

2015 National Forensic Announcements

Note how bottles are lined up on the mats. Bottles must be lined up same way when you leave. Bottles are grouped & in order for answer sheet.

Package contains chromatography sheets in plastic bag. Pens & juices are to be done using the sheet paper chromatography & paints are to be done using TLC. Must be handed back in this way even if chromatography not done. (Do NOT tear into strips!)

Toothpicks are to be thrown in garbage, not waste container.

Clipped together encased in plastic are: Crime scene (Note this page has chart of materials in egg carton with densities & indexes of refraction) Three suspect interview sheets w/physical evidence. (They are different.) Questions. (If you take them apart, put them back the way you found them!!!) These are to be left at the desk when done.

Answer sheets. Fingerprints are on pages 1 & 3 of answer sheet.

All plastics & glass put into containers in egg cartons **MUST** be taken back out again. Plastic & glass should be put in recovery container, **NOT** waste container.

Use density materials in cups. Do not pour the density materials out of the cups into something else.

Do **NOT** use **ALL** of **ANY** of vial materials. Several groups have to use same vials. Do **NOT** contaminate/change materials in any vials. You should work with one strand of fiber/hair, not the whole bunch.

Blood is analyzed by combining antigens A & B with blood and looking for clotting (precipitate). You have to stir!

All liquid waste in waste jars, no paper or wood in waste jars.

When done, turn in answer sheet and plastic bag with chromatography paper/TLC. Leave everything else at bench!

NATIONAL FORENSIC CRIME SCENE-2015

The school's Science Olympiad Team had won at State and was on to National competition if they could raise enough money to pay for the trip. They decided on a fund-raiser in which they would put together various concentrations of the chemicals used in an iodine clock reaction. This involves many of the same principles that they used in the Forensic competition when they were testing for the presence of starch using iodine. They used their Mission Possible machine to mix the chemicals & time how long it took for the solution to turn black. They set this up in the school cafeteria at the noon hour & had the students place money on how long they thought it would take for the solution to turn color. The event was being very successful & they were near their goal when the fire alarm went off. In the resulting confusion no one from the Science Olympiad Team picked up the cash box. It turned out to be a false alarm, but when they returned to the cafeteria, the money was all gone. On the receipt pad someone had scrawled the word "Suckers."

A mother coming to pick up her child noticed a student speeding off on a bike. The parent could not tell the gender of the student. The student was not paying a great deal of attention to where he/she was going, looking over his/her shoulder a great deal. As a result the bike ended up in the bramble bushes on the south side of campus.

The police were called in immediately. They suggested that since attendance had been taken that morning, it would narrow the suspect list quite a bit if attendance was again taken. It was discovered that there were six students absent in the afternoon that had been at school that morning. The parent's child was eliminated as a suspect. That left five.

The police also dusted the area for fingerprints. They found three usable **fingerprints**. The **1st** was found by the fire alarm, the **2nd** on the cash box, & the **3rd** on the table by the cash box. The rest of the fingerprints were so blurred they were unusable. They took samples of the liquids they found on the table & by the fire alarm. The liquids were divided into 2 groups. The juice, from the table, was sent for paper chromatography. The other two liquids on the **table (1)** and the one near the **fire alarm (2)** were sent for **GC Mass Spectroscopy**. They found **fabric** samples caught on the **table leg (1, 2)**, in the **bramble bushes (3, 4)**, & on a rough spot on the **exit door (5,6)** Police found samples of various **hairs**. The sample in vials **1-2** were found by the **bramble bushes**. The sample in vials **3-4** were found by the **fire alarm**. The samples in vials **5-6** were found by the **table**. Police found the **plastic** in vial **1** about 3 meters from the **table**. They found the vial **2 plastic** under the **fire alarm** & the **vial 3 plastic** in the **bramble bushes**. Vials **4-5-6** were **plastics** found on the table. They also found the **powder in vial 1** on the **table** & the **powder in vial 2** in the **bramble bushes**. Glass found by the fire alarm had an index of refraction of 1.48 while glass found in the bramble bushes had an index of refraction of 1.49. The police found skin & the **blood in vial 1** with the fabric by the **fire alarm**. The **blood in vial 3** was found by the fabric in the table leg. The bloods were collected to be typed & an electropherogram was made of the DNA from the tissue. **Sand** was found on the floor both by the table & fire alarm

