# Learning Scenario

## Workshop 3: Games and tools for programming

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| **Learning Scenario Title** | The fruits of the seasons |
| **Course/Grade** | Science<br><br>1st grade of primary school |
| **Learning Outcomes** | *General learning outcomes*<br><br>• Recognize the characteristics of particular seasons.<br>• Explore the specifics of the seasons and seasonal fruits.<br>• Design a game for repeating the aforementioned contents (distinguish the seasons by observation, describe the weather conditions of all seasons, associate appropriate clothes with specific seasons, identify and name seasonal fruits and vegetables according to seasons).<br><br>*Specific Learning outcomes oriented to algorithmic thinking*<br><br>• Search, find, and extract relevant information.<br>• Summarize and extract elements by attributes.<br>• Compare and classify seasons and fruits.<br>• Identify and apply basic programming concepts when designing a game in Scratch (algorithm, series of commands, condition, loop, variable). |
| **Aim, Tasks and Short Description of Activities** | Repeat and practice recognizing and distinguishing the characteristics of the seasons.<br>Promote healthy eating habits.<br>For each season, examine seasonal fruits specific to our climate.<br>Create a thematic poster with fruits for each season.<br>Participate in the design of a story (scenes, flow, logical tasks) that will encourage the identification of specific characteristics of each season.<br>Play the game and evaluate the whole process. |
| **Keywords** | seasons, autumn, winter, spring, summer, characteristics, seasonal fruits, healthy eating, algorithm of commands, game |
| **Correlation and Interdisciplinarity** | Croatian Language, Art, Informatics, Mathematics |
| **Duration of Activities** | During May 2019 (230 min) |
| **Learning and Teaching Strategy and Methods** | Active learning method, collaborative learning, problem solving, dialog method, viewing method, demonstration method, research method of learning, computer games |
| **Teaching Forms** | Individual, frontal, group work, work in pairs |

| Tools | Scratch, Internet browser |
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| Resources/materials for teachers | Scratch, Internet browser, examples of computer games in Scratch |
| Resources/materials for students) | Scratch, Internet Browser, posters, felt-tip pens, tempera, coloured thread/wool, activity captions, photos of smileys |

| Teaching summary | | Duration |
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| | MOTIVATION<br><br>Game of association.<br><br>| |

| SNOW | CHANGEABLE | FRUIT | HOT |
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| ICE | SWALLOW | FOG | HOLIDAYS |
| COLD | PRIMROSE | RAIN | BREAK |
| CHRISTMAS | EASTER | PICKING GRAPE | SUN |
| **WINTER** | **SPRING** | **AUTUMN** | **SUMMER** |
| **SEASONS** | | | |

Students watch an animated video "Four Seasons" on Youtube
https://www.youtube.com/watch?v=n52naW_VXBo&t=5s

Short commenting on the video.

Students solve the puzzles:

No paint, no brush, but trees shine in colours! (autumn)
No teeth, no hands, but it bites! (winter)
Two housewives each year cover the table: one with a green tablecloth, the other with a white tablecloth. (spring and winter)
The sun is hot; everyone is running in the shade! (summer)

Teacher asks the following questions:
Do you know that there are parts of the planet where the season is always the same?

What do you think, what problem do people who live there have?

What kind of clothes and shoes do they need?

Do they have enough food?

Do they grow fruits and vegetables?

Have you heard of refugees and migrants?

20 min

There are people who leave their homes and go with their families to other parts of the world because the soil has dried up and vegetables and fruits cannot be grown. Where people are hungry, wars often break out, which is another reason why they leave their homes.

Many people and children have gone through our country in recent years in search of a better life. Some of them stayed here with us.

One boy/girl came from Africa and stayed in Croatia. He/she comes from a place where there is a shortage of water and food and it is constantly very hot. He/she wants to know what life is like here. He/she heard that 4 seasons alternate during the year, and that various fruits and vegetables grow here. He/she is interested in the specificities of each season and their fruits. He/she wants to stay healthy by eating only seasonal fruits.

Would you like to help him/her describe what the seasons look like in our country and what fruits and vegetables are ripening in them?

