Erasmus+
„learn sustainability – live sustainability”

Oktober 2019 – April 2021

Participating project partners

Budapest X. Kerületi Zrínyi Miklós Gimnázium
Geniko Lykeio Litoxorou
ITET PILATI Cles
Montessori-Gymnasium Köln
Pierwsze Liceum Ogolnoksztalcace

Gefördert durch

Erasmus+
Schulbildung

Part I: Meeting at the *Montessori-Gymnasium Köln*

October, the 6th – 11th 2019

Contents

About the project

The project ' learn sustainability – live sustainability' involves the cooperation of five European schools from Poland- Lublin, Germany - Cologne, Greece - Litochoro, Hungary - Budapest and Italy - Cles. The cooperation will take place between students and teachers during mobilities in each country. Participants will analyse the issue of sustainability and environment protection. Thanks to the mobilities they will be able to compare this issue in different countries and they will work on different aspects of the problem in each country. The students will also learn about the organisations promoting slow lifestyle, opposing the pursuit of material wealth. They will find out more about the natural environment of humankind and the need to preserve its wealth for the future generations. They will also acquire skills of teamwork (also international), critical thinking, doing interviews, editing texts and using new technologies as well as improving their language skills. First hand experience of multicultural Europe and getting to know the European peers is also an important aspect of the project. The results of the project (video, book and photos) will appear on the schools websites, on the platform of the project, other social websites and also by word of mouth, photo exhibitions.

Schedule of the meeting in Cologne

Sonntag, 6.10.	Montag, 7.10.	Dienstag, 8.10.	Mittwoch, 9.10.	Donnerstag, 10.10.	Freitag, 11.10
Individual arrival of groups / reception by host families Italy: 8.00 am (Bus) Cologne / Bonn Airport Transfer to BHF Ehrenfeld Arrival 9.15 am Track 2 (Annabel Fabry) Hungary: Landing 8.10 am Dortmund, train to Cologne main station Meeting point Entrance Breslauer Platz (Alena Seckler) Poland: 11.00 am Cologne / Bonn Airport, Bus Terminal 2 (Julia Ritz) Greece: 2.10 pm Cologne / Bonn Airport LX 4428 Zurich Terminal 1 (Karin Maetschke)	**8.30 School/Atrium** Welcome by the headmaster Get to know eatchother in the group: games, introduction of partner schools and places Getting into the project: What ideas do you have about sustainability? International mixed groups prepare interviews for the afternoon project work.	**8.00 attending school lesson** 8.50 meeting /Atrium Subject field "Water" Visiting and guiding in different groups Documentation with photos and reports	**8.10 am meeting point station Ehrenfeld Track 2 / section in the direction of Venloer Str. (necessarily on time !!!)** Leave together for Gymnicher Mill (extracurricular place of learning) 9.30 am - 12.30 pm Workshop "plastic not fantastic" Important: Please bring robust and rainproof clothing (3km walk)	8.00 attending school Completing the presentations 10.00 am Workshop on "Water in the 21th Century" Resource water Water consumption Dealing with drinking water Preparing an exibition in the atrium	Individual departure of the groups Hungary: 5.20 am at Hotel 1000, Venloer Str. 1000, Bickendorf Greece: Departure 13.05 (Lufthansa LH1987)Terminal 1 Meeting place still open Poland: 16.10 Bus from Cologne / Bonn Airport Meeting place still open Italy: 20.00 (Bus) Cologne / Bonn Airport Meeting place still open
	about 12.30 lunch in Ehrenfeld (the urban district nearby the school)	about 12.30 group lunch	about 12.30 group lunch Schloss Türnich	Planning / purchasing in small groups	
	Sustainability in daily life?! Ralley through the urban districts Ehrenfeld/Belgium Quarter in international mixed groups (Route marker on the city map, design task, interview in several shops and markets foto documentation) approx. 16.30 Bürgerzentrum Ehrenfeld / feedback	Free time in downtown cologne 15.30 – 17.00 City tour on "Water in Cologne" in two groups Documentation with photos and report	Preparing the presentations / Developing the photos and writing reports Free time in groups	Feedback on workshops / results / exchange of ideas (How) Can my sustainable life succeed? Exchange of ideas Cooking together in the school kitchen and preparing an international evening	
	Evening in the families/ Optional teacher meeting to organize the following mobilities	19.00 – 21.00 Bowling all together	Optional evening program in small groups/ teachers seperatly	farewell evening with families	

Student generated content

Sustainability in everyday life

The workgroup in cooperation with the participating students chose several facilities located in Cologne dealing with sustainability. On the first day of the meeting students from different countries visited these facilities for exploring the different approaches. In this chapter the different facilities will be introduced, the experiences of the students will be documented and the different approaches to the topic will be evaluated.