The **soil** by the brambles was soft & loamy & there were both bicycle and foot prints visible in the dirt. These were photographed & you have been provided with copies. The police found the fresh **blood in vial 2** in the bramble bushes. This was collected to be typed & a **DNA electropherograms (2)** was done from the tissue in the bramble bushes. There was also **paint**, most likely from the bike in the bramble bushes. The note & the juice were taken to the lab for analysis. Water was used as the developing agent and the chromatograms were developed for 10 minutes. The paint was dissolved & subject to TLC. The pen had just one molecule with an R_f of 0.00. The juice had just one molecule with an R_f of 0.88. The **paint** showed three molecules with both short & long UV fluorescent R_f of 0.00 & other molecule R_{f_s} of 0.95 & 0.41. A liquid found there was sent for **GC Mass Spec (3)**

The officers also went out to interview each of the suspects as well as the school officials. You have copies of the results of those interviews as well as copies of the suspect's fingerprints, photographs of the bottoms of their shoes, photographs of their bike tires, and the resulting powders gleaned from their clothing, samples of the glass found on them, their blood type, samples of their DNA electropherograms, examples of the dissolved paint from their bikes, the pens lifted from them, samples of the juice they were drinking, GC mass specs of other liquids found on them, and soil taken from their shoes.

Container #	Contents	Density	Refractive Index
1	Corn Oil	.717	1.47
2	46% Isopropyl Alcohol	.950	1.36
3	Distilled Water	1	1.33
4	10% NaCl	1.07	1.52
5	25% NaCl	1.19	1.67
6	Saturated NaCl	1.25	1.81

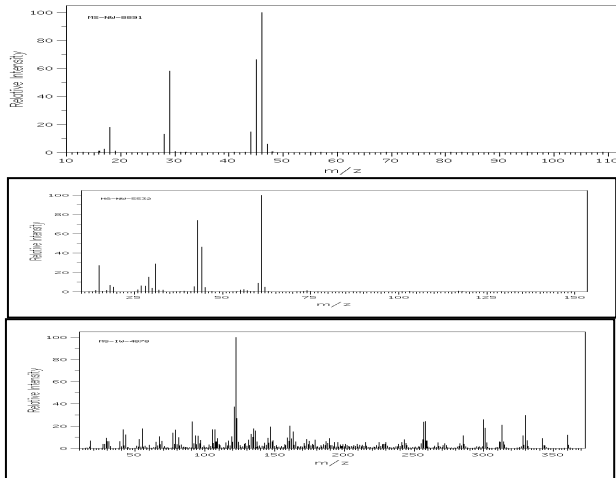
SUSPECT INTERVIEW SHEET

NAME B.J. Britten **PET** Brown Bat **AGE & GRADE** 15, 9 **HAIR** Black Straight
FAVORITE DRINK Black Cherry **HOBBIES** Science Olympiad **PEN** Pentel **Glass** 1
JOB Glass Factory Go-for **Plastic** Piece of grocery bag (HDPE) **HEIGHT & WEIGHT** 4'11", 89#
EYES Hazel **CLOTHING** Linen Vest, Wool Shirt & Blue Jeans **Blood** O **Paint** G1 **Soil** 1
INTERVIEW STATEMENT Had dentist appointment. Started to bicycle home when heard alarms, kept looking over shoulder to see what was going on. Fell into brambles.

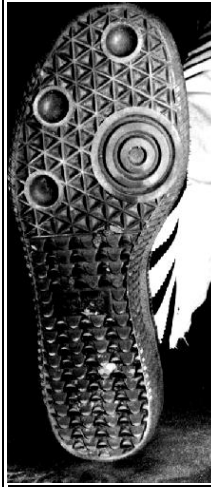
UNKNOWN FOUND ON SUSPECT IN VIALS

3 & 4

FINGERPRINTS



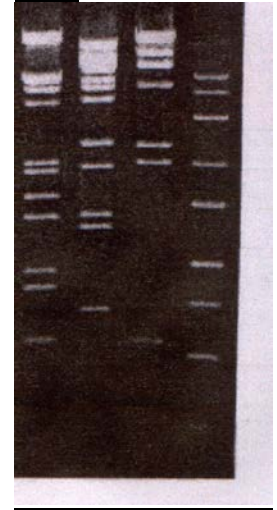
SHOE BOTTOM



Tire Track



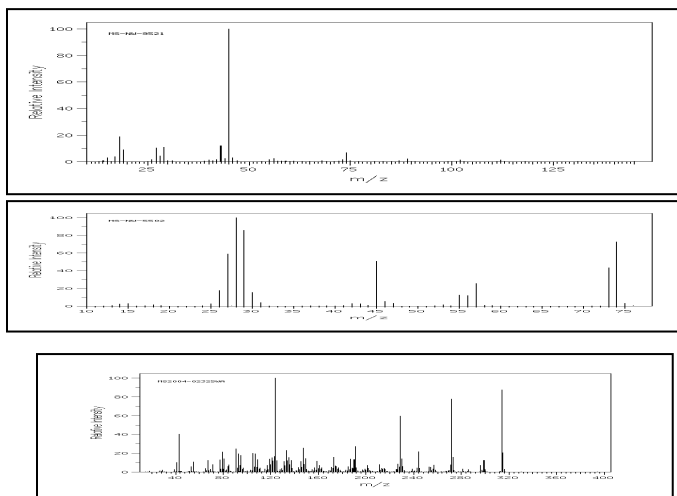
DNA



NAME Fran Franklin **PET** German Shepard **AGE & GRADE** 17, 10 **HAIR** Blond
FAVORITE DRINK Ice Blue Raspberry **HOBBIES** Reading **PEN** Pilot Easy Touch **Glass** 2
JOB Dry Waller's Assistant **Plastic** Bread wrapper (LDPE) **HEIGHT & WEIGHT** 5'4" 183 lbs
EYES Gray **CLOTHING** Cotton T-shirt, Nylon vest, & Blue Jeans **Blood** A **Paint** G2 **Soil** 2
INTERVIEW STATEMENT Picked scab off of arm during third period. Would not stop bleeding Scraped knuckles on job on Thursday carrying drywall up narrow stairway while doing remodeling job. Parents always working. No supervision at home. Just got job. Only second day. Thinking of quitting because of sore knuckles. Needs money

UNKNOWN FOUND ON SUSPECT IN VIALS

FINGERPRINTS



5 & 6

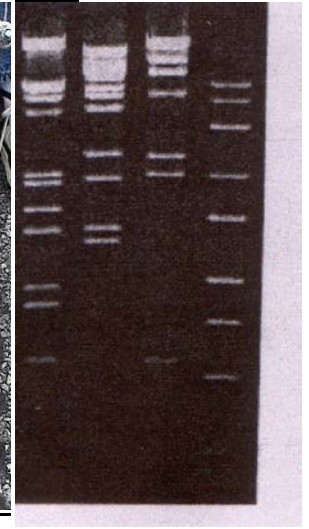
SHOE BOTTOM



Tire Track



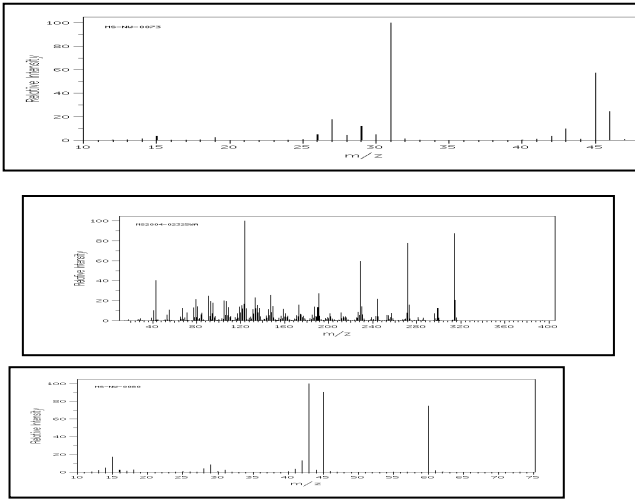
DNA



SUSPECT INTERVIEW SHEET 2

NAME Sal Simmons **PET** Cymric Cat **AGE & GRADE** 17,11 **HAIR** Brown
FAVORITE DRINK Mad Scientist Raspberry **HOBBIES** Video Games **PEN** Bic Stick **Glass** 5
JOB Runner in Medical Complex **Plastic** Plexiglas (PMMA) **HEIGHT & WEIGHT** 5'4" 120 lbs
EYES Brown **CLOTHING** Polyester shirt & spandex pants **Blood** A **Paint** G3 **Soil** 3
INTERVIEW STATEMENT Cut finger while trying to peel apple with dull knife in cafeteria at lunch. Scraped knuckles when fell off bike going to work Thursday. Opted not to go to work after fall. Hurt too much. Parents make to feel inferior to jock sibling. Whole thing starting to affect grades. Needs money. Going to look for another job.

