



# MSTEM

## LESSON PLAN: FLOWERS, POLLEN, HAY FEVER

METaverse-BASED STEM EDUCATION FOR A  
SUSTAINABLE AND RESILIENT FUTURE  
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## Purpose of the lesson

Every spring, many people sneeze, have itchy noses and watery eyes. They are allergic to pollen. The aim of this session is to understand where pollen comes from and identify which types of pollen cause allergies.

## Description of the lesson

Students will discover the origin of pollen by studying the anatomy of a flower. Using VR, they will be able to dissect a flower and identify the pollen-producing organ.

Next, by studying allergenic pollens, they will discover flowers that do not really resemble their idea of what a flower is. They will also learn about how pollen is transported.

## Lesson teaching method

- Problem-solving approach

Comparing students' ideas about the origin of allergies will enable them to identify the scientific problem and test their representations.

- VR simulation

Observing and dissecting a large flower in VR will enable them to discover the anatomy of a flower.



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INSPECTORATUL ȘCOLAR  
JUDEȚEAN TELEORMĂN



## Lesson objectives

- Recognise the different parts of a flower
- Identify the pollen-producing organ
- Understand the role of pollen and how it is transported
- Link the mode of pollen transport to its allergenic potential

## Lesson plan

- **Introduction (whole class)**

Present a newspaper article on spring allergies and discuss allergies with the pupils. This discussion will raise the question of the origin of spring allergies.

- **Main lesson (group work)**

Give each group of pupils:

- a set of documents: close-up photos of flowers, a flower with a bumblebee feeding on it, a tree with a cloud of pollen, male flowers on a tree with pollen flying away, a table classifying allergenic pollen.
- a VR headset with a flower animation that shows the parts of a flower and where pollen comes from.

- **Conclusion (whole class)**

Compare the students' posters and discuss the origin of allergies and the role of pollen.



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# Lesson table

Lesson plan	
Starting point: Get students talking about the beginning of a newspaper article or TV news report on spring allergies.	10-15min
Group work to identify: <ul style="list-style-type: none"><li>• the origin of allergies</li><li>• the origin of pollen</li><li>• the role of pollen</li></ul> Use of paper documents and VR flower animation. Final output: a poster with drawings and explanations.	30-45 min
Presentation of posters, discussion Review of the origins of allergies and the role of pollen.	15-20 minutes



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# Lesson resources

## Documents used

### 1. **Photos**

- Pine and alder in the wind, showing the tree and male flowers (visualisation of pollen grains being released into the atmosphere)
- close-up of grass and nettle flowers
- Insect covered in pollen feeding on a flower
- Explanatory document on pollen dispersal methods (anemophily and entomophily)

### 2. **Table** of the most allergenic pollens

### 3. **Diagram** explaining the role of pollen grains in flowering plants

### 4. **VR headset** and access to VR flower animation

## For more information

<https://pollencount.eu/#europe>



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# Work and homework

## INDIVIDUAL WORK WITH SHORT EXPLANATION

- Create a poster presenting pollen (origin, role, modes of dispersal) and its role in allergies.

## HOMEWORK WITH SHORT EXPLANATION

- Collect or photograph flowers in your immediate environment to discover them in class.

# Evaluation and indicators

<b>Critères d'évaluation</b>	
Search, extract and use useful information	1
Communicate your actions, results and choices in writing and orally, using precise language and appropriate tools.	1



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## Overview of the lesson

This session allows students to discover pollen (its origin, role, modes of dispersal) and its involvement in allergies.

This session is best done when flowers are in bloom, allowing the teacher to bring samples or take the students on a nature walk, and also allowing students to see the plants in their immediate environment in a different light.

In this session, virtual reality is a tool that allows students to manipulate a 'large flower' and separate its different parts. The fact that insects come to feed on it puts students at the same level as pollinators. This immersion and the ability to easily manipulate the flower facilitate knowledge building.

The assessment focuses on the information that students gather and their ability to connect it to create the poster that is the final product.

Depending on the teacher's objectives, an oral presentation of the posters and research can be organised.

After the session, students will undoubtedly be curious about other topics related to flowers and pollen, which will provide ideas and questions for exciting science lessons.

- the extinction of insect populations due to pesticides
- the role of pollinators in human nutrition
- the immune mechanisms of allergies
- do all plants have flowers?
- Why do flowers have colours?