

Team number: \_\_\_\_\_

# Cedric Diggory Is Dead\*

**Forensics: MHS Olympiad Invitational 2017**

By Wayne Hou and Andrew Davis



Team \_\_\_\_\_ Team # \_\_\_\_\_

Names \_\_\_\_\_

Score \_\_\_\_\_/200

Score:

\*Any apparent reference to any copyrighted work throughout the test is completely coincidental.

**Please read this.**

First of all: Spoiler Alert.

Second of all: It is a time of great spirit at Hogwarts School for Witchcraft and Wizardry! The Tri-Wizard tournament (which is really a Quad-Wizard Tournament this time...) is happening and all of the students from the world's many magical academies are eagerly waiting for their champion to win the cup. Suddenly, Harry Potter emerges from the maze (cue music)! However, after a few moments of rejoice over Harry's magnificent victory, the crowd finally noticed the presence of a corpse-like object on the ground, one that looked suspiciously similar to one Cedric Diggory, Hogwarts' other champion. As everyone quieted down to more closely inspect the macabre scene at hand, the moment highlighted by the awkwardly continued performance of the Hogwarts Band, who simply cannot stop and will not stop, it was noticed that Cedric Diggory was, in fact, dead! Nooooooooooooooooo.

Anyway, seeing as how there is a curious lack of investigative forensic spells in the wizarding world, Dumbledore had to go through all the trouble of going to Gringotts and converting his Galleons into pounds, which he then had to convert into USD. Of course, to prevent the tarnishing of the Hogwarts name even further (which seems unnecessary, considering that every year something goes horrendously wrong), Dumbledore sought after the best of the best -- Sherlock Holmes. He was busy. Unfortunately, so was Benedict Cumberbrosnatch (Eggs Benedict Cucumberpatch?). So, Dumbledore decided to instead settle for the Science Olympiad Forensics competitors at the Mentor invitational. Quantity over quality, or so the saying goes.

TL;dr - Cedric died, you have to find out who did it. Nice.

Let's say that all the powders were found at the scene, scattered in various amounts over Cedric's body for some mysterious reason. All the hairs, fibers, plastics, fingerprints, and DNA were found at the crime scene. Also at the crime scene was a note saying "Hehe, that's funny." The ink was still wet, so we put it into some pens and gave them to you for chromatography. Finally, 2 mysterious potions were found on Cedric's forehead. They aren't *that* mysterious because we know their chemical structures. Coincidentally, they assure us, each suspect was carrying a potion, and a sample was taken from each and run through the mass spec machine.

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Score:
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**Meet the Wizards (and Witch)**

Cedric Diggory <b>(not a suspect)</b>	<p>Cedric is the boy-who-died.</p> <p>He's also Professor Sprout's favorite Herbology student (right after Neville) and was often found tending to his beloved plants (mostly Mandrakes). Although not many had ever gotten to taste them, it was rumored that Cedric made some really good cookies. His cloak, like most Hogwarts students, is made of cotton. He loved his pet squirrel, Peter. It went missing about a week ago though. His blood type is B negative.</p>
Harry Potter	<p>Harry is the boy-who-lived, and the other champion from Hogwarts.</p> <p>Harry is willing to do anything to maintain his status as the main protagonist of the <i>Harry Potter</i> series. If he had lost the Tournament to Cedric, it would have turned into the <i>Cedric Diggory</i> series.</p> <p>He has pet owl (bat) named Hedwig van Beethoven and his cloak is made of cotton. His blood type is A positive. Harry was recently seen walking out of a WizardMart with a plastic bag full of goods. The purchase receipt revealed copious amounts of yogurt.</p>
Fleur Delacour	<p>Fleur is not the boy-who-lived, as she is a girl. She lived though.</p> <p>Ever since Cedric cast his gaze on Fleur's sister, she's felt an indescribable sense of outrage at his misogynistic tendencies. She simply won't stand for such patriarchal demonstrations.</p> <p>She is the champion from Beauxbatons School. Obsessed with appearance, she brushes both her hair and her teeth incessantly. Her robe is made of a high quality unicorn hair and genuine silk blend. She has a miniature horse named Kayla. Her blood type is A positive, she really enjoys receiving things.</p>
Viktor Krum	<p>Viktor is also not the boy-who-lived, although he is a boy who lived through the ordeal.</p> <p>He is the champion from Durmstrang School, and he's <i>really</i> good at Quidditch. Also, he has a staff that he pounds on the ground when he's angry. It flashes and makes noise, much like fireworks do from time to time. He's a bit of a bad boy too, so he likes to wear leather cloaks lined with wool for warmth. Viktor's pet bat, Chen, may or may not be a vampire.</p>

