

## Learning pack #1

Teaching materials for schools and educational institutions  
For students aged 12 to 16 years old



# Plastic waste and its environmental impact



GLOBAL IDEAS learning pack “Plastic waste and its environmental impact”

## **Global Ideas – The multimedia environment magazine**

*Around the world, imaginative people and innovative projects are working to protect our climate and biodiversity. Global Ideas tells their stories each week on TV and online.*

Global Ideas is Deutsche Welle's multiple award-winning, multimedia environment show supported by the German Environment Ministry's International Climate Initiative. An international team of dozens of editors and reporters are behind its success.

Global Ideas is more than just television. Think interactive specials such as a visit with Africa's wild animals or simple explainers that answer complex questions like "does global warming really exist?" The show's diverse work also has an educational element in the form of carefully crafted "Learning packs" on key environmental topics. Freely available in German, English and Spanish, these learning materials include videos, articles, posters, picture cards, worksheets and teacher handouts. They are available as a brochure with an accompanying DVD as well as online for download.

[www.dw.com/globalideas](http://www.dw.com/globalideas)

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## **Introduction**

The global use of plastic is resulting in increasing problems all over the world. On one hand, plastic has huge advantages to other materials in that it is light, robust, cheap and long-lasting. Yet on the other, it brings with it many disadvantages for the environment.

A quick look around reveals the scope of the problem. From packaged tomatoes in supermarkets and plastic plates at snack bars to plastic water bottles – plastic dominates our everyday lives. The sheer amount of plastic and its durability are a fatal combination for the environment and people. Plastic bottles carelessly tossed aside, inadequate waste disposal systems and a lack of awareness regarding the consequences of plastic pollution all pose a huge global problem. How can we get rid of this mountain of plastic? Or better yet: How can we avoid producing it in the first place?

Deutsche Welle's “learning pack” enables youth and environmental groups and teachers to tackle this topic in depth with students aged 12 to 16. The learning pack consists of four modules. These include worksheets with explanatory handouts, articles, picture cards and a poster. All the materials, including films, can be found on the accompanying DVD. Everything for the lessons is also available online for free download: [www.dw.com/globalideas](http://www.dw.com/globalideas)

The table below provides an overview of the individual modules, including their duration, a short content description, the learning objectives and materials required.

## **Structure**

To create an understanding of the problem, the first module provides a basic introduction to the issue of plastic.

The second module looks at the individual dimensions to the plastic problem, in which students and young people examine how they use plastic and the role it plays in their lives. Following this “reflective process,” another question is raised: namely how we can avoid plastic on an individual level and what alternatives exist in our countries.

The third module examines the structural dimension by looking at the limits placed on our own actions as well what is necessary to change this. Positive examples from different countries are presented here.

The fourth module deals with gathering ideas to prevent plastic waste and agreeing on concrete collective action in this regard.

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**Module overview**
**Module 1: Problem and background**

| <b>Duration</b> | <b>Description of content</b>  | <b>Learning objectives</b>  | <b>Materials and implementation</b>   |
|-----------------|--|---|---|
| 30 Minutes      | <b>Introduction to the topic through picture cards</b> that depict issues relating to plastic. Each participant chooses a card and explains why they have done so and what they associate with it                    | Getting to know the topic and building basic knowledge in the group   | Picture cards depicting different plastic-related issues<br><br>Handout 1   |
| 35 Minutes      | <b>Introduction to the topic via film</b>  | Basic understanding of the plastic waste problem  | DVD, TV with DVD player or PC with internet access.<br>Film option 1:<br>"How harmful are plastic bags to the climate?"<br><a href="http://p.dw.com/p/2Y8b9">http://p.dw.com/p/2Y8b9</a><br><br>Film option 2:<br>"What happens to my empty plastic bottle?"<br><a href="http://p.dw.com/p/2phRV">http://p.dw.com/p/2phRV</a><br><br>Handout 2<br>Worksheet 2.1 or 2.2 (optional) |
| 40 Minutes      | <b>Supplementary: Group work introducing the topic using infographics</b><br>Topic areas:<br>Work group 1: Plastic production – Scope and production methods<br>Work group 2: Plastic waste in nature and the oceans | Deepening knowledge of further issues relating to the plastic problem in work groups (WG) and presenting that knowledge to the larger group | Handout 3<br><br>Worksheet 3.1 (for WG 1) and Worksheet 3.2 (for WG 2)  |

