The Importance of Climate Action for Future Generations: Why It's Important to Act Now

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OPEN: WIDE MINDS WILL FIND ECO VIRTUAL STEAM SOLUTIONS TOWARDS CLIMATE CHANGE!
2022-1-RO01-KA220-SCH-000084942

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"We do not inherit the Earth from our ancestors, we borrow it from our children."
— Native American proverb

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TARGETED CONTENTS

- Teachers will learn interactive and interdisciplinary methods to teach students (10-14 years old) about climate change, its impact and the importance of immediate action.
- The importance of educating young people about climate change.
- The connection between the STEAM field and solutions to the climate crisis.
- What does intergenerational responsibility mean?
- How can STEAM teachers inspire students to be climate leaders?
- Climate education guides and platforms.
- Examples of STEAM projects related to sustainability.

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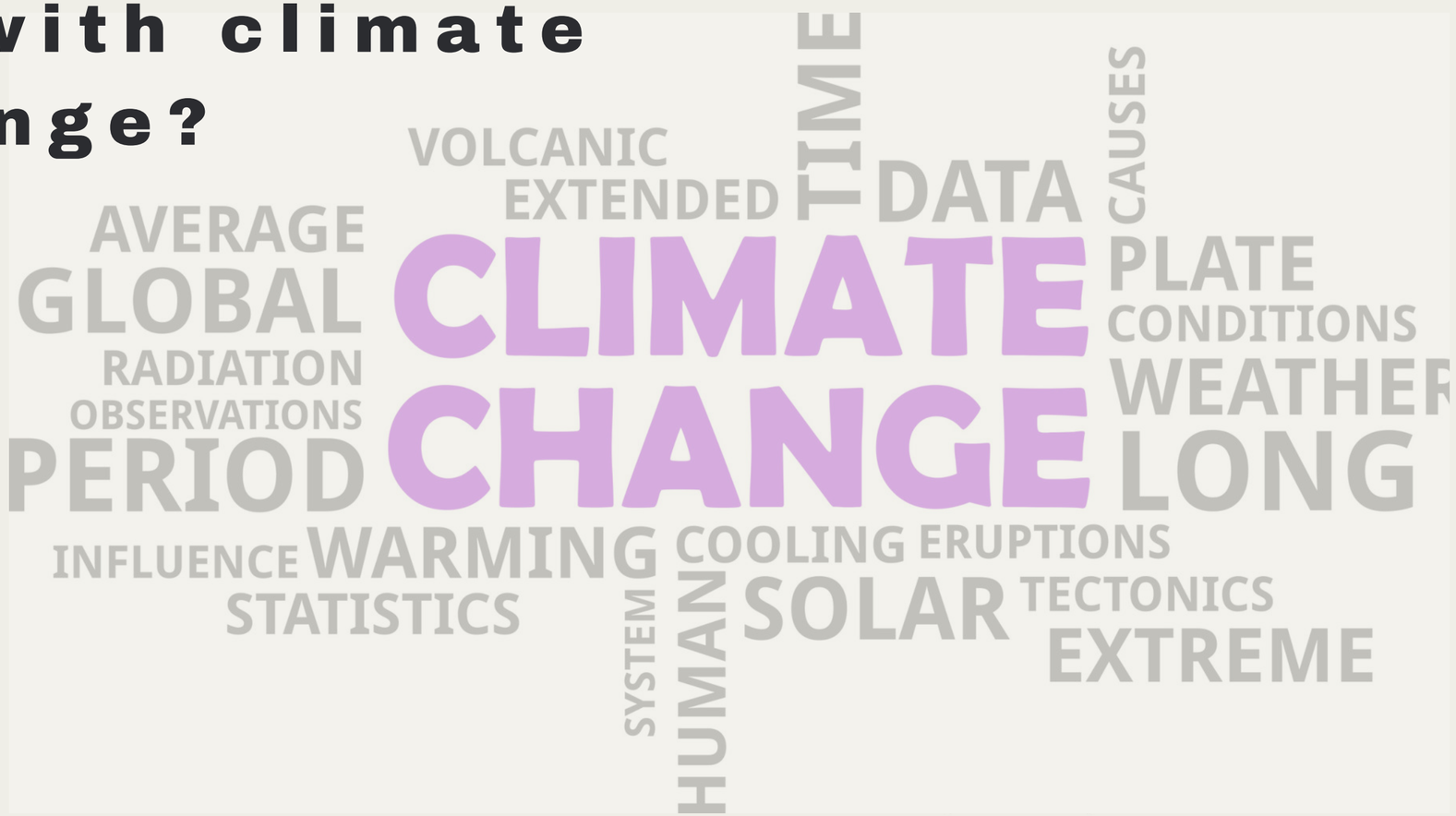
ICEBREAKER ACTIVITY