TASKS:

In this chapter, you should

1. **describe the main idea for working sustainable in the facility you visit,**
2. **document your experiences while visiting the facility,**
3. **evaluate the facility with regard to sustainable living!**

Projectgroup HUMANA & Tante Olga

Short introduction of the facility

The Idea of the business comes from people who give clothes to shops. Others can buy them so it is basically reused. They also buy clothes from Dubai and Marocco. Prices contain only the salary of the employes and the price of the energy that they used.

Tante Olga is a shop where you can shop with your own boxes and bags. Products are sold without package and aren´t weighted.

Impressions

HUMANA is a nice initation.

Tante Olga is a nice shop where you can sit down for a coffee or a biscuit.

Critical reflections

HUMANA: A very important advantage is that they are working on reduce.

Tante Olga: It is important to stop wasting.

Projectgroup *Donk-EE*

Short introduction of the facility:

Monday was a very interesting day. We learned a lot about sustainability. Also, we learned why it is not a good idea to use a car if you do not need it because it causes pollution to the environment. Many families have cars, but some of them do not actually need it .For that reason Donk-ee created bikes which people can use to move a a lot of stuff. This bikes are very cheap to rent. If someone wants to rent one of this bikes he can easily download the app for free, then the lock of the bike opens. People can rent one of these bikes for 5 cents per minute.

Impressions

Critical reflections

Projectgroup Slow food:

Short introduction of the facility:

Slow Food works around the world to protect food biodiversity. It works with thousands of small-scale food producers, providing them with technical assistance, training and communication. There are themes like land grabbing, climate change and many more

Impression:

The initiative is very big so it can pay attention to a lot of problems

Critical reflection: The best thing about this is that it helps the enviroment

Projectgroup *Cambio/Car-Sharing*

Short introduction of the facility

Cambio is a car rental company that has a special system called car sharing, and it works like this: 4 people decide to rent a car, and the goal is to be able for them to rent it for the whole day for an equal amount of time. The company is trying to attain more electric cars so they can reduce carbon emission from fossil fueled cars.

Impressions

1. The head staff of the company was really happy to participate in our interview.
2. They seem to really care about the environment and want to help reduce toxic fumes in the air.
3. The head staff are actively working on attaining more electric cars in the future.
4. Their car sharing program is actively helping people reduce their use of cars because when people are car sharing,when they finish their turn and trade the car over to the next car sharer, they are forced to use a bike, or walk, which greatly reduces carbon emissions, that really surprised our interviewing crew.

Critical reflections

1. We believe that Cambio is a good company but we also think they should use more electric cars, since they only have about 4 in their total of 40 cars.

Projectgroup *IGLU*

Short introduction of the facility

We visited the store IGLU Kiss the Inuit. It is about upcyceling and producing organic clothes. They try to keep the price of the clothes as cheap as possible, so everyone can buy it. They also have a little area where people can swap secondhand clothes for new pieces of their own. Once in a month there is an extra event for swapping clothes with others. To that they produce jewelry out of old shirts.

Impressions

Monday was such an interesting day. We learned a lot of things about the sustainability and it was amazing.The graffites was beautiful in Burgerzentrum and I think that i will have an another exrerience to see these wonderful things.

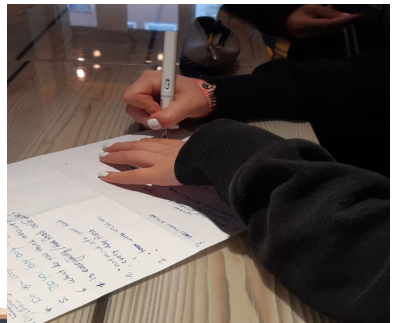
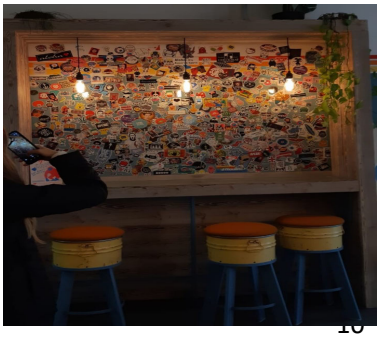
Projectgroup *Aloha Poke*