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| Implementation<br><br>ACTIVITY 1 (research assignment)<br><br>Project assignment (division and definition of assignments for group work: 6 students in a group, 4 groups, each group gets a specific part of a project assignment). The specificities of the seasons and their seasonal fruits will be explored partly at school, with the supervision of the teacher, but mostly at home with the supervision of the family members.<br><br>*1. group:* AUTUMN – characteristics and seasonal fruits<br>*2. group:* WINTER – characteristics and seasonal fruits<br>*3. group:* SPRING – characteristics and seasonal fruits<br>*4. group:* SUMMER – characteristics and seasonal fruits<br><br>Also, each group will determine the gender and the name of the child from the story who will be helped with this research. | 45 min |
| ACTIVITY 2<br><br>Together with the students, I check the correctness of the collected data. Each group makes their own poster with the theme of the given season and its seasonal fruits that they have explored. | 30 min |
| ACTIVITY 3<br><br>Two students from each group briefly present the poster, in the way that they mention the main characteristics of the season and list several seasonal fruits. During the presentation, one of | 15 min |

the students addresses the named character from the story who is played by another student.

ACTIVITY 4

Do you think your character remembers everything you showed him/her from the poster?
What do you think about making him/her a computer game that will help him/her to remember faster and better everything you showed him/her and said to him/her, and at the same time have fun? I show the examples of similar computer games:

https://scratch.mit.edu/projects/3028073/

https://scratch.mit.edu/projects/96101619/


Students in groups should, for their season:

1. Design the scene according to the season.
2. Choose which outfit the main character could wear.
2. Describe the game/event within the given season.
3. Define the moves of the main character.
3. Come up with what he is doing, saying.
4. Describe the main character's tasks.
5. Define the way the points are collected.
6. Determine the ultimate goal of the game.
7. Determine when the game is over.


The teacher gives a possible example.

E.g. SUMMER - evident summer scene (beach, sea...)

The main character should be dressed according to the season in the background, with the summer clothes that are offered among clothes for all four seasons, at a given time. If the main character is dressed properly, he/she can start collecting fruits/points typical of summertime (fruits typical of other times are also offered). If the main character fails to dress properly within the given time, the further course of the game cannot be accessed and it is returned to the beginning.

For example, in the summer, the main character will need to be dressed in a swimsuit in order to enter the sea/lake and collect fruits while swimming. The fruits that appear are always the same, and they need to be recognized and picked up, but only those associated with the season/background/scene in which the main character currently is, otherwise the points are deducted. There can be 12 fruits, three of which will belong to each season (e.g. watermelon, apricot, melon, pumpkin, pomegranate, olive, lemon, orange, kiwi, cherry, radish, young onion...)

45 min

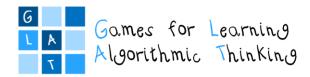| | | |
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| | When finished with designing, each group presents their answers to those present. | |
| | ACTIVITY 5 | |
| | In this activity, the students, with the help of the teacher, define and write down the final sequence of the game with all the details, tasks, conditions… Also, by voting, they decide how many points will bear the right and wrong choice of fruits. They also decide how many points will be needed to move to the next level/next season and at what time. Finally, they agree on which goal/final outcome will be chosen from the 4 proposed. | 20 min |
| | ACTIVITY 6 | |
| | The game is created by university students in collaboration with the 6th grade student and the teacher, and students are involved in the creation process by thinking through and suggesting possible solutions. The teacher and the senior student encourage students to cooperate. The students then play the game and determine its name by voting. | 45 min |
| | Reflection on the performed activity (evaluation) | |
| | (Reflection and evaluation) | |
| | 6 signs (side by side) are placed on the panel, i.e. 6 names of the completed stages which the students participated in: | |
| | 1. Research work | |
| | 2. Creating a thematic poster | 10 min |
| | 3. Presentation of the poster, i.e. conversation with the main character | |
| | 4. Designing a game | |
| | 5. Participation in the making of the game | |
| | 6. Playing the computer game | |
| | Under each sign, there are three smileys, one smiling, the other serious and the third dissatisfied. Each student will get approximately 2 m of thread or thin coloured wool. The evaluation is done in such a way that each thread/wool will be marked with one smiley face. The wool/thread is wrapped around the pin once and continues to "travel" to the next smiley face. The amount of wool/thread on certain smileys will clearly reflect the students' opinion on the activities carried out. | |
| **Annexes** | Learning scenario in LePlanner: https://beta.leplanner.net/#/scenario/5d6e4aa080a288cd3abb8640 Story/game scenario | |
| **Examples and game references** | Developed Scratch game – Seasons: https://scratch.mit.edu/projects/326888540/ (30.7.2019.) 4 Seasons: https://www.youtube.com/watch?v=n52naW_VXBo&t=5s (30.7.2019.) | |

