

Topics 3-5 Review

Name: _____

Key Terms

Define the following terms (try to use your own words):

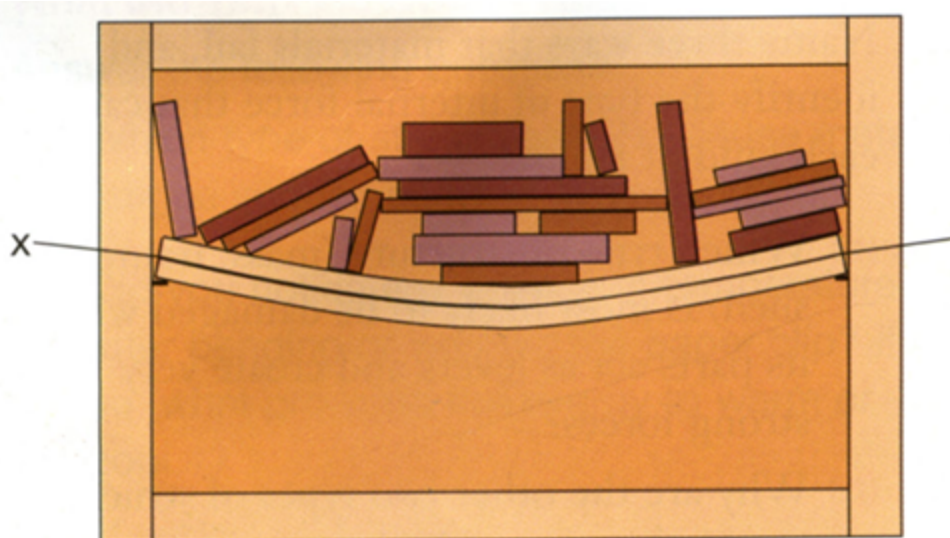
Mass	
Kilogram	
Force Meter	
Gravitational Force	
Weight	
Balance	
Forces	
Newton	
Force Diagram	
External Force	
Internal Force	
Deformation	
Live Load	
Dead Load	
Tension Forces	
Tensile Strength	
Compression Forces	
Compressive Strength	
Shear Forces	
Shear Strength	
Torsion Forces	
Torsion Strength	
Bending Forces	
Bend (buckle)	

Twist	
Shear	
Metal Fatigue	

Short Answer

1. Classify each statement as referring to force (F) or mass (M)
 - a. Measured in newtons _____
 - b. Stays the same no matter where the object is located _____
 - c. Measured with a balance _____
 - d. Your weight _____

2. Use the following diagram to answer the following questions:



- a. Name the type of force stressing the top of the bookshelf

- b. Name the type of force stressing the bottom of the bookshelf

- c. Describe what might happen if more books were piled on the bookshelf

3. Identify one type of stress (shear, bending, torsion, tension, or compression) the occurs in each situation below:

Bungee Jumping	
Twisting a towel	
Bursting bubbles	
Making footprints in sand	
A road buckling	
Squishing a marshmallow	
Kicking a football	
An avalanche	

4. What effect do torsion forces have on:

a. Brittle Structures?

b. Flexible Structures?

5. Name two ways in which compression forces can cause material failure.

6. How can you prevent thin sheets from bending or buckling?

7. Name three forces that can cause material failure

Word Puzzle

Use the following definition to fill in the blanks for the corresponding term

- A. Primary standard of mass
- B. Push or pull
- C. Picture of forces on an object
- D. Force that causes extra stress on a structure
- E. Force that pulls you against Earth
- F. Force for turning off a water tap
- G. Forces that resist outside forces
- H. Standard unit of force
- I. Kind of strength that spider silk has
- J. Forces that develop when you squeeze something
- K. Type of material failure that occurs when you twist plastic cutlery