Short introduction of the facility

We have visited vegetarians restaurant "Aloha Poke" and have made an interview about sustainability and aspects around it. We were talking with a very kind and helpful woman, who told us about their store/shop and answered to some questions.
She told us about the pro-ecological attitude of their activities like using recycled and fair "to-go-Packaging/Trays" of paper . We asked her what they do with leftover food, whether they buy regional products and cooperate with regional companies, so she told us that they are trying to calculate the exact amount of food in such a way that nothing (or just a small amount)left at the end of the day. she also told us that they obtained fish from certified fisheries (for saving dolphins).

Impression
We Really liked this task and the opportunity to interview the employee of the vegetarian restaurant "Aloha Poka", which brought us closer to the operation of this restaurant.

Criticial reflections
Thanks to this task, we learned about many interesting things in the operation of an eco-friendly restaurant. We think that there should be more such restautions, then the world would be better.



Aloha
POKE

Projectgroup *Ding-Fabrik*

Short introduction of the facility

The subject of our project was sustainability in everyday life. We went to the place called the Ding Fabrik, which turn out to be sort of a workshop and a club, where people can meet and use professional machines to complete their personal projects. The idea of the company is based on helping people with creating things or fixing them. The only thing members of the club have to care about is buying materials.

Impressions

This institution is a really sustainable place, where people can reuse matters and materials and give a new life to old objects. Every member of the club is supposed to give a small donation for electricity and warming in the workshop, in return he or she can use all the machines, leftover materials and professional help from others. This is a place where people can also bring matters which are not useful for them anymore, so it make reusing supplies easy and affordable.

Critical reflections

The idea of the company is very bread-minded and useful for people with creative minds and wonderful hobbies. It is an incredibly promising way to reuse potentially useless materials and help the environment. However, people should be better informed about this place, such as a website or an open group. Furthermore, the idea of sharing with materials and machines should be better known and increased all around the globe.

Projectgroup *Bütze*

Short introduction of the facility

The so called „Bütze“ is a house for the peolpe of Ehrenfeld. You have a big theather and a nice bistro where you can eat. In in front is a nice playground for kids. You can meet and have fun there. They offer you cool workshops for dancing or parties take place there. Once in a week, people who can’t affort to buy food can come and pick up donted food. And once in a month, people meet to repair old or borken things together

Impressions

Critical reflections

There could be more information about where they get there food from

Projectgroup *Kleiderei*

Short introduction of the facility

1.What is the difference between this shop and other "normal shops"

This is a second hand shop.It is like a library,so you can borrow clothes,by doing a monthly subsribe. In that you can come whatever you like to change and take different clothes,like an infinite wardrobe.

2.How did you came up with this idea?

It was in Hamburg two girls,both of them very spontagious.They had the oppuntunity to make their idea come true.This worked really well,it became a big event into social media.After that they decided to open an online shop,but the girls,couldn´t afford it.So one of the girls said "I want to do this a off-line shop in Cologne".

3.What makes your shop sustainable?

That they only have second hand clothes,their new pieces are ecological produsedThe shop tries to keep the clothes as long as possible.Also there is a shop(on the other side)that can fix the clothes so they can last longer.

4.Are there a lot of people interested?

It was very hard to start,cause the idea was new and the people they had never seen something like this before,but now it´s very well accepted.

5.Do you have an app to promote your shop?

Social Media is their main sourse, to promote their shop.Many big events/meetings have

6.Do you think that there will be more shops like this in the future?

The first shop that opened was this.A lot of new shops are opening all over Germany.

7.Do you believe that your shop helps the inviroment?

Yes,because the clothing industry is the baddest for the enviroment.Just one pair of jeans takes 7.000 lt of water and a white t-shirt 2.000 lt to be produsedThe toxic colours of the clothes,have a negative impact on the inviroment,a whole river was pink because of that.The working conditions are horrible,women are suffering,they work for "25 hours".We dont need more clothes,we really dont have to produse other clothes.We have enough for our grand-children..

Impressions

This was such a wonderful experience,we had the oppurtunity to learn about the" wonders world of second-hand shops".

