

THE SAS CHALLENGE

TEACHERS RESOURCES

How it all works

While anyone can catch a fever, Guinea pig flu mutates with blood proteins A and B to cause more severe symptoms; while the RhD antigen (+ and -) alters the rate the second symptom occurs.

Blood type	First symptom	Second symptom
A	Fever and sore throat	Nausea and vomiting
B	Fever and body ache	Diarrhoea and abdominal pain
AB	Fever, sore throat and body ache	Nausea, vomiting, diarrhoea and abdominal pain
O	Fever	No other symptom

RhD antigen	Time for second symptom to appear
Positive (+)	55 to 65 minutes
Negative (-)	0 to 10 minutes

Part 1

Medication

Name	Description	Symptom
Fevadim	Cures fever	Fever
Paingolo	Relieves body aches	Body aches
Yodelo	Soothes and cures sore throats	Sore throat
Antilax	Stops diarrhoea	Diarrhoea
Chillax	Relaxes muscles	Not needed
Bloxbile	Reduces feelings of nausea	Nausea
Laxigo	Helps speed up bowel movements	Not needed
Noill	Prevents infection from Guinea Pig flu	Preventative

THE SAS CHALLENGE

Part 2

Patterns

Symptom	Group type (Similarities)
	Defined by blood phenotype
Fever	Blood type O
Fever and body aches	Blood type B
Fever and sore throat	Blood type A
Fever, sore throat and body aches	Blood type AB
Diarrhoea and abdominal pain	Blood type B
Nausea and vomiting	Blood type A
Nausea, vomiting, diarrhoea and abdominal pain	Blood type AB

Distribution table

Group type	Medicines required
Defined by blood phenotype	Split into stages
Blood type O	Fevadim
Blood type B (1st symptom)	Fevadim, Paingolo
Blood type A (1st symptom)	Fevadim, Yodelo
Blood type AB (1st symptom)	Fevadim, Paingolo, Yodelo
Blood type B (2nd symptom)	Antilax
Blood type A (2nd symptom)	Bloxbile
Blood type AB (2nd symptom)	Antilax, Bloxbile

THE SAS CHALLENGE

Part 3

Greenhill High distribution chart (as of 10:30am)

Group of people	Number of people in the group	Medicines to be given
Students who are ill with 2nd symptoms and are...	So number of meds to be given out	
A	5	Bloxbile
AB	5	Antilax, Bloxbile
B	17	Antilax
O	51	Fevadim
Students who are ill with 1st symptoms and are...	So number of meds to be given out	
A	14	Fevadim, Yodelo
AB	16	Fevadim, Paingolo, Yodelo
B	17	Fevadim, Paingolo
O	51	Fevadim
Students who are well and...	So number of meds to be given out	
A	12	Noill
AB	6	Noill
B	18	Noill
O	23	Noill

THE SAS CHALLENGE

This results in:

Meds	Number required
Paingolo	98
Yodelo	33
Antilax	30
Antilax	22
Chillax	0
Bloxbile	10
Laxigo	0
Noill	59

THE SAS CHALLENGE

Part 4

Greenhill High distribution chart (as of 11:00am)

To calculate the requirements for how things will be at 11:00, there are a number of elements to take into consideration, primarily the time it takes for the RhD antigens to mutate.

The healthy population

62 Noill meds are still required as they may still be healthy, but they may also fall ill.

NB: Positive RhD antigens will take at least 55 minutes, so there is no risk of those occurring in the interim.

The ill population

For people already showing second symptoms, life can't get any worse so their treatments will stay the same. However, for those who are showing first symptoms is more complex. Some will definitely show second symptoms, and others only might.

The definite ones

These are people who fell ill early, so the time it takes for the RhD antigens to mutate will be before the 11:00 deadline.

For students with the positive antigen (+) this will be from 10:05 or before.

For students with the negative antigen (-) this will be from 10:55 or before.

The possible ones

These are the ones who have fallen ill after these times, you must take into account both states. They may not change and only have the first symptoms, or they may develop the second symptoms. So...

For students with the positive antigen (+) who fell ill between 10:06 and 10:30, you must account for both illnesses occurring.

For students with the negative antigen (+) who fell ill after 10:05 (10:06 and onwards) you must account for both illnesses occurring.