

# Educational Toolkit: The polluted Arctic

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## Worksheet–teacher version

### Ad 1.

Helpful resources:

- Indigenous people: <https://polarpedia.eu/en/indigenous-people/>
- Siberian people: <https://polarpedia.eu/en/siberian-people/>
- Demography of indigenous people of the Arctic:  
[https://www.researchgate.net/figure/Map-Demography-of-indigenous-people-of-the-Arctic-based-on-linguistic-groups-GRID\\_fig1\\_328981212](https://www.researchgate.net/figure/Map-Demography-of-indigenous-people-of-the-Arctic-based-on-linguistic-groups-GRID_fig1_328981212)

### Ad 2.

Example: section 'Today' on the website: <https://www.arcticwwf.org/wildlife/polar-bear/polar-bear-population/>

### Ad 3.

First answer

### Ad 4.

Albedo, helpful resource: <https://polarpedia.eu/en/albedo-5/>

### Ad 5.

Ocean currents, precipitation, river discharge, deposition in ice, permafrost, emissions transported by air

### Ad 6.

Helpful resources:

- Bioaccumulation: <https://polarpedia.eu/en/bioaccumulation/>
- Biomagnification : <https://polarpedia.eu/en/biomagnification/>

Bioaccumulative – characteristic of a chemical substance, which concentration is higher within the organism compared to its surroundings (air or water)

### Ad 7.

Greenhouse gases, climate change, mining, thawing permafrost, harmful microorganisms in the permafrost, PCBs, wildfires, hunting

### Ad 8.

Microplastic pollution

**Ad 9.**

- A. Average sea surface microplastic value:  $(1,287-0,012):2 = 0,6375 \text{ Nm}^{-3}$
- B. Average water column microplastic value:  $(375-0,28):2 = 187,36 \text{ Nm}^{-3}$
- C. Average snow microplastic value:  $(14\,400\,000-0):2 = 7\,200\,000 \text{ Nm}^{-3}$
- D. Average sea ice plastic debris value:  $(1,200-0):2 = 0,6 \text{ Nm}^{-3}$
- E. Average sea ice microplastic value:  $(12\,000\,000-31,75):2 = 5\,999\,984,125 \text{ Nm}^{-3}$

NOTE: Average value AVG = (MAX – MIN):2

Unit:  $\text{N/m}^3$  = pieces per cubic meter (according to <https://litterbase.awi.de/litter> data the graphic is referring to)

Sort average values (A, B, C, E):

$$A < B < E < C$$