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## Module 2: Individual plastic consumption

| <b>Duration</b> | <b>Description of content</b>   | <b>Learning objectives</b>  | <b>Materials and implementation</b>           |
|-----------------|---|---|---|
| 20 Minutes      | <b>Personal use of plastic:</b><br>Describing my daily routine and the role of plastic in it            | Reflection I:<br>How, when and where do I use plastic and how do I dispose of it?           | Handout 4<br>Worksheet 4                      |
| 20 Minutes      | <b>Prevention/reduction of my own plastic consumption and that of my family/those in my environment</b> | Reflection II:<br>What can I do to reduce my plastic consumption?<br>What can my family do? | Handout 5<br>Worksheet 5                      |
| 20 Minutes      | <b>Alternatives to plastic in our own country:</b> Adding to the poster with own proposals              | Reflection III:<br>What else can we do in our country?                                      | Poster: "Living without plastic"<br>Handout 6 |

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**Module 3: Structural element**

| <b>Duration</b> | <b>Description of content</b>  | <b>Learning objectives</b>  | <b>Materials and implementation</b>   |
|-----------------|--|---|---|
| 20 Minutes      | <b>Engaging with DW reporter Tamsin Walker's plastic waste avoidance experiment</b>  | Recognizing the structural limits of individual conduct   | Article: "Plastic-free: Liberty or slavery?"<br><a href="http://p.dw.com/p/1HYGH">http://p.dw.com/p/1HYGH</a><br><br>Handout 7<br>Worksheet 7   |
| 20 Minutes      | <b>A controversial plastic ban: Engaging with Zimbabwe's styrofoam ban</b><br>An unacceptable curtailment of individual freedom by the state or the use of "regulatory law"? | Weighing up the pros and cons of voluntarily changed behavior on an individual and collective level versus state intervention | Article: "Cleaning up Zimbabwe with a styrofoam ban"<br><a href="http://p.dw.com/p/2I7FM">http://p.dw.com/p/2I7FM</a><br><br>Handout 8<br>Worksheet 8   |
| 20 Minutes      | <b>Analyzing different recycling methods and the use of plastic as a recyclable material</b>   | Learning about various recycling methods and alternatives   | DVD, TV with DVD player or PC with internet access.<br><br>Films:<br>"From plastic waste to hot meals"<br><a href="http://p.dw.com/p/2p8Fy">http://p.dw.com/p/2p8Fy</a><br>"Plastic fantastic: Nigeria's carrier bag fashionistas"<br><a href="http://p.dw.com/p/2p8Hs">http://p.dw.com/p/2p8Hs</a><br>"Plant-based plastic from a seaweed startup"<br><a href="http://p.dw.com/p/2p8Ga">http://p.dw.com/p/2p8Ga</a><br><br>Handout 9 |

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**Module 4: Collective action/community activities**

| <b>Duration</b> | <b>Description of content</b>   | <b>Learning objectives</b>  | <b>Materials and implementation</b>  |
|-----------------|---|---|--|
| 20 Minutes      | <b>Introducing the idea of collective action</b> with the example of "the largest beach clean-up project in the world" in Mumbai. | The knowledge that an individual's actions can spark larger changes   | Article: "Fighting for clean beaches in Mumbai"<br><a href="http://p.dw.com/p/2nwpd">http://p.dw.com/p/2nwpd</a><br>Handout 10 |
| 20 Minutes      | <b>Collecting ideas: What can we do in our own environment?</b>   | Collecting various ideas on how plastic waste in schools and neighborhoods can be prevented/reused<br>Returning to the poster from module 2 | Adding to poster “Living without plastic” from module 2<br><br>Handout 11  |
| 20 Minutes      | <b>Agreeing three concrete proposals</b>  | Planning for concrete steps:<br>What, who, where, when?   | Handout 12<br>Worksheet 12   |

