1. Jigsaw Exercise

In the box below are three arguments. One is about school uniform, another is about vegetarianism and the third is about reducing the voting age to 16. The problem is that they are all mixed up!

School uniform leads to better behaviour by students and reduces the amount of disruption in lessons. You can get a job and have to pay taxes to the government. Eating a varied range of cereals, fruits, nuts and vegetables is a delicious and healthy way of getting all the vitamins, minerals, fibre and protein your body needs. Students who wear school uniform perform better in school. Meat-eating is risky as it is linked to a range of serious illnesses like e-coli and salmonella. Therefore the voting age should be reduced to 16. In schools with no uniform students can become so focused on what they and others are wearing that it distracts from their learning. You can get married and have children when you are 16 and this is a big responsibility which requires maturity. So the world would be a better place if we all became vegetarians. The time they spend choosing an outfit would be better spent studying. Sixteen year olds in society today are more mature than they ever have been in the past. Eating meat means that animals like cows, sheep, pigs and chickens are being kept in nasty conditions and cruelly killed.

Task

1. **Highlight the sentences from each argument using three different colours.**

2. **Write out the three arguments on the attached sheet, putting the sentences in order so they read clearly with reasons and a conclusion.**

3. **Produce an argument map for each of your three arguments.**

School Uniform

- _____

Vegetarianism

- _____

Voting Age

- _____

2. Evidence Sorting

Who Killed Andrew Mills?

- Bill hated Andrew because he had tricked Laura into bankrupting the family
- Megan definitely went to the Prince Regent pub to visit Andrew on Christmas Day
- Andrew had destroyed Megan's life by ending their marriage only a few hours after their wedding
- Megan's fingerprints were found on the heavy bust of King George IV which had killed him
- Bill hated Andrew because he had hurt Megan so much
- Megan is 71 years old and suffers from arthritis which makes it difficult for her to grip heavy objects
- Andrew had taken control of the Prince Regent pub, which was Megan's home and business
- Megan had asked Bill to kill Andrew for what he had done to her
- Bill has a history of violence
- Megan was later found with a document which Andrew had had, which meant she could get the Prince Regent pub back

Task

1. **Sort the ten pieces of evidence above into those which support the idea that Megan killed Andrew and those which support the idea that Bill killed Andrew.**

2. **Could any of this evidence support both sides of the dispute?**

3. **Use your reasoning skills to argue which set of evidence is the stronger and come to a reasoned conclusion about who killed Andrew Mills.**

3. Extracting Data

GCSE RESULTS

Subject	Entries	A*	A	B	C	D	E	F	G	U	X	A*-C%	A*-G%
Art & Design	90	5	17	27	27	5	3	4	1	0	1	84.4	98.9
Business Studies	114	3	10	22	41	23	7	6	2	0	0	66.7	100.0
Dance	19	1	2	1	4	4	4	2	1	0	0	42.1	100.0
D&T Graphics	61	1	9	11	13	19	6	2	0	0	0	55.7	100.0
D&T Resistant Materials	37	0	2	4	10	10	5	5	1	0	0	43.2	100.0
Drama	79	7	15	27	14	7	6	1	0	0	2	79.7	97.5
D&T Textiles	41	6	13	11	7	2	0	1	0	1	0	90.2	97.6
D&T Food	97	8	25	16	23	14	11	0	0	0	0	74.2	100.0
English Language & Literature	292	7	37	67	95	70	19	2	0	0	0	68.9	100.0
French	169	8	15	41	51	39	11	3	0	1	0	68.0	99.4
Geography	97	17	20	18	17	10	5	5	2	3	0	74.2	96.9
German	51	6	3	5	13	11	6	2	1	0	4	52.9	92.2
Health & Social Care	36	0	6	4	4	2	7	8	3	0	2	38.9	94.4
History	131	37	38	25	14	9	2	4	2	0	0	87.0	100.0
Information Technology	113	2	19	21	27	15	13	5	8	3	0	61.1	97.3
Mathematics	293	38	38	62	55	54	28	12	3	1	2	65.9	98.9
Music	21	0	3	7	3	5	3	0	0	0	0	61.9	100.0
Religious Studies	285	19	83	57	55	31	21	12	4	2	1	75.1	98.9
Science: Additional	264	32	35	60	62	47	22	6	0	0	0	71.6	100.0
Spanish	55	2	0	10	10	19	5	3	0	0	6	40.0	89.1
Sport/PE Studies	83	5	17	20	16	17	7	1	0	0	0	69.9	100.0
TOTALS	**2428**	**204**	**407**	**516**	**561**	**413**	**191**	**84**	**28**	**11**	**18**		
CUMULATIVE PERCENTAGES		**8.4**	**25.2**	**46.4**	**69.5**	**86.5**	**94.4**	**97.9**	**99.0**	**99.5**	**100**		

X = Students who were entered for the exam but didn't take it.

Task

The table shows the GCSE exam results obtained in each subject by students at Moorwest School.

Study the data in the table and answer the questions below.

1. **How many subjects obtained 100% A*-G grades?**
2. **Which subject gained the highest A*-C grade %?**
3. **Which subject gained the greatest proportion of A*s?**
4. **Which of the 3 foreign languages subjects gained the best results?**
5. **What % of all results was below C grade?**
6. **How many subjects had more students below grade C than gained A*-C grades?**
7. **Which subject had the most students taking the exam?**
8. **In how many subjects was A the most common grade?**

4. Odd One Out

Achievable

Appealing

Available

Breakable

Task

Identify four different odd-ones-out for four different reasons.

