



## Science Fest 2020

### Science Outreach Society's Forensic Frenzy



**Good Morning Detectives!**

**A valuable shell was stolen from the Biology Building and we need YOUR help to find the culprit and track it down!**

**Follow along with the video and the clues presented here to determine which suspect is responsible. Make sure to think about potential motives and each of the four pieces of evidence in your investigation.**

**Let's get sleuthing! Start the video!**

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Video Transcript - 0:00

**Detective:** "Hello, my name is Detective Cam Adams. Crystal called me to the biology building this morning to help her investigate some suspicious activity. Let's take a look at what she found. It was a normal Monday morning when Crystal went into the Biology building to finish setting to add some shells to a display case, but something seemed off. While organizing her shells, Crystal noticed one of them disappeared without a trace. Or so she thought! After closely inspecting the building, Crystal found some suspicious hints around the display. Let's check out what she found."

**Crystal:** "While looking around the display case, I noticed the glass wasn't as clear as it usually is! The thief was not very careful because their fingerprints are all over the glass! Maybe we can analyze the prints to get some more clues."



Fingerprint 1



Fingerprint 2

(Found at 0:53)

**Crystal:** “Oh my gosh I found a hair below the display case too! I have no idea where it could have come from because not many students are in here – and it’s kind of short too! Huh!”



(Found at 1:08)

**Crystal:** “And that’s not all! I found this shoe print down here. It’s kind of a mess! Maybe we can check out the print and see if it matches a certain shoe?”



(Found at 1:23)

**Crystal:** “The last piece of evidence I found was this fiber snagged in the door. I don’t know how we test this though.”

**Detective:** “We can determine the fiber by burning it. Let me show you!”

(Found at 1:38)

**By looking at these properties: stretchy, gives off a chemical smell, etc, do you think the material is *spandex* or *wool*? How will this help us point to a certain suspect?**

**Crystal:** “Now that we have all this evidence, we should start looking for suspects.”

## Suspects

### **#1 - Nina** (Found at 1:53)

“Hi, I’m Nina. I’m a member of IU’s squirrel club and love taking pictures of the many different squirrels around campus for our Instagram page. I love the outdoors in general, especially hiking! Last weekend, I found these really cool shells while hiking along the bank of Lake Monroe and wanted to bring one back, so stuck a small one in the pocket of my leggings. But! When I got home, I noticed the shell had torn a hole in my pocket and had fallen out! I went to classes as normal the rest of the week, one of which is in the biology building.”

We also have a fingerprint and shoeprint belonging to Nina:



### **#2 – Maggy** (Found at 2:27)

“Hi, I’m Maggy. I work at IU’s campus farm. I love working there because it reminds me of home. I grew up on a horse ranch owned by my grandmother, who used to knit me the softest wool sweaters, like this one. I was in the biology building to meet with a professor who studies plant physiology and explore the greenhouse to find new, interesting things to plant at the farm. I did have my own seashell collection as a child, but I would never steal anything from the biology building.”

We also have a fingerprint and shoeprint belonging to Maggy:



### #3 – Harry (Found at 2:54)

“Hi, I’m Harry. I’m in the IU squirrel club with Nina and I’m also an avid baker! I was passing by the biology building on my weekly walk to Rainbow Bakery, when I decided to go in and check out the biology display cases my friend told me about. I thought all the different specimens were super cool! But I just took a few photos and left, I swear! I did use the coloration of some of the shells as inspiration for some pastries I made later that day though.”

We also have a fingerprint and shoeprint belonging to Harry:



### #4 – Bailey (Found at 3:23)

“Hi, I’m Bailey. I work in the biology building on weekends helping sort files and the various specimens the University acquires. I’m good friends with Harry and was the one who told him about the biology display cases. I’m Harry’s official taste tester for all his new recipes because I have a major sweet tooth. I also like to go on runs around campus - gotta burn off those sweets somehow! The only other thing I did this weekend besides my shift was go to the zoo, where I was able to hold one of my favorite animals! A bat!”

We also have a fingerprint and shoeprint belonging to Bailey:

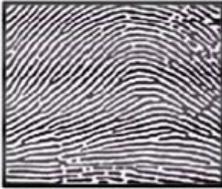


3:58 - **Detective:** “Now that you’ve met the suspects, let’s think back to the four pieces of evidence we found: the **hair**, the **fingerprint**, the **shoeprint**, and the **fiber**. Now, which suspect do all four pieces of evidence point towards?”

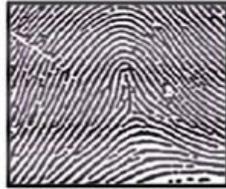
Here are some fingerprint and hair types to help you analyze the evidence found at the scene of the crime and the samples collected from the suspects:

### Arches

Ridges enter on one side & exit on the other side.



Plain Arch



Tented Arch

### Loops

Ridges enter on one side & exit on the same side



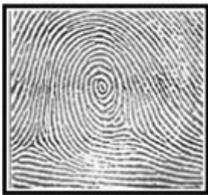
L - Radial Loop  
R - Ulnar Loop



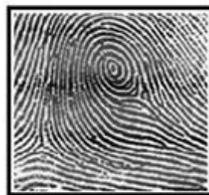
L - Ulnar Loop  
R - Radial Loop

### Whorls

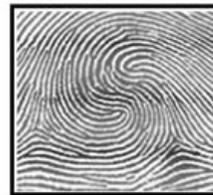
Consists of circles, more than one loop, or a mixture of pattern types



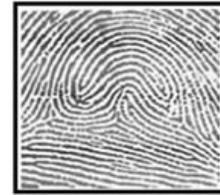
Plain Whorl



Central Pocket Whorl

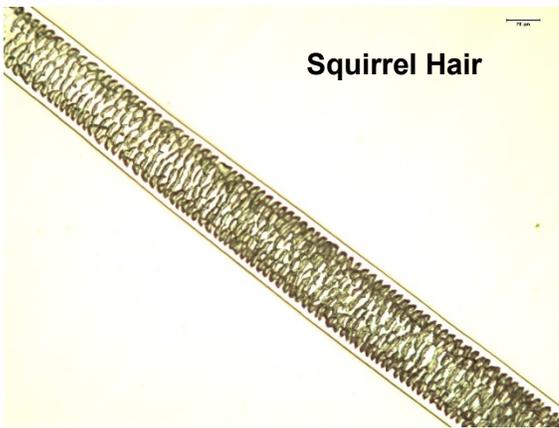


Double Loop Whorl



Accidental Whorl

<https://www.bayometric.com/3-fundamental-principles-fingerprints/>



Squirrel Hair



Bat Hair



Human Hair



Dog Hair

**\*\*\*Culprit revealed at 4:27!!!\*\*\***

**Crystal:** “Wow, thanks detectives for helping me solve this case! Now that we know where the shell is and who took it, I can finish my display case!”

**Great work detectives!**

**Thank you for participating, and we hope you enjoy the rest of  
Science Fest!**

**Sincerely,  
Science Outreach Society**