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## **Handout 1**

### Module 1: Problem and background

#### **Using picture cards to introduce the topic (Duration: 30 minutes)**

Tasks for the project leader:

- Place the pictures on the wall or floor in such a way that a number of people can gather around them.
- Ask the participants to choose the card that most interests them.
- Ask the participants to describe:
  - A) What they like about the picture
  - B) Why they chose it
  - C) In what way the picture might relate to them.

(Duration: 10 minutes)

- Ask the participants to consider how they would present the respective pictures to those gathered and what arguments they would put forward to the group. (Duration: 5 minutes)

Tasks for the project participants:

- Each participant chooses a picture that interests them most. As a result small groups will form around each picture. (Duration: 5 minutes)
- After reflecting on their respective pictures, each small group should present their photo to everyone gathered. (Duration: 10 minutes)



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## **Handout 2**

### Module 1: Problem and background

#### **Introduction to the topic via film (Time: 35 minutes)**

Film option 1: “How harmful are plastic bags to the climate?” or

Film option 2: “What happens to my empty plastic bottle?”

Tasks for the project leader:

- You will need a DVD player and TV or a PC with internet access.
- Choose one of the animated info-films:  
“How harmful are plastic bags to the climate?” from the DVD or on the webpage under <http://p.dw.com/p/2Y8b9>  
What happens to my empty plastic bottle?  
from the DVD or on the webpage under: <http://p.dw.com/p/2phRV>
- Distribute worksheet 2.1. (with the questionnaire about plastic bags) or worksheet 2.2. (on the topic of plastic bottles) to the project participants before you show the film. Allow the participants to read the questions before watching the film.  
(Time for introducing the film, distributing worksheets and watching the film: 10 minutes.)

Tasks for project participants:

- Each participant should fill out the worksheet while watching the film. At the end, they should receive a further 10 minutes to complete the worksheet.
- After filling out the worksheet, participants should take turns presenting their answers to the group and subsequently discussing them. (Time: 15 minutes)

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**Worksheet 2.1**

**Questions about the film "How harmful are plastic bags to the climate?"**

1. Which raw material is used to produce plastic bags?

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2. Why is that problematic and how is it connected to climate change?

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3. How long is the average plastic bag used for?

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4. Where do most plastic bags end up?

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5. How long, on average, does it take for a plastic bag to break down?

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6. What problems do plastic bags present when they are disposed of in the environment?

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7. Name various strategies followed by different countries in dealing with plastic bags.

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8. What do you think of these strategies? Please give reasons for your answer.

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9. What are the alternatives to plastic bags?

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10. Do you think these alternatives are easy or complex and difficult to implement? Please explain why.

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**Worksheet 2.2**

**Questions about the film: “What happens to my empty plastic bottle?”**

1. What raw material is used to make plastic bottles?

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2. How many plastic bottles are sold worldwide every minute?

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3. How often can plastic bottles be refilled?

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4. What happens to the majority of plastic bottles?

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5. How many tons of plastic waste end up in the ocean?

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6. How long, on average, do plastic bottles take to break down?

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7. What is the problem with plastic in the oceans?

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8. What alternatives are there to plastic bottles?

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9. Do you believe these alternatives are easy or difficult and expensive to implement? Please give reasons for your answer.

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10. What about you? Where do you get your drinking water and how do you transport it?