UNKNOWN FOUND ON SUSPECT IN VIALS
FINGERPRINTS



7 & 8

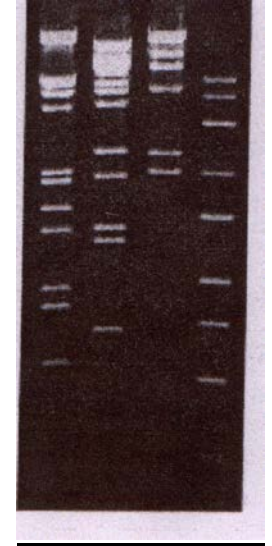
SHOE BOTTOM



Tire Track

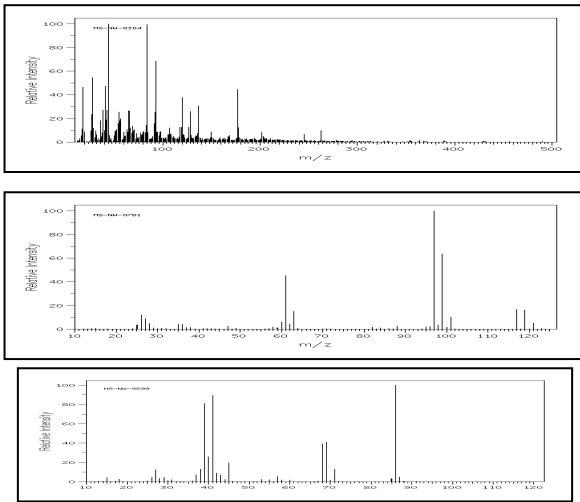


DNA



NAME Tony Tuttle **PET** Quarter Horses **AGE & GRADE** 18,12 **HAIR** Premature Gray
FAVORITE DRINK Grape Illusion **HOBBIES** Puzzles **PEN** Pilot G2 **Glass** 4
JOB Buss person **Plastic** Dish soap container (PVC) **HEIGHT & WEIGHT** 5'0", 98#
EYES Green **CLOTHING** Prefers Cottons **Blood** AB **Paint** G4 **Soil** 4
INTERVIEW STATEMENT Got paper cut in 1st period while getting out homework. Then got paper cut on hand while changing inserts in menus Thursday at work. Needs money. Was having bad day. Decided to go home.

UNKNOWN FOUND ON SUSPECT IN VIALS
FINGERPRINTS



9 & 10

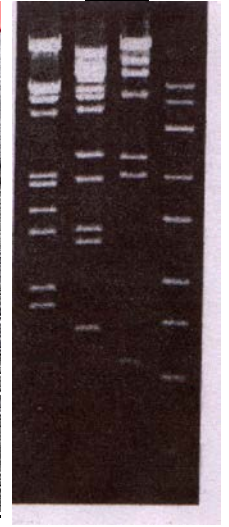
SHOE BOTTOM



Tire Track



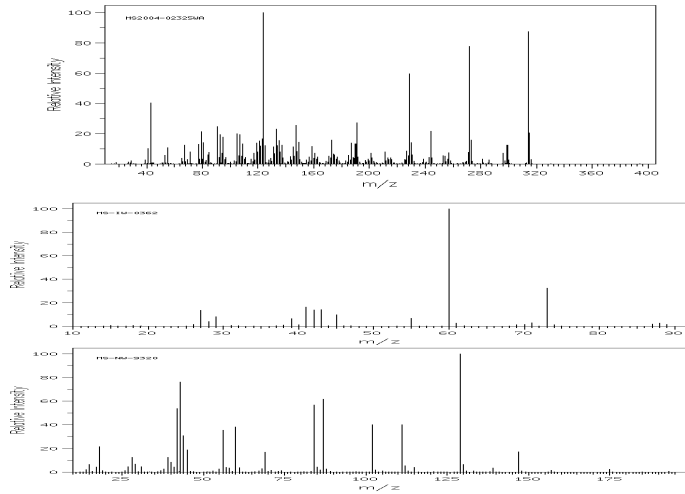
DNA



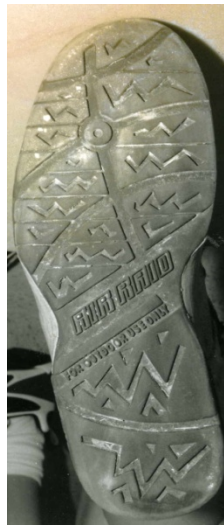
SUSPECT INTERVIEW SHEET 3

NAME Willie White **PET** Rabbits **AGE & GRADE** 19,12 **HAIR** Black curly
FAVORITE DRINK Tropical Punch **HOBBIES** Guitar in Band **PEN** Uniball Vision **Glass** 3
JOB Battery Factory **Plastic** Broken goggles (PC) **HEIGHT & WEIGHT** 6'2" 167#
EYES Black **CLOTHING** Silk Shirt, Nylon Vest, Blue Jeans **Blood** B **Paint** G5 **Soil** 5
INTERVIEW STATEMENT Desperate for money for new amp. Girl fried scratched arm in argument. Mad at teacher over grades. Just wants to be in famous band. Wants to quite school
UNKNOWN FOUND ON SUSPECT IN VIALS 11 & 12

