

The Baltic Sea Project within the UNESCO ASPnet network

THE BALTIC SEA PROJECT WEBQUIZ 2023: QUESTIONS AND ANSWERS

Age group 17–19-year-old students



REPUBLIC OF ESTONIA
MINISTRY OF EDUCATION
AND RESEARCH



Question 1



Butterfly Building is a creative project made by Robert Bourke Architects (Ireland) & Creatomus Solutions (Estonia). Explore the prototype application which offers an alternative approach to building houses: <https://configurator.creatomus.com/project/butterfly?tab=index>

Which aspects of this alternative building process are mostly NOT considered in the mass housing construction today?

- A. carbon footprint of the materials**
- B. using brackets for assembly**
- C. disassembly of the building for future reuse**
- D. using wood as one of the building materials**

Question 2



Remote sensing is the method of using satellites to observe the processes on Earth. It helps to get environmental data from large areas, which in case of hands-on on-site research by scientists is not possible. Baltic Sea researchers are developing more and more remote sensing methods, however not every kind of data can be obtained using satellite sensors.

What kind of marine data CAN be collected remotely nowadays for Baltic Sea research?

- A. Phytoplankton groups (eg blue-green algae, diatoms)**
- B. Depth of shallow waters
- C. Bivalve species composition
- D. Sea surface temperature**

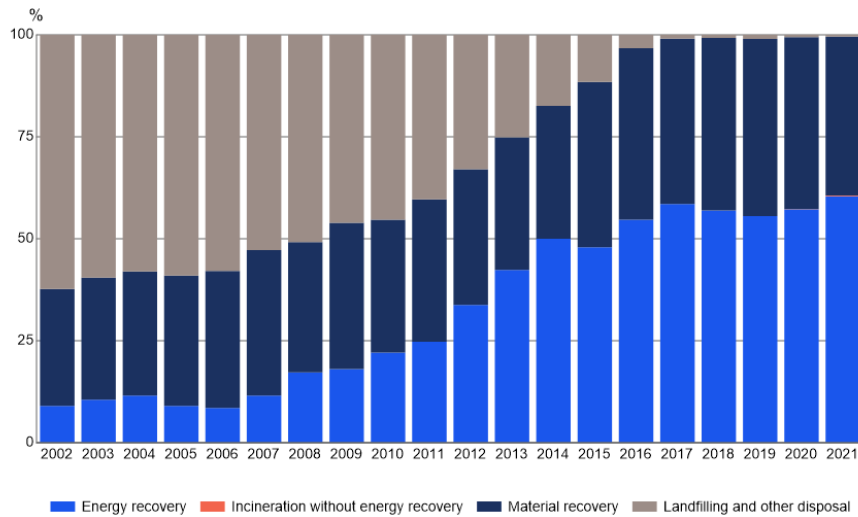
Resources:

<https://mereinstituut.ut.ee/et/sisu/kaugseire-ja-mereoptika-osakond>

<https://mereinstituut.ut.ee/en/content/department-remote-sensing-and-marine-optics>

Question 3

Municipal waste by treatment method in Finland, 2002-2021



Source: Statistics Finland, waste statistics

When travelling to Finland, you may notice that some of the waste bins have labels “energy waste”. As you can see on the chart above, Finland has completely switched from placing municipal waste in the landfills to burning waste in order to turn it into heat and electricity. Another, smaller portion of municipal waste is being recycled, meaning that materials such as glass, paper, metal and plastic are recovered and reused. For the decades to come, Finland aims to increase the recycling of already made products, decreasing the amount of materials that are being burned.

What type(s) of plastic is (are) mostly NOT recycled?

[CORRECT: A, C]



A.

PS



B.

PET



C.

PVC



D.

HDPE

Question 4



Extensive ecological restoration is a global trend in biodiversity conservation, but its aims can be very vague or even counterproductive. A common dilemma in ecosystems' restoration is when a target area for restoration is a habitat for endangered species who moved there after the original ecosystem had been degraded.

Which of the following solutions to this dilemma were used during mire habitat restorations in Estonia? [Read about the project here](#) and find the correct answers.

- A. Compensating restoration damages by protecting the species elsewhere
- B. Conducting works during non-breeding time of birds**
- C. Replanting an endangered plant species to a safer place
- D. Building necessary restoration facilities (like dams) manually to avoid cutting down trees in order to make space for machines**

Resources:

<https://d.soo.elfond.ee/index.php/s/ViePzQZljBa1RLN#pdfviewer>

<https://www.sciencedirect.com/science/article/abs/pii/S0301479719311570>

Question 5

Product labels nowadays provide a lot of different information like ingredients, health risks, and since recently also environmental impact. However, many of the "green" labels can be vague and misleading for the consumers.