| | Scratch game – Stegocrunch: https://scratch.mit.edu/projects/3028073/ (30.7.2019.) |
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| | Scratch game – Fruit Adventures: Part 1: https://scratch.mit.edu/projects/96101619/ (30.7.2019.) |

# Game/story scenario

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| **Title of the game** | Seasons |
| **Type** *(Scratch or micro:bit)* | Scratch story with game elements |
| **Course/Grade** | Science: Seasons / Health - 1st grade |
| **Learning outcomes** | **Learning outcomes focused on general subjects**<br>• Recognize the seasonal fruits of particular seasons<br>• Associate appropriate clothes with specific seasons<br><br>**Learning outcomes focused on algorithmic thinking**<br>• Search, find, and extract relevant information |
| **Goal of the game** | Dress the main character in season-appropriate clothing to eventually harvest the fruits characteristic of that season. |
| **Characters and their role** | Mia – the main character<br><br>Family (mom, dad, 2 sisters, 1 brother) - supporting characters |
| **Description of the game flow** | The main character introduces the player into the story. Little girl Mia comes from Africa to Croatia in search of a better life. The goal is to teach Mia all about the seasons specific to the Croatian climate. For each season, it is necessary to first dress appropriately Mia, which is also a condition for continuing the game. Successful dressing is followed by the second part of the game, in which fruits specific to a particular season are collected. In that way the main character goes through all four seasons. By collecting the correct fruit, the player wins 1 point, while by making the wrong choice, he loses 1 point. Accordingly, by collecting seasonal fruits in all seasons, the player can collect a total of 36 points, out of which a minimum of 20 points is required for successful completion of the game. |
| **List of scenes/backgrounds** | 1. Park - an introduction to the game<br>2. Africa<br>3. Summer - Dubrovnik, beach, sea<br>4. Laundry rope - choose summer clothes<br>5. Sailboat<br>6. Summer - beach - selection of summer fruits<br>7. Tree (displaying 4 seasons) - entry of the season following the summer<br>8. Autumn – forest<br>9. Laundry rope - choose autumn clothes<br>10. Autumn - forest - selection of autumn fruits<br>11. Tree (displaying 4 seasons) - entry of the season following the autumn<br>12. Winter - mountains, snow, cottage<br>13. Laundry rope - choose winter clothes<br>14. Winter – selection of winter fruits<br>15. Tree (displaying 4 seasons) - entry of the season following the winter<br>16. Spring – Meadow |

| | 17. Laundry rope - choose spring clothes<br>18. Spring – selection of spring fruits<br>19. Promenade - end, display of points won, arrival of Mia's family |
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| **Logical mini-games within the story**<br>*(Note: select games that are aligned with your learning outcomes)* | Recognizing the characteristics of the seasons.<br>**The first part of the game for each season:**<br>Choosing the right clothes for the main character according to the current season.<br>Condition to continue the game - collecting points. Minimum required for each season:<br>      • Summer: 4 points<br>      • Autumn: 3 points<br>      • Winter: 4 points<br>      • Spring: 3 points<br><br>**The second part of the game for each season:**<br>Collecting fruits specific for specified season.<br>By collecting fruits, a maximum of 9 points can be collected in each season. |
| **End of the game** | If all four levels are successfully played and the minimum number of points (20 points) is collected, we get to know the whole family of the main character.<br>If the player does not collect enough points, Mia instructs him/her to repeat the game from the beginning. |