PAWS
Science
Grade 8

Released Items
With Data

2011

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24649

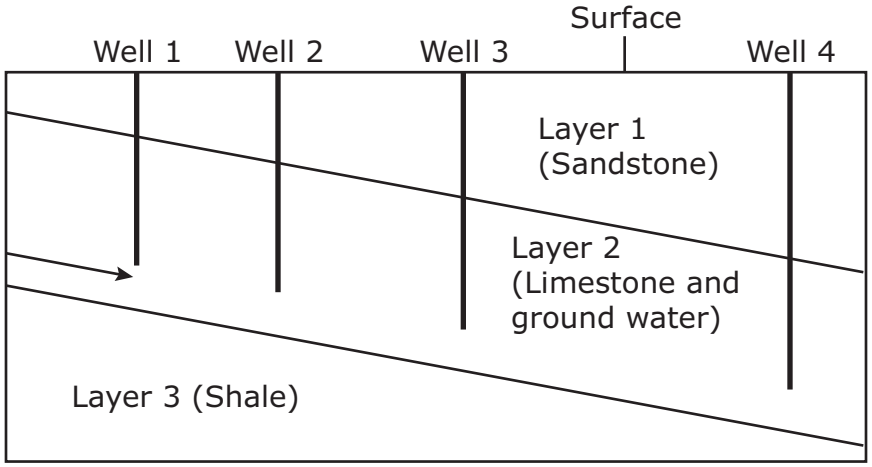
Water Well Data

Students are studying the movement of pollution in ground water. They are given a cross section that shows the location of 4 water wells. The cross section also shows the type of rock layers underground and the location of the layer saturated with ground water (aquifer).

To simulate pollution moving through ground water, a nontoxic green dye was added to Well 1.

The students compare data from each of the wells to track the movement of the green dye through the aquifer.

Cross Section Showing Location of Wells



Data for 1:00 p.m.

Well	Depth to Water (meters)	Water Flow (meters/second)	Observation
1	16	10	Green
2	20	12	Clear
3	25	12	Clear
4	30	10	Clear

Data for 2:00 p.m.

Well	Depth to Water (meters)	Water Flow (meters/second)	Observation
1	16	10	Green
2	20	8	Green
3	25	12	Clear
4	30	10	Clear

Data for 3:00 p.m.

Well	Depth to Water (meters)	Water Flow (meters/second)	Observation
1	16	10	Green
2	20	15	Green
3	25	12	Green
4	30	10	Clear

Data for 4:00 p.m.

Well	Depth to Water (meters)	Water Flow (meters/second)	Observation
1	16	10	Green
2	20	8	Green
3	25	6	Green
4	30	12	Clear

3516966

00 **In which well did the flow of ground water increase between the hours of 2:00 and 3:00 p.m.?**

