

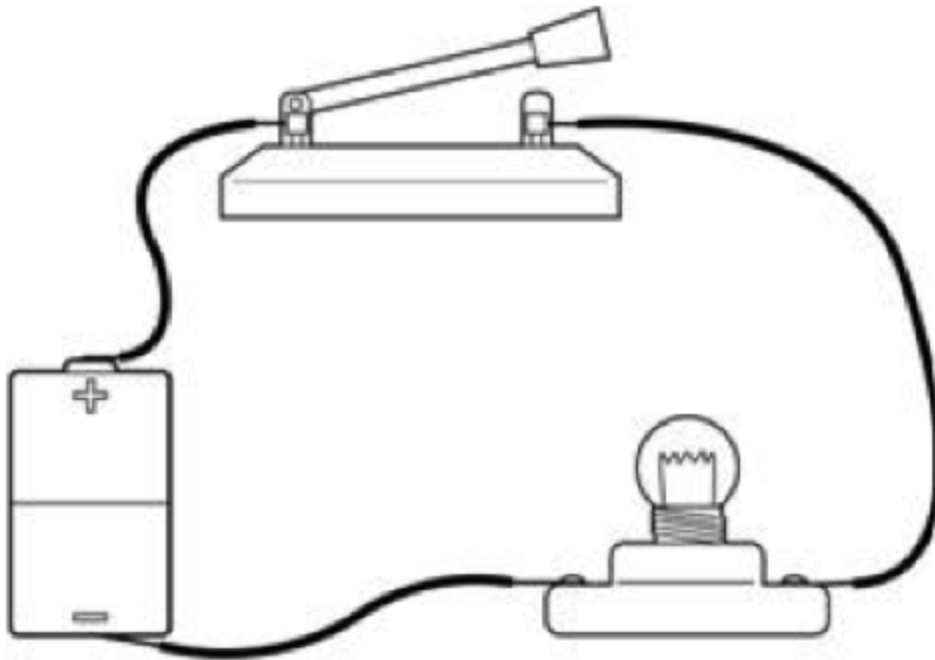
Wavelength and Energy Study Buddy

* Light energy can travel through space from one place to another. You observe this energy movement when you grow plants in sunlight or when you lie in the grass and get warm on a sunny day.

***Thermal energy**- is the energy that can be felt as heat. Thermal energy is sometimes called heat energy.

***Light energy**- can travel through empty space, air, and even some objects, such as windows.

***Sound energy**- travels through matter by vibrations. Sound energy cannot travel through empty space, like light energy can.



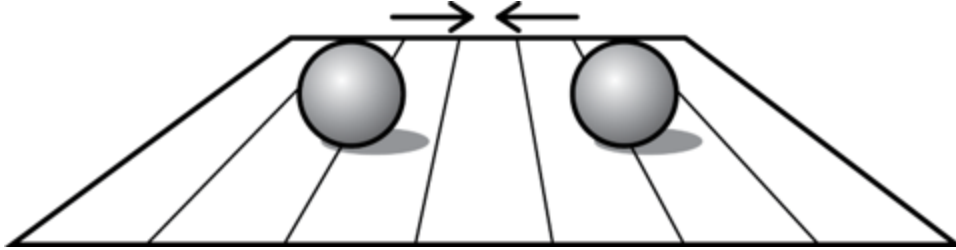
***Closed Circuit**- energy moves/travels in a complete circle causing the light to turn on.

***Open Circuit**- energy is interrupted and does not make a complete circle resulting in the light not coming on.

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***Collision**- a forceful impact in which energy is transferred from one object to another.

*When objects collide, the energy from one object's motion will transfer to the other object. When this energy gets transferred, it can cause the motion of the objects to change. For example, when a pool ball strikes another pool ball and both balls roll in different directions.

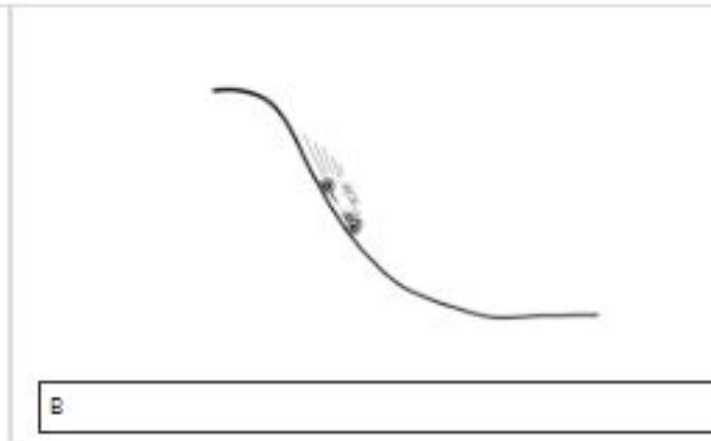
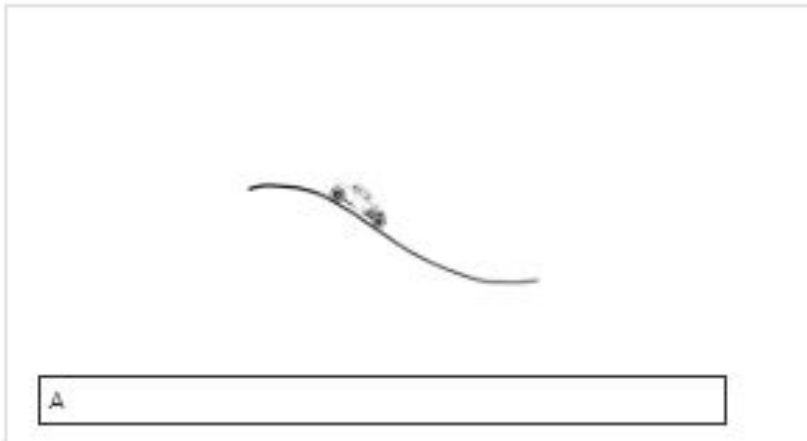


Ex: Two metal spheres roll across the floor at each other. After they collide, what about the spheres is most likely to change? (Their motion)

* The energy that comes from vibrations is called sound. This is why you hear a knocking sound when someone's hand hits a door. The energy doesn't go away it just gets passed from place to place!

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Look at the two pictures below. In which picture do you think the car has the most energy? Why do you think so?



The car in image B will have more energy. As we know, the faster an object moves, the more energy it has. Since car B is moving faster than car A, it will have more energy.

Now think back to our original bowling ball example. Do you think the fast-moving or the slow-moving bowling ball will do more damage to the pins?

If you said the fast-moving bowling ball would do more damage to the pins, you are correct. If everything else stays the same, such as the mass of the bowling ball and the mass of the pins, then the fast-moving bowling ball will have more energy than the slow-moving bowling ball and will likely knock down more pins. Knocking down more pins is the evidence we can use to claim that the fast-moving ball has more energy. It had more energy to pass on to the pins, causing more to be knocked over!



*If two objects are the same size and weight, then the object moving quickly has more energy than the object moving slowly.

*All waves move energy, not the matter, they travel through. Waves start at a source when a force causes vibrations.

***amplitude:** the height of a wave

***wavelength:** the distance between two peaks

***trough:** the lowest point of a wave

***crest:** the highest point of a wave