy}$$

$$\text{KE + GPE + EPE + W} \quad \text{KE + GPE + EPE + Heat}$$

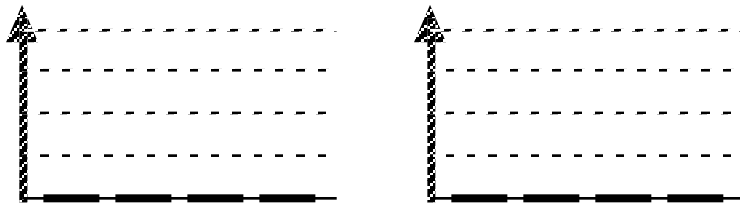


8. Superman, stopping a speeding locomotive, is pushed backwards a few meters in the process.



$$\text{Initial Energy + work} = \text{Final Energy}$$

$$\text{KE + GPE + EPE + W} \quad \text{KE + GPE + EPE + Heat}$$



9. Create your own situation and construct corresponding energy bar graphs and system schema.

$$\text{Initial Energy + work} = \text{Final Energy}$$

$$\text{KE + GPE + EPE + W} \quad \text{KE + GPE + EPE + Heat}$$

