

## EVERYDAY WASTE

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„Quotation for raising interest

Peter Golkin writes, “*My two favourite things in life are libraries and bicycles. They both move people forward without wasting anything. The perfect day: riding a bike to the library.*”

(taken from page <http://www.goodreads.com/quotes/tag/waste>).

**Target age:** [class or age] (10)-12-14

This the indoor activity suitable to carry out any time of year during subject lesson or during additional educational activities like eco-clubs.

**Duration:** basically 2 x 45 minutes but the activities can be developed by teachers for longer time

**Subjects:** - Citizenship, Biology, Ethics

**Skills:** Student recognizes the problems of the immediate environment (household) and seeking their solutions, considering how his behaviour affects the environment, justifies the need to segregate waste in the household and the need for special handling of waste electronic equipment.

**Keywords:** waste, reduce, reuse, recycling, “waste electric, electronic equipment”.

### Summary of activities

| Number      | Title   | Method   | Duration        | Forms of works                           | Location |
|-------------|---|--|-----------------|--|----------|
| 1. activity | Analysis of the wastes collected in the waste bin through the whole week.                                   | Group discussion, simple mathematic calculations | 15 – 20 minutes | Whole class discussion, working in pairs | Indoor   |
| 2. activity | Reflection on effective methods on dealing with waste   | General discussion, fulfilling the tables        | 15-20 minutes   | Whole class discussion, individual work  | Indoor   |
| 3.activity  | Watching short movie on YouTube   | Use of internet media                            | 5 minutes       | Whole class                              | Indoor   |
| 4. activity | Mobile phone in my life   | Moderated discussion                             | 15 minutes      | Whole class                              | Indoor   |
| 5. activity | Why using mobile phone for a long time or using „second hand” mobile phone helps to protect the environment | Preparing statement                              | 15 minutes      | w  |          |

### 3. OUTLINE OF THE MODULE:

#### Summary - short summary about the topics, goals, depending correlations, and impact of the module activities

Garbage is a serious problem of the modern civilisation. Everyday we throw out paper, metal, glass and plastic. The average amount of municipal waste per capita in the EU in 2013 was 481 kg.. There is also

serious amount of very special wastes: old electronic and electric equipment. On one hand we are creating big mountains of garbage and we do not know what to do with them, on the other hand we throw away valuable resources.

This module consist of three activities – two in format of the classroom lessons:

- Why the waste are a problem and how to deal with waste
  - The second life of mobile phone
- and one practical action to deal with waste in school in sustainable way.

### **Goals - direct goals and attitude formation, reached by the activities**

The aim of that module is not to provide ready list of solution but to make students to think and discusse the problems created by our enormous wastes production and how everybody can minimise waste production in their everyday life.

### **Activity one 1: Why the waste are a problem and how to deal with waste**

**Preparation:** For the whole week (or few days) do not empty the trash bin in the classroom.

**Classroom preparation** It is recommended to have access to the internet or during the preparation as children to watch the short internet movie available in the internet

### **Implementation – list of activities.**

1. Pupils are looking at the waste which are in the bin in the classroom and analyse what is inside. They do the segregation of collected wastes for plastic, paper, organic and others. Teacher is asking what are the problems with wastes. How the waste productions affects people ? Environment ? Children are giving the table “Some facts about the trash” (worksheet 1). Working in pairs (or in small groups) they have to prepare their answers. Students can calculate what amount is produce by their family during year and to visual this they can divided this weight of whole household waste by their personal weight.
2. The next step is to reflect on how can resolve the problems with wastes. Students are asked to say what in their opinion can be done to minimalize the problem with wastes. After short discussion (10 mint maximum) and presentations of students answers, teachers tells students that the recommended solutions for dealing with wastes are called from English language: Reduce, Reuse, Recycling, Rethink  
Students are ask to propose these solutions for particular type of wastes. Their task is to fulfil the table (worksheet 2). Not all squares need to be fulfilled

After finishing this task and students’ presentations Teacher asks which solution is the most effective in their opinion and why ? (*the best solution is reduce because it means not producing wastes*)

3. **This is an optional.** At the end of the activity children can watch a short move on you tube about great plastic wastes path on pacific ocean . It last approximately 3 minutes and have subtitles in English but they are quite simple and even without English the mission of that move can be understand. It is recommended that teacher will read information about this problem before watching the movie

<https://www.youtube.com/watch?v=1qT-rOXB6NI>

### **Activity 2. The second life of mobile phone**

1. In the first part of the lesson, students will realize how very common device are mobile phones. Teachers asks students which electronic devise is the mostly used by people in world (*the aswer is mobile phone*). The teacher asks the students whether their experience