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### **Handout 3**

#### **Module 1: Problem and background**

#### **Supplementary group work to introduce the topic using infographics**

**(Duration: 40 minutes)**

Tasks for the project leader:

- Separate the participants into two groups and distribute worksheets 3.1 and 3.2. (Duration: 5 minutes)

Tasks for project participants:

- The participants should come to an agreement on what is asserted in the infographics on the basis of the questions. They should consider how to present their findings to the entire group. (Duration: 10 minutes)
- After the group work, they should present their findings to the group. The presenters should invite the other participants to give their opinions. (Duration: 15 minutes for presentation, 10 minutes for discussion)

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### **Worksheet 3.1**

#### **Work group 1:**

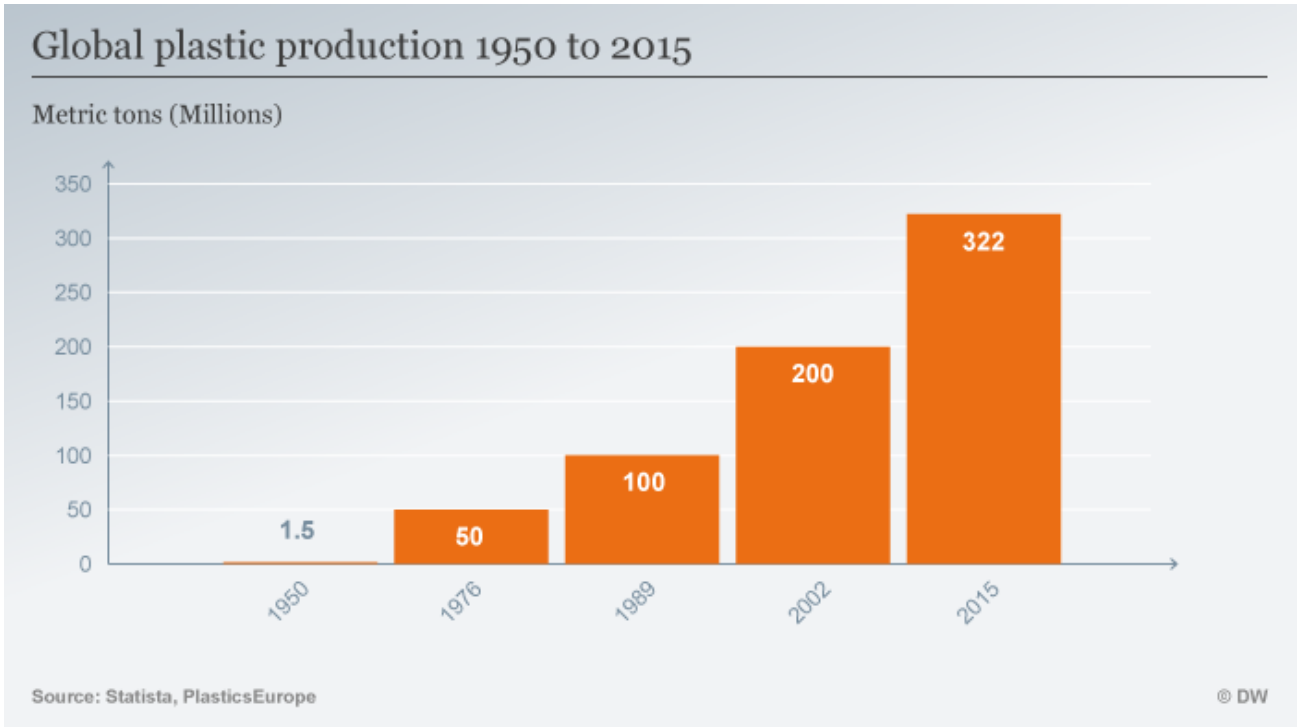
- Please examine the following graphics and explain what you see.
- Working with your group, please explain the main problems relating to the global development and use of plastic.
- What are the consequences and which areas are particularly important to address in order to curb the plastic problem?

