Name: Key
Chapter 2 study guide

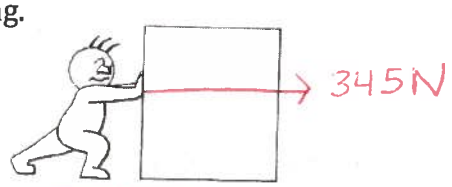
Period: _____
Date: _____

WARNING

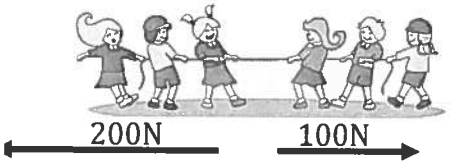
This guide is not the only thing you should use to study. It does not provide you with everything you need. You should also rely on your textbook, homework, and classroom notes. Use everything you can for the best results.

Topic 1: Force – Binder pages 15-18, textbook pg. 6 - 8

1. A force is a push or a pull in a specific direction.
2. A man pushes a box to the right with a strength of 345N. Draw his force in the picture below and state what type of force it is: pushing or pulling.

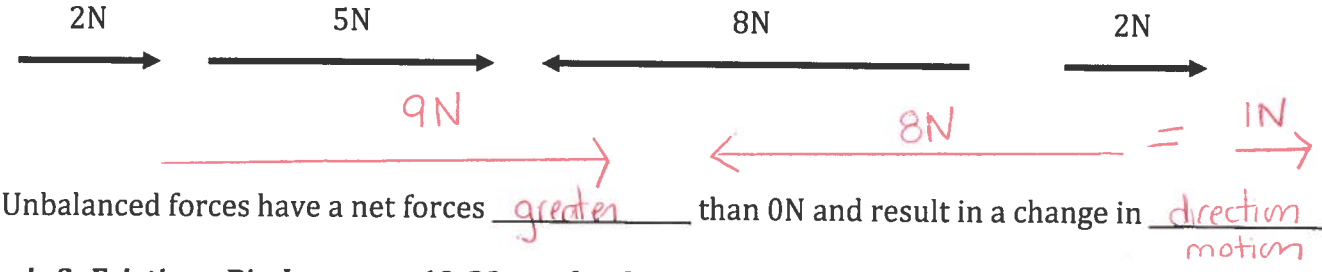


3. Which force is stronger: A → ← B
4. ***True/False:*** To find the net force of forces acting in the same direction, you would add them together.
5.



- The forces shown to the left are PUSHING / PULLING forces.
- The forces are WORKING TOGETHER / OPPOSITE FORCES.
- The forces are BALANCED / UNBALANCED
- The net force is 200N LEFT / 100N RIGHT / 100N LEFT / 200N RIGHT
- Motion is to the RIGHT / LEFT.

6. Draw and label the net force for the forces below:



7. Unbalanced forces have a net forces greater than 0N and result in a change in direction / motion.

Topic 2: Friction –Binder pages 19-22, textbook pg. 9

8. If a baseball is thrown straight up, friction would point: Left / Right / Up / Down
9. Give one real life example for each type of friction. Don't use ones from the notes. Use new examples.
   a. Static: Pushing a box that does NOT move
   b. Sliding: sliding on floor with socks
   a. Rolling: Pencil rolling on table
   a. Fluid: Air resistance on ball
10. Which would you rather push, a car that is in park (wheels locked) or a car that is in neutral (wheels can roll) and why (in terms of friction)?

Neutral, Rolling friction is weaker than static friction.

11. Which would have more sliding friction, an **ice cube** or a **sponge**? * Texture
12. Which would have more static friction, a **brick wall** or a **paperclip**?

* Mass

Topic 3: Gravity – Pages 23-25, textbook pg. 10 - 15

13. In order for objects to have a gravitational pull, they must have mass.
14. It takes .5 seconds for a paperclip to fall to the floor. If acceleration due to gravity is 9.8m/s², what speed did the paperclip reach before hitting the ground?

$S = a(t) = 9.8\ m/s^2\ (.5s) = 4.9\ m/s$

15. If a bowling ball fell from the same height as the paperclip in problem 14, then which would hit the ground first and what would the speed of the bowling ball be?

In a vacuum, they would hit at the same time & speed.

16. ***True/False:*** Jupiter is much larger than Earth so you would have a greater mass on it.
17. ***True/False:*** When aiming an arrow at a far away target, you should aim above the bull's-eye.
18. Which will have a greater gravitational pull: A pencil / A basketball / Mr. Brill
19. As you leave the earth and move toward Mars, Earths gravitational pull will decrease and Mars' gravitational pull will increase.

Topic 4: Newton's laws of motion – Binder Pages 28-33, textbook pg. 22 - 27

20. First law = An object at rest will stay at rest and an object in motion will stay in motion, unless acted upon by an outside force.

21. Give a real life example of Newton's first law.

A person's body in a car crash.

22. ***True/False:*** Inertia is an object's tendency to resist a change in motion.
23. The amount of inertia an object has depends on its mass.
24. Put the objects in order from greatest (1) inertia to least (5) inertia:

2 House 4 Dog 5 Paperclip 1 Earth 3 Couch

28. Second law: Acceleration depends on the net force and the mass of an object.

25. Draw the Acceleration triangle and list the 3 resulting formulas.

Force = accel · mass
Mass = Force / Acceler.
Accel. = Force / Mass

26. A net force of 302N is applied to a 28.6-kg box. Determine the acceleration of the crate.

$a = \frac{F}{M} = \frac{302N}{28.6Kg} = 10.6\ m/s^2$

27. Two football players are pushing a coach on the sled. The mass of the sled and the coach is 300Kg. If the sled accelerates at 0.5m/s², then what is the net force applied by the two players?

$F = A(M) = .5\ m/s^2\ (300Kg) = 150N$

28. If the another coach jumped on the sled, the mass would go up and acceleration would decrease
29. If the players pushed harder, the net force would go up and acceleration would increase

30. Third law: If one object exerts a force on another object, then the second object will exert a force of equal strength in the opposite direction

31. Complete the action-reaction pairs for the pictures below: