name:_____ period:_____ lesson 1.3: forces on matter

1 Warm Up

1. What are the three particle that make up an atom? Which one is positive, negative, and neutral?

particle	charge

2. Draw a picture of a $^{4}_{2}$He atom. Label the nucleus, protons, neutrons and electrons.

2 Forces on Matter

3. A force is a _____or a _____on an object.

4. We draw a force with an arrow that shows the _____of the force.
5. There are two kinds of forces:
   (a) _____ force
   (b) _____ force

2.1 Gravitational Force

6. Gravity is a force on the _____of an object caused by the mass of _____object.
7. Gravity is always a _____force between two masses.
8. The gravitational force between two masses happens no matter how _____the masses are from each other.
9. The gravitational force gets _____when the masses get farther apart.
10. On Earth the gravitational force on objects is always _____.

2.2 Electromagnetic Force

11. The electromagnetic force is caused by the pushing and pulling between the electric charges of _____and _____in an object no matter how far apart they are.

12. The electromagnetic force gets _____when the electric charges are farther apart.

13. Two positive charges (protons) will _____(repel) each other away.

14. Two negative charges (electrons) will _____(repel) each other away.

15. A positive charge (proton) and a negative charge (electron) will pull (_____) each other.

2.3 Examples of Electromagnetic Force

16. _____electric charges (protons) in a metal can pull on (_____) negative electric charges (electrons) in a balloon.

17. The positive (protons) and negative (_____) electric charges in a magnet can either push the magnets apart (_____) or pull them together (attract).

18. The negative electric charges (electrons) in your hand _____on the negative electric charges (electrons) in an object that you touch.

19. When you stretch a rubber band the protons attract the electrons and _____back.