Inquiry Analysis

for

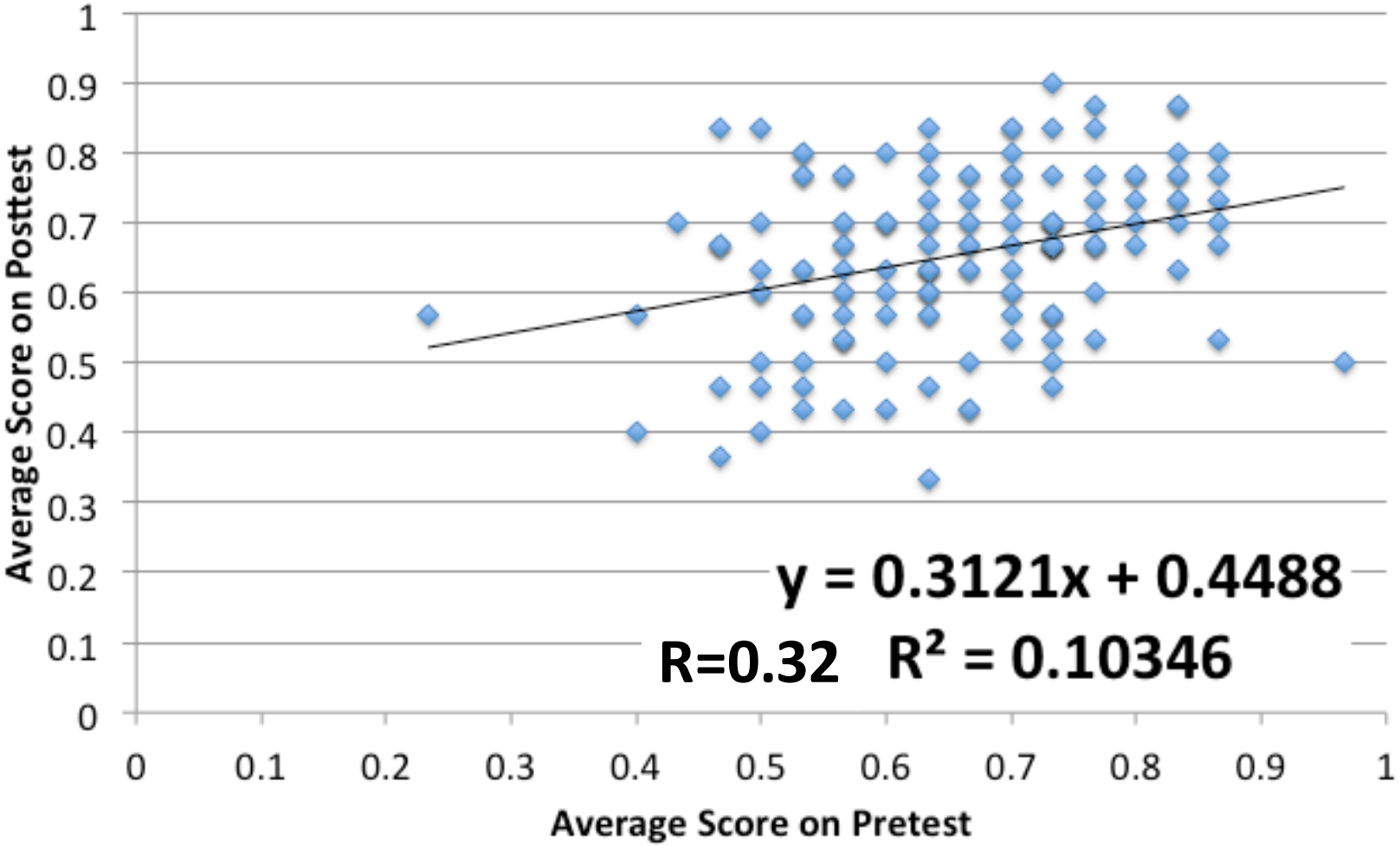
Beanstalk

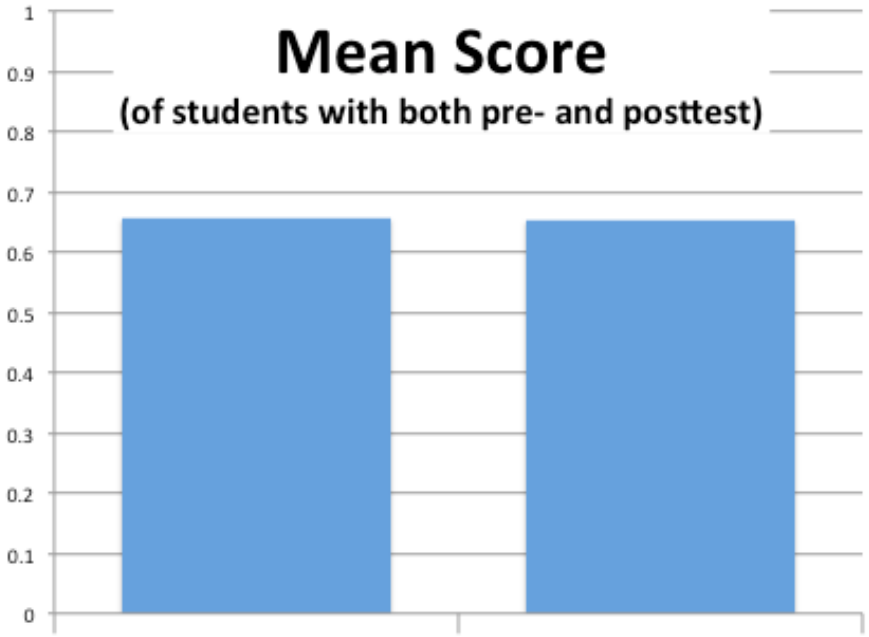
in

 **School**

May 2013

Average Score for Students with both pretest and posttest



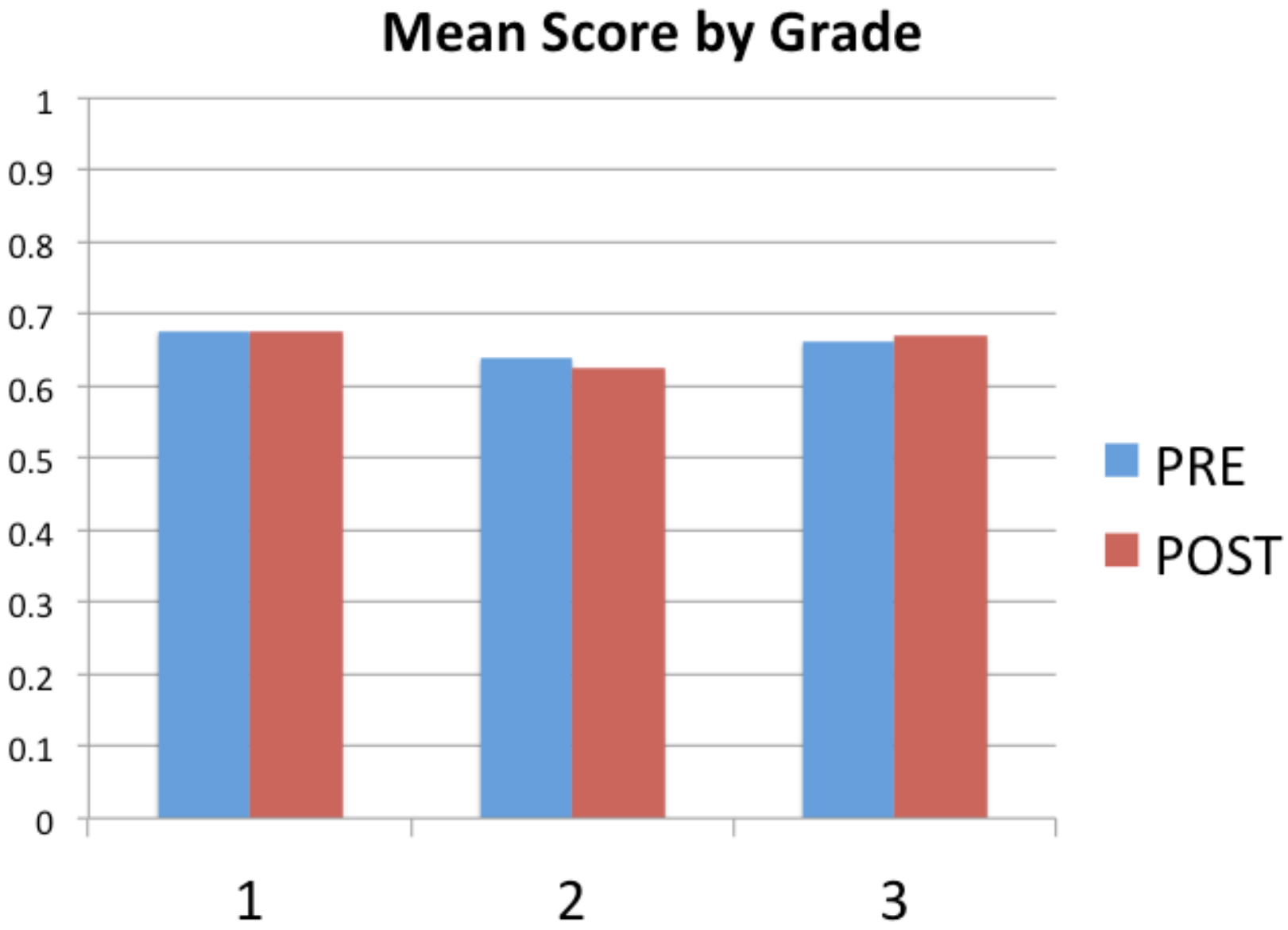


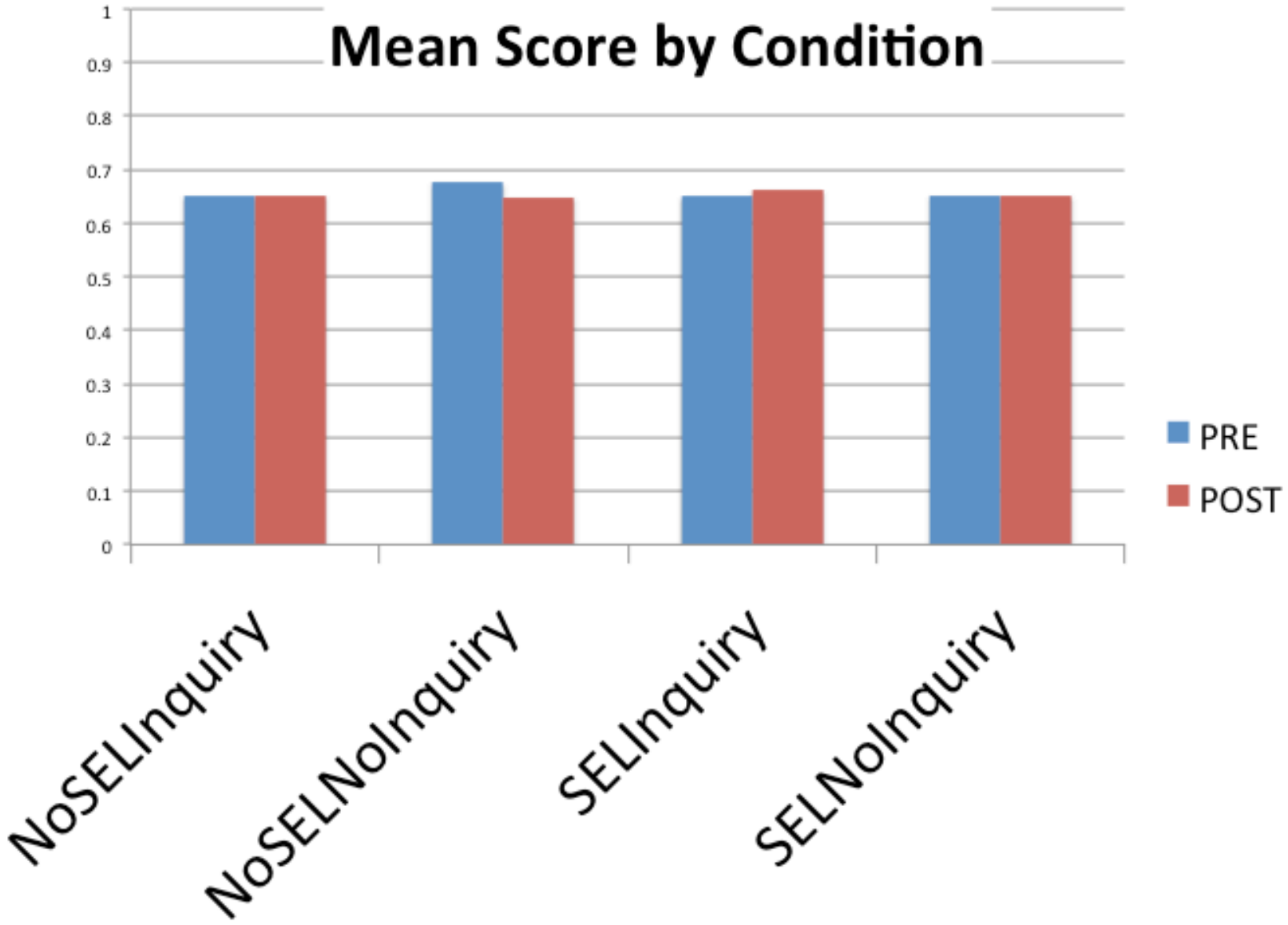
