Newton's Laws of Motion + Force

1. F_{net} B	A. The object is not changing velocity: the object is not accelerating.
2. ΣF D	B. The net force.
3. $\Delta v = 0$	C. Force 1 is stronger than force 2.
4. $a \neq 0$ A	D. Add up all of the forces.
5. $F_1 > F_2$ C	E. The object is accelerating.

1. Inertia E	A. Any action that can cause motion.
2. Mass C	B. When the positive forces are equal to the negative forces.
3. Net force D	C. The amount of matter in an object
4. Force A	D. Total of all of the forces on an object.
5. Balanced B	E. Ability of an object to resist change of motion.

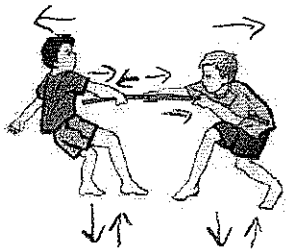
Which has more inertia?

A train or a car?
A ping pong ball or a baseball?
A fast bowling ball or a slow bowling ball? same
A 20 kg mass or a 10 kg mass?
A rock on the earth or a rock in space? same

Balanced or Unbalanced Forces?

B An person sitting on a chair?	B If $\Delta v = 0$?
U 20 N left and 30 N right?	U If $a \neq 0$?
B An object at constant speed?	B If $a = 0$?
U An accelerating plane?	U If $\Delta v \neq 0$?
B An object at rest?	U A stopping car?

Draw arrows and label any forces you can think of for the following picture:



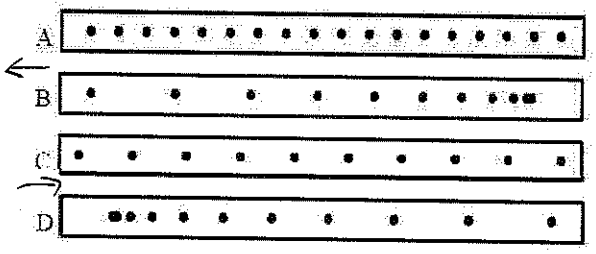
If $F_1 > F_2$, "a" is which way? Left
If $F_1 = F_2$, "a" is which way? neither
If $F_1 < F_2$, "a" is which way? right

If the forces are balanced, what is the net force? $\Sigma F = 0N$
If the forces are unbalanced, can it be at rest? no
If $F_1 = F_2$ does it have to be at rest? no, it could be moving
How can $v = 0$ if $F_2 > F_1$? It started left & turned around
If $F_2 > F_1$ does it have to be moving to the right?
no, it could be slowing down but going left

Which of Newton's Three Laws Applies: Law 1, 2, or 3?

3 When you put a book on a table gravity pulls down on the book and the table pushes up on the book.
1 A person is pushed forward into their seatbelt when a car stops.
2 A larger car takes more force to move.
3 A person leans on a wall and the wall pushes back.
1 A brick sits on a table until you push on it.

	Calculate the Net Force	Which way will it accelerate?
	-5N	Left
	2N	R
	0N	Neither



A, C Which have $F_{net} = 0$.
A, C Which have balanced forces?
B, D, E Which have unbalanced forces?
D Which have a positive net force?
E Which have a negative net force?

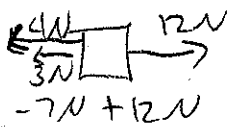
For each tape timer: if there is a net force, draw its direction.

$F_{net} = 15$ N

What is the magnitude of the force pulling to the left?

-15N

Two forces (4N and 3N) pull to the left, while a 12 N force pulls to the right. Find the net force.



5N

Why does it take a force to change an object's motion?
It has Inertia (mass)