



The Elf Challenge

It was the month before Christmas and all through the house not a creature was stirring - except for the senior elves who were on the brink of all-out war. Their bickering and arguing was driving everyone crazy. Father Christmas had picked up some leadership strategies on his travels and decided to send his management elves on a team building day ... paintballing!

Elf profiles

Name	Role	Characteristics
Serenity	Manager of fine art and toy decoration	Helpful, kind, caring. Everyone loves her, but has a secret wicked streak.
Whacko	Chief Reindeer wrangler – may have had one too many knocks on head!	Seriously off his trolley, no fear, no sense, no game plan.
Ambrose	Head of accounts	Nice guy, but really sneaky! Always one step ahead of everyone else.
Noel	Chief Sleigh mechanic	Most likely to be found by the eggnog fountain munching mince pies. Total passivist!
Joe	Lead toy designer	Average elf, average gamer

To stop any further arguing, Father Christmas confiscated the scores and just gave them vague descriptions of their results, giving each elf a few snippets of information. Unfortunately this was met with uproar from the elves. The elves worked together to identify who had shot who. In the process they stopped bickering and resolved their issues. Maybe Father Christmas did get it right after all ...!?

- Can you solve these clues to identify who shot who, how many times?
- Use your analysis to match the characteristics of the elves with their scores.

Hints: You may want to draw a table and work out some statistics

1	Elf A hit 44 targets and was hit 23 times
2	Elf B was hit 85 times
3	Elf C hit elf D 19 times, A – 18 times and E 29 times
4	The total number of hits was 252
5	Elf E was only hit by 3 other elves (56 hits), which is the same as the total number of hits made by D.
6	Elf B doesn't believe in shooting anything, even with paint.
7	Elf D was hit twice as many times by E than by A.
8	Elf A was hit one more time by E than by D.
9	Elf E made 2 fewer hits than D
10	Elf D was hit 1 less time than E
11	Elf A hit D twice as much C
12	Elf C was hit three times as many times by D than by A
13	Elf A hit B 15 times
14	Analyse your hit ratios and identify the elves

The Elf Challenge: Hint sheet

	Number of times each elf was hit						
Number of successful shots		A	B	C	D	E	Total
	A						
	B						
	C						
	D						
	E						
	Total						

Match each elf with his/her scores, justifying why you made this decision:

Elf	Name	Reason
A		
B		
C		
D		
E		

The Elf Challenge: Solutions

	Number of times each elf was hit						
Number of successful shots		A	B	C	D	E	Total
	A		15	6	12	11	44
	B	0		0	0	0	0
	C	18	32		19	29	98
	D	2	20	18		16	56
	E	3	18	9	24		54
	Total	23	85	33	55	56	252

Match each elf with his/her scores, justifying why you made this decision:

Elf	Name	Reason
A	Serenity	Lots of hits on other elves, not as many on her.
B	Noel	Didn't shoot anyone
C	Ambrose	Highest number of hits on other people, not as many by other elves
D	Whacko	Lots of hits on him and by him
E	Joe	Roughly the same number as shots and hits, not the highest or lowest scorer.

There are other possible solutions – it just depends how you argue the maths.