**Learning scenario with MARG - Template**

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| PART 1: General information  |
| Title of the scenario: | “Unlocking the secrets of plants” |
| Keywords: | Plant classification, Carob cultivation, Food sustainability and health |
| Name(s) of the scenario’s creator(s): | Elena Kiliari |
| [Creative Commons License](https://creativecommons.org/licenses/?lang=en) of the scenario: | Attribution | Attribution-NoDerivs |
| Attiribution-ShareAlike | Attribution-NonCommercial |
| Attribution-NonCommercial-ShareAlike | Attribution-NonCommercial-NoDerivs |
| Estimated duration of the scenario’s activities: | 120 minutes |
| Age range of learners: | 10-12 years old |
| Learners’ special characteristics: (i.e. immigrants, special needs) | None |
| Learning subject based on your curriculum to which the scenario relates: | Science Education |
| To which Sustainable Development Goal (s) does the scenario relate to : (highlight it/them) | ( ) No Poverty | ( ) Industry, Innovation and infrastructure |
| ( ) Zero Hunger | ( ) Reduced Inequalities |
| (Χ) Good Health and Well-Being | (Χ) Sustainable Cities and Communities |
| ( ) Quality Education | (Χ) Responsible Consumption and Production |
| ( ) Gender Equality | ( ) Climate Action |
| ( ) Clean Water and Sanitation | (Χ) Life Below Water |
| ( ) Affordable and Clean Energy | (Χ) 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) | (Χ) Information and data literacy  | (Χ) Critical thinking,  |
| (Χ) Communication | (Χ) Active citizenship |
| (Χ) Collaboration | ( ) Respect for differences |
| (Χ) Problem solving |  |

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| PART 2: Learning outcomes of the scenario  |
| In terms of knowledge  | The learner knows and understands:* The classification of plants based on growth habits and seasonal changes
* The cultivation of carob trees in Cyprus – the black gold of Cyprus
* The advantages of a sustainable food system
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| In terms of skills | The learner is able to:* Classify a plant based on its characteristics
* Appreciate the value of a healthy diet
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| In terms of competences | The learner:* Proposes actions for improving human health in the school environment
* Proposes involvements in protecting the school garden and plants in general
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| PART 3: Description of the game |
| Narrative description of the game plot: | * The students take a walk in the school garden and observe the plants. There are labels with codes placed in front of each plant with its name. By entering the code a card appears presenting the plant’s characteristics according to its category (tree, shrub or herb) and its seasonal changes (whether the plant is deciduous or evergreen/ pictures of blossoms and fruits), enhanced with digital information. The plant-stations are:

(a) pomegranate (shrub)(b) cedar (tree)(c) cypress (tree)(d) rosemary (herb)(e) carob trees (f) olive tree (tree) - the secret plant* Under the carob trees of the garden the students watch the presentation the “Black gold” of Cyprus and the video concerning the cultivation.
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| Game objectives: | Students gain information from the given material - physical and digital - and fulfill a quiz in order to: classify the plant appointed at the right category by identifying similarities and differences with the given information. In addition, the students relate the plant’s fruit with human nutrition and health. After the five plant-stations the students follow the reverse route and based on given information they discover the card of the secret plant. |
| Does the scenario refer to a specific location? If yes, specify. If no, write everywhere.  | The school garden |
| Characters: | Children  |
| Scenes: | The game consists of three scenes:1. The school garden – four plant stations (station 1: pomegranate, station 2: cedar, station 3: cypress and station 4: rosemary). The students are divided in teams and each team explores each station separately (they study photos of the plant’s characteristics), so via rotation they manage to study all the plants. After each station they answer a quiz related to the plant involved.
2. The carob trees – fifth station (the students all together watch the presentation and video about the carob trees of Cyprus). After these they answer a quiz.
3. Unlock the card-profile of the secret plant. The whole class is given hints – information about the secret plant and try to unlock its identity. When they manage to do so, the plant’s card is shown, the plant is an olive tree.
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| Type of work: Individual/ collaboration | Individual and collaboration |
| 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 how to use mobile devices. They are divided in teams. | 10 |
| During the game: | The teams are accompanied by the class teacher at the school garden. Each team starts the game from a different plant-station. The students watch the augmented material on their tablet and answer the quiz. By exploring the garden, they analyze the plant’s characteristics, they make associations and conclusions. Afterwards, all the students visit the carob trees of the garden. They watch a presentation and a video concerning the cultivation and exploration of carob through the years. After the presentation and video, the students take a quiz. At the end, the card of the secret plant from the given information is revealed. | 80 |
| After the game: | The next day the children are engaged in the discussion about healthy nutrition and find ways to include plant food in their nutrition. Moreover, they promote related actions in the school environment (e.g. creation of posters or preparation of healthy breakfast). Finally, the children engage in the protection and maintenance of the school garden. | 30 |
|  | **Total**: | 120 |

