EDUCATIONAL TOOL-KIT SYLLABUS

Content of TOOL-KIT

- PRESENTATION
- WEBINAR RECORDING
- DETAILED LESSON PLAN
- EXPERIMENT SCENARIO
- WORSHEET FOR STUDENTS
- WORKSHEET WITH ANSWERS FOR TEACHER
- GAME

INTRODUCTION

Arctic is a vast region of the Earth. It is home for up to 31,000 polar bears and 4 million people, 10% of which is the indigenous population. The Arctic is strongly affected by the climate change— sea ice is melting and the temperature there is warming two-three times faster than the rest of the globe. That phenomenon is called 'Arctic amplification.' Among the other risks should be mentioned these connected with economic growth accompanying with increasing consumption. That resulted in different types of pollution that have been observed and studied by the scientists over the last decades. Even though the Arctic is almost pure environment itself, the pollution is transported by air and by sea over long distances from more polluted places on the Earth.

On the one hand there are so called 'black carbon' and 'brown carbon' emissions caused by the wildfires that occur all over the world. On the other hand we might name a lot of chemical substances that are toxic and harmful to the Arctic environment (PCBs, POPs, etc.). All those threats are mainly of the anthropogenic origin.

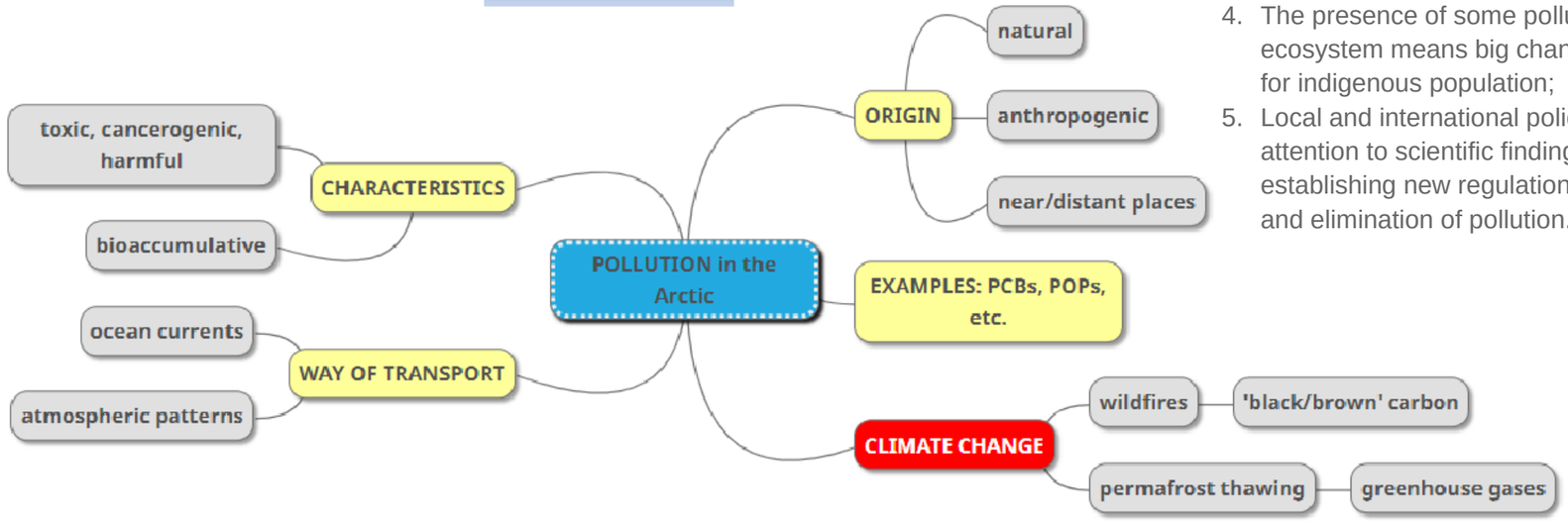
Pollution in the Arctic means also a real danger for indigenous population. It affects lifestyle, diet, traditions and habits of local people and cause many diseases and health disorders. These matters altogether with Arctic environment protection issues need to be taken into consideration by the local and international policy makers.

ARCTIC ISSUES:
The polluted Arctic

TARGET GROUP

STUDENTS 13-19 YEARS OLD

MIND MAP



Source: https://app.mindmup.com/map/_free/2023/12/5eeb5530982f11eeb7fc9da49d2e859e

5 basic concepts

1. The pollution that reaches the Arctic has the origin in other, sometimes (very) distant places on the Earth;
2. Chemical, plastic and other types of pollution are harmful either for the people or the animals living in the Arctic;
3. Ocean currents and atmospheric patterns transport pollutants from lower latitudes to the Arctic;
4. The presence of some pollutants in the Arctic ecosystem means big changes in traditional way of life for indigenous population;
5. Local and international policy makers should pay more attention to scientific findings and natives rights when establishing new regulations on identification, reduction, and elimination of pollution.

ADDITIONAL RESOURCES:

Video materials:

- INTERACT webinar 'Stories of sea ice'
- Pollution in the Arctic with Dr. Katrin Vorkamp

Interactive maps:

- NASA Earth Observatory fire maps
- Distribution of litter types in different realms
- Plastic pollution

Reports:

- AMAP Mercury in the Arctic
- AMAP Microplastics and litter in the environment
- AMAP POPs—climate change interactions

Polarpedia terms:

- Arctic amplification
- Bioaccumulation
- Biomagnification
- Greenhouse gas
- Indigenous people
- Microplastic
- Permafrost
- Sea ice
- Thawing permafrost