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Introduction:

This lesson plan aims to research the cycle of plastics, from production to consumption and how waste is dealt with.

Objectives or Learning Outcomes

Students will be able to:

- conduct individual and group research about sustainability related issues.
- present their results using a range of audiovisual tools.
- reflect upon the production, use and waste of plastic in their daily lives.

Time required:

- Session 1 (90 min): Introduction and preparation of research
- Session 2 (90 min): Conducting research, drafting findings and presentations

Resources required:

- Observation of plastic pollution:
Microplastic net, trash bags, garbage tongs, protective gloves shovel and bucket for taking sediment samples
- Laptops, projector, mobile phones.
- Optional: marine plastic experts for interviews and support with isolation of plastic from sediment and analysis of the type of plastic



13-16
Years old



Activity

Classroom session

1

- Students are presented with the following questions in order to start researching in groups:
What is plastic? What types of plastics exist? What are the consequences of plastic in the sea/ivers? What is microplastic and where does it come from? What are the alternatives to plastic? What are bioplastics? What types are there? How does plastic get into the sea? What are the health consequences of plastic? Why is plastic such a successful material? Which plastics can be recycled well? What are the effects of plastic on the individual SDGs? What can I do myself to avoid plastic?
- The teacher creates a padlet to divide tasks during research (example available [here](#)).
- The teacher asks students to identify the plastic issue in their area. A possible roadmap is:
Analysis and problem identification:
A Go to the nearby forest or park. Map out where you find garbage and pick it up with garbage tongs.
B If there is a river near you, get a microplastic net and hang it in the water for an hour, calculating the flow rate. Take sediment samples from the river and look for methods to isolate the microplastic (e.g. density gradient). Discuss what kind of packaging the piece of plastic could come from.

Classroom session

2

- The teacher asks students to bring their shower gel or exfoliator from home. Isolate the microplastics from it with filters.
- Students visit or lay out a plastic graveyard. Bury different packages in a separate bed and write the date on them. In this way you can see how much of the packaging has been naturally degraded over time.
- Optional: discuss with scientists about plastic topics. Visit a sewage treatment plant and ask what sizes of plastic can be filtered out of the waste water.

- Students are asked to reflect upon what sustainable use of plastics could look like.
- Students write a plastic diary in which they write down what they consume. Students try not to buy or use plastic for a week. Discuss where plastic is indispensable and where there are alternatives.
- Students are asked to disseminate their findings and reflections through exhibitions, films, podcast or lectures. Students actively try to raise awareness of the topic.

Suggestions of variation or further reading of the lesson plan

If viable students could visit a plastic recycling plant. Moreover, the teacher can try to engage with scientists and university students and ask them to participate in lectures, workshops and activities with the students.

References

This research was conducted thanks to the support provided by:

Award within the framework of the project "Schule der Zukunft" (Academy for Nature and Environmental Protection NRW)

Funding by the Robert Bosch Stiftung's Our Common Future programme:

<http://cfg.wtal.de/leben-am-cfg/nachhaltigkeit-am-cfg/cfg-wird-in-foerderprogramm-our-common-future-aufgenommen/> <http://cfg.wtal.de/2017/11/14/der-weg-des-plastiks-wz/>

This lesson plan was selected from the [2020 Eco-Schools competition](#) in which teachers were invited to develop and submit lesson plans that promote action oriented pedagogy about specific Sustainable Development Goals (SDGs).