	<p>One thing is for sure though, Viktor is angry. And when he gets angry, people whose names start with the letter C tend to die. Cedric was also an upcoming Seeker that might've threatened Viktor's glory, but that's probably just a coincidence. Viktor's has blood type A positive.</p>
Tom Riddle	<p>Tom loves snakes. Hissssss. Did you know that he really really likes snakes?</p> <p>After suffering from years of neglect and social awkwardness, Tom decided that the best course of action to remedy his loneliness would be to exterminate all Mudbloods. Tom is under the impression that Cedric is a Mudblood. He'd been demanding to see his birth certificate, but most sensible people know that Cedric was born in Hawaii to at least one magical parent.</p> <p>Tom has a B- blood type and absolutely loves to feed squirrels to his pet snake. For some reason, he always places a set of plastic utensils in front of his snake, who promptly ignores them. This of course, gives Tom indigestion, so he always carries some antacids with him.</p>
Professor Moody	<p>Moody is a teacher at Hogwarts, and loves to stay vigilant.</p> <p>Moody has a sneaking suspicion that Cedric is a vampire. His diary also reveals a strange obsession with some girl named "Kristen Stewart."</p> <p>Ever since his buddy was struck down by a killing curse because his hands were too cold and he was unable to properly grab his wand, Moody has always carried a pair of hand warmers with him. Ever since a ghoul cursed him 4 years ago, he's had to take cold medicine constantly. Not because he has a cold, but because a ghoul cursed him. He earned worldwide fame over the weekend for tracking down and arresting an Animagus that was notorious for transforming into a cow and stealing from muggle farmers. Moody has an O- blood type.</p>

**Powders(48pts):**

Powder	Chemical Formula (3pts each)	Name (3pts each)	Who does this connect to and why? (None or More than one possible) (2pts each)
A	$\text{CaCO}_3$	Calcium Carbonate	Fleur - Toothpaste
B	$\text{C}_{12}\text{H}_{22}\text{O}_{11}$	Sucrose	None - Baking
C	$\text{NH}_4\text{Cl}$	Ammonium Chloride	Baking (means Moody isn't really implicated), Moody - Cold Medicine, Fleur - Shampoo (optional)
D	$\text{NaC}_2\text{H}_3\text{O}_2$	Sodium Acetate	Moody - Hand warmers, Victor - leather tanning
E	$\text{NaHCO}_3$	Sodium Bicarbonate	Tom - Antacids
F	$\text{LiCl}$	Lithium Chloride	Viktor - Fireworks

**Polymers(36pts)****Plastics:**

Plastic #	Name or Abbreviation (2pts each)	Who does this relate to and why? (2pts each)
1	PS (Polystyrene)	Tom Riddle - plastic utensils
2	PP (Polypropylene)	Harry Potter - yogurt containers
3	LDPE (Low-Density Polyethylene)	Harry Potter - plastic bag

**Hair:**

Hair #	Creature of Origin (4pts each)
4	squirrel
5	bat
6	squirrel

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**Fibers:**

Fiber #	Type of Fiber (4pts each)
7	Silk
8	wool
9	cotton

**Chromatography / Spectroscopy (20pts)**

**Mass Spec:**

Mass Spec #	Who's potion is it? (5pts each)
10	Tom Riddle
11	Viktor

**Chromatography:** (Call this sample #12 and compare it to the reference samples located somewhere in the room so that you can connect it to a/multiple suspect(s) for the analysis).

Attach chromatography here with tape: (10pts)

**Physical Evidence(40pts):****Fingerprints:**

Fingerprint #	From whom did it come? (4pts each)
13	Viktor
14	Cedric

## Questions (2pts each):

1. What does IAFIS stand for?
  - a. Integrated Automated Fingerprint Identification System
2. Of the 3 main types of fingerprints, which is the least common?
  - a. Arch
3. How many deltas does a loop have?
  - a. 1
4. What specific type of fingerprint is Sample #13?
  - a. Ulnar Loop
5. What specific type of fingerprint is Sample #14?
  - a. Central Pocket Whorl
6. What is the scientific name for using superglue to collect fingerprints?
  - a. Cyanoacrylate fingerprint collection

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**DNA:**

DNA Sample #	From whom did it come? (5pts each)
15	Viktor
16	Cedric

**Blood:**

Blood Sample 17: Agglutinates in Anti-A Serum, does not agglutinate in Anti-B Serum, agglutinates in Anti-D (Rh) Serum.

Blood Sample 18: Does not agglutinate in Anti-A Serum, agglutinates in Anti-B Serum, does not agglutinate in Anti-D (Rh) Serum.

Blood Sample #	Type (2pts each box)	To whom does it belong? (3pts each box)
17	A+	Viktor or Fleur or Harry
18	B-	Cedric or Tom Riddle

**Analysis(56pts)**

Please fill each box with the number or letter of any sample that ties back to the suspect. If a box should have nothing in it, please write "none." Some samples will be used more than once and some may not tie back to anyone. Each box is worth 2 points.

Suspect	Powders	Polymers	Chromatography and Mass Spec	Physical Evidence
Harry Potter	none	9 2 3	12	17
Fleur Delacour	A C (optional)	7	none	17
Viktor Krum	D F	5 6 8	12 11	13 15 17
Tom Riddle	E	4 1	10	18
Professor Moody	C D	none	none	none

Who killed Cedric? \_\_\_\_\_ Viktor \_\_\_\_\_ (16pts)

Failed to clean up? \_\_\_\_\_ (-20pts)

**Explanation:** (Students do not have to write one. This is for reviewing the test):

Viktor had by far the most evidence pointing to him. Pretty much any of the other evidence pointing to anybody else can be explained (like plastic bags being common everywhere), or points to multiple people and thus implicates none of them (if it points to a suspect and Cedric, it obviously came from Cedric, not the suspect).