	PRE	POST
N	146	146
Mean	0.66	0.65
SD	0.12	0.12
SE	0.01	0.01

paired, 2-tailed

$t(145) = 0.30$

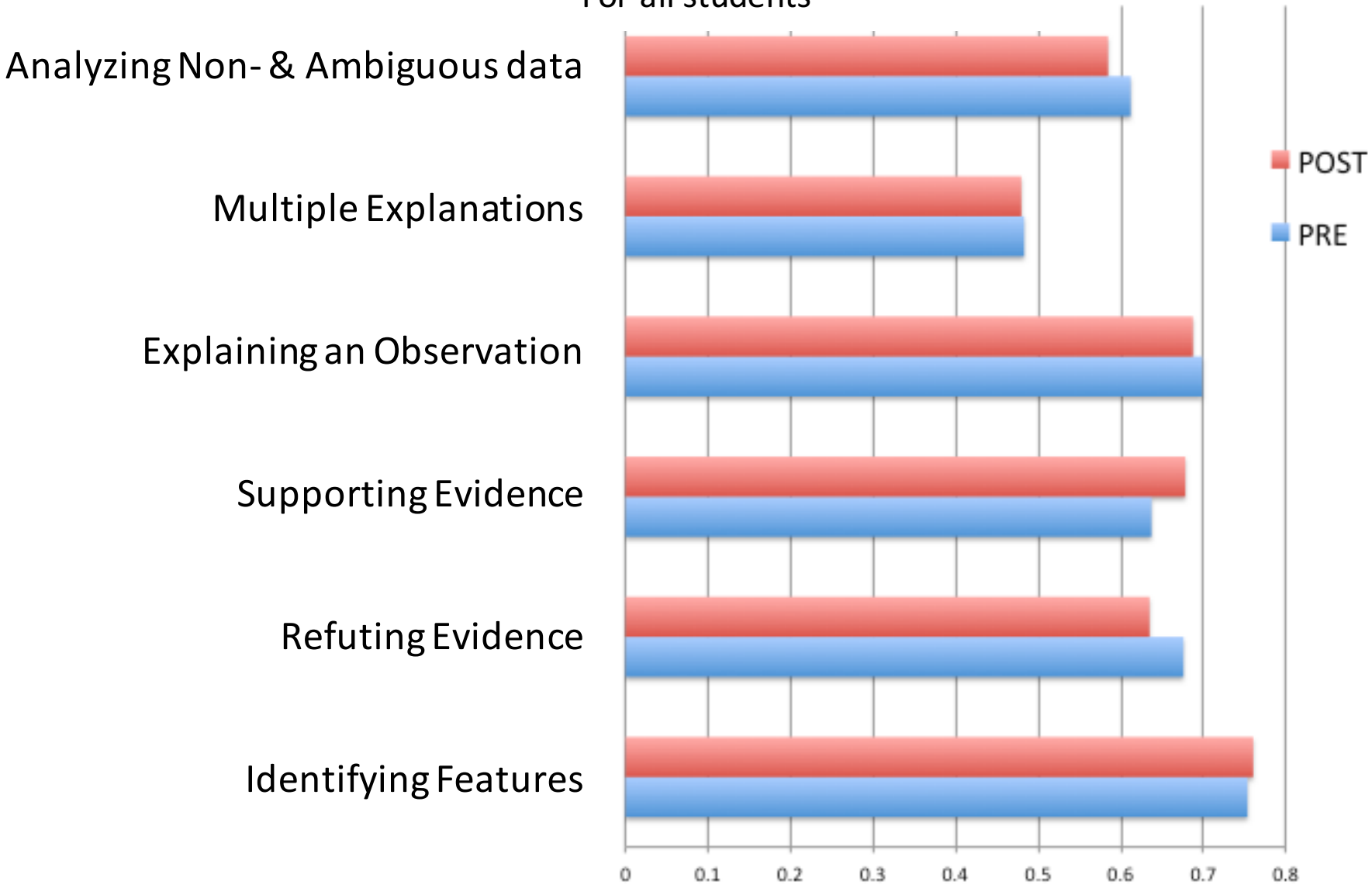
$p = 0.76$

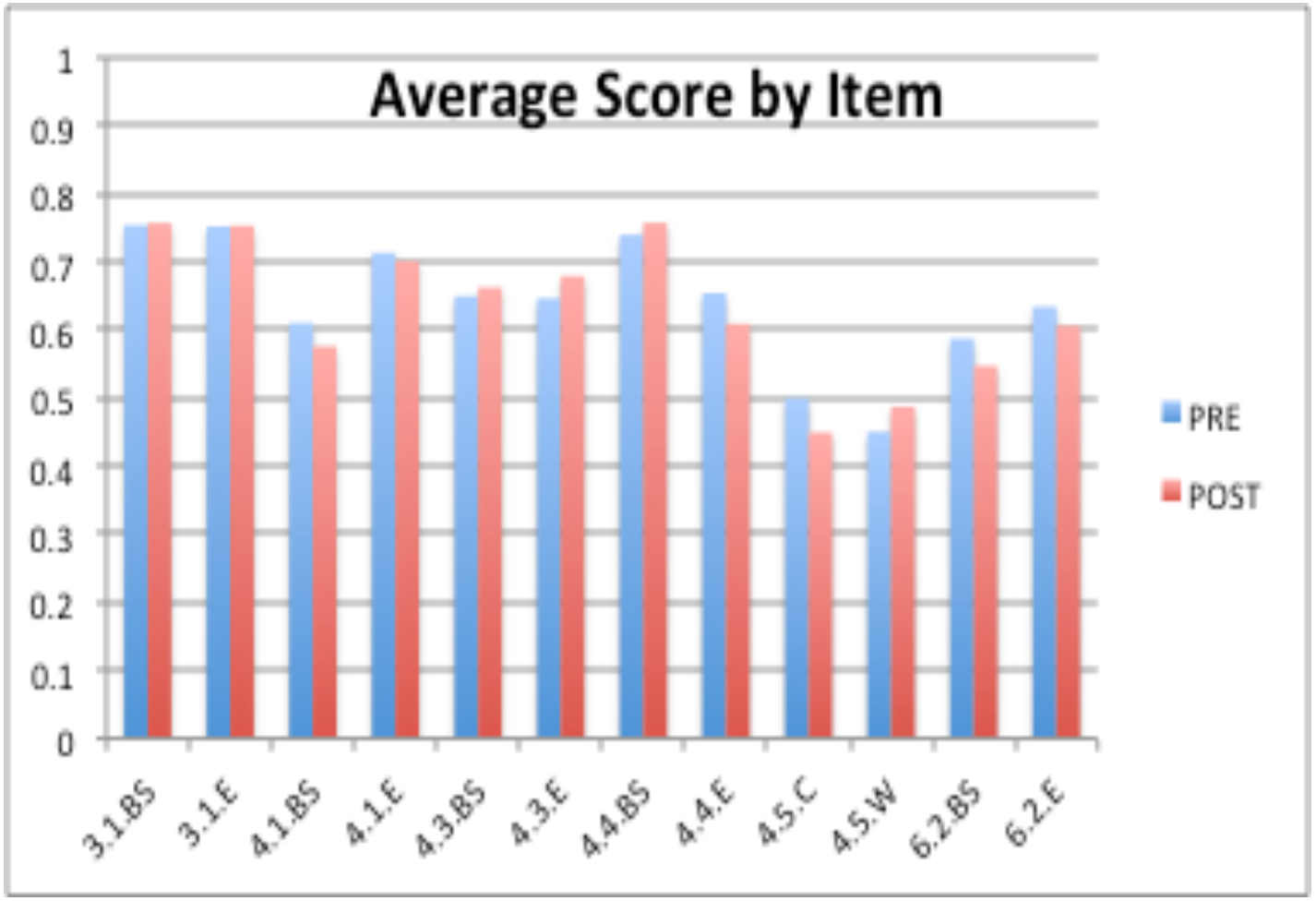

Mean Score by Grade
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1
2
3
PRE
POST