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| PART 5: Prerequisite knowledge and supportive material |
| Learners’ prerequisite knowledge: | Basic knowledge of using a mobile device, the basic parts of plants and needs |
| Infrastructure/ equipment needed for implementing the scenario: | Mobile devices with data-internet connectivity |
| Other learning resources needed: | * Photos of the plants to be explored:
* **Station 1: Pomegranate**

Summer: <https://images.app.goo.gl/HbAzS7D8naaqWvZr7>   Spring: <https://images.app.goo.gl/5C9qEx2bRDosudgW6> Autumn: <https://images.app.goo.gl/54FBjMjQYpjkaUyn9> Winter: <https://images.app.goo.gl/X9rm9rTfN5xydkUs5>* **Station 2: Cedar**

Summer cedar valley: <https://images.app.goo.gl/3Vw1n57sV8KqJd1k9> Winter at Troodos: <https://images.app.goo.gl/JaWHD2fQGiKcbRaT6> Pine: <https://images.app.goo.gl/hPQcf1KyB8g2Rb5e9>* **Station 3: Cypress**

Summer and winter: <https://images.app.goo.gl/1BbNVXomd3DbxP5b6> Pine: <https://images.app.goo.gl/MxXkkiRg48KPXfax6>* **Station 4: Rosemary**

Summer and winter: <https://images.app.goo.gl/FGR2P98wn9BTdMie7> Blooms: <https://images.app.goo.gl/wkEoWbAF1iNAniTw5>* **Station 5: Carob trees**
* Video titled “Carob cultivation” created by the Department of Agriculture (Ministry of Agriculture, Rural Development and Environment) <https://www.youtube.com/watch?v=OYMcNljaimY&t=236s>
* Presentation of the project “Black Gold” by the University of Cyprus

<http://www.ucy.ac.cy/carob/documents/%CE%A0%CE%B1%CF%81%CE%BF%CF%85%CF%83%CE%AF%CE%B1%CF%83%CE%B7_%CE%A7%CE%B1%CF%81%CE%BF%CF%85%CF%80%CE%B9%CE%BF%CF%8D_%CF%83%CE%B5_%CE%A3%CF%87%CE%BF%CE%BB%CE%B5%CE%AF%CE%BF.pdf>* **Station 6: Secret plant (olive tree)**
* Photo is revealed at the end after the given information: <https://images.app.goo.gl/LJ4mYgYNgi7zALEX8>
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| PART 6: Approach towards the assessment of the learning outcomes |
| Learners’ assessment approach: | * Questionnaire
* Presentation of teamwork
* Student’s feedback
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**Appendix**

**Scene A**

Images for the four plant stations:

