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| ACTIVITY PLAN | | |
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| **Theme** | **Subtopic** | **Activity Title** |
| 1. Environmental Awareness and Conservation | * 1. Biodiversity and Ecosystems | Types of bacteria and their function |

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| Introduction part (or activity overview) |
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| **Introduction part (or activity overview)** | Through questions, the teacher activates the students' prior knowledge on bacteria.  Students also watch a short video about bacteria:  [**https://www.youtube.com/watch?v=ORB866QSGv8**](https://www.youtube.com/watch?v=ORB866QSGv8) |
| **SETTING** | Use the good bacteria to make yogurt or compost. |

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| Materials Needed |
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| **Materials Needed** | Poster (can also be electronic), video presentation equipment, flip charts, markers, electron microscope, projectors and smart board. |

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| **Learning Outcomes** | Students to learn about:   * Bacteria and types of bacteria * Diseases caused by some bacteria * Good bacteria |
| **Activity Contents** | **Activity 1: Introduction to Bacteria: Types, structure, functions and diseases (Duration: 30 minutes)**  *Introduction discussion*: (10 minutes)  **Theoretical part:**  **The teacher introduces the students to the types of bacteria**  Students discuss about the composition and shape of the bacterium, as well as its function.  Then they research and share the diseases that are caused by them and about the method of treatment,  while they look at bacteria one by one on an electron microscope.  Students actively participate, trying to discover the organelles of the bacteria.  **Activity 2:** **Analysis of forms and diseases caused by bacteria (Duration: 30 minutes)**   * Students are divided into two groups. The teacher includes a picture of the shapes and structures of bacteria on the projector, and the students analyze the shapes of the bacteria, name them and say which bacteria cause which diseases and create a poster.   **Activity 3:** **Solving tasks related to the experiment (Duration: 20 minutes)**  Students divide into two groups. The teacher gives them a task to solve:   1. One bacterium divides into two. Distribution is done every hour.   How many bacteria will develop in 10 hours (1 group), and how many in 24 hours (2 group)?   1. There is a test tube in which the bacteria are placed. A bacterium divides into two every second. In exactly one minute they will fill the entire test tube. How long will it take to fill the test tube if you first put 2 bacteria in the test tube?  * Students solve the problem using a geometric progression sum formula.      * The students compete to see which group will solve the problem first and explain the solution.   **Activity 4: Discussion (Duration: 15 minutes)**  Students give a conclusion regarding the lesson. It should emphasize the essential elements of the lesson. The students should be motivated to do further research on the internet about today's lesson and next class to present things that were not covered in class for that particular lesson.   * One student from each group reads the notes from ACTIVITY 2 from flip charts previously placed in visible places in the classroom. * One student from each group from ACTIVITY 3 solves the problems on the board |
| **Assessments** | The final result is evaluated with a grade.  All students in the class can be included in the evaluation.  Each student independently evaluates his contribution to the work.  Students can compete for the best drawing and the fastest solution to the tasks.  The assessment takes into account: the poster (its design, decoration, number of drawn bacteria), speed of solving tasks. |
| **Key Competences** | Communication competence  Cognitive competence  Competence for creativity  artistic competence |
| **Connections with Eco STEAM** | **Eco**-good bacteria and their application.  **S**ience – knowledge of chemistry, biology and mathematics; environmental sciences – fostering sustainability thinking.  **T**echnology – using a computer in the research process, digitrons for calculation.  **E**ngineering - creation of compost, yogurt, nitrogen fertilizers and the like.  **A**rt – poster drawing.  **M**athematics – calculating the number of bacteria after their reproduction. |
| **References** | <https://www.youtube.com/watch?v=ORB866QSGv8> |
| **Notes** | / |

**Assessment Table for individual work:**

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| Evaluation Criteria | Points | Comments |
| Understanding bacteria and types of bacteria | \_\_/5 |  |
| Understanding diseases caused by some bacteria | \_\_/5 |  |
| Understanding good bacteria | \_\_/5 |  |
| Communication competence | \_\_/5 |  |
| Cognitive competence | \_\_/5 |  |
| Competence for creativity | \_\_/5 |  |
| Solving tasks | \_\_/10 |  |
| Answered questions correctly | \_\_/10 |  |
| Completed homework | \_\_/10 |  |

**Assessment Table for group work:**

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| Assessment Criteria | Points | Comments |
| Internet research skills | \_\_/5 |  |
| Poster making, design | \_\_/10 |  |
| Calculation of cost price | \_\_/5 |  |
| Ecological Interpretations in the project | \_\_/5 |  |
| Teamwork and Collaboration | \_\_/5 |  |
| Skills of presenting the work | \_\_/5 |  |