

Functional Skills

Christmaths Elves

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LO: Use probability for future prediction

Team Elf



LO: Use probability for future prediction

Team Elf

ftw



LO: Use probability for future prediction



Each year, the elves go to work...

They start to make the presents.

They have many warehouses, each is responsible for 600 presents.

Each elf has a specific role...



Elf Jobs

Sorters: These look at the lists of presents and decide what will be made.



Designers: These work out how to make each toy.

Makers: These make the toys.

Wrappers: These wrap the toys as presents.

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In order to work the elves need to be fed.

They eat cookies.

Each elf eats a different amount of cookies.

Usually those who work harder eat more cookies.



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While the reindeers wait for the presents to be made they get a little bored.

They start to discuss the elves.



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While the reindeers wait for the presents to be make they get a little bored.
They start to discuss the elves.



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Which elves do you think will do the most work this year.

Do you fancy a little game?

Why don't we all choose an elf and see who chooses the one who does the most jobs.



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Or even better. Why don't we choose a few elves each and see who does the best?

Lets say we all choose:
One sorter
Two designers
Two makers
Two wrappers

I think we have a limit on the number of cookies we can give our group

That's a good idea. Lets say 300.



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Any other rules?

Look at the first letters in their names. Each elf we have has to start with a different letter.

We could have up to two elves in each of our groups with the same letter at the start of their name.



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You...



...are going to compete with the reindeers.



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You will be given the elf statistics.

The Elves

The Elves I Choose Are:

Name	Job	Amount of Cookies
	Sorter	
	Designer	
	Maker	
	Wrapper	
	Wrapper	
	Total	

Jobs this year:
Same Do More

Name	Amount of Cookies	Number of Jobs Last Year	Probability for jobs this year:		
			Do Less	Do The Same	Do More
Ashir	30	28	55%	59%	8%
Bob	31	37	55%	58%	1%
Charmelle	38	66	18%	38%	48%
Darrah	32	20	36%	30%	56%
Ernie	38	58	55%	0.2	34%
Garath	35	87	0.4	0.8	0.1
Helen	32	20	0.5	0.3	0.5
Isabelle	32	23	0.4	0.1	0.4
Jackie	32	33	0.3	0.3	0.6
Kim	31	17	0.3	0.0	0.4
Lewis	31	87	0.4	0.1	1/3
Martina	35	39	0.5	2/3	2/6
Natalie	35	60	2/3	2/6	1/7
Owen	29	8	2/8	2/7	3/8
Paul	34	74	3/7	2/8	0/8
Ronald	31	29	3/8	3/9	0/8
Sarah	28	19	4/9	3/10	0/10
Tracey	32	80	7/10		
Wayne	36	36			

LO: Use probability for future prediction

You will be given the elf statistics.

Name	Amount of Cookies	Number of Jobs Last Year	Probability for jobs this year:		
			Do Less	Do The Same	Do More
Ashir	30	28	35%	59%	6%
Bob	32	37	53%	46%	1%
Chantelle	34	67	30%	34%	36%
Dereck	39	66	16%	36%	48%
Emma	32	20	5%	39%	56%
Gareth	38	56	36%	18%	46%
Helen	35	67	55%	11%	34%
Isobelle	32	20	0.4	0.2	0.4
Jackie	32	23	0.5	0.4	0.1
Kim	33	33	0.4	0.3	0.3
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Manthanzo	29	87	0.3	0.3	0.4
Natasha	35	39	0.4	0.0	0.6
Owen	33	60	0.5	0.1	0.4
Paul	29	8	2 / 5	2 / 5	1 / 5
Ronaldo	34	74	2 / 6	2 / 6	2 / 6
Sarah	31	29	3 / 7	2 / 7	2 / 7
Tracy	28	19	3 / 8	2 / 8	3 / 8
Vesna	32	80	4 / 9	5 / 9	0 / 9
Wayne	36	36	7 / 10	3 / 10	0 / 10

The Elves



Jobs this year:	Do Same	Do More
0.0	0.0	0.0
0.1	0.1	0.1
0.2	0.2	0.2
0.3	0.3	0.3
0.4	0.4	0.4
0.5	0.5	0.5
0.6	0.6	0.6
0.7	0.7	0.7
0.8	0.8	0.8
0.9	0.9	0.9
1.0	1.0	1.0