* **Station 1: Pomegranate**

Summer: <https://images.app.goo.gl/HbAzS7D8naaqWvZr7>

Spring: <https://images.app.goo.gl/5C9qEx2bRDosudgW6>

Autumn: <https://images.app.goo.gl/54FBjMjQYpjkaUyn9>

Winter: <https://images.app.goo.gl/X9rm9rTfN5xydkUs5>

**Pomegranate quiz:**

Question 1: Is pomegranate deciduous or evergreen? (Answer: deciduous)

Question 2: Does it have a central stem or many stems? (Answer: many stems)

Question 3: Are its branches woody or soft? (Answer: woody)

Question 4: Is pomegranate a shrub, a tree or a herb? (Answer: shrub)

* **Station 2: Cedar**

Summer cedar valley: <https://images.app.goo.gl/3Vw1n57sV8KqJd1k9>

Winter at Troodos: <https://images.app.goo.gl/JaWHD2fQGiKcbRaT6>

Pine: <https://images.app.goo.gl/hPQcf1KyB8g2Rb5e9>

**Cedar quiz:**

Question 1: Is cedar deciduous or evergreen? (Answer: evergreen)

Question 2: Does it have a central stem or many stems? (Answer: a central stem)

Question 3: Are its branches woody or soft? (Answer: woody)

Question 4: Is cedar a shrub, a tree or a herb? (Answer: tree)

* **Station 3: Cypress**

Summer and winter: <https://images.app.goo.gl/1BbNVXomd3DbxP5b6>

Pine: <https://images.app.goo.gl/MxXkkiRg48KPXfax6>

**Cypress** **quiz:**

Question 1: Is cypress deciduous or evergreen? (Answer: evergreen)

Question 2: Does it have a central stem or many stems? (Answer: a central stem)

Question 3: Are its branches woody or soft? (Answer: woody)

Question 4: Is cypress a shrub, a tree or a herb? (Answer: tree)

* **Station 4: Rosemary**

Summer and winter: <https://images.app.goo.gl/FGR2P98wn9BTdMie7>

Blooms: <https://images.app.goo.gl/wkEoWbAF1iNAniTw5>

**Rosemary quiz:**

Question 1: Is rosemary deciduous or evergreen? (Answer: evergreen)

Question 2: Does rosemary have a central stem or many stems? (Answer: many stems)

Question 3: Are its branches woody or soft? (Answer: soft)

Question 4: Is rosemary a shrub, a tree or a herb? (Answer: herb)

**Scene B**

Presentation and video for carob trees

* **Station 5: Carob trees**

PowerPoint Presentation for Carob trees from the project “Black Gold” created by the University of Cyprus : <http://www.ucy.ac.cy/carob/documents/%CE%A0%CE%B1%CF%81%CE%BF%CF%85%CF%83%CE%AF%CE%B1%CF%83%CE%B7_%CE%A7%CE%B1%CF%81%CE%BF%CF%85%CF%80%CE%B9%CE%BF%CF%8D_%CF%83%CE%B5_%CE%A3%CF%87%CE%BF%CE%BB%CE%B5%CE%AF%CE%BF.pdf>

Video for carob cultivation in Cyprus created by the Department of Agriculture (Ministry of Agriculture, Rural Development and Environment): <https://www.youtube.com/watch?v=OYMcNljaimY&t=236s>

**Carob tree quiz:**

Question 1: Is carob tree deciduous or evergreen? (Answer: evergreen)

Question 2: Does carob tree have a central stem or many stems? (Answer: a central stem)

Question 3: Are its branches woody or soft? (Answer: woody)

Question 4: Is carob tree a shrub, a tree or a herb? (Answer: tree)

Question 5: Is carob oil healthy? (Answer: yes)

**Scene C**

**Information for the secret plant** (Answer: olive tree)

Hint 1: The plant is evergreen

Hint 2: The plant has a central stem and woody branches

Hint 3: Its leaves are small, green and silver on the back

Hint 4: We get oil from its fruit

Image of olive tree: <https://images.app.goo.gl/LJ4mYgYNgi7zALEX8>