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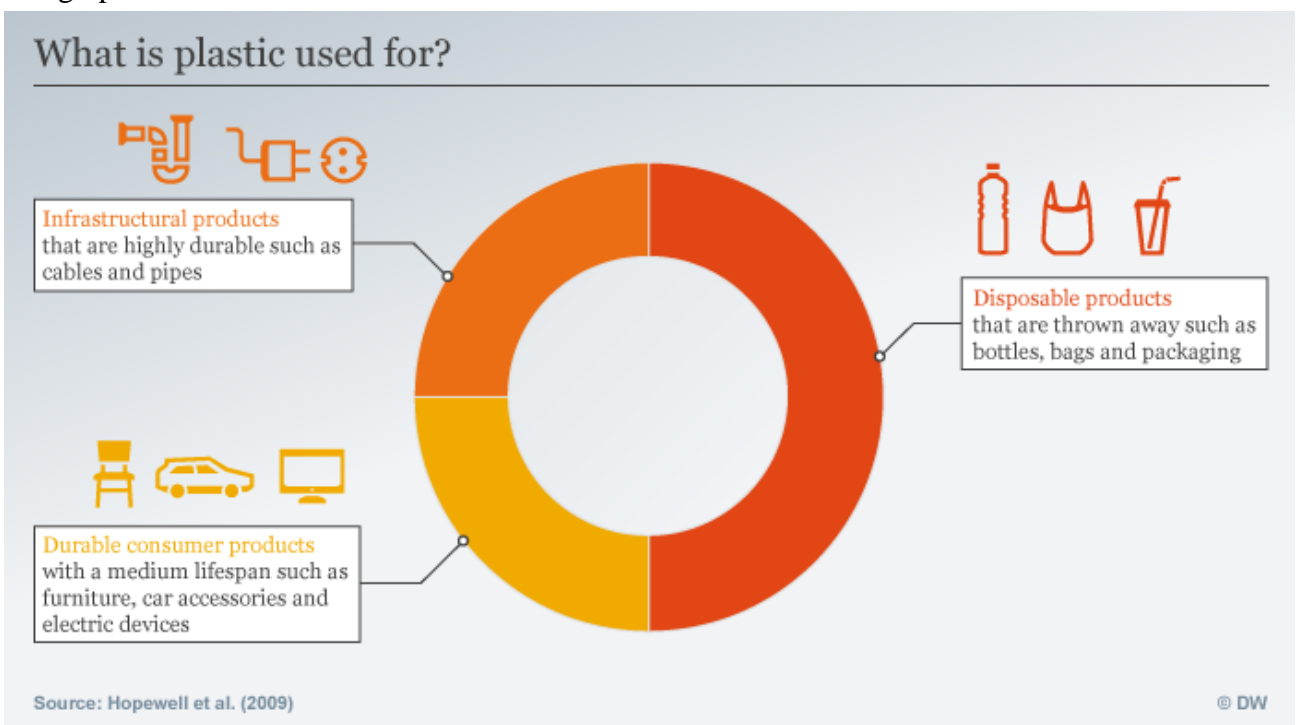
**Worksheet 3.1**