Mean Score by Condition
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
PRE
POST
NoSELInquiry
NoSELNoInquiry
SELInquiry
SELNoInquiry

MEAN score by Inquiry Practice

For all students




Average Score by Item
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
3.1.BS
3.1.E
4.1.BS
4.1.E
4.3.BS
4.3.E
4.4.BS
4.4.E
4.5.C
4.5.W
6.2.BS
6.2.E
PRE
POST

INQUIRY ASSESSMENT BEANSTALK MAY 2013 PROPEL EAST/NORTHSIDE	Balance Scale 1 BS.1	Balance Scale	Elephant 1 E.1	Elephant 2 E.2	Water Colors W.1 / W.2	Crayons C.1 / C.2
Pretest Mean / Posttest Mean	**0.67 / 0.66**		**0.6**	**64**	**0.46 / 0.51; p=0**	**0.51 / 0.45; p=0.34**
Identifying Features **3.1**	(A)	(B)		(D)		
76; p= 0.82	0	5; p=0.44		0.77; p=0.87		
R ting Evidence 4.3	false hypoth. (D)	true hypothesis (A		oth. (B)	true hypo	
.64 / .18	0.64 / 0.67; p=0.41		0.63 / 0.69; p=0.21			
nizin ence 4.4	false hyp. (C)	true hyp. (D)	false hyp. (A)	true hyp. (B)		
.69; p= 0.77	0.73 / 0.76; p=0.12		0.66 / 0.61; p=0.42			
ming an Observation 4.1 / 6.1	*2 explan. (B)*	*1 explan. (C*		2 explan. (A)		
0.68 / 0.63; p= 0.14	0.61 / 0.57; p			0.70; p=0.17		
Recogni possible explana ion 6.2	*2 explan. (A)*			*1 explan. (D)*		
=0.56	0.58		0.64 / 0.62; p=0.19			
Ana ._.1					(A, B)	(C, D)
p=0.62					0.16 / 0.22; p=0.16	0.28 / 0.23; p=0.66
biguous Data 4.5._.2					(C, D)	(A, B)
/ 0.73; p= 0.80					**0.74 / 0.79; p=0.02**	0.76 / 0.67; p=0.16

Domain Name

Domain Code with within-domain item number

Pretest Mean / Posttest Mean and p-value for domains

NRC Practice Name

NRC Practice and sub-skill Code

Pretest Mean / Posttest Mean and p-value for each NCR Practice within each Domain

Pretest Mean / Posttest Mean and p-value for NRC Practice and sub-skill

INQUIRY ASSESSMENT BEANSTALK MAY 2013 PROPEL EAST/NORTHSIDE	Balance Scale 1 BS.1	Balance Scale 2 BS.2	Elephant 1 E.1	Elephant 2 E.2	Water Colors W.1 / W.2	Crayons C.1 / C.2
Pretest Mean / Posttest Mean	**0.67 / 0.66; p=0.80**		**0.68 / 0.67; p= 0.64**		**0.46 / 0.51; p=0.42**	**0.51 / 0.45; p=0.34**
Identifying Features **3.1**	(A)	(B)	(C)	(D)		
0.75 / 0.76; p= 0.82	0.75 / 0.75; p=0.44		0.76 / 0.77; p=0.87			
Recognizing Refuting Evidence 4.3	false hypoth. (D)	true hypothesis (A)	false hypoth. (B)	true hypoth. (C)		
0.64 / 0.68; p= 0.18	0.64 / 0.67; p=0.41		0.63 / 0.69; p=0.21			
Recognizing Supporting Evidence 4.4	false hyp. (C)	true hyp. (D)	false hyp. (A)	true hyp. (B)		
0.70 / 0.69; p= 0.77	0.73 / 0.76; p=0.12		0.66 / 0.61; p=0.42			
Explaining an Observation 4.1 / 6.1	*2 explan. (B)*	*1 explan. (C)*	*2 explan. (D)*	2 explan. (A)		
0.68 / 0.63; p= 0.14	0.61 / 0.57; p=0.40		0.74 / 0.70; p=0.17			
Recognizing multiple possible explanations for an observation 6.2	*2 explan. (A)*	*1 explan. (B)*	*2 explan. (C)*	*1 explan. (D)*		
0.61 / 0.58; p=0.56	0.58 / 0.55; p=0.92		0.64 / 0.62; p=0.19			
Analyzing Ambiguous Data 4.5._.1					(A, B)	(C, D)
0.20 / 0.23 p=0.62					0.16 / 0.22; p=0.16	0.28 / 0.23; p=0.66
Analyzing Non-ambiguous Data 4.5._.2					(C, D)	(A, B)
0.75 / 0.73; p= 0.80					**0.74 / 0.79; p=0.02**	0.76 / 0.67; p=0.16

Probably a Type 1 error from repeated t-tests

Item By Item Data: *Table of Responses of Individual Students, with Scores*

- Each item has 3 response options, and each option is worth 1/3 points (1 point in total possible for each item).
- Each option correctly selected receives 1/3 points.
- Each option correctly not selected received 1/3 points.

Points awarded

The options selected (0= no selection)

Number of students choosing this combination of selections

Score	Response Code	Count PRE	Count POST
0.00	3	2	3
0.33	0	3	1
	13	1	0
	23	1	3
0.67	1	3	6
	2	16	13
	123	1	2
1.00	12	12	11

Example:
These students scored 1/3 points because they

1. incorrectly did not select option1,
2. correctly selected opeion2,
3. incorrectly selected Option3

(i.e., their response pattern matches the correct pattern in only one place)

Item By Item Data:
Table of Options Selected by All Students

Number of students who selected each option

Percentage of students who selected each option

Correct selection are highlighted in blue

None of the 3 options were selected

Options	PRE		POST	
1	17	44%	19	49%
2	30	77%	29	74%
3	5	13%	8	21%
None	3	8%	1	3%

Item By Item Data:
Response Options

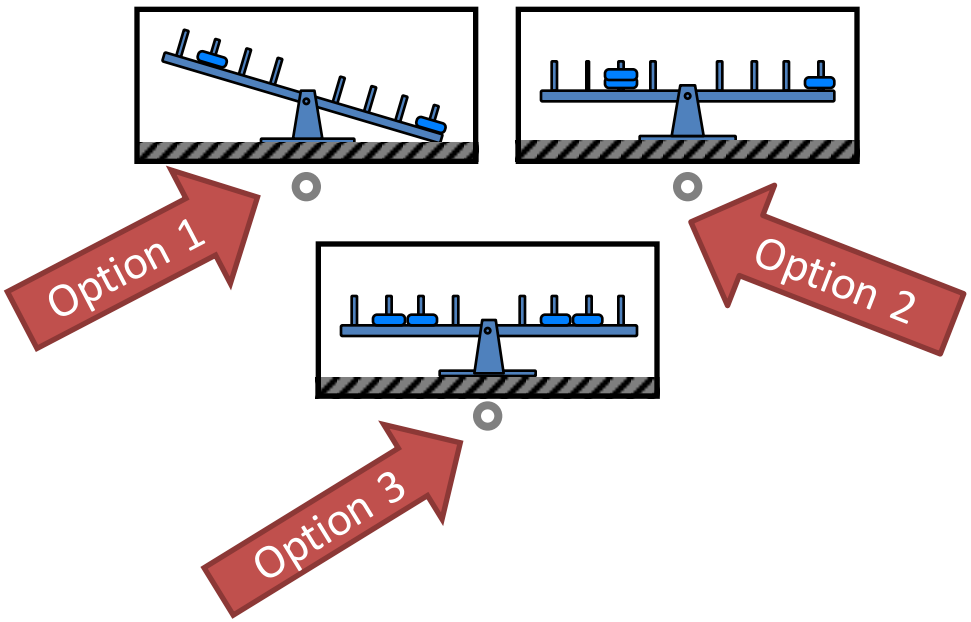
Expected responses are filled red

Response options are numbered Top-Left to Bottom-Right

Option 1 — Distance from the fulcrum

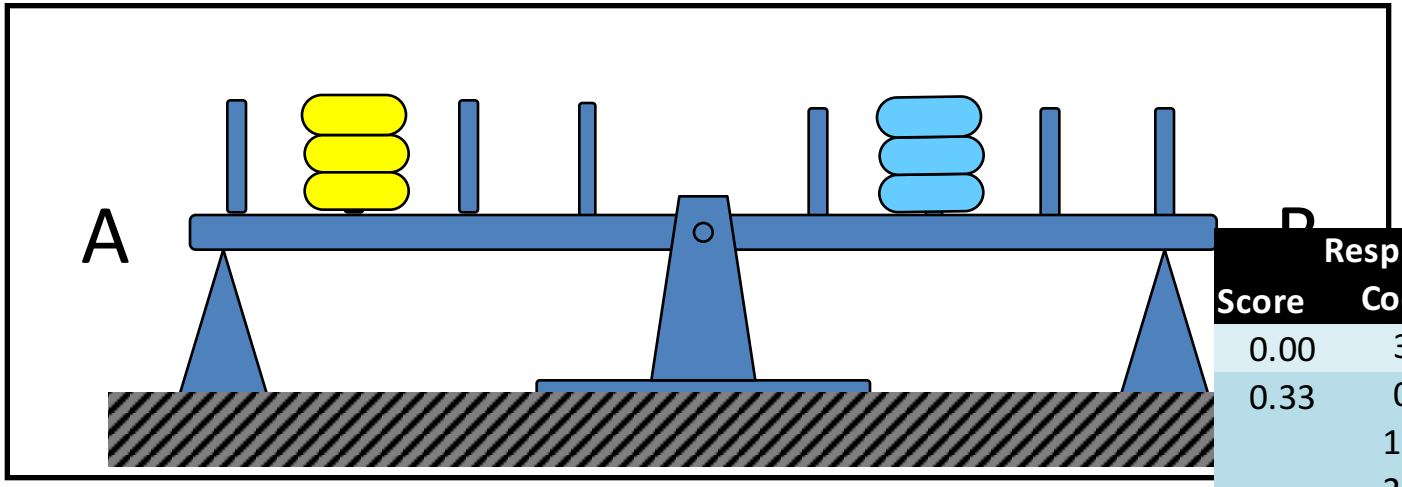
Option 2 — Color of the beads

Option 3 — Number of beads



A8:
3.1.BS.1

How is side A different from side B of this balance scale? There may be more than one answer.



