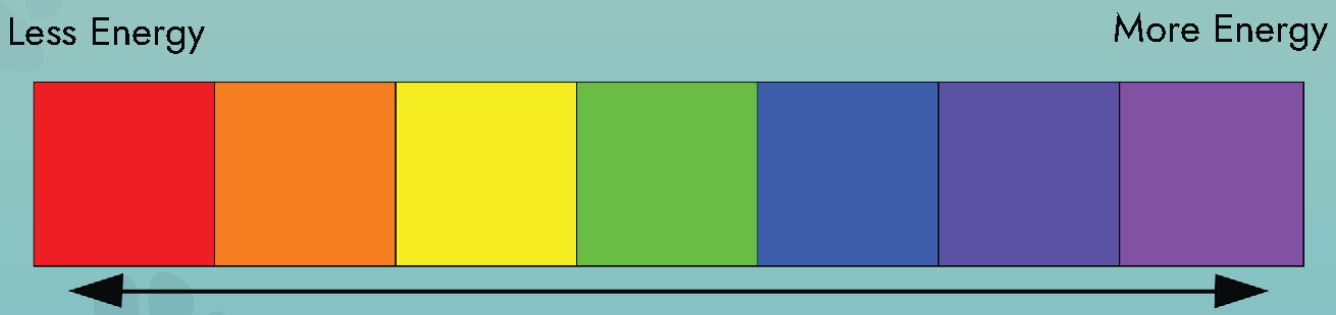
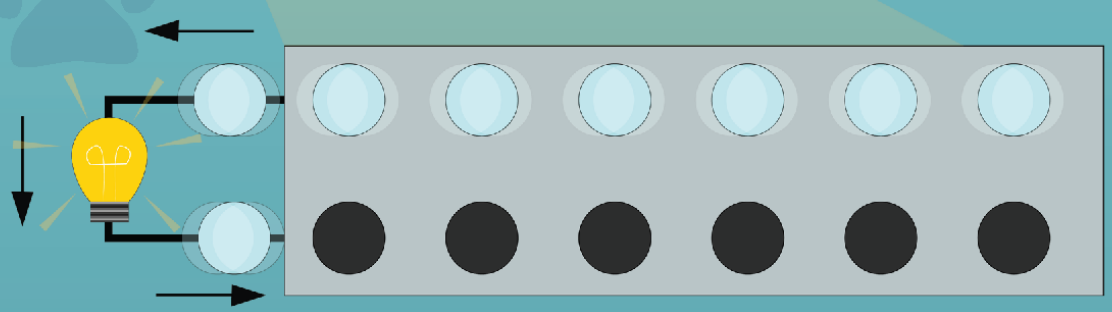
Breaking down the solar panel:

Like a wave is made of many drops of water, the sun's light is made of many light particles, called photons, which contain energy. Not all photons are the same. They have different amounts of energy and look different to us. Some are visible light which we see like colours of the rainbow. Others we can't see with our eyes.



When light hits the solar cell, some photons are absorbed. Energy from the light causes electrons in the cell to become excited. If the photon gives the electron enough energy, it can be knocked free, leaving a hole. The required amount of energy to knock an electron free is called the band gap.

The freed electron flows to the outside of the solar cell and the hole moves to the opposite side. However, no one wants to leave holes unfilled, do they? If we connect both sides by metal wires, an electric circuit is created. The freed electrons flow along the wire to fill the holes. This flow produces an electric current that can be used to power lights, phones, cars, and more.



Different materials in solar cells require different amounts of energy to release electrons. Some only require a little energy, so most of the light rays will work. Others require lots of energy, so only light rays with more energy work. The best solar cells are designed to absorb the most abundant types of photons produced by the sun, including photons that we can't see.

Solar cells can be made of different materials, including silicon, organic materials, metals, and many more. Research is done around the world to find different materials and ways of layering them to make better solar cells.