

Lecture 03W Plan

Administrative

- Any licensed radio amateurs in class?

Material

- NTQ 02W
- Newton's Third Law

Next Time Question 02W

When I push a refrigerator across a kitchen floor at constant speed, the magnitude of the force of friction between refrigerator and floor is

- Less than my push force
- **Equal to my push force**
- Greater than my push force

Why? Without acceleration, Newton's First Law guarantees that the *net* force is zero, so the friction must equal the push.

Newton's Third Law

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- Every force is an interaction between two bodies.
- Both feel this force the same (though in opposite directions).
- Distinguish between “both feel *this* force the same” and “both feel the same *net* force”.

Newton's Third Law

Let's identify the force and both bodies in the following examples:

- An instructor walks across a classroom.
- A car accelerates along a road.
- Two cars collide head-on.
- A hammer hits a nail.
- An athlete lifts a barbell.

Newton's Third Law

Since action and reaction forces are equal and in opposite directions, why don't they cancel?

NTQ 03W

A mosquito is struck by the windshield of a car. The force of the impact of the mosquito is ____ the force on the car and the acceleration of the mosquito is ____ the acceleration of the car.

- less than; less than
- more than; less than
- the same as; less than
- the same as; more than