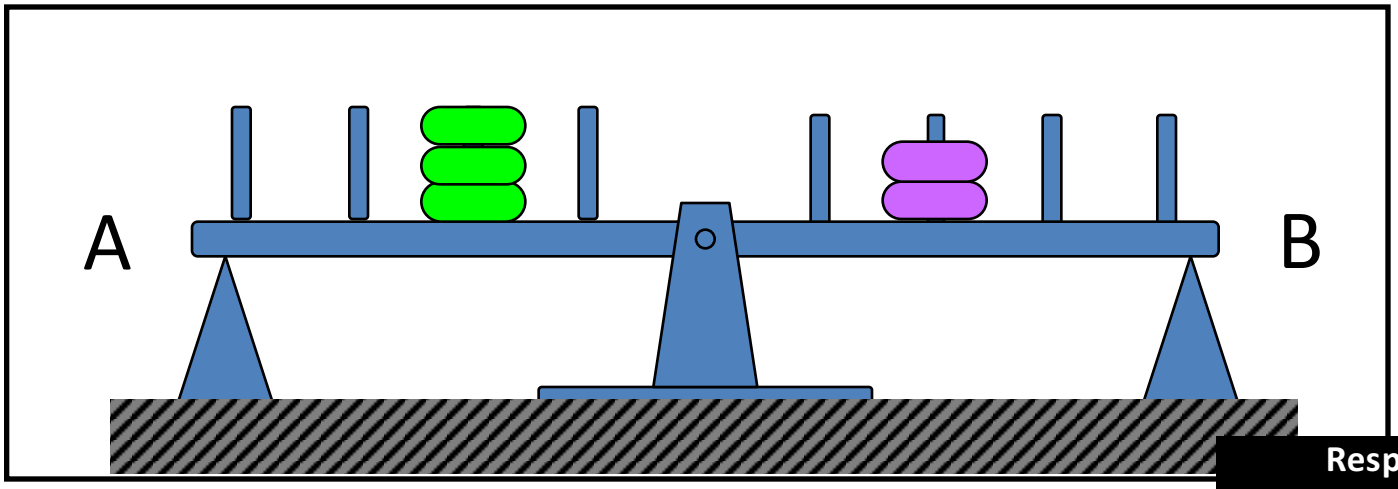
Score	Response Code	Count PRE	Count POST
0.00	3	2	3
0.33	0	3	1
	13	1	0
	23	1	3
0.67	1	3	6
	2	16	13
	123	1	2
1.00	12	12	11

- Distance from the fulcrum (the center)
- Color of the beads
- Number of beads

Options	PRE		POST	
1	17	44%	19	49%
2	30	77%	29	74%
3	5	13%	8	21%
None	3	8%	1	3%

B6: 3.1.BS.2

How is side A different from side B of this balance scale?
There may be more than one answer.



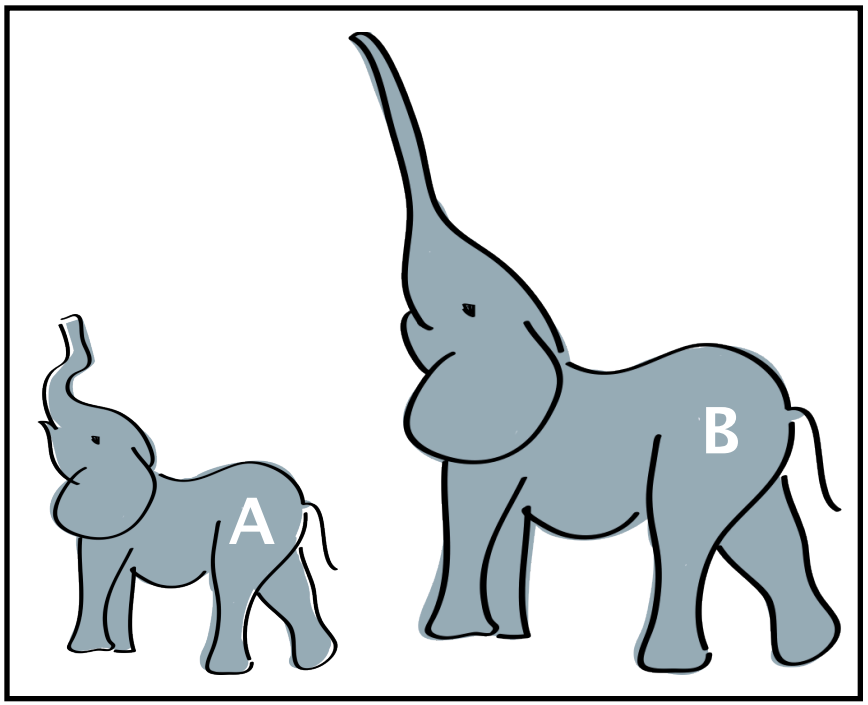
Score	Response Code	Count PRE	Count POST
0.00	1	1	1
0.33	13	1	2
0.67	2	5	2
	3	10	5
	123	3	7
1.00	23	21	25

- Distance from the fulcrum (the center)
- Color of the beads
- Number of beads

	PRE		POST	
1	5	12%	10	24%
2	29	71%	34	81%
3	35	85%	39	93%
None	0	0%	0	0%

How is elephant A different from elephant B? There may be more than one answer.

- [x] Size
- [x] Shape of the elephant's trunk
- [ ] Number of legs on the ground



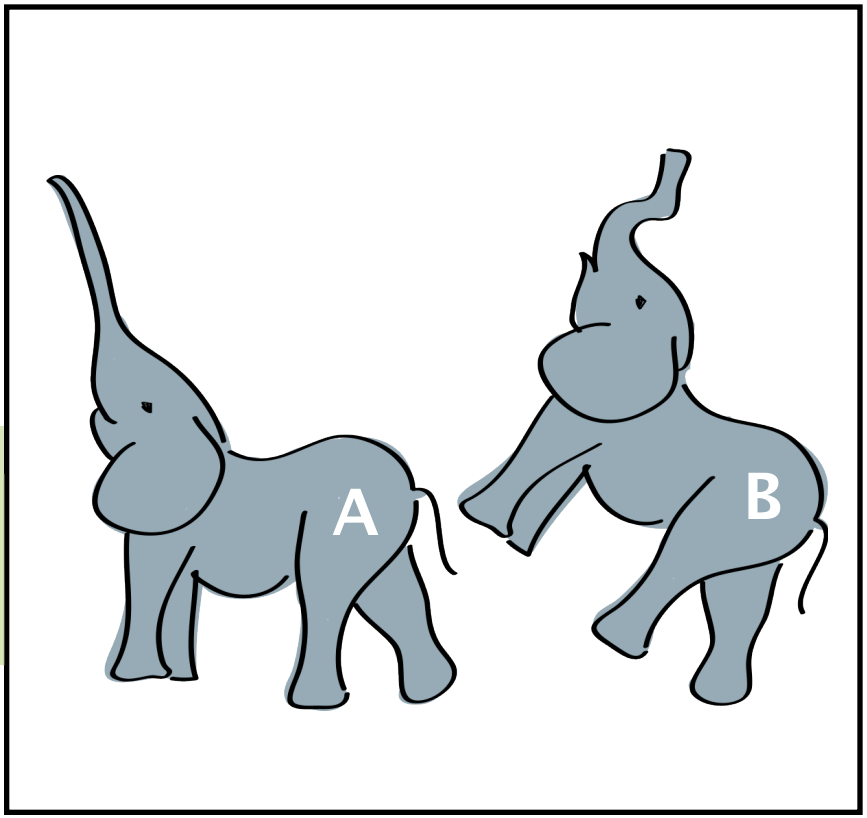
	PRE		POST	
1	39	93%	36	92%
2	36	86%	24	62%
3	3	7%	2	5%
None	2	5%	1	3%

Score	Response Code	Count PRE	POST
0.00	3	0	1
0.33	0	2	1
0.67	1	4	13
	2	1	1
	123	3	1
1.00	12	32	22

Decrease in selecting Option2 (shape)

How is elephant A different from elephant B? There may be more than one answer.

- ○ Size
- ● Shape of the elephant's trunk
- ● Number of legs on the ground



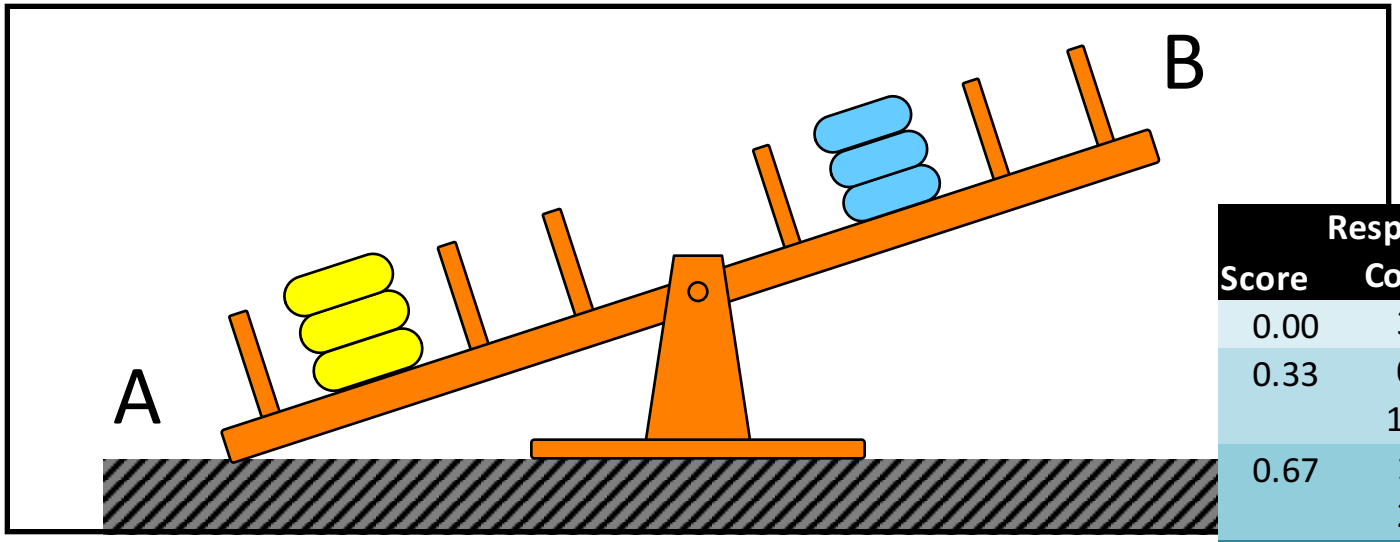
	PRE		POST	
1	14	35%	16	42%
2	22	55%	31	82%
3	23	58%	24	63%
None	5	13%	0	0%

Score	Response Code	Count PRE	POST
0.00	1	4	2
0.33	0	5	0
	12	4	5
	13	2	2
0.67	2	4	7
	3	7	3
	123	4	7
1.00	23	10	12

All the beads weigh the same amount. What could have made side A go down instead of side B?