Critical reflections

Shops like this should open all around the world,

F 

City Tour on “Watar in Cologne”

Workshop “Plastic not fantastic” at the Gymnicher Mühle

Activities

We got splitted in two groups:

- The first one went to the laboratory to see how much microplastic a simple piece of fleece can release. To do that we washed it with washer machine's soup and shakes it for 5 minutes.

Workshop"Water in the 21st Century"

Group 1: **Personal water footprint / Virtual water**
In our group we calculated our personal water footprint on the website of the aquapath project. Aaron had the lowest personal water footprint with 12.500 litres per week. Alberto was near to him with 13.000 litres. Both of greece boys had higher water footprint. Michael use 27.000 litres pro week and Andreas spend 33 litres per week.

We also checked the water footprint of daily products like:
Eggs :196 litre for 60-Gram egg
Pork: 5988 litre/kg
Pizza: 1259 litre per pizza
Olives: 3015 litre/kg
Bio-ethanol (from corn): 2854 litre water per litre
Leatherbag: 17093 liter/kg

Definition virtual water:
Virtual water is all of the water consumption necessary for an agricultural or industrial production, or a service. In other words this corresponds to the total quantity of water needed to produce something. The term 'virtual water' is used because the water consumed is generally not found in the finished products.

Group 2: **National water footprints** (http://aquapath-project.eu)
In our group we calculated our personal water footprint on the website of the aquapath project.Nele had the lowest water footprint , with 11.000L per week probably because she is vegetarian and her family doesn't have a car. Yagmur is the next with 15.000L per week. Giorgia is the next with 20.000L per week. And Nikoleta has the highest water footprint with 22.000L per week, because she eats meat.

We also checked the national water footprint of Germany which is 120.000 Million per year. Then we checked the water footprint of Italy which is 130.000 Million per year. And finally we checked the Greece which is 26.000 Million per year.

Group 3: **Water shortage – a global issue**
Group 4: **Technological solutions to water shortage**
Group 5: **Drinking water and sanitation services: a global perspective**
Group 6: **How to make drinking water: a** water treatment plant/ experiment

Task Group 1: **Personal water footprint / Virtual water**:

1. Calculate your **personal water footprint** by using the calculator on the website given below. Compare your results within the group.
   http://aquapath-project.eu/footprint/
2. **Virtual water**: Find the definition of virtual water. Check out the **water footprint gallery** to check the water footprint of products of daily life like: eggs, pork, pizza, olives as well as bio fuel and leather bag. Compare different types of food and comment on your findings.
   https://waterfootprint.org/en/resources/interactive-tools/product-gallery/
3. Water is valuable. How can water be used in a sustainable way?

Task Group 2: **National water footprints**

1. Calculate your **personal water footprint** by using the calculator on the website given below. Compare your results within the group.;)
   http://aquapath-project.eu/footprint/
2. Check out the **national water footprints** of your countries and compare them among each other.
   http://www.waterfootprintassessmenttool.org/national-explorer/ or
   Check on the Internet if there is water shortage in your country ("water shortage Greece" "Water shortage Germany", etc.) Find out what factors determine water footprint of a country. Try to explain the differences.

Task Group 3: **Water shortage – a global issue**

1. Watch the video on **water scarcity** (shortage):
   https://www.youtube.com/watch?v=2QQszsz0C20 and explain the issue of water shortage.
2. Examine how climate change could affect the available drinking water reserves, especially in Southern Europe and North Africa. You will find the information you need on the Internet.
3. Water is valuable. How can water be used in a sustainable way? Write down your findings into the Erasmus project ebook.

Task Group 4: **Technological solutions to water shortage**

1. Calculate your **personal water footprint** by using the calculator on the website given below. Compare your results within the group.
   http://aquapath-project.eu/footprint/
2. Watch the commercial video https://www.youtube.com/watch?v=VIaw5mCjHPI and find out more information on possible **technological solutions** to drinking water shortage. Consider water desalination plants, wastewater treatment plants etc.
3. Water is valuable. How can water be used in a sustainable way? Write down your findings into the Erasmus project ebook.

Task Group 5: **Drinking water and sanitation services: a global perspective.**

Safe drinking water and sanitation are recognized as basic human rights, as they are fundamental in maintaining healthy lives.