Ⓐ Well 1

Ⓑ Well 2

Ⓒ Well 3

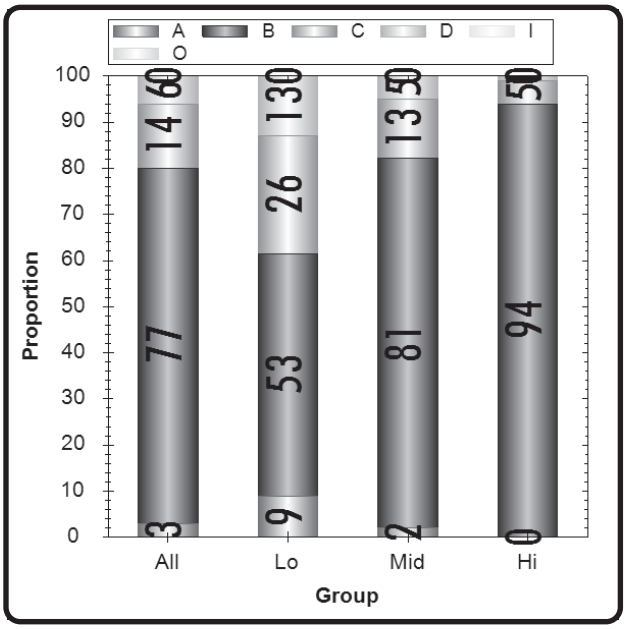
Ⓓ Well 4

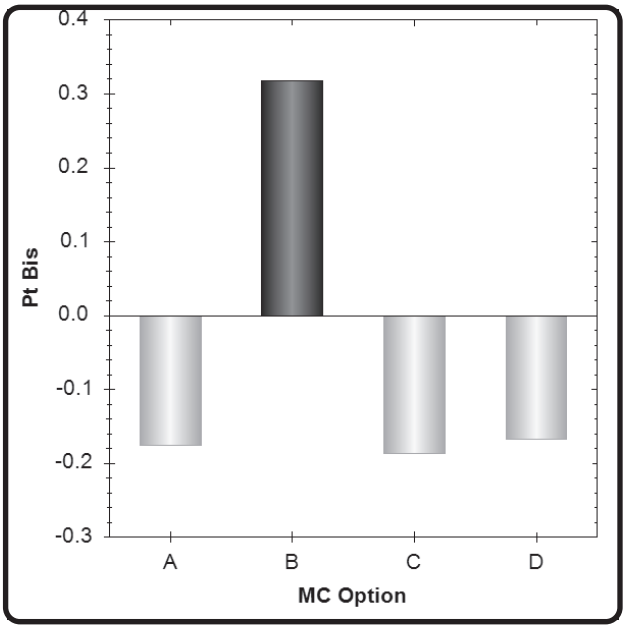
Grade 8	Science	CID 3516966
Item # 16	OP09	S.8.4.g
	Psg : Water Well Data	

Type	Max Points	Correct Answer	N Count	Item Mean	Discrimination
Multiple Choice	1	B	6203	0.774	0.318

	A	B	C	D	Inv	Omit
All	3	77	14	6	0	0
Low Scorers	9	53	26	13	0	0
Middle Scorers	2	81	13	5	0	0
High Scorers	0	94	5	1	0	0

MC Item Option Discriminations			
A	B	C	D
-0.176	0.318	-0.187	-0.167





Notes:

Non SPED students may perform better on this item as compared to SPED students. (B)

3516967

00 **Which of these statements is supported by the students' data?**

Ⓐ The dye moved from Well 2 to Well 3 by 3:00 p.m.

Ⓑ The depth of the water decreased from Well 1 to Well 3.

Ⓒ The thickness of Layer 2 increased from Well 1 to Well 4.

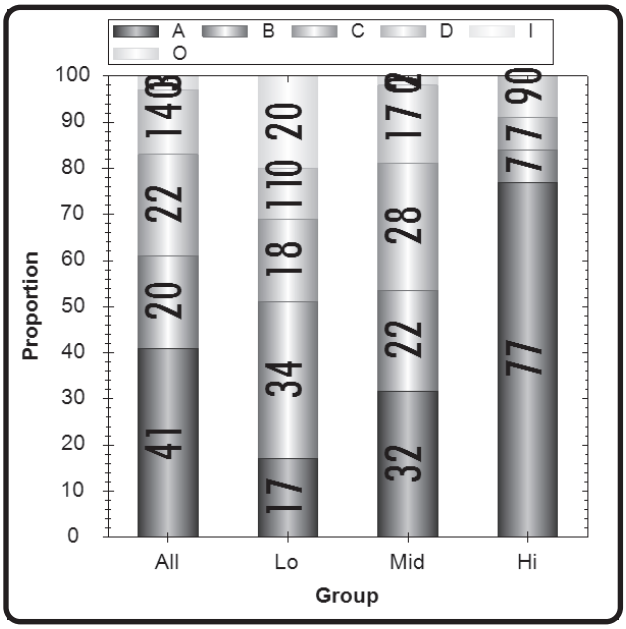
Ⓓ The flow of ground water remained constant from Well 2 to Well 4 at 1:00 p.m.