There may be more than one answer.

B10:
4.1.BS.1
6.1.BS.1



Score	Response Code	Count PRE	POST
0.00	3	2	0
0.33	0	2	1
	13	2	0
0.67	1	26 →	37
	2	7	4
1.00	12	2	0

- Side A has beads farther from the fulcrum (the center)
- Side A has different colored beads
- Side A has more beads

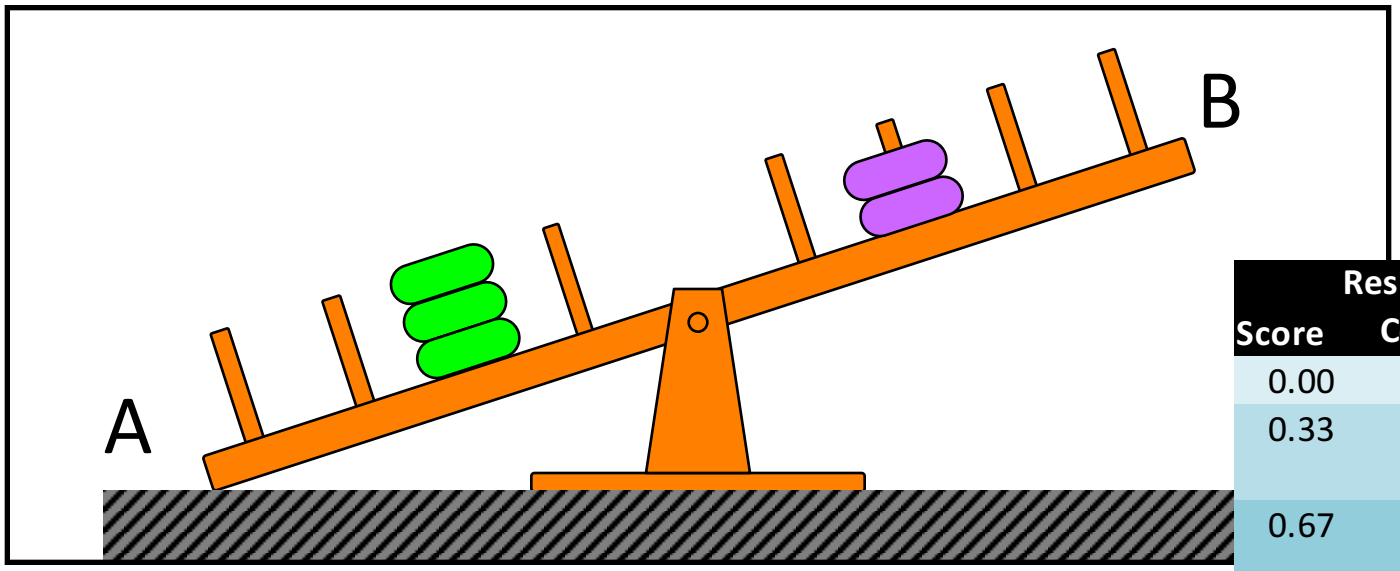
Increasing concentration around Option1 (fulcrum)

	PRE		POST	
1	30	73% →	37	88%
2	9	22% →	4	10%
3	4	10%	0	0%
None	2	5%	1	2%

C10:
4.1.BS.2
6.1.BS.2

All of the beads weigh the same amount. What could have made side A go down instead of side B?

There may be more than one answer.



Score	Response Code	Count PRE	Count POST
0.00	1	3	8
0.33	0	3	4
	13	1	3
0.67	2	3	4
	3	24	17
	123	6	1
1.00	23	2	2

- ○ Side A has beads farther from the fulcrum (the center)
- ● Side A has different colored beads
- ● Side A has more beads

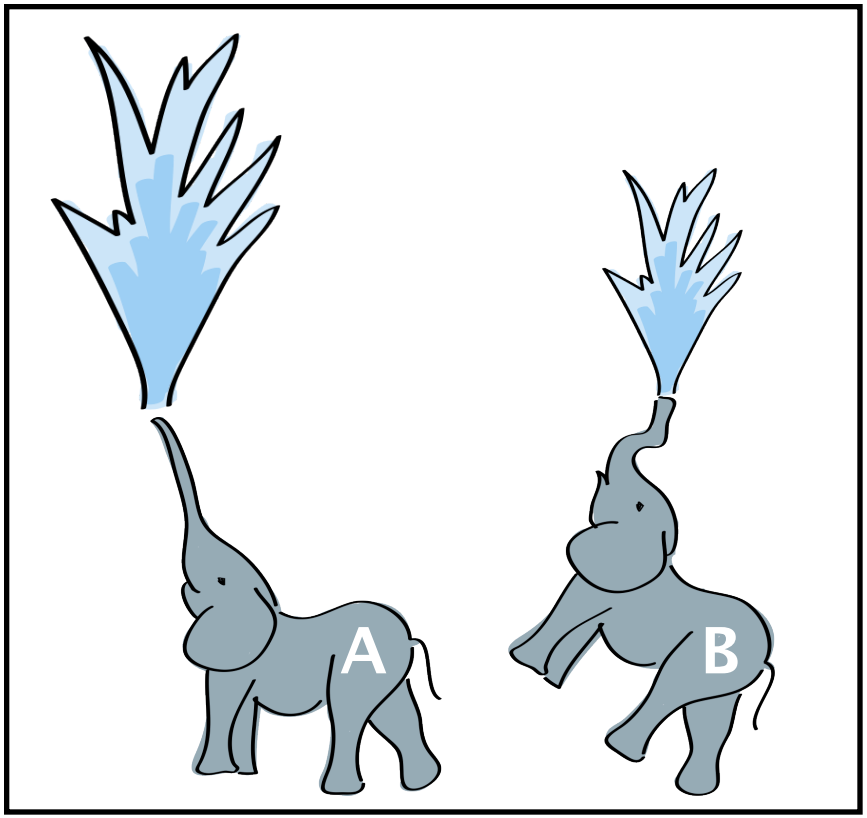
	PRE		POST	
1	10	24%	12	31%
2	11	26%	7	18%
3	33	79%	23	59%
None	3	7%	4	10%

A4:
4.1.E.2
6.1.E.2

Look at the picture. Elephant A is spraying water higher into the air than elephant B. Why could this be happening?

There may be more than one answer.

- Elephant A is bigger
- Elephant A hold its trunk straighter
- Elephant A stands on more legs



	PRE		POST	
1	13	33%	13	33%
2	30	77%	34	87%
3	20	51%	14	36%
None	1	3%	0	0%

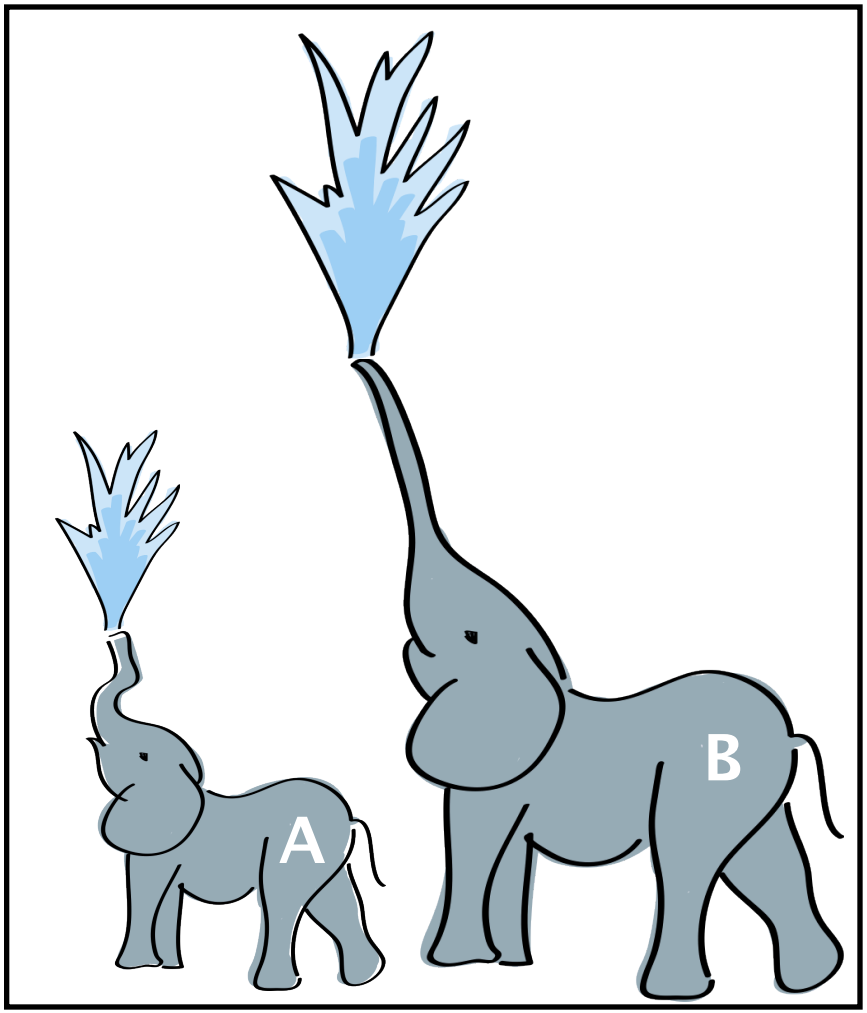
Score	Response Code	Count PRE	POST
0.00	1	3	5
0.33	0	1	0
	12	4	3
0.67	2	11	17
	3	5	0
	123	6	5
1.00	23	9	9

D7:
4.1.E.1
6.1.E.1

Look at the picture. Elephant B is spraying water higher into the air than elephant A. Why could this be happening?

