

NET FORCE



NEWTON'S 3rd LAW - * EQUAL IN FORCE (N), BUT OPPOSITE IN DIRECTION

LAW OF:

ACTION

REACTION

FOR EVERY ACTION THERE'S AN EQUAL & OPPOSITE REACTION!



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BALANCED
NET FORCE = 0
~~MOTION~~

VS. UNBALANCED
NET FORCE > 0
MOTION



An unbalanced force changes the acceleration of an object.

LESS FRICTION: GREATER SPEED!



FRICTION: an unbalanced force that decreases the speed of an object as if it were...

GRAVITY-FREE PATH



gravity is an unbalanced force ALSO!

9.8 m/s²

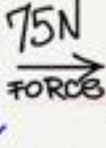
When F is applied from opposite sides or directions, the smaller F is subtracted from the larger F.



8.6A - DEMONSTRATE & CALCULATE... how unbalanced forces change the speed & direction of an object's motion



-SITUATIONAL-



SAME FORCE:



less mass: MORE acceleration



more mass: LESS acceleration



MORE FORCE: GREATER ACCELERATION!

UNITS of measure for acceleration (m/s²) m/s/s

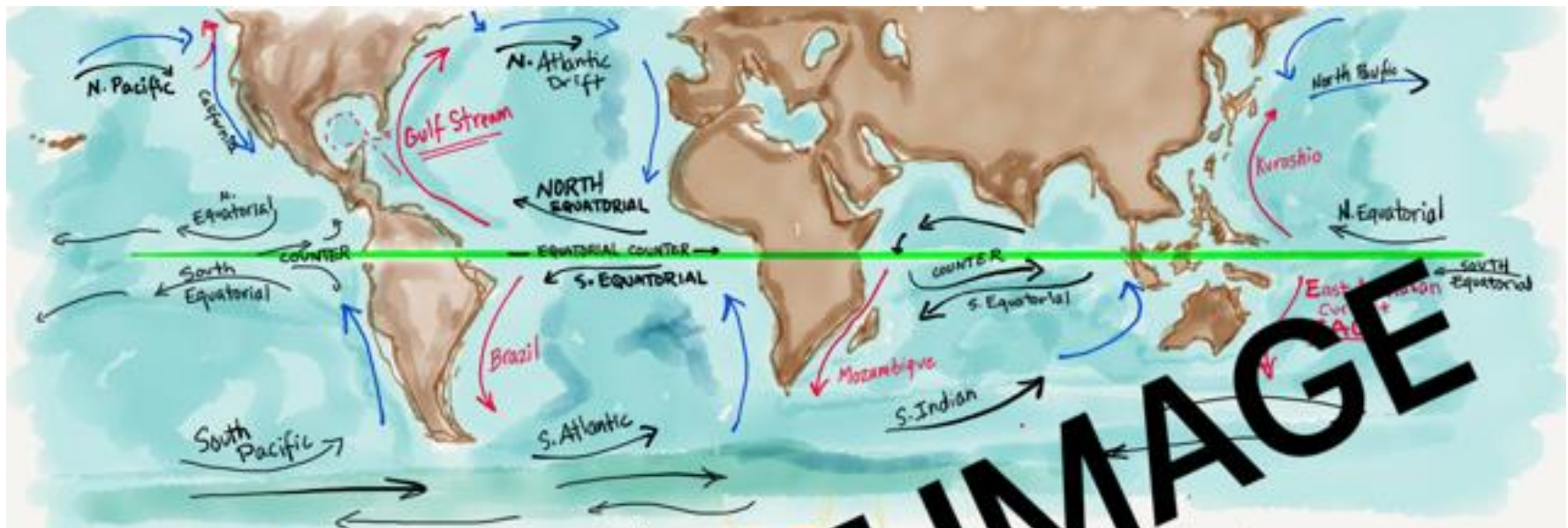
CONCEPT CONNECTION
★ NEWTON'S SECOND LAW OF MOTION

CONVERGENT



DIVERGENT

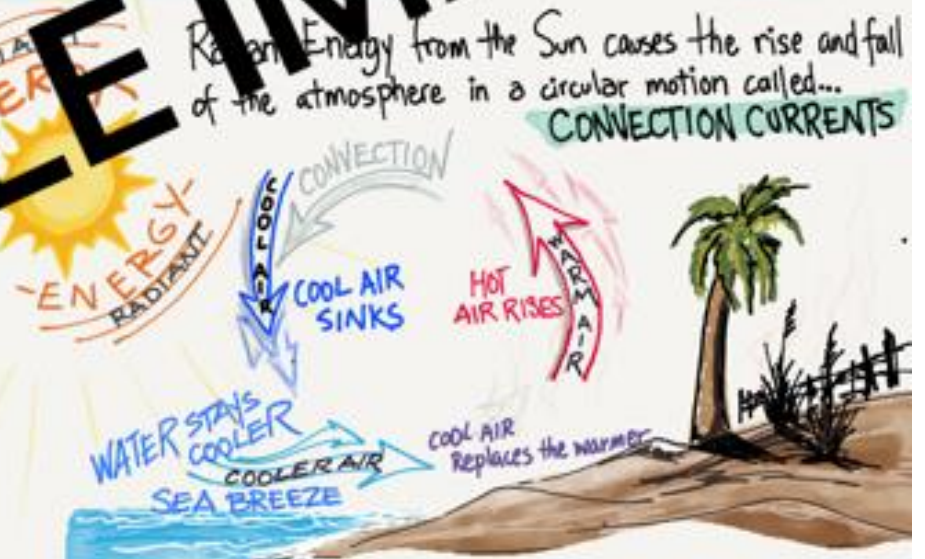




*8.10A- **RECOGNIZE** that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents.



Radiant Energy from the Sun causes the rise and fall of the atmosphere in a circular motion called... **CONVECTION CURRENTS**



Radiant energy from sun heats up land faster than the ocean causing the atmosphere above land to heat faster & rise.

THE ATOM



DESCRIBE the structure of atoms, including the masses, electrical charges, and locations of protons and neutrons in the nucleus and electrons in the electron cloud.

Model of a Carbon atom shown here.



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ELECTRONS

- negatively charged
- outside the nucleus
- almost ZERO or NO MASS
- make up the electron cloud

* In a neutral atom, the # of electrons equals the # of PROTONS.

Valence (Ve) electrons

1	2	3	4	5	6	7	8
Group # - 10 equals # of VE							



NUCLEUS: + charge protons & neutrons

Center of the atom

ATOMIC MASS = Protons + Neutrons

$$\frac{M}{N} \rightarrow \text{mass} - \text{atomic \#} = \text{neutrons}$$

NEUTRON ZERO or NO CHARGE INSIDE NUCLEUS LIGHTER than 1 amu



PROTON: + charge INSIDE NUCLEUS 1 amu

of protons = atomic # and # of electrons in a neutral atom

A.P.E

shells energy levels orbitals

PERIOD # indicates # of ENERGY LEVELS!

1	H	1 shell
2	Li Be	2 shells
3	Na Mg	3 shells
4	K Ca	4 shells
5		5
...		...



(negatively charged)