**Learning scenario with MARG - Template**

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| PART 1: General information  |
| Title of the scenario: | **E.T. and the green energy** |
| Keywords: | Renewable/Non-renewable Energy Resources, Green energy |
| Name(s) of the scenario’s creator(s): | Monica Benghe, Mircea cel Bătrân Secondary School, Romania |
| [Creative Commons License](https://creativecommons.org/licenses/?lang=en) of the scenario: | Attribution | Attribution-NoDerivs |
| Attribution-ShareAlike | Attribution-NonCommercial |
| Attribution-NonCommercial-ShareAlike | Attribution-NonCommercial-NoDerivs |
| Estimated duration of the scenario’s activities: | 2 x 50 MIN |
| Age range of learners: | 11-13 years old |
| Learners’ special characteristics: (i.e. immigrants, special needs) | None |
| Learning subject based on your curriculum to which the scenario relates: | Environmental education |
| To which Sustainable Development Goal (s) does the scenario relate to : (highlight it/them) | [ ] No Poverty | [x] Industry, Innovation and infrastructure |
| [ ] Zero Hunger | [ ] Reduced Inequalities |
| [ ] Good Health and Well-Being | [x] Sustainable Cities and Communities |
| [x] Quality Education | [x] Responsible Consumption and Production |
| [ ] Gender Equality | [x] Climate Action |
| [ ] Clean Water and Sanitation | [ ] Life Below Water |
| [x] Affordable and Clean Energy | [x] Life On Land |
| [ ] Decent Work and Economic Growth | [ ] Peace, Justice and Strong Institutions |
|  | [ ] Partnerships For The Goals |
| Which 21st century skill(s) does the scenario involve:(highlight it/them) | [x] Information and data literacy  | [x] Critical thinking,  |
| [x] Communication | [x] Active citizenship |
| [x] Collaboration | Respect for differences |
| [x] Problem solving |  |

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| PART 2: Learning outcomes of the scenario  |
| In terms of knowledge  | ✓ The learner knows about renewable / non-renewable resources✓ The learner knows about the difference between conventional and non-conventional energy ✓ The learner knows the procedure of obtaining green energy |
| In terms of skills | ✓ The learner is able to adopt responsible attitudes toward the consumption of energy from nonrenewable sources  |
| In terms of competences | ✓ The learner proposes solutions for managing natural resources in a sustainable way, as well as for saving energy and stopping energy waste ✓ The learner proposes interventions in his/her immediate social environment to address the problems of the pollution caused by producing energy  |

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| PART 3: Description of the game |
| Narrative description of the game plot: | E.T., a nice alien, accidentally landed on Earth. In order to continue his journey, his ship needs green energy. The game scenario requires players to identify at least three sources of green energy available on Earth.During the game, players will visit five locations and discover five types of energy resources. Each of the five locations is augmented with two kinds of digital materials, which appear automatically when the students entered the geographical boundaries of the selected area: 1) a source of energy, enhanced with digital information (image, video, or website about how it is obtained) and 2) a multiple-choice question related to its ecological impact. For each good answer they receive fuel for E.T.’s spaceship.  |
| Game objectives: | To pass from a location to another, students have to process information from the digital material so as to correctly answer the question that follow. By answering the questions correctly, students can discover the three green energy sources and help E.T. to continue his journey and successfully complete the game.  |
| Does the scenario refer to a specific location? If yes, specify. If no, write everywhere. | Yes, the Trivale Forest, a large park near the “Mircea cel Bătrân” Secondary School, Pitești, Romania |
| Characters: | Children, E.T. , the spaceship  |
| Scenes: | The game consists of visiting five places involving different types of energy and resources: 1. Meeting E.T. - What is green energy?
2. The solar energy
3. The Wind Farm
4. How Hydroelectricity works
5. Simple things to reduce energy waste?
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| Type of work: Individual/ collaboration | Students play the game in teams of 3 or 4 |
| Does the game involve different player roles? If yes, specify. | No |

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| PART 4: Description of the learning scenario activities |
|  | **Learning settings** | **Estimated time** |
| Before the game: | Students are given instructions about how to use mobile devices and how to play the MARG. They are divided in teams. | 5’  |
| During the game: | Each group starts the game from school accompanied by their classroom teacher(s). In each of the five locations, students are watching the augmented material on the tablet /smartphone and seek to find the right answers to the questions that are appearing. At the same time, during the game, they are filling in a worksheet on the renewable and the non-renewable energy resources. More specifically: **Scene 1:** **Meeting E.T. - What is green energy?** Students meet E.T. and are asked to help him find green energy for his spaceship. They are given a video about different types of resources used in producing energy, which they have to watch and analyzeand then answer the quiz related to this, in order to move to the next one. **Scene 2: Solar energy**Students learn about solar energy through a short video, the advantages and limitations of its use. To move on to the next scene, they have to answer a question about solar energy. **Scene 3: The Wind Farm** Students are given a website and visit virtually a Wind Farm, the third place of interest. After the visit, they answer a question in order to unlock the next scene. **Scene 4: How hydroelectricity works**Through a short video, students learn about using water to produce energy. Then, they are asked to choose from different type of resources and say if they are renewable / non-renewable. The good answers will help E.T. to get green fuel for his spaceship. **Scene 5: Simple things to reduce waste energy?**Grateful for the help, E.T. gives the students some tips to save Planet Earth's resources. Students receive an article on their mobile device containing simple tips to save energy at home. Then they are asked to take some personal decisions in order to save energy from non- renewable resources (example: unplug the electronic devices when not in use, share a car or walk to school). A majority of good decisions allows them to win the game.  | 45’ |
| After the game: | Each group of students, upon their return to school the next day, completes the worksheet about different types of resources and energy. Finally, all groups discuss together their experiences regarding the renewable/non-renewable energy resources they identified, and through various activities (e.g., collage, posters), they suggest specific actions for reducing the energy waste in their daily life.  | 50’ |
|  | **Total**: | 100’ |

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| PART 5: Prerequisite knowledge and supportive material |
| Learners’ prerequisite knowledge: | Basic knowledge of using a mobile device, basic knowledge about natural resources  |
| Infrastructure/ equipment needed for implementing the scenario: | Mobile devices with data-internet connectivityNotebook / Worksheets prepared by the teachers.  |
| Other learning resources needed:  | Tips for your home / Reduceți consumul și emisiile acasă / Συμβουλές για το σπίτι / Tips voor thuis<https://ec.europa.eu/clima/citizens/tips_en><https://ec.europa.eu/clima/citizens/tips_ro><https://ec.europa.eu/clima/citizens/tips_el><https://ec.europa.eu/clima/citizens/tips_nl>What is Energy? Energy Types for Kids - Renewable and Non-Renewable Energy Sources <https://www.youtube.com/watch?v=aFpC1vAIgNc>Renewable Energy Explained in 2 1/2 Minutes<https://www.youtube.com/watch?v=KEeH4EniM3E>Non-renewable Energy Sources - Types of Energy for Kids<https://www.youtube.com/watch?v=MpEJnnpye-k>Renewable Energy Sources - Types of Energy for Kids<https://www.youtube.com/watch?v=Giek094C_l4>What is Solar Energy?<https://www.youtube.com/watch?v=inPtRWtvDaM>Learn About Wind Farms<https://www.youtube.com/watch?v=U5_cZ3IRUkU> How Hydroelectricity works?<https://www.youtube.com/watch?v=ABv631t1OKI> |

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| PART 6: Approach towards the assessment of the learning outcomes |
| Learners’ assessment approach: | ✓ In-game quizzes✓ Feedback from students✓ Questionnaire |