There may be more than one answer.

- Elephant B is bigger
- Elephant B holds his trunk straighter
- Elephant B stands on more legs

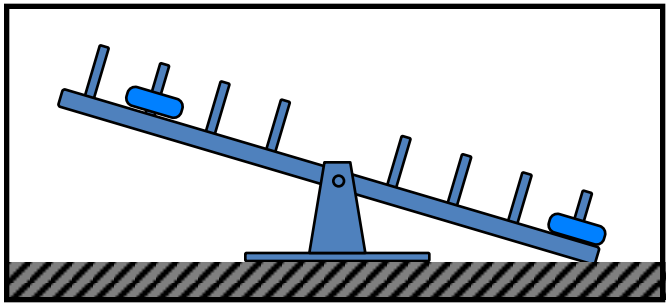


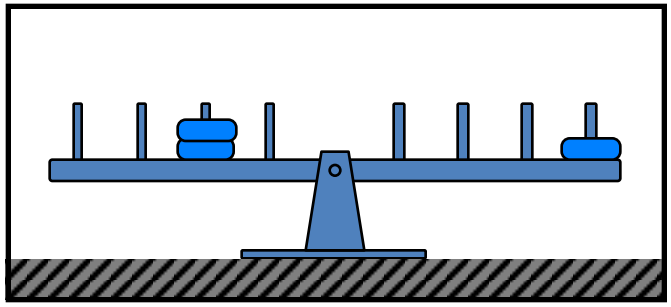
	PRE		POST	
1	27	68%	24	63%
2	28	70%	27	71%
3	2	5%	1	3%
None	2	5%	2	5%

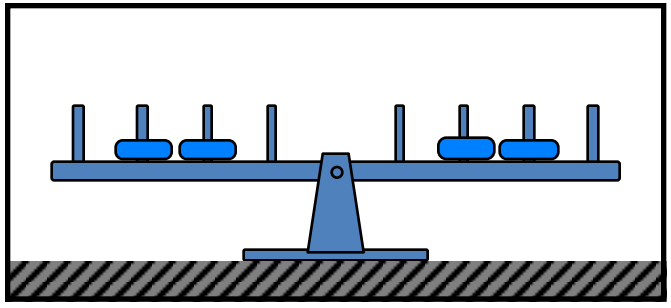
Score	Response Code	Count PRE	POST
0.00	3	1	1
0.33	0	2	2
	23	1	0
0.67	1	9	8
	2	9	11
1.00	12	18	16

Katie's hypothesis is that if the weight is the same on both sides, the side with the weights farther from the middle will go down.

Mark the circle below any cases that prove her hypothesis is not right.





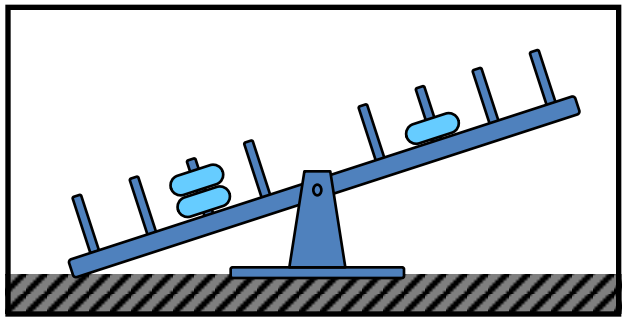


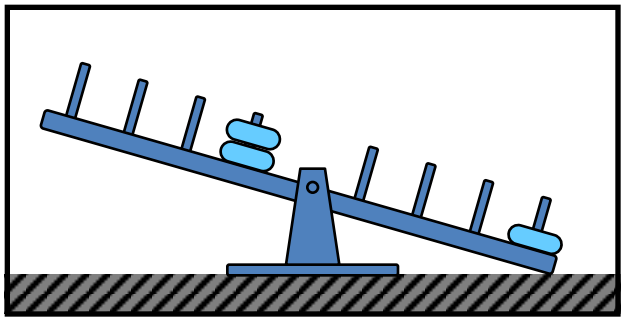
Score	Response Code	Count PRE	Count POST
0.33	12	4	2
	23	6	5
0.67	1	7	5
	2	6	11
	3	14	13
1.00	0	2	3

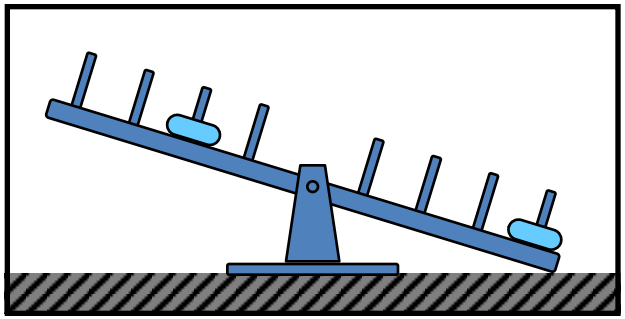
	PRE		POST	
1	27	68%	24	63%
2	28	70%	27	71%
3	2	5%	1	3%
None	2	5%	2	5%

Kevin's hypothesis is that the side with the most weight always goes down.

Mark the circle below any cases that prove his hypothesis is not right.





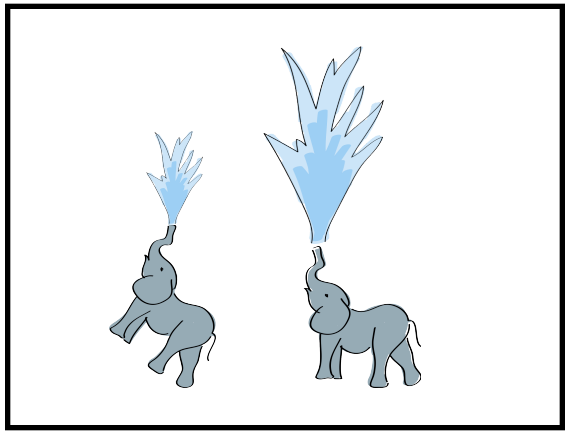


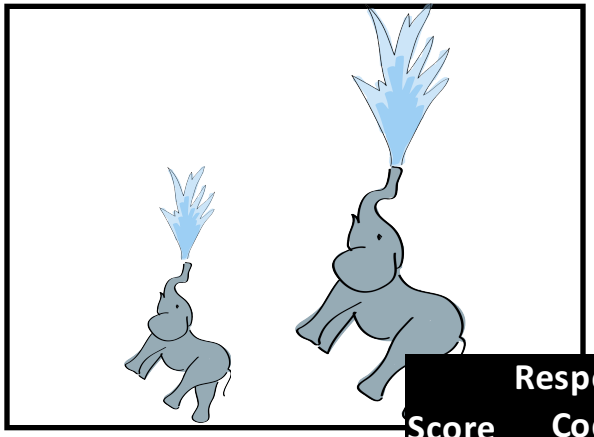
Score	Response Code	Count PRE	POST
0.00	13	1	2
0.33	1	5	8
	3	5	2
	123	1	0
0.67	0	1	0
	23	10	9
1.00	2	17	17

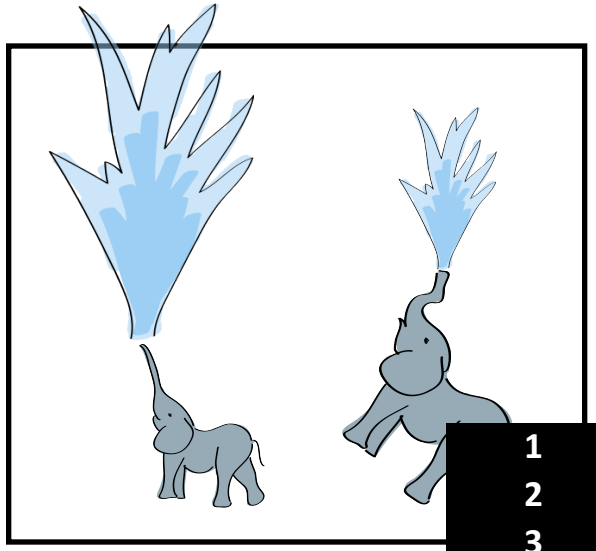
	PRE		POST	
1	7	18%	10	26%
2	28	70%	26	68%
3	17	43%	13	34%
None	1	3%	0	0%

Evan's hypothesis is that a bigger elephant always sprays water higher than a smaller one.

Mark the circle below any cases that show his hypothesis may be right.