FINGERPRINTS



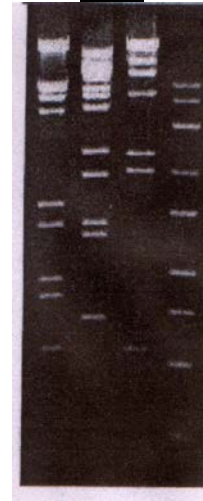
SHOE BOTTOM



Tire Track



DNA



<p>DNA1</p>	<p>DNA2</p>
<p>Footprint</p>	<p>Bike track</p>
<p>GC Mass Spec 1</p>	<p>GC Mass Spec 2</p>
<p>GC mass Spec 3</p>	<p>DNA 3</p>

Question Sheet

3	1	Id of powder 1 found at crime scene
3	2	Id of powder 2 found at crime scene
3	3	Id of powder 3 found on B.J. Britten
3	4	Id of powder 4 found on B.J. Britten
3	5	Id of powder 5 found on Fran Franklin
3	6	Id of powder 6 found on Fran Franklin
3	7	Id of powder 7 found on Sal Simmons
3	8	Id of powder 8 found on Sal Simmons
3	9	Id of powder 9 found on Toni Tuttle
3	10	Id of powder 10 found on Toni Tuttle
3	11	Id of powder 11 found on Willie White
3	12	Id of powder 12 found on Willie White
3	13	Id of Plastic 1 Found at the scene outside
3	14	Id of Plastic 2 Found at the scene outside
3	15	Id of Plastic 3 Found at the scene inside
3	16	Id of Plastic 4 Found at the scene inside
3	17	Id of Plastic 5 Found at the scene inside
3	18	Id of Plastic 6 Found at the scene inside
3	19	Type of hair 1 found at the scene outside
3	20	Type of hair 2 found at the scene outside
3	21	Type of hair 3 found at the scene
3	22	Type of hair 4 found at the scene
3	23	Type of hair 5 found at the scene
3	24	Type of hair 6 found at the scene
3	25	Type of fabric 1 found at the scene
3	26	Type of fabric 2 found at the scene
3	27	Type of fabric 3 found at the scene
3	28	Type of fabric 4 found at the scene
3	29	Type of fabric 5 found at the scene
3	30	Type of fabric 6 found at the scene
1	31	Using the mass spec 1 what is the molecular weight of the molecule?
1	32	Using the mass spec 2 what is the molecular weight of the most abundant piece(s)?
1	33	Using the mass spec 3 what is the weight of the smallest piece in the first GC Mass spec?
2	34	What is the blood type of the blood from sample 1 ?
2	35	What is the blood type of the blood from sample 2 ?
2	36	What is the blood type of the blood from sample 3 ?
2	37	What type of fingerprint is crime scene print #1 (see answer sheet #122)
2	38	What type of fingerprint is crime scene print #2 (see answer sheet #123)
2	39	What type of fingerprint is crime scene print #3 (see answer sheet #124)
2	40	Type of soil found on B.J. Britten
2	41	Type of soil found on Fran Franklin
2	42	Type of soil found on Sal Simmons
2	43	Type of soil found on Toni Tuttle
2	44	Type of soil found on Willie White
1	45	Write the chemical formula for Ammonium Chloride
1	46	Write the chemical formula for sodium carbonate.

1	47	Write the chemical formula for calcium carbonate
1	48	Write the chemical formula of Boric Acid.
1	49	What is the chemical formula for Glucose?
1	50	What is the chemical formula for Sucrose?
1	51	What is the chemical formula of sodium acetate?
1	52	What is the chemical formula of sodium chloride?
1	53	What is the chemical formula for magnesium sulfate?
1	54	What is the chemical formula of lithium chloride?
1	55	A red flame would be indicative of what chemical(s) in the list of possible unknowns for this event?
1	56	What is the chemical formula for sodium bicarbonate?
1	57	What is the chemical formula for potassium chloride?
1	58	What is the chemical formula of calcium nitrate?
1	59	What is the chemical formula for calcium sulfate?
1	60	What would you expect the pH of a solution of Sodium Carbonate and water to approximately be?
1	61	What does TLC stand for?
1	62	In DNA profiling, what does VNTR stand for?
1	63	On which end (left or right) of the crime scene DNA chromatogram are the slower DNA Fragments located?
1	64	What does DNA stand for?
1	65	Is the speed of light faster or slower with higher indexes of refraction?
1	66	What type of molecule is being tested for in ABO blood testing?
1	67	What percentage of human's DNA is similar?
1	68	How is enough DNA to do DNA analysis obtained from the little bit of DNA found at a crime scene?
1	69	What is the first step in this process?
1	70	What is the second step in this process?
1	71	What is the third step in the process?
1	72	What is controlled to switch between the various processes above?
1	73	What is the name of the enzyme used in this process?
1	74	A green flame would be indicative of what chemical(s) in the list of possible unknowns for this event?
1	75	A purple flame would be indicative of what chemical(s) in the list of possible unknowns for this event?
1	76	A yellow flame would be indicative of what chemical(s) in the list of possible unknowns for this event?
1	77	How can you tell if an object has the same refractive index as a liquid?
1	78	What is the definition of index of refraction?
1	79	What property of the nucleotides makes DNA replication possible?
1	80	On what type of cell do the molecules being tested for in ABO testing reside?
1	81	Write the equation for the reaction of Sodium acetate and water showing why it has the pH it does.
1	82	What is the approximate pH of aqueous Sodium Bicarbonate?
1	83	What is the approximate pH of aqueous Sodium Chloride?
1	84	What is the approximate pH of aqueous Boric Acid?
1	85	What is the approximate pH of aqueous Calcium Carbonate?
1	86	What is the chemical formula of the Monomer of PMMA
1	87	PC forms from what type of polymerization?
1	88	What is the name of the polymer found in hair?
1	89	What are the layers of a hair shaft?
1	90	What is the name of the polymer found in wool?
1	91	What is the name of the polymer found in linen?
2	92	R _f 's of the molecules in the Pentel pen ?

