<table>
<tr><td>Teacher's Surname: : Cutolo</td><td>Name: Marianna</td></tr>
<tr><td>Title : The UN SDGs- promoting sustainability</td><td>Time : 1 hours</td></tr>
<tr><td colspan="2">Subject : Geography</td></tr>
<tr><td colspan="2">Aim: To lead students to adopt sustainable behaviors in their everyday lives to reach the United Nation Sustainable development goals applying computational thinking principles.
Learning Objectives:
● Identify the UN SDGs.
● Analyze their 5 pillars and the goals they cover.
● Develop strategies for incorporating SDGs into daily routines.
● Apply computational thinking to take action in our daily lives to achieve the SDGs..</td></tr>
<tr><td colspan="2">Key CS elements: Decomposition; Pattern Recognition; Abstraction; Algorithm Design.</td></tr>
<tr><td colspan="2">Age group : 8th grade 12-14 years old</td></tr>
<tr><td>Learning situations: classroom, white smart board.</td><td>Activity type :individual and group work, cooperative learning</td></tr>
<tr><td>Essential Materials:
● Whiteboard and markers
● Worksheets or handouts on the UN and SDGs

Optional Materials:
● Laptop or computer with internet access
● Projector or screen for presentations
● Sustainable products or samples (e.g., recycled paper, reusable bags)</td><td>Online Resources:
● UN Sustainable Development Goals Education website: https://www.un.org/sustainabledevelopment/education/
● Teach SDGs website: http://www.teachsdgs.org/

Local Resources:
● Local environmental organizations
● Sustainable businesses or initiatives in the community
● Local government sustainability programs</td></tr>
<tr><td colspan="2">Learning development</td></tr>
<tr><td colspan="2">1. Introduction (10 minutes):</td></tr>
</table>

- Begin by discussing the origin and aim of the UN and the importance of SDGs to answer the environment, economic and political problems that we have today and the need to lead a sustainable lifestyle.
- Explain the objectives of the lesson and how computational thinking principles can be applied to promote SDGs in our lives.

Pre - Assessment Test (optional):

2. Decomposition (10 minutes):

- Break down the concept of a sustainable lifestyle into smaller, manageable components, such as:
- avoid plastic bags or bottles
- reduce gas emissions
- recycle and reuse
- respect and protect the environment.
- Discuss each component briefly and emphasize its significance in maintaining a sustainable lifestyle.

3. Pattern Recognition (10 minutes):

- Engage students in identifying patterns or commonalities among sustainable habits.
- Encourage discussion on recurring themes such as:
  - Using recycled bottle
  - walking, cycling, using public transportation
  - respecting waste sorting
  - Avoiding waste of food , water and electricity.
- Help students recognize how these patterns contribute to be sustainable

4. Abstraction (10 minutes):

- Abstract the key principles of a sustainable lifestyle by focusing on essential habits and behaviors.
- Guide students to prioritize the following core principles:
- Use reusable containers for water.
- Turn off the water when you wash.
- Use a cloth bag for shopping.
- Use public green transport, ride a bike or walk.
- Separates the trimmed for recycling.
- Turn off the light when you leave a room.
- Do not abandon waste of any kind on the roads.

- Plant a seed of a plant.
- Emphasize the importance of setting achievable goals and making sustainable lifestyle changes.

5. Algorithm Design (10 minutes)

Algorithm for Planning a Healthy Lifestyle:

Step 1: Assess Current Habits and Sustainable Status
- Evaluate current use of sustainability .
- Consider overall sustainable status and any specific sustainable goals or concerns.

Step 2: Set Clear and Achievable Goals
- Define specific, measurable goals for improving sustainability.
- Ensure goals are realistic and achievable within a reasonable timeframe.

Step 3: Identify Areas for Improvement
- Identify areas of your lifestyle that may need adjustment to support your sustainable goals.
- Consider factors such as how your family travel in the town, if you do waste sorting, recycle and reuse of containers. .

Step 5: Create a Weekly Sustainable Schedule
- Schedule regular actions to achieve everyday SDGs throughout the week.
- Choose activities you and your family can easily do.

6. Conclusion (10 minutes):
- Review the key points covered in the lesson, emphasizing the importance of applying computational thinking to promote sustainability.
- Encourage students to reflect on how they can use the principles discussed to make positive changes in their lives.

Algorithm Design (Step-by-step approach):

1. **Identify Sustainable Practices**:

- **Step 1**: Choose a specific SDG (e.g., SDG 12: Responsible Consumption and Production).
- **Step 2**: Research sustainable practices related to that goal (e.g., reducing waste, recycling, energy conservation).