1. Watch the video about the lack of safe drinking water and poor sanitation https://www.youtube.com/watch?v=KihgZDYSfks
2. Look at figure 2 and compare the numbers of deaths due to water-related issues to the numbers of deaths caused by other factors (wars and other natural disasters).

Source: *The United Nations world water development report 2019: leaving no one behind, facts and figures*

- water causes more problems than the other factors
- a lot of people get killed by water because it causes illnesses
- water causes a lot of economic damages with only flooding almost as much as earthquakes and epidemics

-People affected : water related = 161 Million ; non water related = 71 Million people - People killed: water related = 787100 ; non water related = 131000

- Economic damage: water related= 36,8 $; non water related= 30$

3. Watch the second video https://www.youtube.com/watch?v=LCKsU4bPFOQ and find answers to the following questions:

   What makes it so difficult for some people to have access to water?

   - No infrastructure —> walk long distance
   - Pollution by human and industrial waste

   Why are there millions of people in the world without access to a toilet?

   What can you do to improve the situation?

   - Be thoughtful about your water usage
   - Sanitary systems can be developed [that can get rid of the waste proparly and clean the water even so that you can reuse it]

Task Group 6: **How to make drinking water: a** water treatment plant/ experiment

1. Find out about how the water treatment plant works by watching the following video (up to the 8th minute):

https://www.youtube.com/watch?v=0_ZcCqqpS2o

2. Draw a flow-diagram of water purification process in a plant:

Write down what the advantages and disadvantages of disinfection with chlorine, ozone and UV-radiation are. Which type of disinfection is the most common one in your country? Find out (you may check it in your own language)!

3. Do the experiments simulating the steps of water purification process in a plant.

Task Group 1 Personal water footprint/Virtual water

1.Calculate your **personal water footprint** by using the calculator on the website given below.
1.Vaggelis had the highest water footprint at 3225ms
2.Marie was second at 2667ms
3.Mary was last at 365ms

2.**Virtual water:**find the Definition of virtual water.Check out the **water footprint gallery** to check the water footprint of products of daily life like:eggs,pork,pizza,olives as well as bio fuel and leather bag.Compare different types of food and comment on your findings.

Eggs: 169 liter for a 60-gramm
Pork: 5988 litre/kg
Pizza: 1259 litre per pizza
Olives: 3015 litre/kg
Bio fuel: 2107 litre water per litre bio fuel
Leather bag:17093 litre/kg

3.Water is valuable.How can water be used in a sustainable way?
Write down your findings into the Erasmus project ebook.
This is how you can start:
In our group we calculated our personal water footprint on the website of the aqua path project. Maria had the lowest personal water footprint and Vaggelis the highest.We also checked the water footprints of foods and items.

Task Group 3: Water shortage – a global issue:

Aim: How vital and valuable is water?

1.The issue of water shortage

The main problem of this issue is fact, that use water is not available all around the world. There are territories where the lack of water, is a common issue, and the water shortage can be as long as a period of few months, or even the whole year. In such regions, the water is very important and people are making a huge effort to ensure their availability to water resources.

2.How climate change could affect drinking water resources

Climate change has a big effect on the available reserves with drinking water all around the world. Especially endangered are regions such as Southern Africa or North America, which are located all along the neighbourhood of the tropic of Cancer. The issue is the biggest in States like California, Texas or Florida, and in Southern Europe: Spain, Italy.

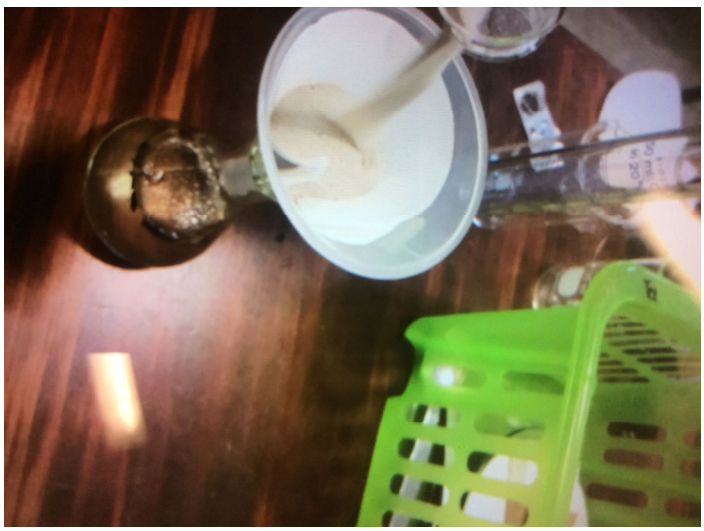
The main problem of this issue is fact, that use water is not available all around the world. There are territories where the lack of water, is a common issue, and the water shortage can be as long as a period of few months, or even the whole year. In such regions, the water is very important and people are making a huge effort to ensure their availability to water resources

