

## Mr. Hill's Stay at Home Science Stuff

Name: \_\_\_\_\_

Hi guys,

I hope you are adapting ok to this new temporary lifestyle. My plan for the next few weeks is to have you guys review the main topics we have covered this year and to get your brains going in a “Scientific Method” way by doing things around the house (inside and out) while hopefully practicing the guidelines set by the President and our Governor. Good luck and use your resources available to find answers. Communicate with family and friends, use the internet if you have it, look for books (encyclopedias) you might have around the house and of course use your brain. Please hang-on to your work so you can bring it back to school at some point. I will be curious to see your “inventions”, what you’ve been doing at home and if you’ve remembered anything. Please e-mail, [sean.hill@crooksville.k12.oh.us](mailto:sean.hill@crooksville.k12.oh.us), if you have any questions or just want to talk. Stay in touch with all your teachers. We’ll be here available and willing to help.

Thanks,  
Mr.Hill

1. First - Complete the "FORCES AND MOTION" worksheets (there are four individual pages or two front and back). They are titled "Mr. Hill Science at home March '20" in the upper right hand corner. Please get detailed on the last questions  $F=ma$ ...not just a quick few words...give examples and explain it out like I/we do in class.
2. On your own paper or google docs. - Explain to me what you are doing to stay informed about what is going on in our world today. Are you watching the news more now. Have you scene President Trump and/or Governor DeWine make any speeches or updates. How are you sure you are getting facts and not rumors from the internet? Are you talking with your parent(s), grand-parent(s), guardians and/or friends about things that are going on?
3. What are you doing to help out around your home? Have you started doing anything different than you normally do at home?
4. What's new and different about this lifestyle for you? What's not really changed?
5. What's the best thing about this situation for you?
6. What's the most difficult or hardest thing about this situation for you?

7. FOOD FRIDAY - Have your experiences with Food Fridays helped you during this time? Are you helping with any of the food preparation at home? What are you guys making? Are you getting creative or looking up recipes you haven't made before? Hopefully you are offering to help out with the cleaning up too.
8. I want you to start thinking about an independent research project you can do at home for the fourth nine weeks. My next assignments will be about Earth science review and assigning an at home project that will allow you to practice the Scientific Method and get creative.

Take care, stay healthy and be helpful at home. Take care of your responsibilities and be respectful,  
Mr. Hill



Name \_\_\_\_\_

Date \_\_\_\_\_

# Forces and Motion

Complete.

spring scale	acceleration	work	force	momentum
motion	velocity	mass	inertia	gravity
speed	weight	joule	balance	magnetism
friction	newton			

## Matching

Match each definition with a word.

- \_\_\_\_\_ A device used for measuring mass.
- \_\_\_\_\_ A unit that is a measure of force.
- \_\_\_\_\_ A change in the position or place of something over time in comparison to a reference point.
- \_\_\_\_\_ The natural force produced by a magnetic field.
- \_\_\_\_\_ A measure of how fast something moves over a distance.
- \_\_\_\_\_ A force that pulls objects towards each other.
- \_\_\_\_\_ The tendency of an object to resist a change in motion.
- \_\_\_\_\_ A measure of both the speed and direction of a moving object.
- \_\_\_\_\_ A measurement of the motion of something. This is equal to the product of the moving object's mass times its velocity.
- \_\_\_\_\_ A measure of the force of gravity on an object.

## Multiple Choice

Select the definition that most nearly defines the given word.

- \_\_\_\_\_ **work**  
A. The tendency of an object to resist a change in motion.  
B. A measure of the amount of force needed to move an object a certain distance.
- \_\_\_\_\_ **newton**  
A. A measure of both the speed and direction of a moving object.  
B. A unit that is a measure of force.
- \_\_\_\_\_ **force**  
A. Energy in the form of a push or a pull.  
B. A measure of the force of gravity on an object.
- \_\_\_\_\_ **mass**  
A. The amount of matter that an object has.  
B. A unit that is a measure of force.



Name \_\_\_\_\_

Date \_\_\_\_\_

15. \_\_\_\_\_ **balance**  
 A. The unit of work in the metric system.  
 B. A device used for measuring mass.
16. \_\_\_\_\_ **inertia**  
 A. The tendency of an object to resist a change in motion.  
 B. Energy in the form of a push or a pull.
17. \_\_\_\_\_ **gravity**  
 A. A force that opposes motion between two surfaces that are touching.  
 B. A force that pulls objects towards each other.
18. \_\_\_\_\_ **joule**  
 A. A device used for measuring weight.  
 B. The unit of work in the metric system.
19. \_\_\_\_\_ **acceleration**  
 A. The rate at which velocity changes.  
 B. A change in the position or place of something over time in comparison to a reference point.
20. \_\_\_\_\_ **speed**  
 A. The amount of matter that an object has.  
 B. A measure of how fast something moves over a distance.

## Review

21. \_\_\_\_\_ Which simple machine has the effort and resulting forces in the same direction?  
 A. A fixed pulley  
 B. A screw  
 C. A wedge  
 D. A wheel and axle
22. \_\_\_\_\_ An accelerating object **MUST** have unbalanced forces acting on it.  
 A. False  
 B. True
23. \_\_\_\_\_ Which simple machine is made up of a bar that applies a force to move a load by turning on a fixed point?  
 A. Pulley  
 B. Wedge  
 C. Lever  
 D. Screw
24. \_\_\_\_\_ The greater the mechanical advantage, the more work that is done by the machine itself.  
 A. True  
 B. False
25. \_\_\_\_\_ Which of the following objects is **NOT** a simple machine?  
 A. A bicycle  
 B. A fishing rod  
 C. A seesaw  
 D. A wheelbarrow



Name \_\_\_\_\_

Date \_\_\_\_\_

26. \_\_\_\_\_ If a machine reduces the force you must use to move an object, the machine increases the distance through which you must apply that force.
- A. True
  - B. False
27. \_\_\_\_\_ When two objects are traveling in the same direction at the same speed, we say these two objects have the same \_\_\_\_\_.
- A. Momentum
  - B. Efficiency
  - C. Velocity
  - D. Inertia
28. \_\_\_\_\_ Which type of simple machine should you use if you do NOT want to increase force?
- A. A fixed pulley
  - B. A lever
  - C. A wheel and axle
  - D. An inclined plane
29. \_\_\_\_\_ Which of the following statements is NOT true?
- A. Friction is a natural force that can slow down a motion.
  - B. Mass is the resistance of an object to a change in its motion.
  - C. Weight is the gravitational force between an object and Earth.
  - D. Speed measures how fast an object is moving and in what direction the object is moving towards.
30. \_\_\_\_\_ Suppose a first-class lever has an effort arm that is four times longer than the resistance arm. To lift a 60-newton rock would require an effort force of just 15 newtons.
- A. True
  - B. False