Jobs this year:
Same Do More

Do More

Do More

39%

41%

53%

53%

4%

4%

39%

41%

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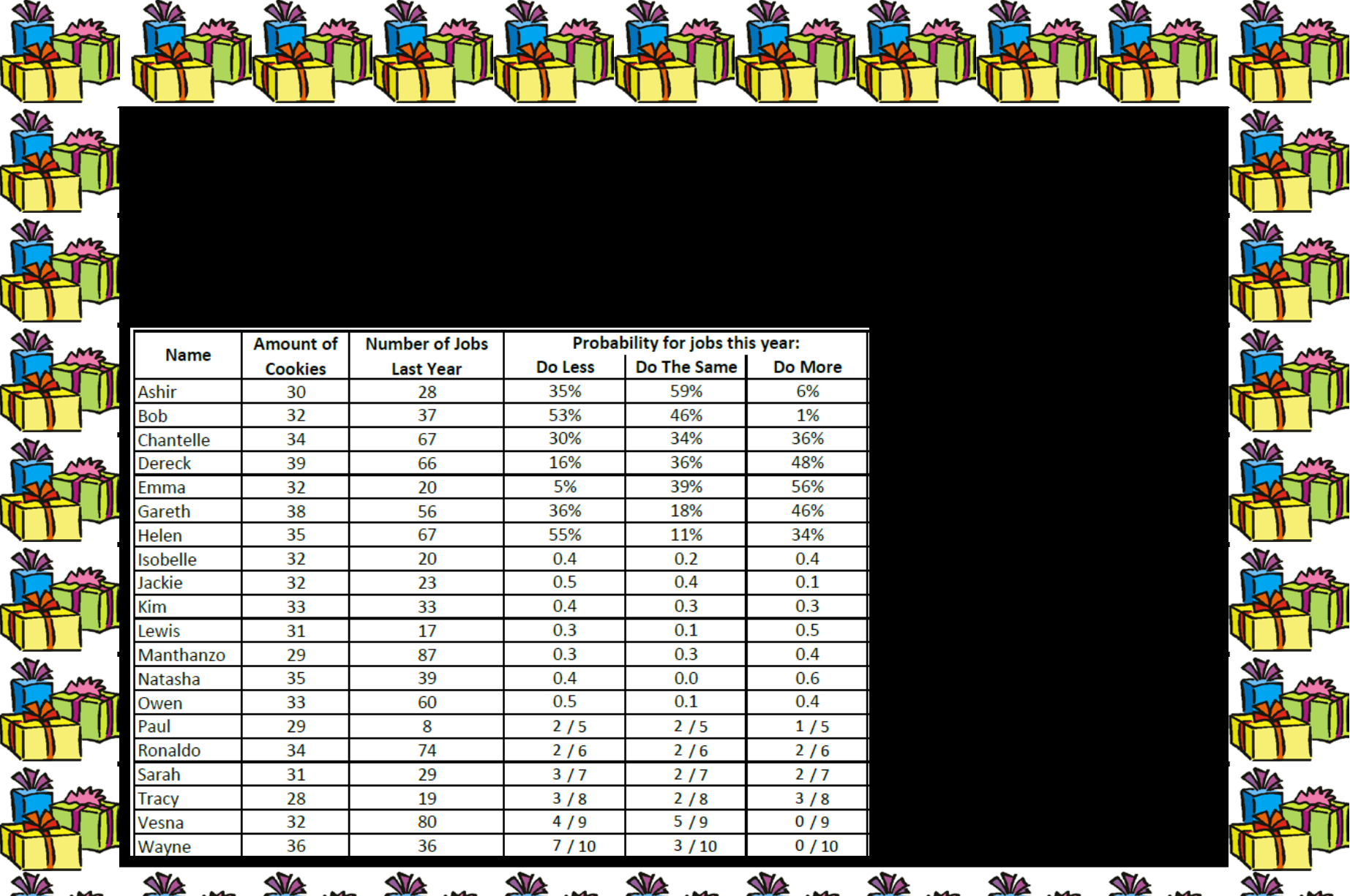
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LO: Use probability for future prediction

It has their names...

...the number of cookies
they eat...

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LO: Use probability for future prediction

It has their names...

...the number of cookies they eat...

...and the number of jobs they completed last year...

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...and the probability that they will do **less** work, the **same** amount, or **more** work this year.

LO: Use probability for future prediction

Unfortunately some numbers are missing...

...if these were covered how could you work them out?