Which of the following certificates ensures that the product is made using materials from organic agriculture*?

**Organic agriculture means growing plants with use of fewer synthetic pesticides and avoiding artificial fertilizers that are harmful for the biodiversity.*

[CORRECT: B]



A.



B.



C.

Question 6



Most of Greenland is covered by an ice cap. The glaciers of Greenland's ice cap are losing mass due to a considerable melting in northern summers as a result of the ongoing global climate change.

As a consequence ...

- A. ...the global warming of the northern hemisphere will considerably slow down due to the enormous heat capacity of the melting ice masses.
- B. ...the melting waters of the glaciers reduce the salinity of the North Atlantic Sea surface water at high latitudes, this weakens the North Atlantic Current, leading to a cooling of the North Atlantic, including the surface water temperatures at Europe's coasts.**
- C. ...the reduced glacier surface leads to an intensified warming of the lower atmosphere in Greenland's summers due to the lower albedo of rock and soil compared to ice and snow.

Sources:

https://en.wikipedia.org/wiki/Sea_level_rise 4 November, 2023

https://www.researchgate.net/profile/Nathalie-De-Noblet/publication/225639849_Effects_of_a_melted_Greenland_ice_sheet_on_climate_vegetation_and_the_cryosphere/links/0fcfd5086cb3e9bf01000000/Effects-of-a-melted-Greenland-ice-sheet-on-climate-vegetation-and-the-cryosphere.pdf (for climate effect in Greenland, answer C)
<https://www.eumetsat.int/melting-greenland-ice-sheet-cools-north-atlantic-ocean> (for climate effect in the North Atlantic and Europe, answer B)

Question 7

Change of land use is one of the main contributors to climate change amongst the burning of fossil fuels. Explore this multimedia resource on agriculture fields diversity:

<https://www.oce.global/animations/agriculture-final-version-3/agriculture.html>

In which of **the following examples on the website**, do local agriculture methods promote biodiversity while also having a smaller impact on climate change?

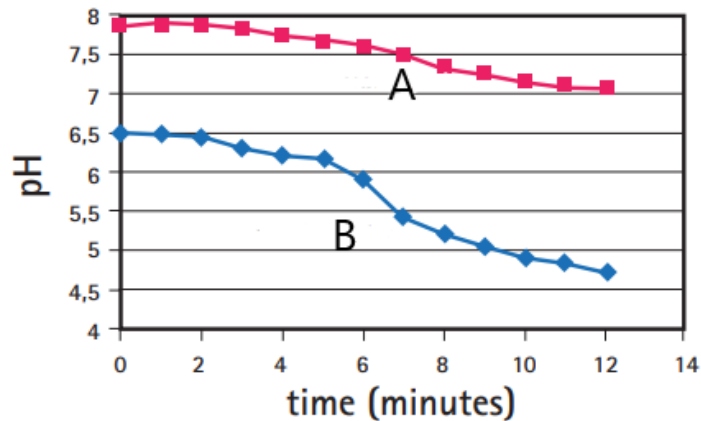
- A. **Tomatoes from Russia, beef from France and palm oil from Sri Lanka.**
- B. Palm oil produced in Malaysia, tomatoes produced in Spain, and corn from Venezuela.
- C. Beef from Paraguay, corn from the USA and tomatoes from Tunisia.

Question 8

More than 70 per cent of the earth's surface is covered with water. Only about three per cent of this is fresh water, whereas the remaining 67 per cent consist of more or less salty seawater. This vast body of water absorbs about one third of human-generated carbon dioxide (CO₂), thus, a smaller amount of this greenhouse gas remains in the atmosphere and global warming is slowed. As the CO₂ is absorbed the water pH turns more acidic and becomes a threat to big and small marine organisms.

The rate at which water pH lowers is different in fresh waters and salty seawaters.

Look at the graph below, which shows the results of the experiment in the beakers with distilled water and seawater:



Which of the lines on the graph shows the rate at which pH drops in seawater and why?

- A. A; due to presence of the bicarbonate (HCO₃⁻) and carbonate ions (CO₃²⁻)
- B. B; due to presence of the bicarbonate (HCO₃⁻) and carbonate ions (CO₃²⁻)
- C. A; due to high magnesium and calcium concentrations
- D. B; due to high magnesium and calcium concentrations