What word do you associate with climate change?



The Menti app

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I: INTERGENERATIONAL RESPONSIBILITY: EDUCATING TODAY'S YOUTH

Why is youth education important in combating climate change?

Young people are the leaders of tomorrow

Through education, young people become more aware of the environmental impact of their decisions and are motivated to take concrete action. They will influence public policies, industries, and communities in the future.

Creating a domino effect

Educating young people can generate change in local communities, as they influence their families, friends, and colleagues, spreading sustainable habits.

Building a more resilient generation

By understanding climate change issues, young people learn to find creative solutions and adapt to new climate realities.

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HOW CAN WE EDUCATE YOUNG PEOPLE TO COMBAT CLIMATE CHANGE?

Integrating environmental education into school curricula

Mandatory courses on the environment and sustainability

Topics related to climate change, renewable energy, biodiversity and recycling can be included in traditional subjects such as biology, geography or social sciences.

Interdisciplinary approach

Climate issues can be related to economics (the costs of climate change), literature (inspirational texts about nature), or mathematics (analysis of climate data).

Research and activism projects

Students can carry out projects in schools that promote green energy, urban gardens, or waste reduction.

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HOW CAN WE EDUCATE YOUNG PEOPLE TO COMBAT CLIMATE CHANGE?

Developing practical skills and active involvement

Extracurricular activities

Environmental clubs, sustainability idea contests, and eco-camps give young people the opportunity to put what they learn into practice.

Community Projects

Young people can organize local tree planting, recycling, or cleaning up polluted areas campaigns.

Participation in global initiatives

International programs, such as "Fridays for Future" or "Earth Day," allow young people to join a global movement.

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HOW CAN WE EDUCATE YOUNG PEOPLE TO COMBAT CLIMATE CHANGE?

Use of technology and digital platforms

Educational games and simulations

Games like "Minecraft: Education Edition" with ecological themes or climate simulators can help young people understand the complexity of environmental issues.

Social media for awareness

Young people can create campaigns on their favorite platforms to draw attention to environmental issues.

Online resources

Platforms like TED-Ed or Khan Academy offer videos and interactive lessons about climate change.

And now you can also find it on the project website wimiproject.eu

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HOW CAN WE EDUCATE YOUNG PEOPLE TO COMBAT CLIMATE CHANGE?

Promoting personal responsibility

Reducing the carbon footprint

Education must teach young people to adopt sustainable habits, such as reducing energy consumption, using public transport and choosing local food.

Responsible consumption

It is essential to explain to them the environmental impact of their purchases and encourage them to support sustainable products.

The role of parents and the community

Parents can create an environment at home that supports green values, such as saving resources, recycling, and reducing waste.

The community can support climate education initiatives through partnerships with schools, NGOs, and local businesses.

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Examples of good practices

FINLAND

Sustainability education is integrated into all subjects, and students learn through interactive methods and practical projects about resource conservation.

UNESCO CLIMATE EDUCATION PROGRAM

This global program supports governments and schools to implement climate education in their education systems.

STEM EDUCATION IN INDIA

STEM programs are used to train young people in finding innovative technological solutions to climate problems.