**Work group 1:**

**Infographic 1:**



**Infographic 2:**





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### **Worksheet 3.2**

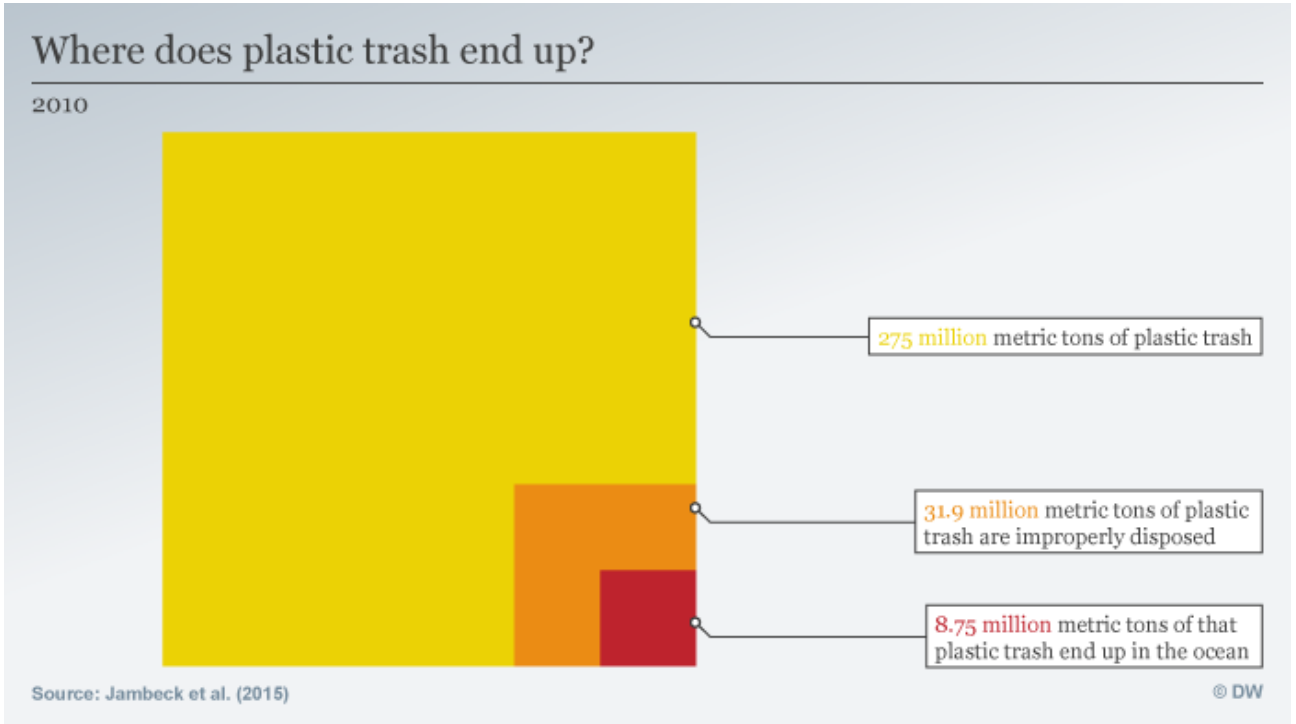
#### **Work group 2**

- Please examine the following graphics and explain what you see.
- Working with your group, please explain the main problems relating to the global development and use of plastic.

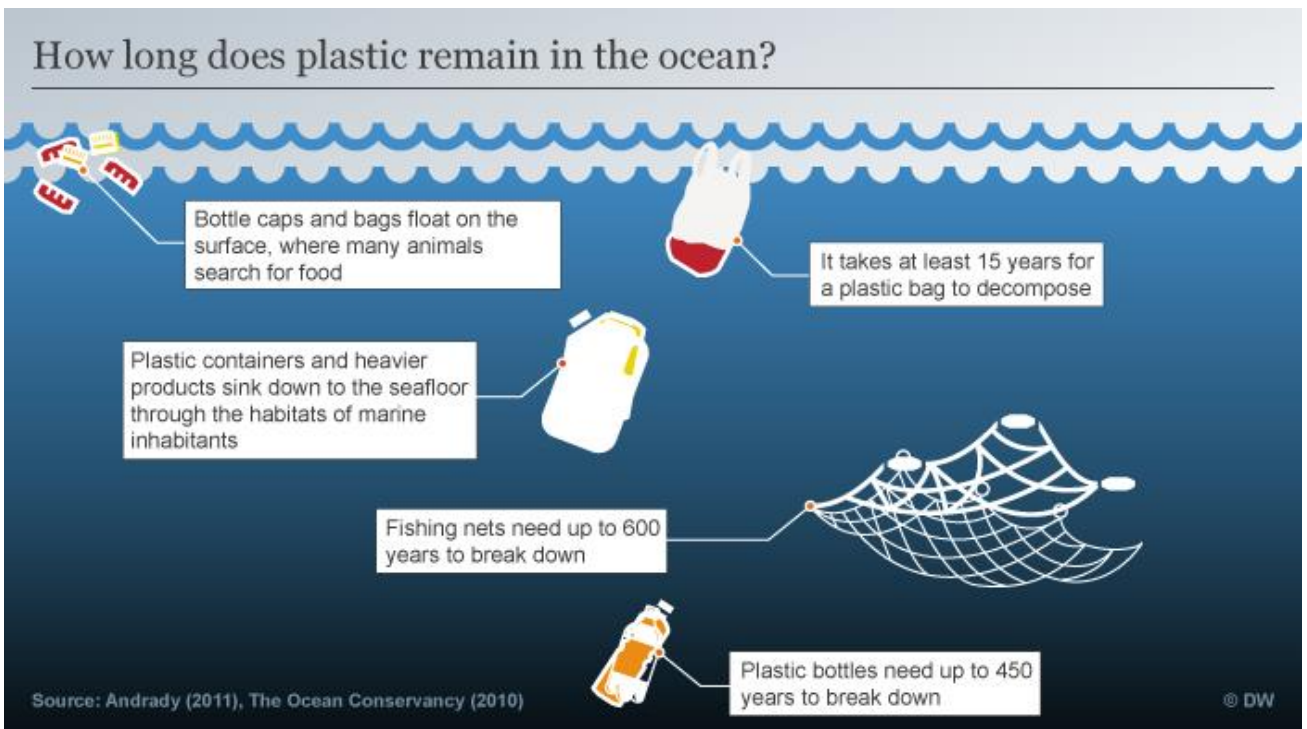
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Worksheet 3.2  
Work group 2