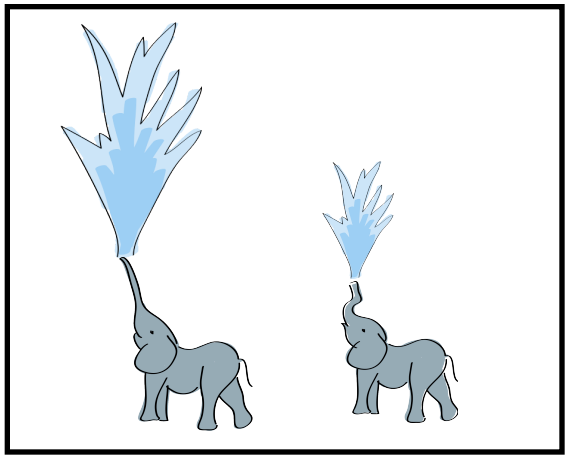


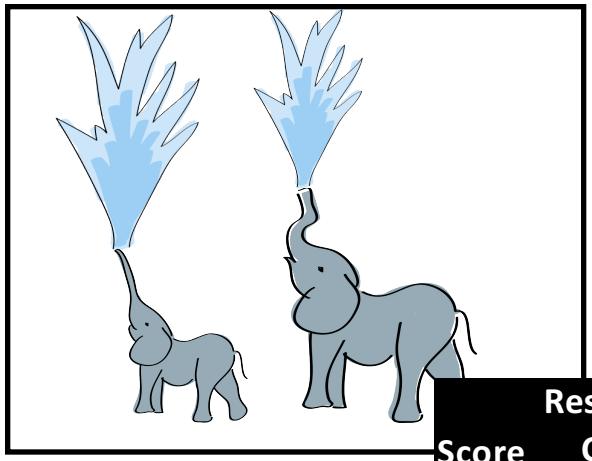
Score	Response Code	Count PRE	POST
0.00	13	1	1
0.33	1	4	3
	3	7	4
	123	1	0
0.67	0	2	6
	12	9	9
	23	0	1
1.00	2	17	18

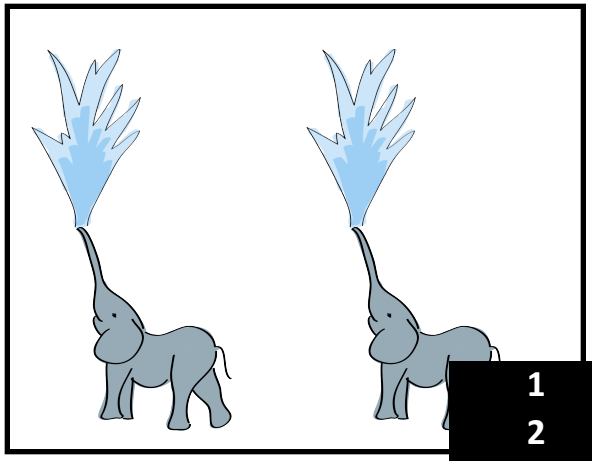
	PRE		POST	
1	15	37%	13	31%
2	27	66%	28	67%
3	9	22%	6	14%
None	2	5%	6	14%

Emanie's hypothesis is that when two elephant are the same size, the elephant that that keeps its trunk straighter will always spray water higher than an elephant that bends its trunk more.

Mark the circle below any cases that prove her hypothesis is not right.





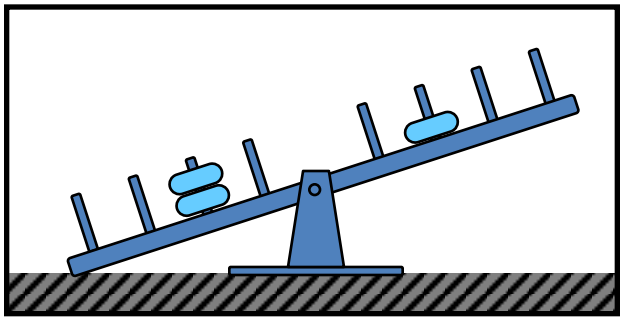


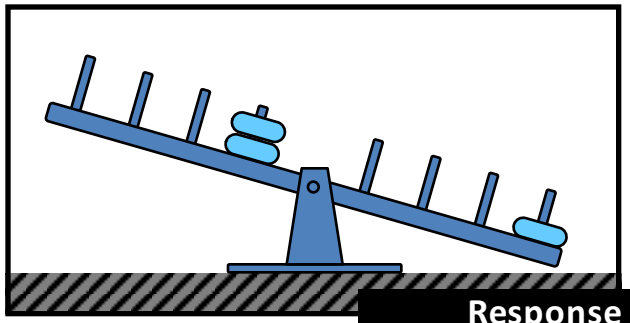
Score	Response Code	Count PRE	POST
0.33	12	4	3
	13	2	0
	23	7	6
0.67	1	4	7
	2	13	12
	3	7	8
1.00	0	5	3

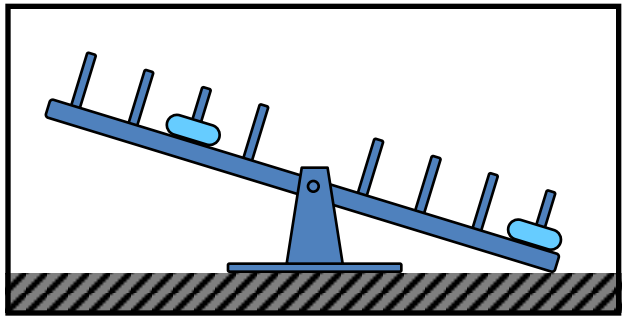
	PRE		POST	
1	10	24%	10	26%
2	24	57%	21	54%
3	16	38%	14	36%
None	5	12%	3	8%

Katie's hypothesis is that the side with the most weight always goes down.

Mark the circle below any cases that show her hypothesis may be right.





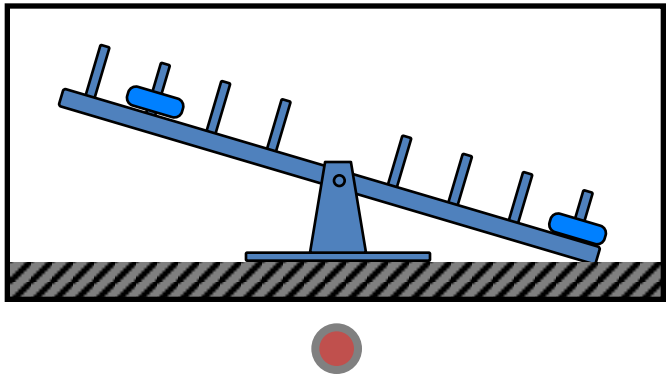


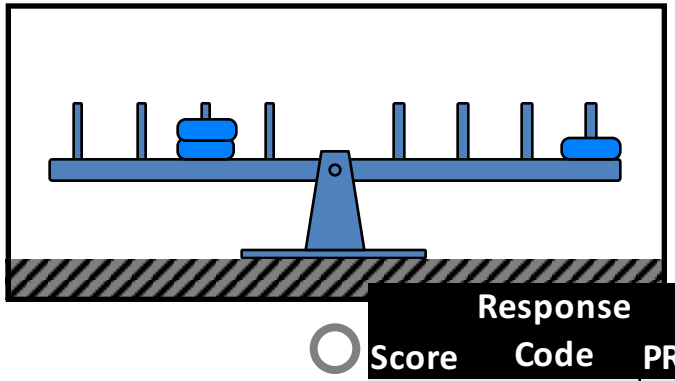
Score	Response Code	Count PRE	Count POST
0.00	23	1	0
0.33	2	6	3
	3	2	6
	123	2	0
0.67	0	1	1
	12	3	0
	13	2	1
1.00	1	25	28

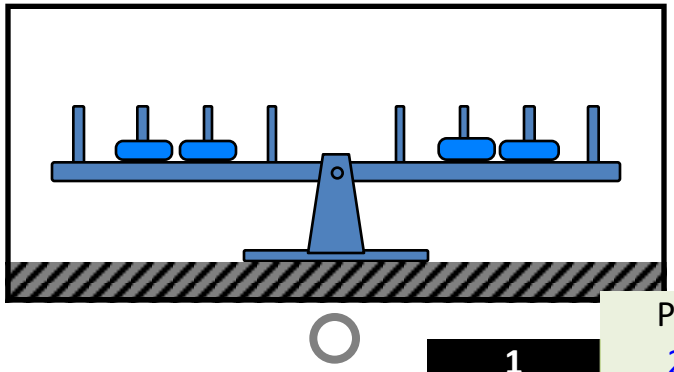
	PRE		POST	
1	32	76%	29	74%
2	12	29%	3	8%
3	7	17%	7	18%
None	1	2%	1	3%

Nora's hypothesis is that if the weight is the same on both sides, the side with the weight farther from the middle will go down.

Mark the circle below any cases that show her hypothesis may be right.







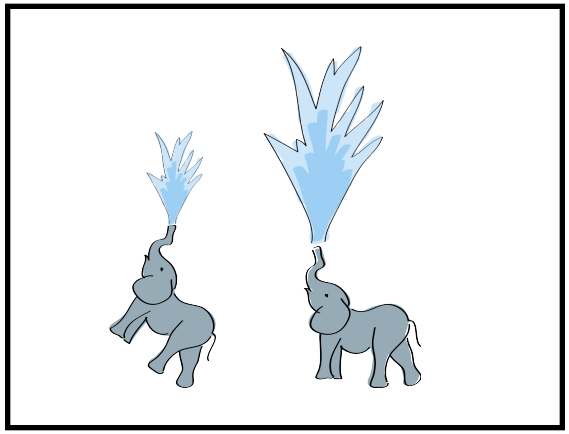
Score	Response Code	Count PRE	POST
0.00	23	2	1
0.33	2	1	4
	3	11	10
0.67	0	3	3
	12	1	1
	13	1	1
1.00	1	21	18

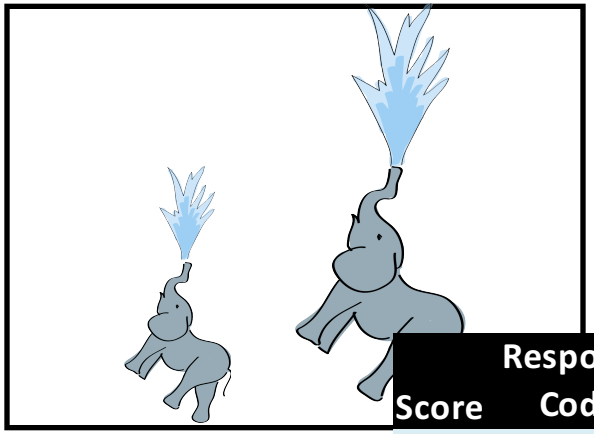
	PRE		POST	
1	23	58%	20	53%
2	4	10%	6	16%
3	14	35%	12	32%
None	3	8%	3	8%

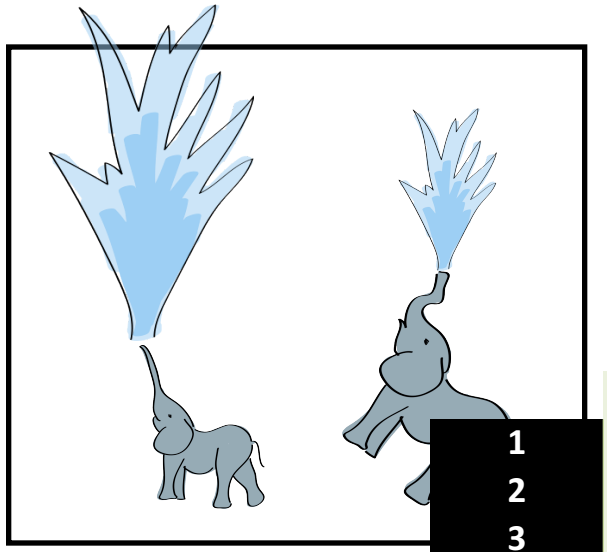
A6:
4.4.E.1

Evan's hypothesis is that a bigger elephant always sprays water higher than a smaller one.