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GROUP ACTIVITY

"YOUTH ENGAGEMENT IN ENVIRONMENTAL EDUCATION DOES NOT HAVE A SIGNIFICANT IMPACT ON COMBATING CLIMATE CHANGE."

Those who agree with this statement will sit on the right side of the lane, and those who disagree will sit on the left side. Motivate your choice!

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THE LONG-TERM IMPACT OF CLIMATE CHANGE ON HUMAN HEALTH AND WELL-BEING

Respiratory diseases and air pollution

Air pollution, exacerbated by climate change, is responsible for approximately 7 million premature deaths annually (WHO, 2021).

Heat stress and cardiovascular disease

Heat waves are becoming more frequent, more intense, and longer. They increase the risk of:
Heat-stroke.
Exacerbation of cardiovascular diseases.
Premature deaths among the elderly or vulnerable.

Food insecurity

More than 800 million people suffer from hunger globally, and climate change could increase this number.

- Climate change is affecting agricultural production, reducing yields of essential crops, destroying harvests, increasing food prices and reducing access to food.

Psychological and social impact

Natural disasters in the Philippines (Typhoon Haiyan, 2013) caused severe psychological trauma among the affected population. Rising sea levels have forced the relocation of some communities in the Kiribati islands, causing social and cultural disruptions.

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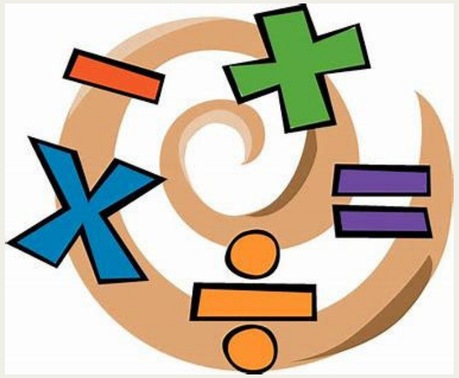
GROUP

ACTIVITY

WHAT PRACTICAL ACTIVITIES CAN YOU DO TO DEMONSTRATE TO STUDENTS THE IMPACT OF CLIMATE CHANGE?



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STEAM EXPERIMENTS FOR A SUSTAINABLE FUTURE

"The Greenhouse Effect in Miniature" (Science and Technology)

Purpose: To demonstrate how greenhouse gases trap heat in the atmosphere.

Materials:

Two large jars with clear lids.

Two thermometers.

Dry ice or a source of carbon dioxide (optional: mineral water and baking soda to produce CO_2).

An incandescent or LED light bulb that emits heat.

- **Stages of achievement:**

Place a thermometer in each jar.

In one of the jars, add dry ice (or produce CO_2 using baking soda and vinegar). Seal the jars.

Place both jars under the lamp and turn it on.

Observe the temperature differences over the course of 10-15 minutes.

"Melting Glaciers" (Science and Arts)

Purpose: To show the impact of melting glaciers on sea level.

Materials:

- Two transparent bowls.

Water.

Ice.

A piece of clay (to model a "land").

Procedure:

In the first bowl, put clay to simulate the terrain and ice on the "dry" (glaciers).

In the second bowl, place the ice directly in the water (floating ice).

Let the ice melt and notice how the water level rises only in the first bowl.

Result:

Melting glaciers on land contribute to sea level rise, unlike floating ice.

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STEAM

TRY STEAM

"The albedo effect" (Science and Mathematics)

Purpose: To illustrate how different surfaces affect the reflection of sunlight.

Materials:

Two plates (one white and one black).

Two thermometers.

A lamp or sunlight.

Procedure:

Place a thermometer on each plate.

Expose the plates to light for 15 minutes.

Note the temperatures and compare them.

Result:

The black tile absorbs more heat than the white one, showing how darker surfaces contribute to global warming.

CARBON DIOXIDE AND OXYGEN-EXPERIMENT:

HTTPS://YOUTU.BE/WM2A0E24YAA?SI=XDEGDNHDDZVOXXBL

"Calculate the carbon footprint" (Mathematics and Engineering)

Purpose: Measuring the impact of daily activities on carbon dioxide emissions.

