



High School Science Virtual Learning

Forensic Science

Pollen Analysis

May 8, 2020



High School Forensic Science

Lesson: May 8, 2020

Objective/Learning Target:

Students will be able to understand how crime scene investigators use pollen samples as evidence.



1. Where does pollen come from?
2. What differences do you think exist in pollen coming from different plants?



1. Pollen comes from the male parts of flowers.
2. Different sizes, different shapes, different colors



Lesson Activity:

Directions: Watch the [Ted Talk By Jonathan Drori](#) about pollen. Answer the questions on the following slides to show what you learned about pollen.



Practice

You will use the information from the activity on slide 5 to answer the following questions.



Practice Questions

1. What do plants use pollen for?
2. What structure of flowers make the pollen?
3. What properties does most pollen types have?
4. What is the relationship between bees (and other insects) and pollen?
5. In the video, the speaker indicates that you can tell what species of plant each type of pollen comes from. You can also know based on the pollen, how far each type of pollen can travel. Why might this be useful to forensic scientists? How accurately can the pollen distinguish a suspect's location?



Practice Questions **Answer Key**

1. What do plants use pollen for? **Making more plants, pollen is the male sex cell of flowering plants.**
2. What structure of flowers make the pollen? **The anther of the flower**
3. What properties does most pollen types have? **Pollen is small, lightweight so it can be carried by the wind.**
4. What is the relationship between bees (and other insects) and pollen? **Bees carry pollen from flower to flower. The pollen sticks to the bees.**
5. In the video, the speaker indicates that you can tell what species of plant each type of pollen comes from. You can also know based on the pollen, how far each type of pollen can travel. Why might this be useful to forensic scientists? **Each environment has different amounts and proportions of pollen. This can show investigators where items with pollen samples stuck to them using their pollen 'fingerprint'.**
6. How accurately can the pollen distinguish a suspect's location? **Sometimes within a kilometer.**



More Practice

Use the article [CSI and Pollen: Ask A Biologist](#) to answer the questions on the following slide.



More Practice Questions

1. List 5 types of crimes that pollen has been used as evidence for.
2. How many different types of pollen and spores exist?
3. What are recycled palynomorphs?
4. How can pollen help show how long ago a crime was committed?
5. Describe one of the cases the article provides. What did the pollen tell us about the events of the crimes?



More Practice Questions **Answer Key**

1. List 5 types of crimes that pollen has been used as evidence for. **Forgery, Production and distribution of illegal drugs, Assaults, Robbery, Rapes, Homicide, Genocide, Terrorism, Arson, Hit and run crimes, Counterfeiting of currency**
2. How many different types of pollen and spores exist? **Over 500,000 (half a million)**
3. What are recycled palynomorphs? **Pollen and spores that have been brought to a crime scene or come in contact with evidence a long time after the crime was committed.**
4. How can pollen help show how long ago a crime was committed? **First, knowing what types of pollen are active during various times throughout the year is useful. Second, the inner cell wall of pollen will breakdown after it has been released from the plant. This can tell us how long ago the pollen has been active.**
5. Describe one of the cases the article provides. What did the pollen tell us about the events of the crimes? **Both crimes discussed involve the movement of illegal drugs across international borders. By analyzing what types of pollen were present in the drug samples, investigators could track where the drugs were made, where they were shipped, how they entered the country, and where they were being distributed because of the pollen that was present in the samples.**



Additional Reading Material

[Article](#) of real crime solved with pollen.

[Discussion article](#) on the usage of pollen to solve crimes

[Using pollen to convict war criminals](#)