5. Graphical Puzzle

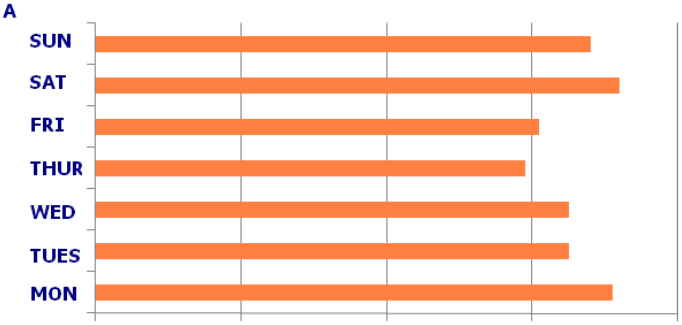
Over the course of four weeks in the spring, Jack keeps a record of the maximum temperature in his garden in degrees Fahrenheit each day and then turns the data he has collected into weekly graphs. Unfortunately, he fails to put labels on the axes and doesn't write on the graph which week is which.

Task

If the data for week one was as follows, which of the four graphs below is represents this data?

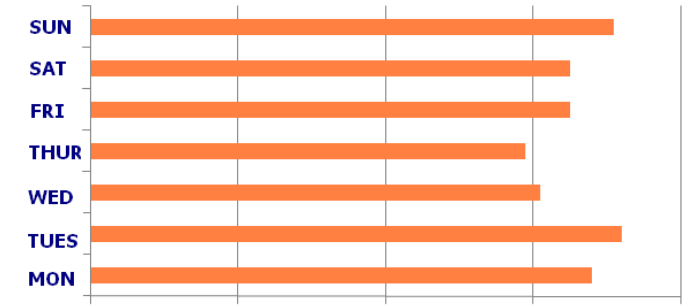
Monday – 68 Tuesday – 72 Wednesday – 61 Thursday – 59
Friday – 65 Saturday – 65 Sunday – 71

A

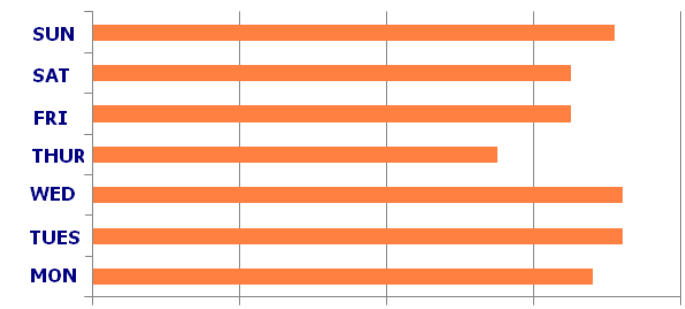


B

C



D



6. Matrix Puzzle

Track and Field Matrix Puzzle

Meriden is a very successful athletics club, which boasts 6 members who have competed at international level. They are Talia, Esme, Jason, Kwame, Sacha and Marcus. Their events are the 100 metres, the 1500 metres, the high jump, the long jump, the javelin and the discus.

Task

From the clues given below, and using the tables, match the athletes with their events.

1. The 2 throwing events were done by men.

2. The 2 runners are married to each other.

3. Talia joined Meriden as a runner but then changed her event to the one in which she gained great success.

4. Esme has known the 100 metres runner for some time – they went to the same girls' school.

5. Talia's best performance is less than one third the distance that Esme has jumped, but they are both great athletes.

6. Jason used to travel to meetings with Kwame until the latter's marriage to the other runner. Now Jason shares transport with the javelin thrower.

CLUE 1

	Marcus	Sacha	Kwame	Jason	Esme	Talia
100 metres						
High jump						
Long jump						
Javelin						
Discus						
1500 metres						

CLUE 2

	Marcus	Sacha	Kwame	Jason	Esme	Talia
100 metres						
High jump						
Long jump						
Javelin						
Discus						
1500 metres						

CLUE 3

	Marcus	Sacha	Kwame	Jason	Esme	Talia
100 metres						
High jump						
Long jump						
Javelin						
Discus						
1500 metres						

CLUE 4

	Marcus	Sacha	Kwame	Jason	Esme	Talia
100 metres						
High jump						
Long jump						
Javelin						
Discus						
1500 metres						

CLUE 5

	Marcus	Sacha	Kwame	Jason	Esme	Talia
100 metres						
High jump						
Long jump						
Javelin						
Discus						
1500 metres						

CLUE 6

	Marcus	Sacha	Kwame	Jason	Esme	Talia
100 metres						
High jump						
Long jump						
Javelin						
Discus						
1500 metres						

7. Data Synthesis Puzzles

1. **It takes one man, one day, to dig one hole.**

   How many days will it take ten men to dig ten holes?

2. **In a class of 25 primary school children, the teacher asks the class what pets they have at home.**

   12 have a dog
   8 have a cat
   6 have a rabbit
   8 don't have a pet

   3 of the class have both a rabbit and a cat, but no dog.
   3 of the class have a rabbit and a dog, but no cat

   How many have both a cat and a dog?

3. **Valerie has to make a journey of 180 miles in total to pick up a puppy for her daughter. She has two cars which she can use for this journey. One is a Mercedes which will travel at an average of 60 miles an hour and will use 1 litre of petrol for every 5 miles. The other is a Fiat which will travel at an average of 45 miles an hour and will use 1 litre of petrol for every 10 miles. She can buy petrol at £1 a litre.**

   Valerie earns £15 an hour and will not get paid for the time she spends collecting the puppy.

   Which car should Valerie use if she wants to make the journey as economical as possible?