Materials:

Paper and pen (or an online carbon footprint calculator).

Lists of common activities (e.g. energy consumption, transportation).

Procedure:

Divide students into teams to calculate daily emissions based on electricity, transportation, or food consumption.

Use standard data (e.g. 1 kWh = 0.92 kg CO_2).

Result:

Students will understand how their lifestyle contributes to carbon emissions and how they can reduce this impact.

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STEAM APPROACH AND CLIMATE CHANGE

Problem-Based Learning (PBL)

Introduce interdisciplinary projects that involve real-world climate issues, such as reducing carbon emissions, managing water resources, or protecting biodiversity. Students can collaborate to create a plan to reduce their school's energy consumption or design an urban agriculture system.

Examples of climate leaders and inspirational stories

- Present examples of people who have had a positive impact on climate change, such as Greta Thunberg, Wangari Maathai or David Attenborough. Organize group discussions about how these people started their initiatives and what students can learn from their actions.

Integrating technology for climate solutions

Introduce emerging technologies such as renewable energy, artificial intelligence, or 3D printing as solutions to climate problems. Students can design models of wind turbines or solar panels using computer-aided design software.

Community involvement

Encourage students to organize local events, such as tree planting campaigns, waste collections, or sustainability fairs. Students can collaborate with local organizations to develop green initiatives in their neighborhoods.

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STEAM AND CLIMATE CHANGE

Creating a space for open discussions about climate change

Organize debates or brainstorming sessions to explore solutions and discuss fears and hopes related to climate change.
A debate can address questions such as: Is technology or behavioral change more important for combating climate change?

Promoting innovation through the arts

Encourage students to create artwork that conveys powerful messages about the environment, such as posters, videos, or installations.
Students can design an art exhibition about “Earth in 2050 – two scenarios: with and without climate action.”

Accessing global resources

Use educational platforms and global initiatives like UN Climate Change Learn or NASA Climate Kids to connect students to international projects.
Participate in a competition for innovative ideas to combat climate change.

Developing empathy and responsibility between generations

Organize activities that highlight responsibility towards future generations.
Students can write a letter to the “children of 2100,” describing what steps they are taking now to protect their future. This way, students understand the interconnection between their actions and the future of the planet.

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CREATIVE WORKSHOP

Local solutions for climate change.

HOW?

EXAMPLE

Reducing energy consumption.
Creating a green space in the school yard.
Organizing a recycling campaign.

Teams create an educational activity for students (10-14 years old) that:
Address a local issue related to climate change.
It is interdisciplinary (involves at least two STEAM fields).
It includes a practical component (project, experiment, community action).

- Teams of 4-5 people
- Each team identifies climate solutions relevant to the local community.
- Guiding questions:
- What climate issues are visible in our community?
- What resources are available to solve these problems?
- How can we actively involve students?

