

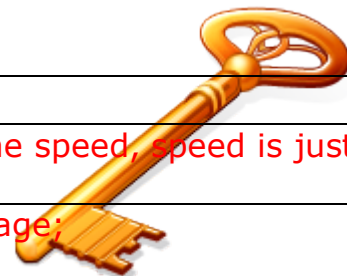
Force & Motion Unit Study Guide

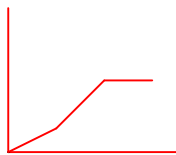
Name _____ Science-8 Period ____ Teacher _____ Date _____

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| What is the formula for speed? | |
| What is the difference between speed and velocity? | |
| Give an example of how air resistance is helpful and one example where it is not helpful. | Helpful: Not Helpful: |
| What are 3 ways (<i>with examples</i>) that an object can accelerate? | 1. Example: 2. Example: 3. Example: |
| What is an example of an unbalanced force? | |
| What is an example of a balanced force? | |
| Draw a graph that shows a car moving at a constant rate, then speeding up, then stopping | |
| Use Newton's 1 st law to explain why a crash test dummy keeps moving forward when a car crashes into a barrier. | |
| What two things do you need to know in order to find out the force exerted on an object? | |
| Use Newton's 2 nd law to explain which object one with a larger mass or one with a smaller mass, has a smaller rate of acceleration | |
| What is Newton's 3 rd law of motion? | |
| Use Newton's 3 rd law to explain why a ball bounces off the floor. | |

Unit 3: Force & Motion Study Guide

ANSWER KEY



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| What is the formula for speed? | $S = D/T$ |
| What is the difference between speed and velocity? | Velocity has a direction with the speed, speed is just the ration of distance to time. |
| Give an example of how air resistance is helpful and one example where it is not helpful. | Helpful: Parachutes; gas mileage; Not Helpful: Gas mileage |
| What are 3 ways (<u>with examples</u>) that an object can accelerate? | 1. Speed Up Example: Positive acceleration like picking up speed to get on highway. 2. Slow down Example: Negative acceleration, braking in a car 3. Change direction Example: Turning a corner in a car |
| What is an example of an unbalanced force? | Answers will vary – anything demonstrating a change in motion |
| What is an example of a balanced force? | Answers will vary – anything that is demonstrating no change in motion |
| Draw a graph that shows a car moving at a constant rate, then speeding up, then stopping |  |
| Use Newton's 1 st law to explain why a crash test dummy keeps moving forward when a car crashes into a barrier. | The crash test dummy has inertia, and even though the car stops the dummy is still in motion until something else stops it: A windshield, seatbelt, etc; |
| What two things do you need to know in order to find out the force exerted on an object? | Mass and Acceleration |
| Use Newton's 2 nd law to explain which object one with a larger mass or one with a smaller mass, has a smaller rate of acceleration | The more mass an object has, the harder it is to accelerate that object, therefore, an object with a larger mass is going to have a smaller rate of acceleration. |
| What is Newton's 3 rd law of motion? | Newton's 3 rd law says that for every action force, there is an equal and opposite reaction force. |
| Use Newton's 3 rd law to explain why a ball bounces off the floor. | When a ball hits the earth, it pushes on it. The Earth pushes back on it, which is the reaction force and causes the ball to bounce back up in the air. |