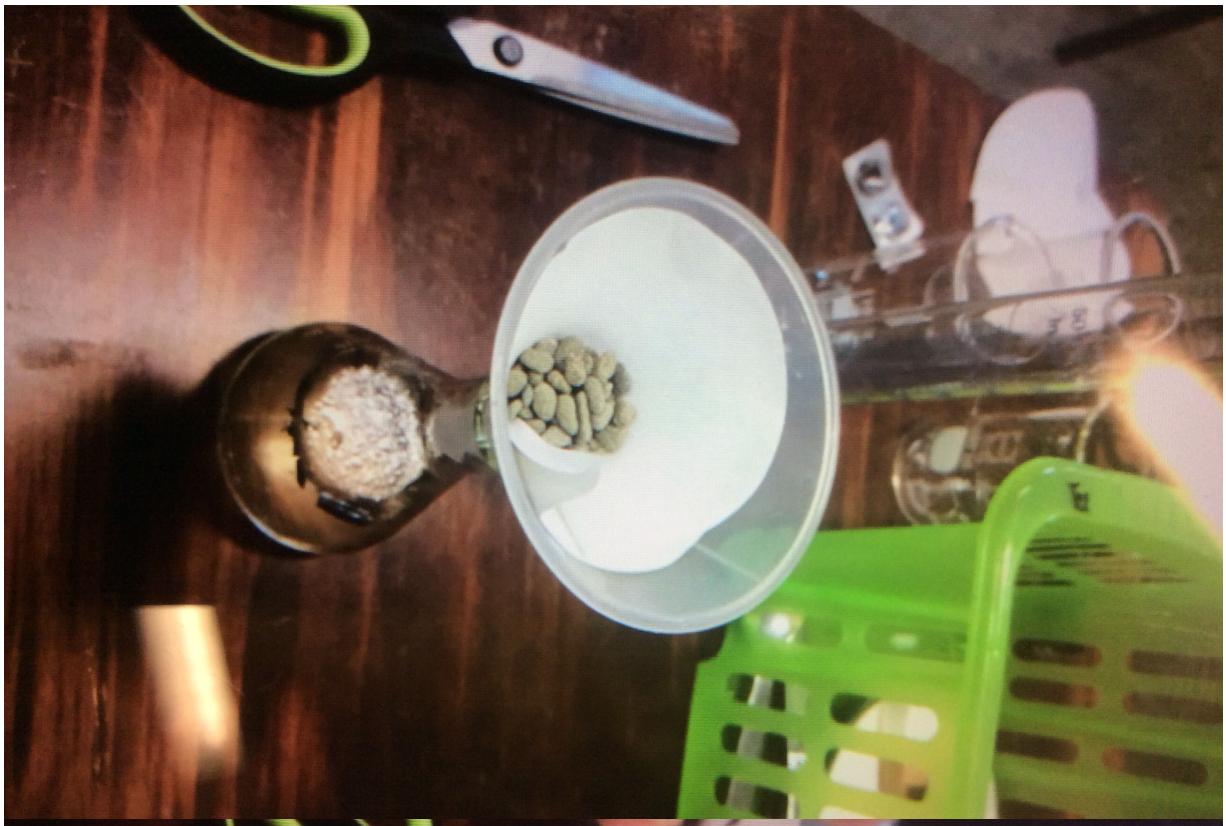
3: How can water be used in a sustainable way.

