

Part 2B: Fibers (ID = 3 pts; Basis = 1 pt; Questions = 1 pt)		
Identity		Basis
T		
U		
V		
1	2	3

Part 2C: Plastics (ID = 3 pts; Basis = 1 pt; Questions = 1 pt)		
Identity		Basis
W		
X		
Y		
Z		
1	2	

Part 3: Chromatography (Questions = 2 pts @)	Supervisor's Use Only: Chromostrip Score (8 pts @)

Part 4A: Fingerprints (2 pts @)	Part 4B: Shoe Prints (2 pts @)
1	1
2	2
3	3
4	4

Part 4C: DNA (2 pts @)	
1	
2	
3	
4	
5	
6	

Science Olympiad - Nationals 2015

Crime Busters

School Name
Team #

Tape your finished chromostrip for Kevin in the box below. (2 pts)

Tape your finished chromostrip for Stuart in the box below. (2 pts)

Tape your finished chromostrip for Bob in the box below. (2 pts)

Tape your finished chromostrip for Jerry in the box below. (2 pts)

Part 2B: Fibers (ID = 3 pts; Basis = 1 pt; Questions = 1 pt)		
Identity	Basis	
T	Vegetable	See scoring note above
U	Animal	
V	Animal	
1	Synthetic	2 Animal
		3 Vegetable

15

Part 2C: Plastics (ID = 3 pts; Basis = 1 pt; Questions = 1 pt)		
Identity	Basis	
W	HDPE	See scoring note above
X	PP	
Y	LDPE	
Z	PS	
1	D	2 Australia

18

Part 3: Chromatography (Questions = 2 pts @)		Supervisor's Use Only: Chromastrip Score (8 pts @)
1	Stuart	Chromo Rubric ½ pt did the strip and ran at least ½ way up strip ½ pt starting line and solvent line ½ pt "good" run; no edging etc ½ pt labeled w/ team info
2	Jerry	

12

Part 4A: Fingerprints (2 pts @)		Part 4B: Shoe Prints (2 pts @)
1	Kevin	1 Stuart
2	Jerry	2 Jerry
3	Double Loop (Whorl = 1 pt)	3 Walking
4	Bifurcation	4 Soil under the toe is shifted → moving Soil shift is slight → walking

16

Part 4C: DNA (2 pts @)	
1	Stuart
2	Stuart
3	polymerase chain reaction
4	Adenine-Thymine; Guanine-Cytosine (allow partial credit for spelling or incorrect matching)
5	annealing or binding
6	B

12

Part 5: Analysis (62 pts)

1. (49 pts) How to award points

Suspect by name and "most probable" role with supportive evidence = 3 pts

Suspect by name and role stated as absolute with supportive evidence = 2 pts

Suspect by name and role w/o supportive statements = 1 pt

Then for each suspect, 1 pt for each specific evidence cited. 37 pts total available.

Powders: 16 pts Hair: 3 pts DNA: 2 pts

Metals: 3 pts Chromo: 2 pts

Plastics: 4 pts Fingerprints: 2 pts

Fibers: 3 pts Shoe Prints: 2 pts

Example answer (each dot is a point); this is a 13 point answer

* Dutch most probably broke into the Office and cabinet and damaged the skittle. The powder * mixture on his shoe indicates presence in the room and the powder on his hand indicates his * touching of the skittle. Further evidence that he was in the room includes the aluminum shards * from the case, the hydrogen peroxide on his sleeve from the spill on the counter, matching fibers * from the door jamb and cabinet, hairs similar to his and his dogs in the room. Most damaging * to his case is the pen match to the combination note and his shoe print by the door. *

Example answer (each dot is a point); this is a 6 point answer

* Evidence exists that Digger was probably in the room and had contact with the skittle but that * makes sense since it was her skittle. The powder match could have been from her putting the * skittle away, the fiber match could have been from when she put the skittle into storage, and her * fingerprints would be on her own skittle from handling it. *

Minus 5 pts for each use of "incorrect forensics;" ex. DNA from hair

2. (4 pts) Of the evidence available, hair and fibers are the best answers; only needs 1. (4 pts)

If something different is mentioned and supported, then 2 pts

3. (6 pts) Possible answers include blood, spatter... anything not in the event

- Answer = 2 pt

- Support = 4 pts

4. (3 pts) These are subjective points... award based on plausibility and completeness of answer