2. **Set Measurable Goals**:

- **Step 3**: Define specific goals for adopting these practices (e.g., reduce plastic usage by 50%, save water by fixing leaks).

3. **Develop Daily Routines**:

- **Step 4**: Break down the practices into daily actions (e.g., turning off lights, using reusable bags, or reducing food waste).
- **Step 5**: Implement these actions in students' daily routines.

4. **Monitor Progress**:

- **Step 6**: Track progress using checklists or journals (e.g., monitor energy consumption, or track how much waste is being reduced).
- **Step 7**: Analyze results weekly or monthly to see if the goals are being achieved.

5. **Adjust and Optimize**:

- **Step 8**: If goals are not met, adjust actions or make them more achievable (e.g., try different recycling methods or optimize water use).
- **Step 9**: Refine the behaviors based on feedback and continue monitoring.

6. **Share Success Stories**:

- **Step 10**: Share results with peers and discuss improvements, encouraging collective adoption of sustainable behaviors.

Homework (Optional):

- Ask students to do research on the SDGs discussed in class.
- Ask students to create a personal action plan for improving their lifestyle based on the principles discussed in class.

Assessment:

Formative Assessment:

- **Observation:** Observe students' participation in class discussions, group activities, and presentations to assess their understanding and engagement.

- **Questions:** Ask students questions throughout the lesson to gauge their comprehension of key concepts and their ability to apply them.
- **Exit Tickets:** Give students brief exit tickets at the end of the lesson to summarize their learning and identify any areas where they may need further support.

Summative Assessment:

- **Project:** Assign students a project related to sustainability, such as creating a sustainable product, designing a community garden, or developing a campaign to promote sustainable practices.
- **Presentation:** Have students present their projects to the class, demonstrating their understanding of the SDGs and their ability to apply computational thinking principles.
- **Essay or Report:** Ask students to write an essay or report on a specific SDG or sustainable issue, incorporating their learning from the lesson.
- **Test or Quiz:** Administer a test or quiz to assess students' knowledge of the SDGs, computational thinking concepts, and their ability to apply them to real-world situations.

Post - Assessment Test (optional):

Expected results:

Knowledge-Based Outcomes:

- **Understanding of SDGs:** Students will have a clear understanding of the United Nations Sustainable Development Goals (SDGs) and their importance in addressing global challenges.
- **Knowledge of Sustainable Practices:** Students will be able to identify and explain various sustainable practices related to different SDGs.
- **Awareness of Computational Thinking:** Students will understand the basic principles of computational thinking and how they can be applied to problem-solving and decision-making related to sustainability.

Skills-Based Outcomes:

- **Critical Thinking:** Students will be able to critically analyze environmental and social issues and evaluate potential solutions.
- **Problem-Solving:** Students will be able to identify problems related to sustainability, break them down into smaller components, and develop effective solutions.

- **Collaboration:** Students will be able to work collaboratively with their peers to develop and implement sustainable projects or initiatives.
- **Communication:** Students will be able to effectively communicate their understanding of sustainability and their ideas for promoting sustainable practices.

Attitude-Based Outcomes:

- **Environmental Awareness:** Students will develop a greater appreciation for the environment and a sense of responsibility for protecting it.
- **Social Consciousness:** Students will become more aware of social issues and the interconnectedness of environmental, economic, and social problems.
- **Positive Action:** Students will be motivated to take action in their daily lives to promote sustainability and contribute to achieving the SDGs.

Notes:

Key Points:

- SDGs: Emphasize the importance of the 17 Sustainable Development Goals and their relevance to global challenges.
- Computational Thinking: Explain the key principles of computational thinking (decomposition, pattern recognition, abstraction, algorithm design) and how they can be applied to sustainability.
- Connection: Clearly demonstrate how computational thinking can be used to address environmental and social problems.
- Engagement: Use interactive activities and real-world examples to keep students engaged and motivated.
- Assessment: Employ a variety of assessment methods to evaluate students' understanding and progress.

Additional Tips:

- Differentiation: Consider the needs of different learners and provide opportunities for differentiation.
- Local Context: Relate the SDGs and computational thinking to local issues and initiatives.
- Collaboration: Encourage students to work together and share their ideas.
- Reflection: Provide opportunities for students to reflect on their learning and progress.

Potential Challenges:

- Complexity: The concept of computational thinking may be new to some students, so it's important to provide clear explanations and examples.
- Relevance: Students may need to see the connection between computational thinking and sustainability.
- Engagement: Some students may find the topic abstract or boring, so it's important to use engaging activities and real-world examples.