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TEMPLATES

Activity format

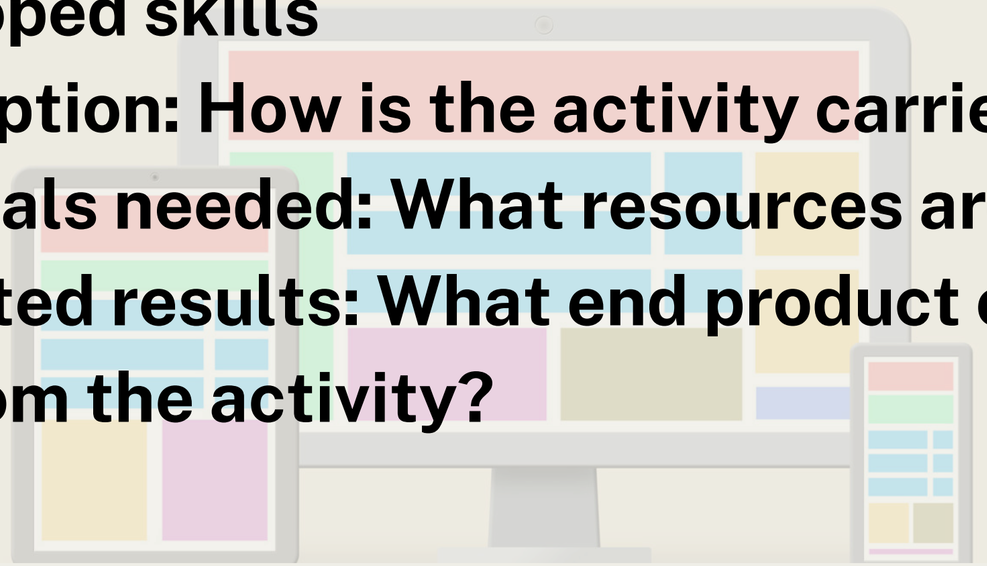
1.Title/type of activity

2. Developed skills

3. Description: How is the activity carried out, briefly?

4. Materials needed: What resources are needed?

5. Expected results: What end product or change will result from the activity?



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take a
BREAK
• it's •
COFFEE
time

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SOCIAL JUSTICE AND CLIMATE CHANGE

Social justice in the context of climate change refers to ensuring equity in the distribution of the benefits and burdens of climate change. This involves recognizing that vulnerable groups, who contribute the least to climate change, are the most affected by it. Low-income communities are the most vulnerable to the effects of climate change, even though they contribute the least to pollution.

Pacific islands are threatened by rising sea levels.
Poor urban areas suffer more during heat waves or floods.

https://youtu.be/MX9a1Gx_ohw?si=ZzU6GDOEG5o9FMzC

"CLIMATE CHANGE IS NOT JUST A TECHNICAL ISSUE. IT IS AN ISSUE OF JUSTICE, EQUITY AND HUMAN RIGHTS." – MARY ROBINSON, FORMER PRESIDENT OF IRELAND AND CLIMATE JUSTICE ACTIVIST.

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INTERACTIVE ACTIVITY

STORY,,CLIMATE CHANGE AGENT”

1.Participants are divided into 2 groups.

2. Each group receives a Story Cube to create a story whose character is a 5th grade student from a rural area, respectively a student of the same age from an urban area.

3. The theme of the story is "The planet is you!"

4. Each member of the group will continue the story by formulating a sentence based on the images on the cube.

4. They will illustrate the created story on a flipchart.

5. They return to the original group and share with the others what they created.

6. Discuss the differences between the two stories created.

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THE PSYCHOLOGICAL EFFECTS OF CLIMATE ANXIETY ON FUTURE GENERATIONS

DID YOU KNOW?

"The greatest danger to the planet is believing that someone else will save it." - Robert Swan, explorer and activist.

A 2021 global study by Bath University (published in The Lancet Planetary Health) of 10,000 young people aged 16 to 25 from 10 countries revealed:

- *59% of respondents are "very concerned" or "extremely concerned" about climate change.*
- *84% said they were generally concerned about the future of the planet.*
- *45% said that climate anxiety affects their daily lives, including sleep, concentration, and general well-being. According to the same study:*
- *75% of young people consider the future "scary".*
- *56% believe that "humanity is doomed" if urgent action is not taken.*

Many young people perceive governments and world leaders as ineffective in addressing the climate crisis.

Swedish activist Greta Thunberg has said that climate anxiety was a motivation for her activism. At age 11, she experienced a severe form of eco-anxiety, which led her to start studying and taking action.

Global youth protests: Movements like Fridays for Future, initiated by young people, reflect both their high level of concern and their desire to make changes.

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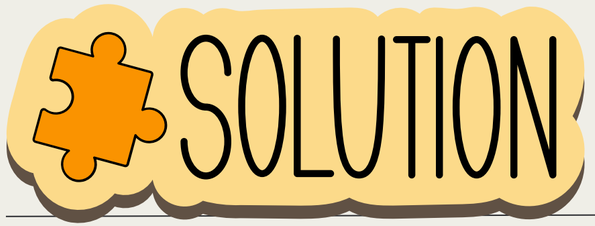
CLIMATE ANXIETY AND YOUNG PEOPLE

VIDEO

HTTPS://YOUTU.BE/NB0FNWKBTBMSI=WCSLRSG__1ITSSO4

An international study of young people in 10 different countries, including Australia, found that 59% of them are very or extremely worried about climate change. Almost half are so worried that it affects their daily lives, and 75% think the future is scary.

