

Kung Fu Panda

1. In the opening scenes, Po says “There is no charge for awesomeness or attractiveness.” If he were talking about atomic particles, what are the names of the particles he would be referring to?
2. What kind of energy is found in the noodles that Po and his father sell at the restaurant?
3. What kind of forces are at work that keep Master Oogway on top of his stick? Balanced or unbalanced?
4. When Master Oogway touches the pool of water, it starts a wave. What type of wave is a water wave? _____ and _____
5. What type of simple machine might Po have used to get the noodle cart to the temple? Explain your choice (why would it make the work easier to do).
6. $W = mg$ If Po’s weight is 2520 Newtons on Earth, what is his mass?
7. If each step on the way to the temple is 0.25m tall and there are 10,000 steps, what is the distance Po travels?
8. $W = FD$ How much work does Po do in getting himself up the steps to the temple? (Hint: his weight is the force)
9. $P = \frac{W}{t}$ Which of the Furious Five has the most power? Circle your answer.
 - a. Tigress, who can hit the target with 250 J of energy in 0.2 sec
 - b. Viper, who can hit targets with 100 J of energy in 0.1 sec
 - c. Monkey, who can hit targets with 500 J of energy in 0.6 sec
 - d. Mantis, who can hit the target with 45 J of energy in 0.1 sec
 - e. Crane, who can hit the arrows with 200 J of energy in 0.3 sec

10. What type of simple machine is Po trying to make with the pole and tree, in order to catapult over the wall?
 11. Which of Newton's laws is Po trying to take advantage of when he lights the fireworks to try to get into the temple?
 12. What is the energy transfer that occurs when Po eats food? (_____ to _____ energy)
 13. $Q = mc\Delta T$ When Po is cooking dinner, how much energy must be added to get the 100g of water to boil (go from 27°C to 100°C). ($C = 4.184 \text{ J/g}\cdot\text{C}$)
 14. Tigress flips off of the roof and into the valley, but reaches terminal velocity partway through the fall. What force slows her fall?
 15. The leaves on the tree in the background, after Po is fully trained in Kung Fu, are red. Why do the leaves appear red?
 16. $V = D/t$ Tigress started running to meet Tai Lung. If she was running at 15 mph for 2 hours, how far did she go?
 17. $A = (V_f - V_i)/t$ What was Tai Lung's acceleration when he met the Furious Five, if he went from 5.2 m/s to 0 m/s in 0.5 seconds?
 18. Rain has a pH of about 5.5. What is this solution classified as?
 19. What form(s) of heat (thermal energy) does fire give off?
- $V = IR$
20. Tai Lung's special punch sends 0.2 amps of current through the body, which has a resistance of 500 ohms. What is the voltage?