2	93	R _f 's of the molecules in the Pilot Easy Touch pen ?
2	94	R _f 's of the molecules in the Bic Stick pen ?
2	95	R _f 's of the molecules in the Pilot Easy G2 ?
2	96	R _f 's of the molecules in the Uniball Vision pen ?
2	97	R _f 's of the molecules in the Black Cherry juice ?
2	98	R _f 's of the molecules in the Ice Blue Raspberry Lemonade ?
2	99	R _f 's of the molecules in the Mad Scientist Raspberry juice ?
2	100	R _f 's of the molecules in the Grape Illusion juice ?
2	101	R _f 's of the molecules in the Tropical Punch juice ?
2	102	R _F 's of molecules in paint #1 ?
1	103	Did paint #1 have any fluorescent property & under which wavelength (answer: None, Short, Long, or Both)?
2	104	R _F 's of molecules in paint #2 ?
1	105	Did paint #2 have any fluorescent property & under which wavelength (answer: None, Short, Long, or Both)?
2	106	R _F 's of molecules in paint #3 ?
1	107	Did paint #3 have any fluorescent property & under which wavelength (answer: None, Short, Long, or Both)?
2	108	R _F 's of molecules in paint #4 ?
1	109	Did paint #4 have any fluorescent properties & under which wavelength (answer: None, Short, Long, or Both)?
2	110	R _F 's of molecules in paint #5 ?
1	111	Did paint #5 have any fluorescent properties & under which wavelength (answer: None, Short, Long, or Both)?
1	112	What is the stationary phase of the TLC we are using today?
1	113	What is the mobile phase of the TLC we are using today?
1	114	How does TLC separate components of a mixture?
1	115	What physics principle is used to separate the pieces in a mass spec?
1	116	How are the molecules broken up in a mass spec?
1	117	What physics principle is used to separate the pieces in a mass spec?
1	118	Whose glass came closest to a refractive index of 1.47?
1	119	Whose glass came second closest to a refractive index of 1.47?
1	120	Name another factor that needs to be checked when typing blood that we are not doing today
1	121	Cyanoacrylate fuming reacts with what component of the latent fingerprints to produce a visual image that can be photographed?
1	122	On Crime scene print # 1 on answer sheet and on corresponding print from suspect on cover sheet of answer sheet (if any) circle a ridge ending
1	123	On Crime scene print # 2 on answer sheet and on corresponding print from suspect on cover sheet of answer sheet (if any) circle a trifurcation
1	124	On Crime scene print # 3 on answer sheet and on corresponding print from suspect on cover sheet of answer sheet (if any) circle a delta
20	125	Most likely Suspect(s)
	126	Present your analysis of the crime on the backs of the answer sheet pages

