

Science Test: Forces That Act on Structures

Name: _____

Word Box You might use a word more than once, and you might not. You have more words than you need.

gravity, internal, location, tension, shape, inside, outside, static, push, move, internal, dynamic, pull, internal, strength, torsion, external, shear, support, moving, direction, non-moving, still, straight, constant speed, compression, gravity, magnitude(size), increases, decreases, inertia, friction, equal, opposite, bigger, lighter, heavier, greater, threaten

1. A force is a _____ or a _____ that causes an object to _____ or change its _____.
2. The actual effect of a force on a structure depends on: the _____ of the force, the _____ of the force, and the _____ where the force is applied.
3. What are the two main types of forces that act on structures?
 - i. _____
 - ii. _____
4. The force of wind pressing against the sides of a structure is an example of a _____ force.

5. The force of all the materials that a bridge is made up of is an example of a _____ load. The weight of the materials puts pressure on the bridge because of the force of _____.
6. Structures must be constructed with enough _____ and _____ to withstand the forces that will be acting on them.
7. The difference between a _____ load and a _____ load is that one is _____ and the other is _____.
8. Dynamic loads are _____. (moving/non-moving)
9. Static loads are _____. (moving/non-moving).
10. _____ (Internal/External) forces act from outside the structure and _____ the integrity of the structure.
11. _____ (Internal/External) forces are those that act from _____ the structure to keep it stable.
12. The force of gravity _____ as you move further away from the earth.
13. In order to maintain structural reliability, the _____ (internal/external) forces must be greater than the _____ (internal/external) forces.

14. _____ is the force of attraction between things.
15. _____ is the tendency to resist any change in its motion. This is Newton's first law.
16. Newton's second law of motion states that force makes things move. The bigger the force, or the _____ the object, the _____ the motion.
17. Newton's third law of motion states that every action has an _____ and _____ reaction.
18. Distributing the load so that no one part of the structure carries most of the load is one way to help a structure withstand a load. True or false? _____
19. The strongest shape is a _____. (square, trapezoid, triangle, circle, rectangle, other)

Part B: Write **external** or **internal** to make the sentence true.

20. Weather is an _____ force.
21. Compression is an _____ force.
22. Cars crossing a bridge is an example of an _____ force.
23. Tension is an _____ force.
24. Torsion is an _____ force.
25. Shear is an _____ force.

