"Water is essntial to life". Using examples from your biological knoledge, discuss how the properties of water affect living organisms.

It is a clear that water plays a fundimental role in life as we know it. This statement can be easily justified when we consider that two thirds of our planet is coverd in vast quantities of it and 70 percent of our bodies consist of it. In fact without water, life would probably never have developed on our planet all those years ago.
In more reacent years the importance of water to our helth has become more and more of a focous, we are constantly beeing made aware of its benifitial properties and told exactly how much of it we need to consume. this is due to the fact that water is a majour constituent of the tissuses and that it is the medium in which substances are transported with in cells around the body. Water is also the medium in which metobolic reactions take place. This is because water, in it liquid form, is a solvent which most substances in the body dissolve in and whithin a water solution they can move around and take part in reactions in the presence of enzymes.

Along with keeping our bodies in great shape water also very important for body temperature regulation. Temperature regulation is what prevents body tempurature from fluctuating too rapidly and it is due to water's high specific heat capacity that this is effectivly done. Specific heat is the amount of energy required to change the temperature of a substance, because water has a high capacity of this it needs a lot of heat energy to raise its tempurature and retains heat well. Water needs large amounts of energy to turn it from liquid to vapour form. this meaning that it does not evaporate very easily, however when it does, it absorbes alot of energy from its surroundings and is the reason why sweating is an effective way to lose energy as heat from the skin. It is these propertys of water that allows many living things to cope with relitivly abrupt climate changes, whinin reason.

This property of water means that it exists as a liquid over the quite wide range of 0 to 100 degrees C and why our planet is covered in oceans apart from the two poles. this allows for a very large scale for aquatic life to survive in, and because water is a very effective conducture of heat it can use the suns energy to create a suitible tempurature in lakes, rivers, oceans etc. However when water does reach tempurature below 0 degrees C it freezes through expanding and becomes less dence. this is the reason why

the ice caps in the poles float allowing areas of solid land here which provide habitats for many animals such as polar bears and penguins.It's also important to note water's role in global temperature. Heat capacity moderates the Earth's climate.

The hydrogen side of the water molecule has a slight positive charge and on the other side of the molecule a negative charge exists. This molecular polarity causes water to have a strong surface tention. Surface tension is the ablity of a substance to stick to its self. On the surface water its molecules do not have other like molecules on all sides of them and consequently they cohere more strongly to those they are directly associated with and this forms a surface film. water's high surface tension allows for the formation of water droplets and waves, allows plants to move water from their roots to their leaves, and the movement of blood through tiny vessels in the bodies of some animals. Alos it is this property that allows small insects to walk on water because their weight is not enough to penetrate the surface. If water had very low density and surface tension, boats would sink and fish would be stuck on the bottom because they couldn't swim fast enough to stay up in the water.
The properties of water i have described above are those which provide the qualities that make it essential to life, both to the internal processes of our bodies and the natural states of the earth suitible for habitation. however these points only cover the main factors of a molecule, that at sight is quite simple, but consits of many important properties that mean it plays key role in nearly all living processes. it is liquid water that makes our planet unique from any others that we know of because water is the funimental factor that has given us life. it is clear that as living organisms we need water to survive but by looking life on this planet as a whole i can see that with out this substance there would be no existance on earth at all, end of story.