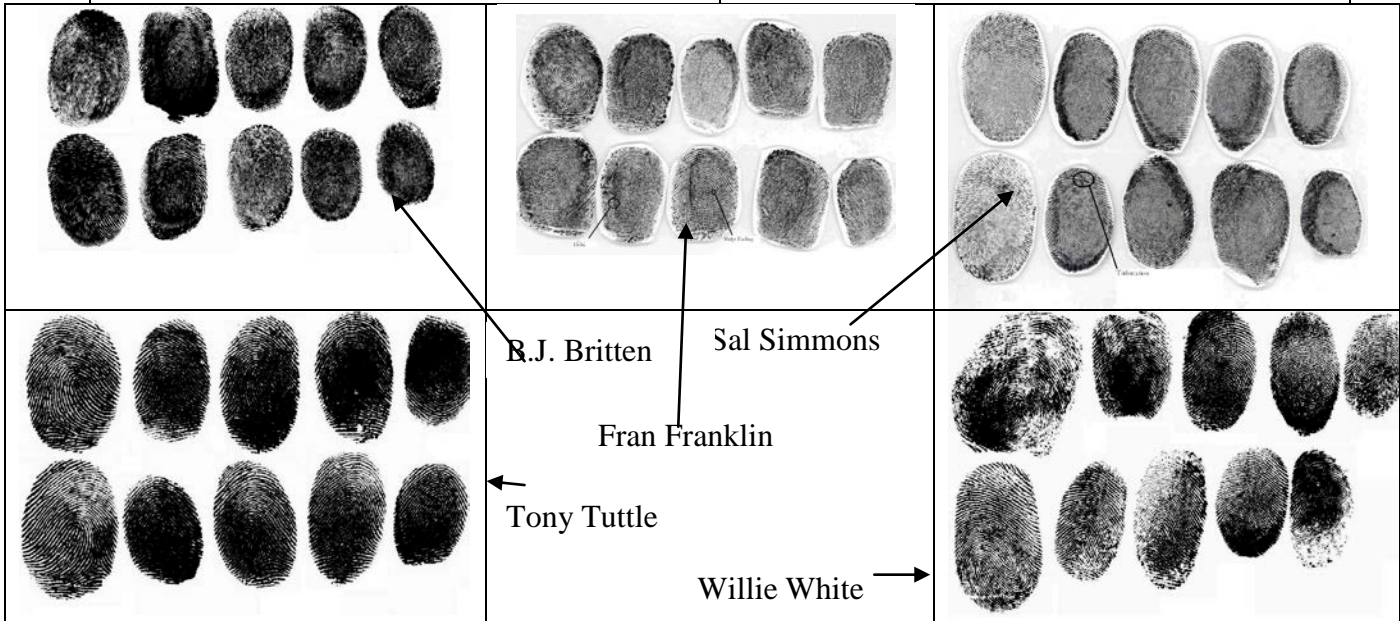
2015 National Forensics Answer Sheet Station _____

School _____ KEY _____ Code _____










Detective 1 (please [print]) _____

Detective 2 please [print] _____

Total Points	300
# of points on page 1	146
# of points on page 2	84
Subtotal Points	230
Essay Points (70)	70
Subtotal Points	
Clean-up Deduction	
Subtotal Points	
Tie-Breaker Points	
Total Points	
Rank	



3	1	Sucrose $C_{12}H_{22}O_{11}$	3	26	Polyester	1	51	$NaC_2H_3O_2$
3	2	Sodium Carbonate Na_2CO_3	3	27	Linen	1	52	$NaCl$
3	3	Sodium Carbonate Na_2CO_3	3	28	Wool	1	53	$MgSO_4$
3	4	Sodium Chloride $NaCl$	3	29	Cotton	1	54	$LiCl$
3	5	Sucrose $C_{12}H_{22}O_{11}$	3	30	Nylon	1	55	$LiCl$
3	6	Calcium Sulfate $CaSO_4$	1	31	175 g/mole	1	56	$NaHCO_3$
3	7	Sucrose $C_{12}H_{22}O_{11}$	1	32	28 g/ mole	1	57	KCl
3	8	Lithium Chloride $LiCl$	1	33	15 g/mole	1	58	$Ca(NO_3)_2$
3	9	Glucose $C_6H_{12}O_6$	2	34	B1 B	1	59	$CaSO_4$
3	10	Cornstarch	2	35	B2 O	1	60	10
3	11	Sucrose $C_{12}H_{22}O_{11}$	2	36	B3 A	1	61	Thin Layer Chromatography
3	12	Ammonium Chloride NH_4Cl	2	37	Tented Arch	1	62	Variable Number Tandem Repeat
3	13	PC	2	38	Central Pocket Loop Whorl	1	63	Left
3	14	PMMA	2	39	Radial Loop	1	64	Deoxyribonucleic acid
3	15	HDPE	2	40	S1 Loam	1	65	Slower
3	16	PS	2	41	S2 Sand	1	66	Sugar
3	17	PETE	2	42	S3 Sand	1	67	99.9%
3	18	LDPE	2	43	S4 Clay	1	68	PCR replication
3	19	H1) Horse	2	44	S5 Sand	1	69	Denaturing
3	20	H2) Bat	1	45	NH_4Cl	1	70	Annealing
3	21	H3) Human (negro)	1	46	Na_2CO_3	1	71	Synthesis
3	22	H4) Cat	1	47	$CaCO_3$	1	72	Temperature
3	23	H5) Dog	1	48	H_3BO_3	1	73	TAQ Polymerase
3	24	H6) Human (blond)	1	49	$C_6H_{12}O_6$	1	74	Boric Acid H_2BO_3
3	25	Cotton	1	50	$C_{12}H_{22}O_{11}$	1	75	Potassium Chloride KCl

