Biodegradable plastic:

A biodegradable plastic is considered as such, if microorganisms (decomposers) can dismantle them. The plastic has to change its characteristics and chemical structure. Mostly the plastic gets dismantled into CO2, H2O and biomass- those materials are considered as natural ones and do not pollute the environment.

Plastics are very important in our world today. They are used everywhere and the manufacturing is cheap. We need plastics in our life. Normal plastic is made out of oil that occurs deep in the earth under the sea. The problem is that some additives of this plastic are similar to natural hormones- they act like softeners. Other additives are hardeners, colorants and balancers. The enzymes in organisms process them.

The consequences for sea animals have not been fully researched, but many species die painfully because of micro plastics in the sea. For example, sea turtles eat plastic bags, which are swimming around in the water. Normally sea turtles eat jelly fish. Those fish are white and transparent so they seem similar to the plastic bags. Animals cannot distinguish between rubbish and food so they eat it without thinking about it. Some small fish are eating the small plastic parts on the water and those fish are eaten by us humans. So the plastic gets back into our body and damages it slowly. These problems can be prevented by biodegradable plastic.

Biodegradable materials:

Biodegradable materials are plastics, which enzymes can dismantle into small natural pieces, like CO2 and H2O. Most biodegradable materials come from nature and are capable of being returned to it in a way that the natural environment is not harmed.

35% of all plastics produced are ‘’one-time-users’’. After use, people throw them away. That is very bad- it is important to use biodegradable materials for packaging.

Organisms, or their enzymes, can dismantle them without problems, because they already know those natural materials. They do not die from metabolizing these materials. For example you can produce biodegradable materials from bananas. You have to mix it with a binder and heat it up. After cooling down you get a brown black colored substance. With this material you can form a plant cup for seedlings, for example. Lots of garden centers are already buying those plastic cups and sell them with the plants inside. After buying you can immediately put them into the earth. The cup will be decomposed after a while and is an excellent fertilizer for your garden.

Eco friendly packaging:

The world today has to think about the world tomorrow. The next generation wants a clean planet, too.

We cannot pollute our environment with rubbish like food packaging. The majority of food packaging hurts nature or destroys the environment. This is an important point because 10% of all plastic produced ends as rubbish in the sea. Big parts are crushed into small pieces -> micro plastic. Those particles are eaten by fish and these fish are eaten by humans so the plastic gets into the eco system and destroys it slowly.

Lots of animal species have already died out because of sea rubbish. Sea turtles for example eat plastic bags because those bags look similar to jelly fish, which is the natural food of the turtles. But if they eat those bags, they die slowly and painfully. If the plastic was biodegradable, this wouldn’t be a problem. Animals could digest it. Also the biggest animals in the world have problems with plastic.

Whales are eating it, too. Especially the micro particles of plastic are problematic. Many whales are eating krill by filtering it through their whalebone. With the krill some plastic also gets into the mouth and the stomach of the animal. It takes a little bit longer, but also a 35m long animal like a whale can be seriously affected by a big enough amount of micro plastic.

How to make bioplastic:

To get bioplastic, you have to mix a biopolymer with a plasticizer and some additives. Biopolymer is responsible for the stability. Plasticizer is for flexibility and the additives change the colors, for example. For a polymer you can use starch gelatin or agar. The most used plasticizer is glycerin. It interacts with the polymer and gives flexibility to the end product. Glycerin is used because it is very cheap and abundant. Heat all the ingredients slowly up so that they get liquid. Mix them up and let them dry for a few hours. Then you have got your own bioplastic. All in all you can say, bioplastic is manufactured out of natural materials. So if the product comes back into nature, it is ok because it is just a mixture out of natural materials. The good thing about such biodegradable plastic is that everybody can mix those ingredients at home. You can order them on the internet and use your stove to heat them up. At the end you can form the plastic in every form you want as long as it is liquid. For example, you can do cups for drinking or plates for food, some foil or other containers and boxes. The possibilities are endless. With food color you can paint the plastic as you wish. All in all this is a very good opportunity to produce useful plastic parts that you need and you cannot buy anywhere.

Food packaging materials:

Every piece of food today is packed in plastic packaging. The bad thing is the packaging is not biodegradable. Many people throw it away, but microorganisms cannot dismantle them. Those food packages destroy nature. For example, in the world there is not one single island that has no plastic rubbish on the beach. Even if there are no humans living there, the rubbish of food packaging and other plastics is still there.

It is easy to avoid these problems. Use reusable bags if you go shopping for example. Do not throw pieces of plastic packaging away into nature or invest in biodegradable plastic because this material will not destroy the future of our next generations. There is a new invention; it is like a water bubble filled with water. The inventors, young adults, say that this is the future of water bottles because you only have to bite into the bubble and suck the water out of it. The rest of the bubble is edible because it is bioplastic out of seaweed. And because it is edible it is also biodegradable, you can put the bottle in the compost or give it to a center which can recycle it. Food packaging material can be out of seaweed but also out of starch, cellulose, pectin and the peel of some fruits. Only 1% from all plastic products are made out of biodegradable materials.