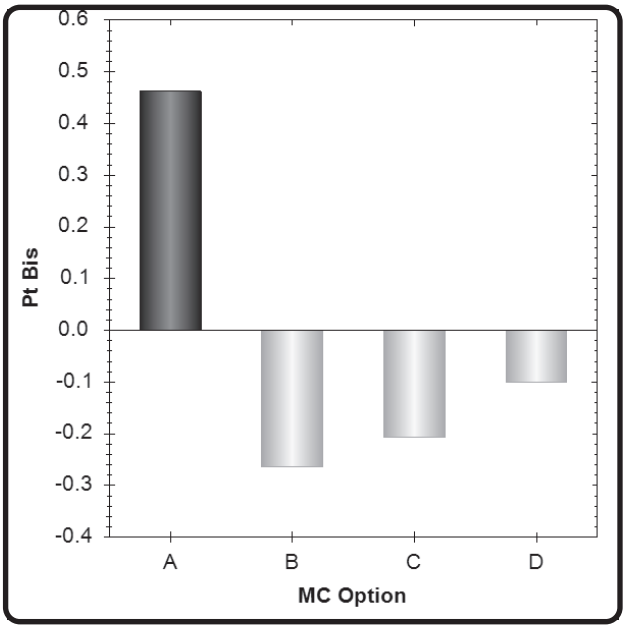
Grade 8	Science	CID 3516967
Item # 10	FT07	S.8.4.g
	Psg : Water Well Data	

Type	Max Points	Correct Answer	N Count	Item Mean	Discrimination
Multiple Choice	1	A	981	0.423	0.462

	A	B	C	D	Inv	Omit
All	41	20	22	14	0	3
Low Scorers	17	34	18	11	0	20
Middle Scorers	32	22	28	17	0	2
High Scorers	77	7	7	9	0	0

MC Item Option Discriminations			
A	B	C	D
0.462	-0.264	-0.207	-0.100





Notes:

3516968

00 **Which conclusion is <u>best</u> supported by data collected in the investigation?**

Ⓐ The dye affects the depths of the wells.

Ⓑ The water flow rate changes over time.

Ⓒ The color of the dye changes over time.

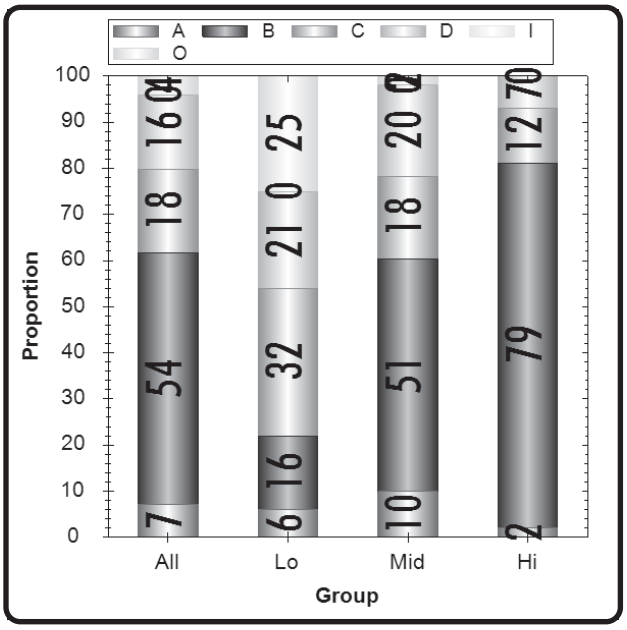
Ⓓ The deepest wells are located in dense layers of rock.

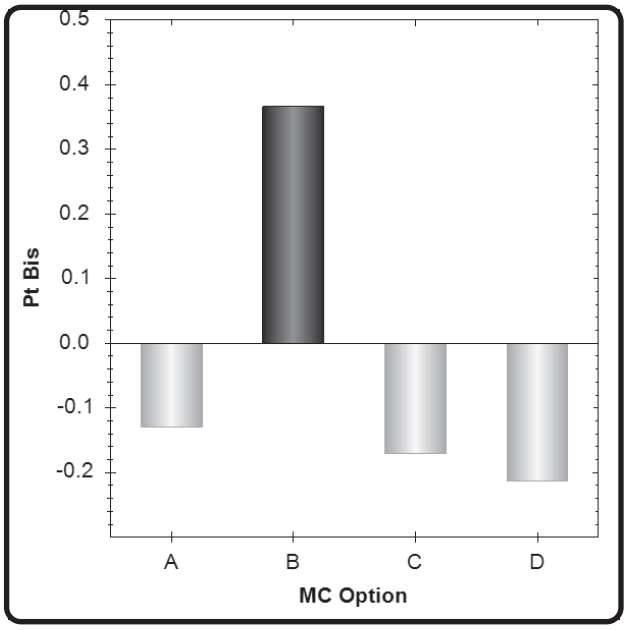
Grade 8	Science	CID 3516968
Item # 11	FT07	S.8.5.g
	Psg : Water Well Data	