Write down an important idea that comes out of this video. Share it with others!



WHAT CAN WE DO?

Active involvement in local solutions

Practical projects:
Organize local actions such as:

Planting trees.
Creative recycling or material reuse workshops.
Creating a school garden to promote sustainability.
Associate these projects with visible short-term benefits to motivate students.

Collaborative activities:
Involve students in community cleanups or monitoring air/water quality in their area.

Building a collaborative mindset

Brainstorming activities:
Organize sessions where students create solutions to specific climate problems.
Example: “How can we reduce food waste in school?”

Interdisciplinary collaborations:

Integrate lessons about climate change into all STEAM fields.
Examples: Mathematics (calculating carbon footprint), Arts (creating eco-friendly posters), Technology (renewable energy projects).

Game-based and simulation-based learning

Interactive simulations:
Organize role-playing games in which students solve climate crises, taking on roles such as community leaders, scientists, or politicians.
Educational online games:
Use platforms like "Eco" or "Climate Interactive" to teach students about the impact of climate decisions.

Building a positive vision for the future

Optimistic scenarios:
Design with your students a future where technology and cooperation solve the climate crisis.
Creative exercises:
Ask students to draw or write about what the world would look like in 2050 if people worked together for a sustainable future.

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CREATIVE WORKSHOP

"The positive messages of climate education."

EXAMPLE

"Every step counts! Reuse, recycle, regenerate!"
"A healthy planet starts with you. Green energy is the future!"

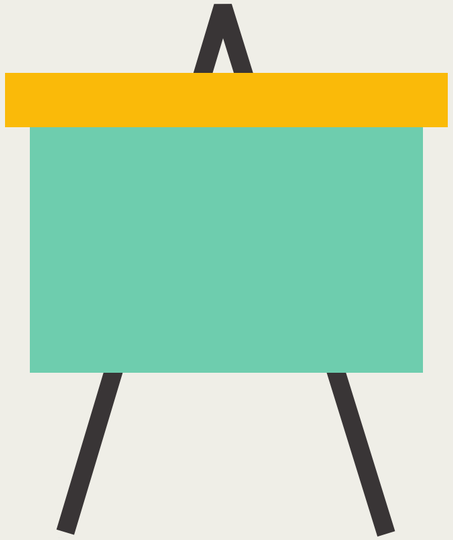
The teams present the slogan and motivate the choice made. At the end, they vote for:

"Most creative message"
"The most practical solution"
"The most inspiring message"

HOW?

Teachers create slogans or messages that might offer solutions and hope for a sustainable future.

- Teams (4-5 teachers) will create a poster or visual representation.



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MOMENT OF REFLECTION

- MENTI- What can you apply in your schools/during classes from what you learned during this seminar?

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Dear teachers,

Today we explored together the importance of climate action and how we can support future generations to become responsible and inspired leaders. Your role as STEAM educators is essential in providing not only knowledge, but also hope, guiding students towards practical and innovative solutions.

You are the ones who can turn climate anxiety into motivation, questions into discoveries, and concerns into meaningful action. Through your lessons, you can inspire students to understand that change starts with each of us and that together, we can shape a greener, more sustainable future.

We encourage you to take what we have discussed here further and create a collaborative learning space in your classrooms, based on curiosity, creativity, and active engagement.

Together, we can inspire students to not just dream of a better future, but to become its architects.

Thank you for your dedication, passion, and for being the engine of positive change in your communities.

Let's continue to learn, innovate, and create lasting impact!

With respect and admiration,

The Mihai Eminescu Gymnasium School Team, Alexandria

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Thank you!

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