Crime Busters – Answer Key

School Name:	DO NOT WRITE IN THIS COLUMN
Team Number: B	Penalties:
Student Names:	Raw Score:
Station #:	Rank:

	Part A – Qualitative Analysis (ID = 5 points per substance [10 points for mixtures] and Basis = 1 point / Questions = Vary) Total: 100 Points	
Ide	Identity How did you identify?/Basis	
1	Ammonia	
2	Tin	
3	Sugar	
4	Baking Soda	
5	Gypsum	
6	Calcium Carbonate	
7	Alka-Seltzer	
8	Vitamin C	
9	Cornstarch	
10	Sand	
#	IDENTIFY ONLY	
11	Salt	
12	Sugar	
13	Baking Soda and Gypsum	
14	Calcium Carbonate and Alka-selt	zer
15	Vitamin C	

Par	t A – Cont.
1	Baking Soda (1)
2	EF: NaHCO ₃ SciName:
	Sodium Bicarbonate (2)
3	Seasoning in chips, Used in Handwarmers, Buffer solutions, Concrete sealant, neutralize sulfuric acid waste (2)

Pa	Part C – Paper Chromatography	
(IC	(ID of suspect = 4 points,	
Qι	Questions = 1 point, 1 point for	
ea	each completed and attached	
strip) Total : 10 points		
1	Kunneth	(4)
2	В	(1)
3	Α	(1)

Part B – Polymer Testing/ Natural and Man-made Substances			
(ID =	(ID = 2 points, Basis = 1 point, Questions = vary) Total: 20 points		
Clas	Classification Basis		
H1	Human		
H2	Cat		
Н3	Dog		
F1	Synthetic (Nylon)		
F2	Animal (wool)		
1	Nylon (1)		
2	The diameter of the medulla compared to the diameter of the hair (ratio); 1/3 (2		(2)
3	Polymethyl Methacrylate; 1.18 g/cm ³ (-0.5 points for no unit) (2		(2)

Par	t D – Crime Scene Physical Evidence (ID= 4 points; Questions = 1 point)
Tot	al: 20 points
Α	Kunneth (4)
В	Alyson (4)
С	Alyson (4)
D	Blazeit's foot print (4)
1	Plain Whorl (1) (0.5 for whorl)
2	2 (1)
3	Specific Parts of fingerprints, used for comparison (1)
4	Henry Classification System (1)

Part	E – Analysis Total: 50 points ((#) represents points for that question)
1	3 points if say: Kunneth Tree created hole
	3 points if say: Blazeit von Wonder entered lounge through door
	+1 for Kunneth motive/ +1 for Blazeit motive
	+1 point for each piece of evidence provided the supports their
	claim. (+0.5 points for each piece of evidence, if they do not refer
(12)	back to the code of that specific piece of evidence, Ex) Tube 1 which
	contained presents that) (max 4 points)
2	3 points if say: Blazeit wrote the note
	3 points if say: Alyson stuck note to the camera
	+1 for Blazeit motive / +1 for Alyson motive
	+1 point for each piece of evidence provided the supports their
(12)	claim. (+0.5 points for each piece of evidence, if they do not refer
	back to the code of that specific piece of evidence, Ex) Tube 1 which
	contained presents that) (max 4 points)
3	3 points if say: Blazeit broke into the lounge
	3 points if say: Alyson broke into the lounge
	+1 for Blazeit motive/ +1 for Alyson motive
	+1 point for each piece of evidence provided the supports their
(12)	claim. (+0.5 points for each piece of evidence, if they do not refer
	back to the code of that specific piece of evidence, Ex) Tube 1 which
	contained presents that) (max 4 points)
4	Kupcake due Donguy did not commit any crime (4 points)
	+1 point per missing piece of evidence when explaining the lack of
	certain evidence. (+0.5 points for each piece of evidence, if they do
(7)	not refer back to the code of that specific piece of evidence, Ex)
(7)	Tube 1 which contained presents that) (max 3 points)

5	+ 4 points for valid piece of evidence (DNA from hair, handwriting test from the note, potential fingerprints on other door handles, etc.) +3 points for valid and reasonable explanation
(7)	