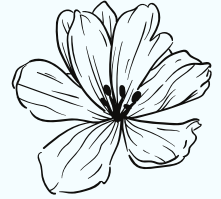


# 4. Adventures in Climate and Health: Allergy Detectives: Solving the Mystery of Seasonal Sneezes



## Student Objectives:

- The students will gain understanding on what pollen is, why it is prevalent in the spring, and its impact on health.
- The students will gain understanding on how allergies work.

## Materials Required:

clear tape, ruler/tape measurer, magnifying glass (optional)

## Key Vocabulary:

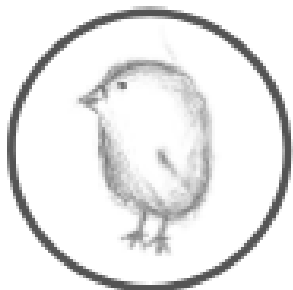
Allergies: when a person reacts abnormally to substances in the environment

Allergens: a substance that causes an allergic reaction

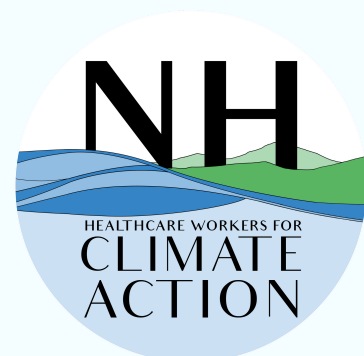
Pollen: a fine powder produced by certain plants when they reproduce

Pollination: how insects help plants to make seeds

Immune system: the body system that helps fight off sickness



**Climate and Health Initiative  
for Children  
in Kearsarge & Sunapee**



# Background Information:

Flowers produce POLLEN to help them reproduce, and they count on POLLINATORS, like bees, to spread their POLLEN to other flowers. POLLEN is such a fine powder that it floats in the air and easily gets into our noses and mouths when we breathe. You can see the pollen in flowers if you look closely.

During the spring, summer, and fall seasons, it is released into the air and picked up by the wind. The wind carries it to other plants so they can make seeds. But while it's traveling in the wind, pollen gets into the air we breathe. Many people are allergic to it, including people who have asthma. When they breathe in pollen, it can trigger their asthma symptoms.

Your immune system usually functions to fight off invading germs and infections, but sometimes it can be confused by substances like pollen, mold, insect stings, and medications.

These substances are called allergens, because they cause allergy symptoms like watering eyes, a running nose, and sneezing. Allergens are considered antigens, or foreign particles, in the immune system because they cause the immune response in the body.

Allergies can be very unpleasant, causing anything from daily irritation to more severe reactions. All allergies are triggered by substances known as allergens found in our environment. These substances cause immune reactions in the body that lead to symptoms like sneezing, itching, and watery eyes. In some people, these reactions can even lead to anaphylactic shock where the airway closes up.

Sources:

<https://stayathomescience.com/2017/04/17/answering-the-whys-spring-allergies/>

<https://kidshealth.org/en/kids/pollen.html#:~:text=Pollen%20is%20a%20fine%20powder,into%20the%20air%20we%20breathe.>

[https://www.elephango.com/index.cfm/pg/k12learning/lcid/12523/What\\_Are\\_Allergies?](https://www.elephango.com/index.cfm/pg/k12learning/lcid/12523/What_Are_Allergies?)

## Procedure:

1. Fill out the KW of the KWL Chart.
2. Talk with the students about seasonal allergies and ask if they went through a more, the same, or less tissues this year than last year. Ask if they think allergies have been getting better or worse with higher temperatures and more rain, then let them know they have been getting worse, which makes it important to know where it's coming from and how to have less exposure.
3. Start with visuals (pictures on cards) of plants and trees that produce pollen and corresponding cards that indicate when the specific pollen is present
4. Have the students match the pictures of the plants or trees with the season when the pollen is present.
5. Then, find an outdoor surface that appears to have pollen present. This can include a table, a chair, a door, or even a plate that you leave outside for an hour.
6. Using a ruler or a tape measure, measure out two inches of clear tape. It is important to keep the length of tape consistent for this activity!
7. Place the tape sticky side down on top of your surface of choice, and press down so that all of the surface of the tape is in contact with the surface.
8. Pull the tape off the surface. Do you see any yellow or tan spots on the tape? That's pollen!
9. Using a magnifying glass or microscope (if you have one), count every spot of pollen that you see. If there is too much pollen to count, estimate how much of the tape is covered by pollen. Is it half covered (50%)? Is it a quarter covered (25%)? Record your result.
10. Find another surface, and try again with a new piece of tape. What surfaces collect more or less pollen? Are there any surfaces that don't collect pollen?
11. Try to identify the sources of the pollen found.
12. Fill out the L of the KWL Chart.



**Oak Tree - Spring**

**Picture Matching:**

Cut the following images and place them on cards. Use those cards to match the images with cards that have the seasons on them.



**Goldenrod - Summer and Fall**



**Lilacs (NH State Flower) - Spring**



## **White Birch Trees – Winter and Spring**



## **Pine Trees - Spring**





**Grass - Summer**