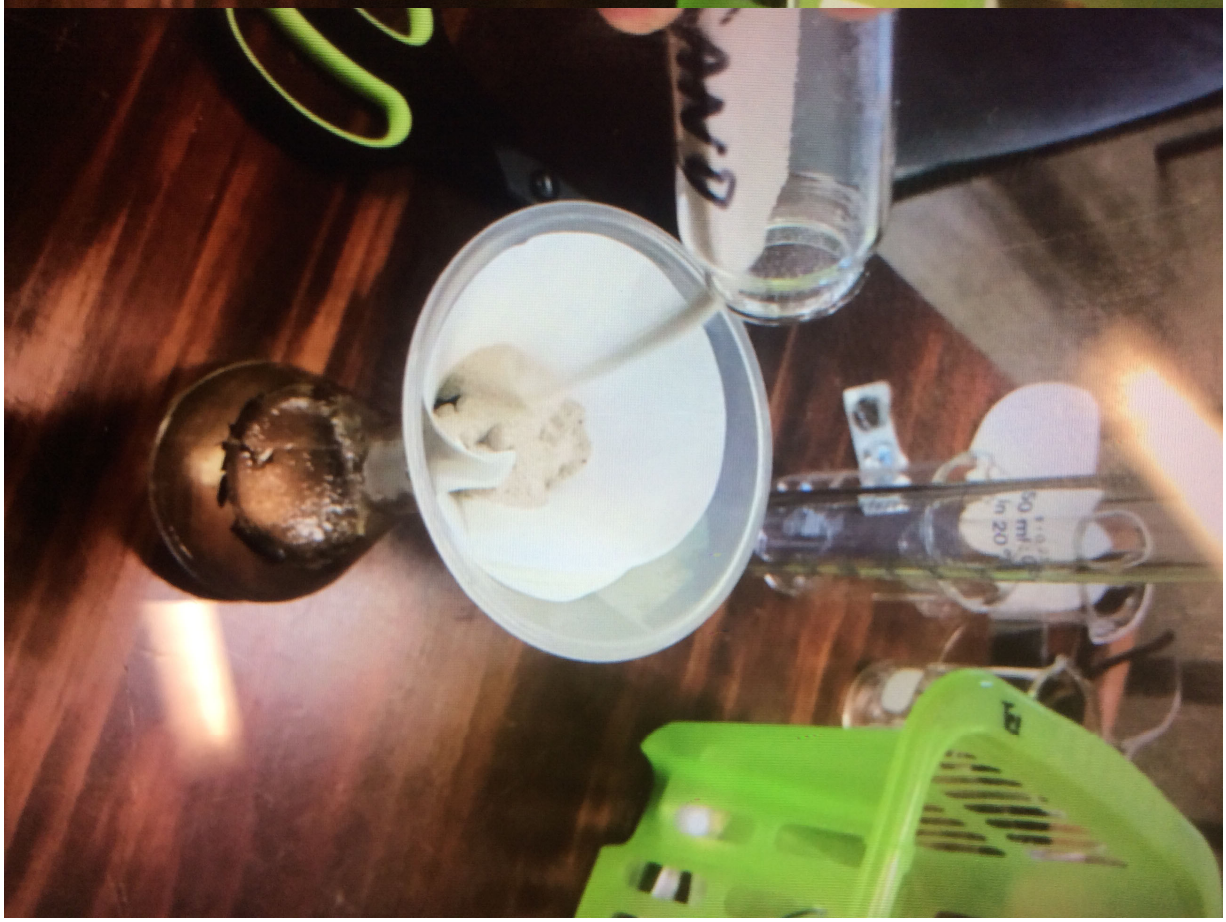
Water is everywhere, but it is not infinite source, for some communities it's really valuable and limited good. We all could use water in a sustainable way by filtering the water from the tap, so that we can also drink the water from the sink. We could also add a second flush button to the toilet flush where less water comes out. Or we also could like use washing machines that use less water than normal ones because so all in all we could reduce our use of water for our household. We should taking a shower instead of taking a bath as well.

How to make drinking water.

How to make drinking water a water treatment plant experiment







chlorine

advantages :

- chlorine is a powerful oxidizing agent thereby getting rid a lot of bacteria in water
- chlorine is commercially available
- chlorine is very economical

disadvantages :

- It is harmful to the environment
- super-chlorination poses danger to humans over a period of time
- chlorine does not exterminate all bac

OZONE

advantages :

- ozone doesn't leave smell or taste
- water takes on a crystalline color

disadvantages :

- ozone breaks down, making water more susceptible to pollution

UV-radiation

advantages :

- killing of bacteria
- no chemicals need
- low operating costs
- taste and smell are not affected

disadvantages :

- if the UV light can not reach the microorg because it is blocked particles, it will effective

In Poland and Germany the most popular - ~~most effect~~ type of disinfection is chlorine disinfection.

G