- confirms the fact that the mobile phone is an electronic device occurs most frequently in the world. Asks the questions: whether each student has a cell phone or smartphone ?, if one or more? what is the situation in the families of students? if they all have their own phones?
2. The teacher then asks students to question how often change their mobile phones and why do it? After some discussion, the teacher draws attention to the fact that the mobile phone can be operated for 7 years, but usually replace it every two years. We buy new phones following the fashion or the need to use the opportunities offered by the newer phones - access to the Internet, listening to music, taking pictures and videos. However, our old phone may still be needed and an attractive subject for others. In this lesson the students will work in small groups. Their task is to prepare statements about **why using mobile phone for a long time or using „second hand” mobile phone helps to protect the environment** ?. Students will be given information about mobile phones – worksheet 3.
  3. To sum up what the students said the teacher stresses that new models of mobile have functions e.g. camera, a music player, GPS etc. New models are also very light, which means that their production uses less raw material. All this makes the new phones are becoming more environmentally friendly. But the biggest benefit to the environment has long-lasting use. By doing so we achieve:
    - Saves valuable raw materials needed to produce the phone,
    - Reducing the amount of produced telephones and hence the pollution of the environment occurring during production,
    - Reduced transportation and thus uses less oil and produces less CO<sub>2</sub> emissions,
    - Produces less waste. In the case of hazardous waste (and such because of the content of toxic substances to be mobile) problem is not only the amount of a serious threat to the environment in case of seepage of toxic substances into the soil and water.
  4. After all groups will present to the class the results of their work teacher asks, so what should you do with your old phone. Teacher lets students to speak freely and debate. Notes that if broken and not usable phone (or any other electronic or electric must get to the special collection point where it will be recycled. ***It necessary to know the national legislation about Waste Electric and Electronic Equipment (WEEE)***

### Activity 3. practical action to deal with waste in school in sustainable way

After having lessons about waste it would be recommended to undertake practical action to deal with waste. This can be done in many ways. Below are just examples:

1. Make posters about solutions for wastes productions and put them in visible place in school.
2. Organise visit to recycling site, places were WEEE are collected.
3. Organise the segregation of wastes in school : providing bins for paper, plastic and glass
4. Organise “old things exchanging day”. Students and teacher will bring old, books, cloths, toys etc. and can exchange .
5. Organise place just for permanent exchanging books where the students and school staff can leave own old books and pick up books which are left by somebody

STUDENT'S PAGE

**Worksheet 1 Some facts about the waste**

**Some facts about the waste:**

The average amount of municipal waste per person in the EU in 2013 was 481 kg

Approximate time of waste decomposition

|                                       |   |
|---------------------------------------|---|
| <b>Cotton t-shirt</b> 2-5 months      | <b>Glass bottles</b> very long (you can not determine this) |
| <b>apple core</b> 2 months            | <b>news paper</b> 6 weeks                                   |
| <b>aluminium can</b> 200 years        | <b>plastic bag</b> 400 years                                |
| <b>plastic bottle (PET)</b> 1000 yers |   |

**Worksheet 2 Table Reduce, Reuse, Recycling, Rethink (not all square have to be fulfilled)**

| Type of waste   | Reduce                         | Reuse                               | Recycling  | Rethink                            |
|---|--------------------------------|-------------------------------------|--|------------------------------------|
| Plastic bag   | Take from home own textile bag | Use the same plastic bag many times | Collect them and put to the proper trash container | Produce biodegradable plastic bags |
| Plastic bottle  |                                |                                     |  |                                    |
| Newspaper   |                                |                                     |  |                                    |
| Glass jar   |                                |                                     |  |                                    |
| Old cloth and toys  |                                |                                     |  |                                    |
| Others..<br><i>(there can be any waste students are thinking about)</i> |                                |                                     |  |                                    |

### Worksheet 3 Life cycle of the mobile phone (information about mobile phones)

**Life cycle of the mobile phone (information about mobile phones)** *The info can be provided as an circle – I will ask the graphic to do so..*

1. **Extraction of raw materials.** According to the information given in 2012. By the company making recycled phones in the United States of 10 thousand. cameras (one ton) phones contains 140 kg copper, 3.14 kg of silver. 300 grams of gold 130 g of 3 grams of palladium and platinum. According to the Central Statistical Office in Poland (find your data please) in 2013 there was almost 55 million mobile phones. This means that in 2013 in Poland in mobile phones were 17270 kg of silver and 1650 kg of gold. It just depends on us what will happen to these valuable resources.
2. **Production.** Mobile phones are built of many raw materials. In general, the phone is made in 40% metal, 40% plastic, ceramic 20% and 20% of other materials.
3. **Transport and packaging.** Parts needed for the production of mobile phones and the ready phones are packed and transported from one place to another. Transport by aeroplanes, trucks and trains requires fuel consumption and contributes to CO<sub>2</sub> emissions.
4. **Using of the mobile phones.** The average cell phone in a lifetime for a year consumes energy resulting in emission of approximately 50kg of CO<sub>2</sub>.
5. **Disposal.** According to specialists used mobile phones (like any waste electrical and electronic equipment WEEE) can contain up to 5,000 toxic components. Thrown on a wild landfill, the garbage or in places not intended for and unsecured - deteriorate. Sooner or later this leads to release their contents and penetrate the soil and water. In this way substances contained in WEEE join in the food chains of plants, animals and humans.  
  
**5a. Recycling.** The valuable resources contained in mobile phones are reused again to manufacture other devices.  
  
**5b. Reuse.** The old, outmoded or simply unwanted but still functional phone can still be used successfully to another person.

TEACHER'S page

Before undertaking lessons about wastes it is recommended to learn about that problem.

They should know

For activity 1:

- what is the production about municipal waste per capita in the country.

For activity 2.

What is the national legislation about Waste Electric and Electronic Equipment.

It would be valuable to watch documentary movie Blood Coltan