Name	Amount of Cookies	Number of Jobs Last Year	Probability for jobs this year:		
			Do Less	Do The Same	Do More
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Bob	32	37	53%	46%	1%
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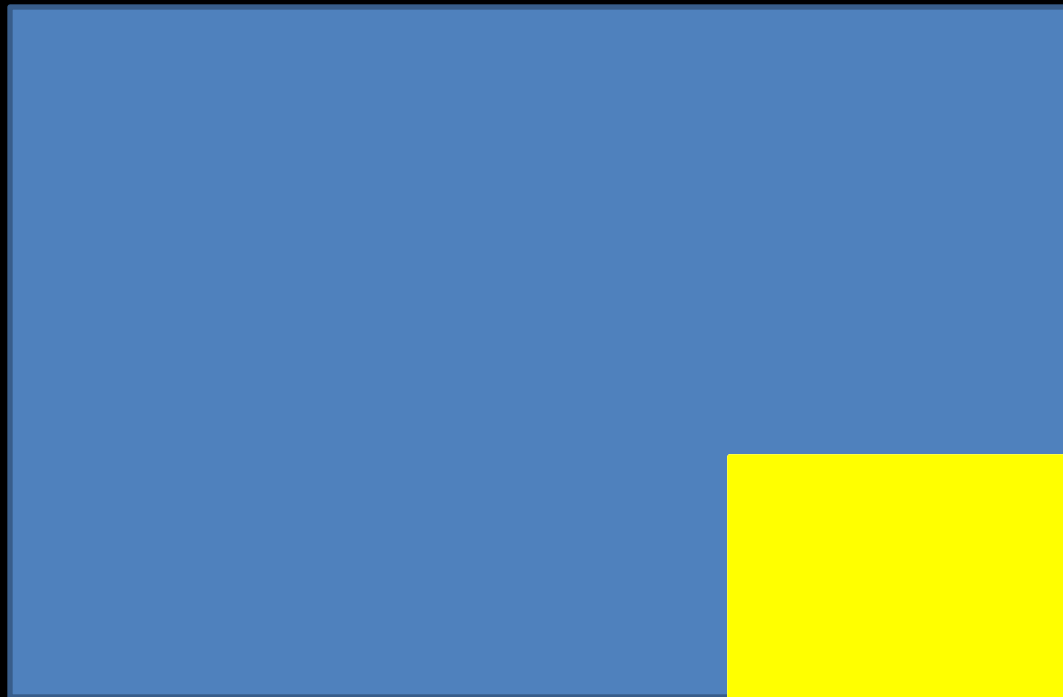
Once you have chosen your elf group you need to summarise information about the task and your team on an A3 sheet.



LO: Use probability for future prediction




But leave space! (An A6 size sheet)

You will be given information on how well each elf actually does and a sheet to fill in for your team.



LO: Use probability for future prediction


To help you with your A3 sheet you can fill in these profile cards for your team and glue them on.


Elf Team Profiles	<table border="1"> <tr> <td>BILLY</td> <td>9</td> </tr> <tr> <td colspan="2" style="text-align: center;">  </td> </tr> <tr> <td colspan="2" style="text-align: center;">EXAMPLE</td> </tr> <tr> <td colspan="2">Cookies = 32</td> </tr> <tr> <td colspan="2">P(less) = 32%</td> </tr> <tr> <td colspan="2">P(same) = 34%</td> </tr> <tr> <td colspan="2">P(more) = 34%</td> </tr> </table>	BILLY	9			EXAMPLE		Cookies = 32		P(less) = 32%		P(same) = 34%		P(more) = 34%		<table border="1"> <tr> <td></td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">SORTER</td> </tr> <tr> <td colspan="2">Cookies =</td> </tr> <tr> <td colspan="2">P(less) =</td> </tr> <tr> <td colspan="2">P(same) =</td> </tr> <tr> <td colspan="2">P(more) =</td> </tr> </table>			SORTER		Cookies =		P(less) =		P(same) =		P(more) =		<table border="1"> <tr> <td></td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">DESIGNER</td> </tr> <tr> <td colspan="2">Cookies =</td> </tr> <tr> <td colspan="2">P(less) =</td> </tr> <tr> <td colspan="2">P(same) =</td> </tr> <tr> <td colspan="2">P(more) =</td> </tr> </table>			DESIGNER		Cookies =		P(less) =		P(same) =		P(more) =		<table border="1"> <tr> <td></td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">DESIGNER</td> </tr> <tr> <td colspan="2">Cookies =</td> </tr> <tr> <td colspan="2">P(less) =</td> </tr> <tr> <td colspan="2">P(same) =</td> </tr> <tr> <td colspan="2">P(more) =</td> </tr> </table>			DESIGNER		Cookies =		P(less) =		P(same) =		P(more) =	
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LO: Use probability for future prediction

We will then compare how each of you have done in the class and see who chose the best elf team.

Santa's Team - 294 Cookies!

KIMBERLY 10		DONNIE 13		STEVEN 4		ROSE 20	
MAKER		MAKER		DESIGNER		WRAPPER	
Cookies = 31		Cookies = 40		Cookies = 26		Cookies = 63	
P(less) = 0.7		P(less) = 0.4		P(less) = 31%		P(less) = 1/6	
P(same) = 0.2		P(same) = 0.1		P(same) = 64%		P(same) = 2/6	
P(more) = 0.1		P(more) = 0.5		P(more) = 5%		P(more) = 3/6	

ELBOW 12		OWEN 60	
WRAPPER		SORTER	
Cookies = 39		Cookies = 33	
P(less) = 3/7		P(less) = 0.5	
P(same) = 1/7		P(same) = 0.1	
P(more) = 3/7		P(more) = 0.4	



LO: Use probability for future prediction



Summary of Rules

Maximise the number of jobs from your team.

Choose:

- One sorters
- Two designers
- Two makers
- Two wrappers

You have a maximum of 300 cookies to give.

Only choose up to two elves with the same letter at the start of their name