Type	Max Points	Correct Answer	N Count	Item Mean	Discrimination
Multiple Choice	1	B	966	0.566	0.366

	A	B	C	D	Inv	Omit
All	7	54	18	16	0	4
Low Scorers	6	16	32	21	0	25
Middle Scorers	10	51	18	20	0	2
High Scorers	2	79	12	7	0	0

MC Item Option Discriminations			
A	B	C	D
-0.130	0.366	-0.171	-0.213





Notes:

3516969

00 **The green dye represents a pollutant in the aquifer. Which of these procedures will help the students determine how fast a pollutant will travel through the aquifer?**

Ⓐ Use a different dye color in Well 2.

Ⓑ Change the measurement units to feet instead of meters.

Ⓒ Record the time it takes the dye to travel between each well.

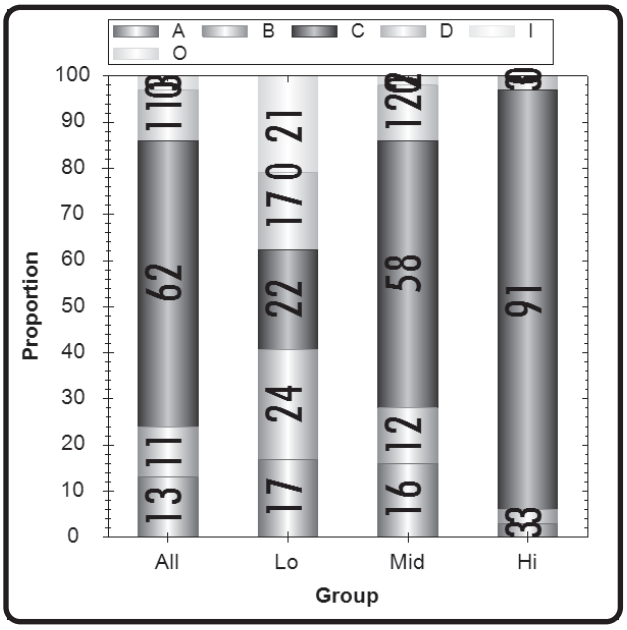
Ⓓ Show the depth to the water table at each well in a different graph.

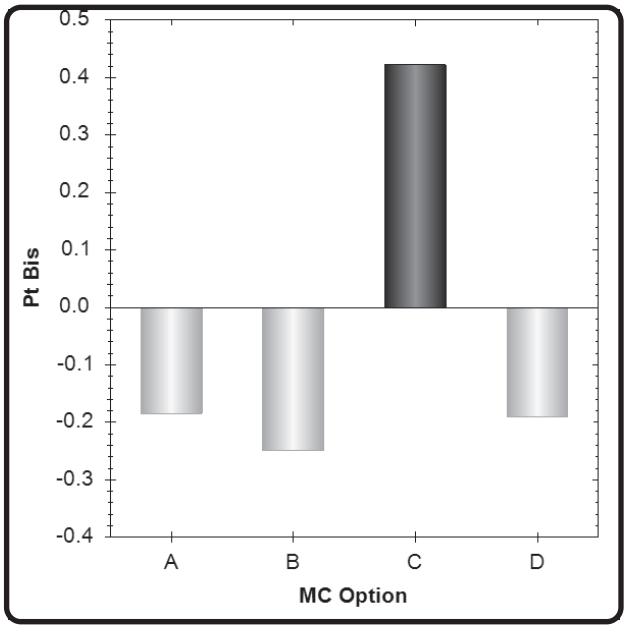
Grade 8	Science	CID 3516969
Item # 11	FT07	S.8.5.g
	Psg : Water Well Data	

Type	Max Points	Correct Answer	N Count	Item Mean	Discrimination
Multiple Choice	1	C	980	0.639	0.422

	A	B	C	D	Inv	Omit
All	13	11	62	11	0	3
Low Scorers	17	24	22	17	0	21
Middle Scorers	16	12	58	12	0	2
High Scorers	3	3	91	3	0	0

MC Item Option Discriminations			
A	B	C	D
-0.185	-0.249	0.422	-0.191





Notes:

535847 1 2 3 4 5 A B C D E Printed in the USA ISD3252