WOW sheet

What is normal force?

Here is what ‘normal force’ means in physical science:

> The normal force is the force that surfaces exert to prevent solid objects from passing through each other.

In other words, normal force is the force objects experience when they touch.

Normal force is a **contact force**.

Contact forces are forces that act between two objects that are physically touching each other. Newton’s third law tells us that when a contact force acts between two objects, both objects experience the same size force, but in opposite directions.

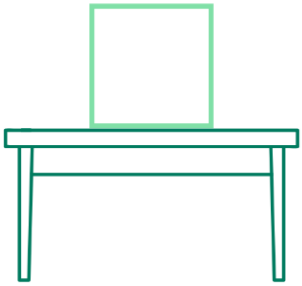
Because normal force is a contact force, if two surfaces are not in contact, they can't exert a normal force on each other. And, if there’s nothing touching an object, then there is no normal force on that object.

Normal force is usually written as F_n or F_{norm} or sometimes just N.

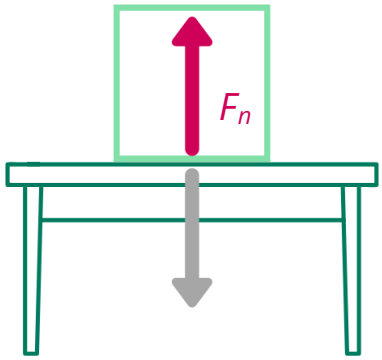
The ‘normal’ in normal force = perpendicular

The word ‘normal’ in the term ‘normal force’ means perpendicular.

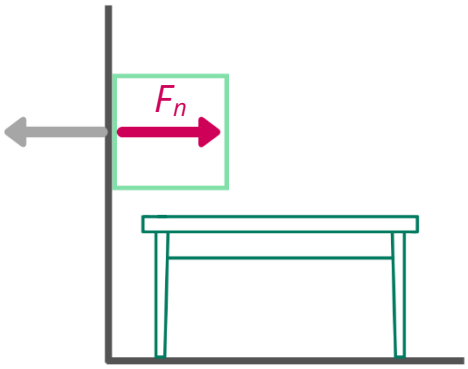
When two objects are in contact with each other, they exert a normal force perpendicular to the contacting surfaces. Think of a box sitting on a table.



The weight of the box is pushing the box down into the table. The normal force from the table pushes up on the box. The normal force is perpendicular to the contacting surfaces of the box and the table.



But what if the box was touching a wall, not a table?



Remember, normal force is a contact force, so it's always perpendicular to the surface where two objects are touching.

If the box were touching the wall, the normal force would be perpendicular to the surface where the box is in contact with the wall.

And what about on a slope?

The normal force would still be perpendicular to the surface where the two objects touch.