1	76	Sodium Chloride NaCl, sodium acetate NaC ₂ H ₃ O ₂ , Sodium carbonate Na ₂ CO ₃ or Sodium bicarbonate NaHCO ₃		101	0.90, 0.42	1	P R I N T I N G	
1	77	It appears to disappear	2	102	0.95, 0.41, 0			
1	78	The angle at which light is bent as it passes from one material to another	1	103	Both			
1	79	Nucleotide pairing	2	104	0.96, 0.95, 0.41			
1	80	Red blood cells	1	105	long	1	P R I N T I N G	
1	81	NaC ₂ H ₃ O ₂ + H ₂ O → Na ⁺ + HC ₂ H ₃ O ₂ + OH ⁻	1	106	0.94, 0.41, 0.33			
1	82	8	1	107	long			
1	83	7	2	108	0.95, 0.41, 0.16			
1	84	4-5	1	109	short		P R I N T I N G	
1	85	6	2	110	0.95, 0.41			
1	86	CH ₃ -(CCH ₂)-(C=O)-CH ₃	1	111	none	20		
1	87	Condensation	1	112	Plastic plate covered with silica gel			
1	88	Keratin	1	113	Water		P R I N T I N G	Fran Franklin, Sal Simmons, and Willie White (6 points for each name & 2 points for listing all 3 names)
1	89	Cuticle, Cortex, Medulla	1	114	Affinity of molecules for mobile or stationary phase			
1	90	Keratin	1	115	Centripetal force/ charge in magnetic field		P R I N T I N G	
1	91	Cellulose	1	116	by being shot with electron gun			
2	92	0.91, 0.72, 0.33	1	117	Charge to mass ratio gives different trajectory through magnetic field		P R I N T I N G	
2	93	0.00	1	118	B. J. Britten			
2	94	0.00	1	119	Willie White		P R I N T I N G	
2	95	0.37	1	120	Rh			
2	96	0.00	1	121	amino acids		P R I N T I N G	
2	97	0.9, 0.39	1	122				
2	98	0.86					P R I N T I N G	
2	99	0.89						
2	100	0.9, 0.66, 0.37					P R I N T I N G	

All of the evidence from the outside; the bike tracks (1), foot prints (2), blood (3), DNA (4), glass (5), GC Mass Spec (6), paint (7), powder (8), plastic (9), dirt (10), and human hair (11) point to B.J. Brittan who freely admits to be the one riding the bike(12), as the person on the bike (13). There is no evidence that the person on the bike had anything to do with the crime (14). The horse (15) and dog (16) hair found outside can not be thought of as implicating anyone since it would be normal to find horse and dog hair outside (17). Everyone was wearing some cotton (18).

The chromatographs of the pen (19) can point to Fran Franklin (20), Sal Simons (21) or Willie White (22). The juice (23) can point to either Fran Franklin (24) or Sal Simmons (25).

Both Fran Franklin, and Sal Simons had type A blood (26), and the DNA from the blood inside was both Fran Franklin's (27) and Sal Simons's (28). Type B blood (29) was also found at the scene and Willie White (30) has that type.

Fran Franklin (31), Sal Simons (32), and Willie White (33) all had the powder found inside on them. Although sugar is such a common substance in a cafeteria (34), this is not very telling (35). Each of the suspects had powders on them that would normally be found on their jobs (36)

Fran Franklin's (37) hair and dog hair (38), Sal Simon's (39) cat hair, and Willie White's hair (40) were found at the scene. This only means they were in the cafeteria however (41).

The only identifiable fingerprints found at the table and fire alarm belong to Fran Franklin (42) and Sal Simons (43). The other print did not belong to any of the suspects (44).

The plastics found on Fran Franklin (45), Sal Simons (46), and Willie White (47) were found at the crime scene. The fact that PS, cutlery (48) and PETE, soda bottles (49) were found on the table should surprise no one (50).

Fran Franklin (51), Sal Simons (52), and Willie White (54) all had the same GC Mass spec chemical on them, although it was not found at the crime scene (55). The two GC Mass Spec's inside belong to Fran Franklin (56) and Willie White (57).

The fibers (58) found at the crime scene matched what Fran Franklin (59), Sal Simons (60), and Willie White (61) were wearing.

The glass inside (62) matched the glass found on Willie White (63)

Sand was found around the table (64) and on Fran Franklin (65), Sal Simons (66), and Willie White (67).

There is no evidence at all pointing to Toni Tuttle. (68)

Although the evidence is circumstantial (69) it seems the most likely solution is that Fran Franklin, Sal Simmons, and Willie White conspired to steal the money. (70)