Infographic 3:



Infographic 4:



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## **Handout 4**

### Module 2: Individual plastic consumption

#### **Personal use of plastic (Duration: 20 minutes)**

Task for the project leader:

- Distribute the attached worksheet to the participants. Each person should describe how they use plastic by reconstructing their daily routines. (Duration: 10 minutes)
- Have each of the project participants describe their use of plastic to the group. (Duration: 10 minutes)



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## **Handout 5**

### Module 2: Individual plastic consumption

#### **Avoiding/reducing my own plastic consumption as well as that of my family/those in my environment (Duration: 20 Min.)**

Task for the project leader:

- Distribute worksheet 5 and have the participants describe their daily routines but with reduced plastic consumption.

Tasks for the project participants:

- The participants should take another look at their daily routines and consider whether and how they can reduce their own plastic consumption as well as that of their family and others in their environment. They should try to be as realistic as possible and only describe affordable and available alternatives. (Duration: 10 minutes)
- After the worksheet has been completed, some of the daily routines should be presented and discussed with the group. (Duration: 10 minutes)



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- What other thoughts do you have about avoiding plastic? What could your family change with regard to their use of plastic?

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## **Handout 6**

### Module 2: Individual plastic consumption

#### **Alternatives to plastic in our country (Duration: 20 minutes)**

Tasks for the project leader:

- Place the poster "Living without plastic" in the classroom.
- Discuss the feasibility of the proposals for your own country with the project participants and together with them add ideas that might be more realistic. You can also use ideas from previous lessons here.
- Please leave some of the empty spaces blank to be filled in later with further ideas the group may have.



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## **Handout 7**

### Module 3: Structural element

#### **Engaging with DW reporter Tamsin Walker's experiment to avoid plastic (Duration: 20 minutes)**

Task for the project leader:

- Please read the article "Plastic-free: Liberty or slavery" to the project participants. The article is available on the DVD or online under <http://p.dw.com/p/1HYGH>

Tasks for project participants:

- The participants should fill in worksheet 7 while the article is read out.  
(Duration: 10 minutes)
- The participants can then discuss the questions and their answers.  
(Duration: 10 minutes)

**Worksheet 7****Questions on "Plastic-free: Liberty or slavery?"**

1) What was the main goal of Ms. Walker's "experiment"?

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2) What challenges did Ms. Walker and her children have to overcome during the experiment?

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3) Why did Ms. Walker give her article the title "Plastic-free: Liberty or slavery?"

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4) How difficult would it be for you and your family to give up plastic? Please provide reasons for your statements.

