**03.2 Framework of the lesson plan**

**Age group/grade:** 1st gymnasium grade

**Lesson title:** Plant fertilization and development

**Key concepts:** flower, pollen, sperm, pollination, fertilization, seed, fruit

**Objectives:**

* To describe sexual reproduction in plants.
* Identify the main parts of a flower and associate them with seed and fruit formation.

**Skills developed:**

* Cognitive – by analysing pictures, theory, performing practical tasks, observing through VR glasses.
* Communication - working in groups, analysing results, discussing.
* Social - collaboration with others.
* Personal - by performing individual tasks, self-assessment.

**Materials/Equipment needed:** presentation “Sexual reproduction in plants”, a set of plants‘ flowers for the practical work, magnifiers, VR headsets.

**Assumptions:** (Programs for students with special needs, other important information)

Students with special needs participate in the class and perform the tasks together with the rest of the class, except their assignments are simplified and their work is constantly monitored.

**Lesson Plan**

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| --- | --- | --- |
| **Stages** | **Description of activity** | **Time** |
| **Preparation before the lesson** | * Teacher must be familiar with the rules for using VR technology. * Teacher introduces the students to the rules of using VR headsets. |  |
| **Introduction** | Students already have knowledge on the topic from the 7th - 8th grade biology lessons. At the beginning, a brief repetition of the topic of the reproduction of moss and spore vessels.  Students are invited to complete the table below, so a teacher could check their knowledge about sexual reproduction in plants.  In the 2nd column the students mark ‘+’ if they know the concept and can explain its meaning, or ‘–’ if they don’t. In the 3rd column they write what they would like to learn. The 4th column to be completed at the end of the lesson.   |  |  |  |  | | --- | --- | --- | --- | | Concepts | I know | I would like to learn | I have learned | | Flower  Pollen  Pollen tube  Pollination  Seed  Fruit |  |  |  | | 2 min.  5 min. |
| **Initial Immersive Experience** | Students are introduced to the rules of working with VR glasses.  Students are divided into groups of six and learn to work with VR headsets, watch a video about plant sexual reproduction <https://drive.google.com/file/d/1SUNws3dXxgWREZ2ghLfve13OSyh-WMh0/view?ts=606f1123> | 3 min.  5 min. |
| **Guided Immersive Experience** | We examine the structure of a flower using the presentation, textbook and pictures.  Discussion on the main concepts: pollen, pollen tube, pollination, fertilisation.  Figuring out from which parts of a flower a seed and a fruit grow.  Students once again watch a VR video about plant sexual reproduction: <https://drive.google.com/file/d/1SUNws3dXxgWREZ2ghLfve13OSyh-WMh0/view?ts=606f1123>  Then students proceed with the task “The flower is a reproductive organ of flowering plants”. | 5 min.  3 min.  2 min.  5 min. |
| **Follow up** | Flowers of apples, tulips, dandelions, etc. and magnifiers are distributed to the groups of students. Each group receives three different flowers and worksheets.  Students examine the flowers by counting how many sepals, petals, stamens and pistils each flower has.  Students perform the tasks, make their conclusions about the variety of flowers and their adaptation pollen distribution.  Each group presents their conclusions in front of the class. | 10 min. |
| **Formative Assessment** | Students perform self-assessment by completing the table started at the beginning of the lesson.  Students can explain how flowering plants sexually reproduce by seed.  They can recognize parts of the flower and associate it with seed and fruit formation. | 5 min. |