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## **Handout 8**

### Module 3: Structural element

#### **A controversial plastic ban: Engaging with Zimbabwe's styrofoam ban (Duration: 20 minutes)**

Task for project leader:

- Please read or have one of the project participants read out the article "Cleaning up Zimbabwe with a styrofoam ban." The article is available on the DVD or online under: <http://p.dw.com/p/217FM>

Tasks for project participants:

- The participants should fill out worksheet 8 while the article is being read aloud. Please provide time at the end for everyone to prepare their arguments for discussion. (Duration: 10 minutes)
- After that, the participants should discuss the questions together. The discussion section at the end of the worksheet allows for a dialogue on participants' attitudes to this kind of plastic ban and how it is being dealt with. (Duration: 10 minutes)

**Worksheet 8****Questions on "Cleaning up Zimbabwe with a styrofoam ban"**

1. What problems are caused by discarded styrofoam food packaging in Zimbabwe?

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2. Why is styrofoam food packaging so popular with customers?

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3. What has Zimbabwe's government decided upon?

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4. Why are there mixed reactions to this decision?

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5. What further steps has Kenya taken?

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6. Discussion

What do you think of the decisions by Zimbabwe, Kenya and Rwanda with regard to dealing with plastic? Do you agree or disagree with them? Please explain why.

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7. When it comes to dealing with plastic, what alternatives could there be to these policies?

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## **Handout 9**

Module 3: Structural element

### **Analyzing different recycling methods and the use of plastic as a recyclable material (Duration: 20 minutes)**

Tasks for the project leader:

Please show the following three films. They are available on the DVD or alternatively by clicking the links below:

- "From plastic waste to hot meals"  
<http://p.dw.com/p/2p8Fy>
- "Plastic fantastic: Nigeria's carrier bag fashionistas" (ca. 1 minute)  
<http://p.dw.com/p/2p8Hs>
- "Plant-based plastic from a seaweed startup" (ca. 1 minute)  
<http://p.dw.com/p/2p8Ga>

Have an open discussion (without a worksheet) about which examples project participants liked best and whether they see opportunities for applying such measures in their own country.

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## **Handout 10**

### Module 4: Collective action/community activities

#### **Introducing the idea of collective action**

**(Duration: 20 minutes)**

Tasks for the project leader:

- Read out the article "Fighting for clean beaches in Mumbai."  
You will find it on the DVD as well as online: <http://p.dw.com/p/2nwpd>
- Afterwards, have all participants discuss their impressions. Suitable introductory/discussion questions could include:
- How did one individual inspire 300 people to action and create the "largest beach clean-up project in the world?"
- Do you believe the changes to the beach – aside from the positive environmental aspects – also had positive social effects for people?
- What does Mahatma Gandhi's famous quote "be the change you want to see in the world" mean to you?
- Could the tradition of "Shram Daan" – in other words unpaid, volunteer work for the community – also be drawn upon in your country?
- What is the situation on beaches and the banks of rivers and lakes here?
- What can we take from this example?

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## **Handout 11**

Module 4: Collective action/community activities

### **Collecting ideas: What can we do in our own environment?**

**(Duration: 20 minutes)**

Task for the project leader:

Return to the poster “Living without plastic” from module 2 and add the project participants' further collective ideas.



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## **Handout 12**

### Module 4: Collective action/community activities

#### **Agreeing to three concrete proposals**

**(Duration: 20 minutes)**

Tasks for the project leader:

To conclude the education pack, the participants should come up with and implement concrete projects to prevent or reduce plastic waste.

Examples could include:

- Establishing a poster campaign for a small exhibition, music or theater scene to create awareness of the issue among other pupils
- Regular plastic waste collection days around the school
- Creating artwork made of plastic waste
- Use of alternatives to plastic plates and styrofoam packaging for food in the school canteen.

A project proposal template is available in worksheet 12.

**Worksheet 12****Our Proposal**Area:  School  Local Town/Council  Education/Awareness**Develop an action plan for reducing plastic waste**

Discuss the feasibility of different ideas. You should also discuss possible obstacles but with a view to overcoming them.

- What parts of our "big vision" can actually be implemented?
- What are the first steps?
- How can we include different groups and win them over to get engaged in the project?

**Title:****Goals:****Measures:****First steps:**

- 1.
- 2.
- 3.

**Dates for implementation:**

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