Mark the circle below any cases that show his hypothesis may be right.





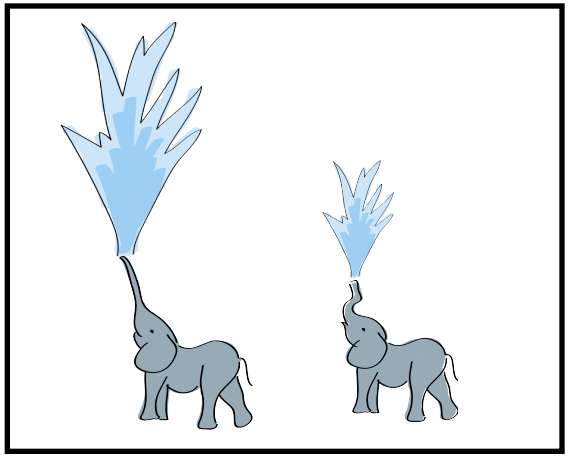


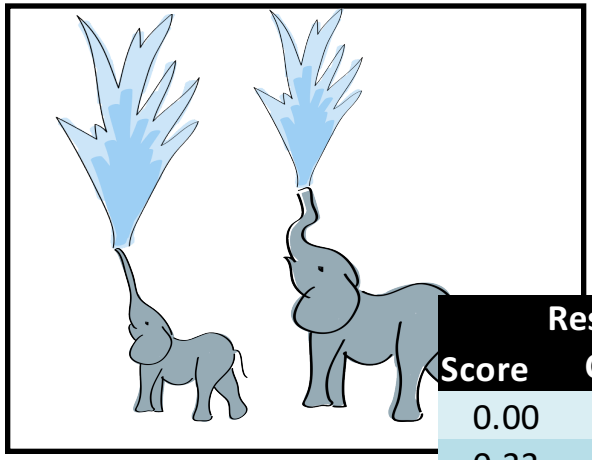
Score	Response Code	Count PRE	POST
0.00	13	1	0
0.33	1	2	4
	3	3	11
	123	4	0
0.67	0	2	0
	12	9	8
	23	3	2
1.00	2	15	14

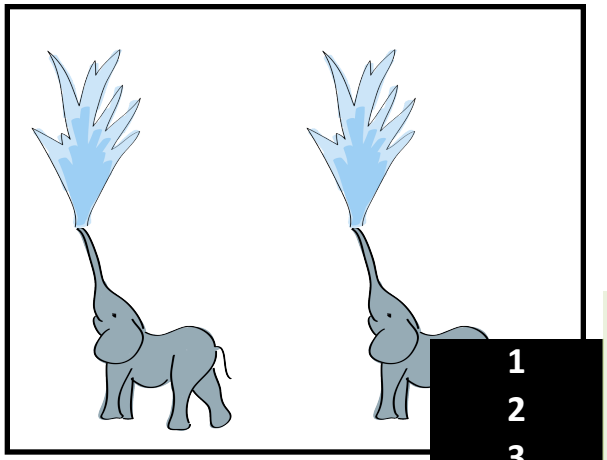
	PRE		POST	
1	16	41%	12	31%
2	31	79%	24	62%
3	11	28%	13	33%
None	2	5%	0	0%

Emanie's hypothesis is that when two elephant are the same size, the elephant that that keeps its trunk straighter will always spray water higher than an elephant that bends its trunk more.

Mark the circle below any cases that show her hypothesis may be right.







Score	Response Code	Count PRE	Count POST
0.00	23	0	3
0.33	2	12	7
	3	9	11
	123	0	1
0.67	0	0	2
	12	3	5
	13	3	1
1.00	1	14	12

	PRE		POST	
1	20	49%	19	45%
2	15	37%	16	38%
3	12	29%	16	38%
None	2	5%	0	0%

This picture was drawn with crayons taken from one of these two boxes.

A

B

Can you tell which box the crayons came from?

- You cannot tell which box the crayons came from.
- The crayons came from box A.
- The crayons came from box B.

Score	Response Code	Count PRE	Count POST
0.00	0	1	1
	1	5	8
	3	4	2
	12	0	1
	23	1	2
	123	1	1
1.00	2	27	24

	PRE		POST	
1	6	15%	10	26%
2	29	74%	28	72%
3	6	15%	5	13%
None	1	3%	1	3%

This picture was drawn with crayons taken from one of these two boxes.

A

B

Can you tell which box the crayons came from?

- ○ You cannot tell which box the crayons came from.
- ● The crayons came from box A.
- ○ The crayons came from box B.

Score	Response Code	Count PRE	Count POST
0.00	0	0	1
	1	7	8
	3	2	2
	23	0	1
1.00	2	32	30

	PRE		POST	
1	7	17%	8	19%
2	32	78%	31	74%
3	2	5%	3	7%
None	0	0%	1	2%

This picture was drawn with crayons taken from one of these two boxes.

A

B

Can you tell which box the crayons came from?

- (●) You cannot tell which box the crayons came from.
- ( ) The crayons came from box A.
- ( ) The crayons came from box B.

Score	Response Code	Count PRE	Count POST
0.00	0	2	1
	2	26	27
	3	2	1
	23	1	1
1.00	1	11	9

	PRE		POST	
1	11	26%	9	23%
2	27	64%	28	72%
3	3	7%	2	5%
None	2	5%	1	3%

This picture was drawn with crayons taken from one of these two boxes.

A

B

Score	Response Code	Count PRE	POST
0.00	0	1	1
	2	23	27
	3	5	1
	23	0	1
1.00	1	11	8

Can you tell which box the crayons came from?

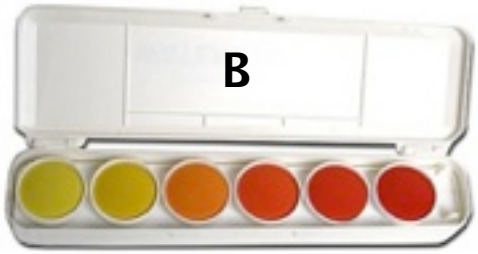
- (●) You cannot tell which box the crayons came from.
- ( ) The crayons came from box A.
- ( ) The crayons came from box B.

	PRE		POST	
1	11	28%	8	21%
2	23	58%	28	74%
3	5	13%	2	5%
None	1	3%	1	3%

This picture was made with paints taken from one of these two boxes.

A

B



Can you tell which box the paints came from?

- (●) You cannot tell which box the paints came from.
- ( ) The paints came from box A.
- ( ) The paints came from box B.

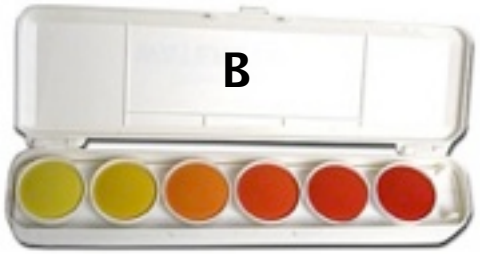
Score	Response Code	Count PRE	Count POST
0.00	0	4	0
	2	3	6
	3	26	25
	123	1	2
1.00	1	5	6

	PRE		POST	
1	6	15%	8	21%
2	4	10%	8	21%
3	27	69%	27	69%
None	4	10%	0	0%

This picture was made with paints taken from one of these two boxes.

A

B



Can you tell which box the paints came from?

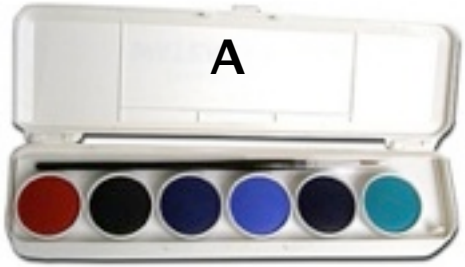
- (●) You cannot tell which box the paints came from.
- ( ) The paints came from box A.
- ( ) The paints came from box B.

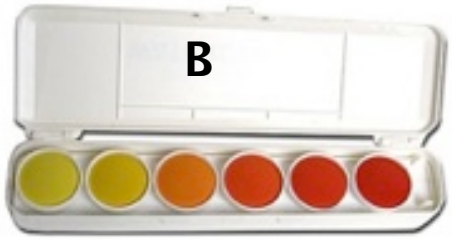
More than ½ selected Option3 (choosing the open box)

Score	Response Code	Count PRE	Count POST
0.00	0	0	1
	2	6	3
	3	27	26
	13	1	0
	23	0	1
1.00	1	7	11

	PRE		POST	
1	8	20%	11	26%
2	6	15%	4	10%
3	28	68%	27	64%
None	0	0%	1	2%

This picture was made with paints taken from one of these two boxes.





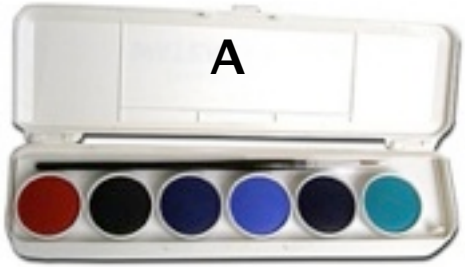
Can you tell which box the paints came from?

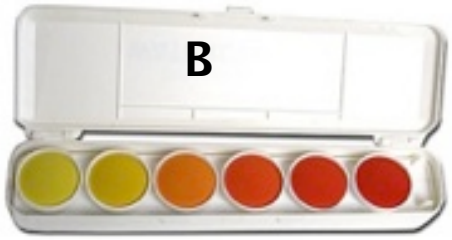
- ○ You cannot tell which box the paints came from.
- ● The paints came from box A.
- ○ The paints came from box B.

Score	Response Code	Count PRE	Count POST
0.00	0	1	1
	1	5	4
	3	1	3
	23	2	1
	123	1	0
1.00	2	32	30

	PRE			POST	
1	6	14%	?	4	10%
2	35	83%	→	31	79%
3	4	10%		4	10%
None	1	2%		1	3%

This picture was made with paints taken from one of these two boxes.





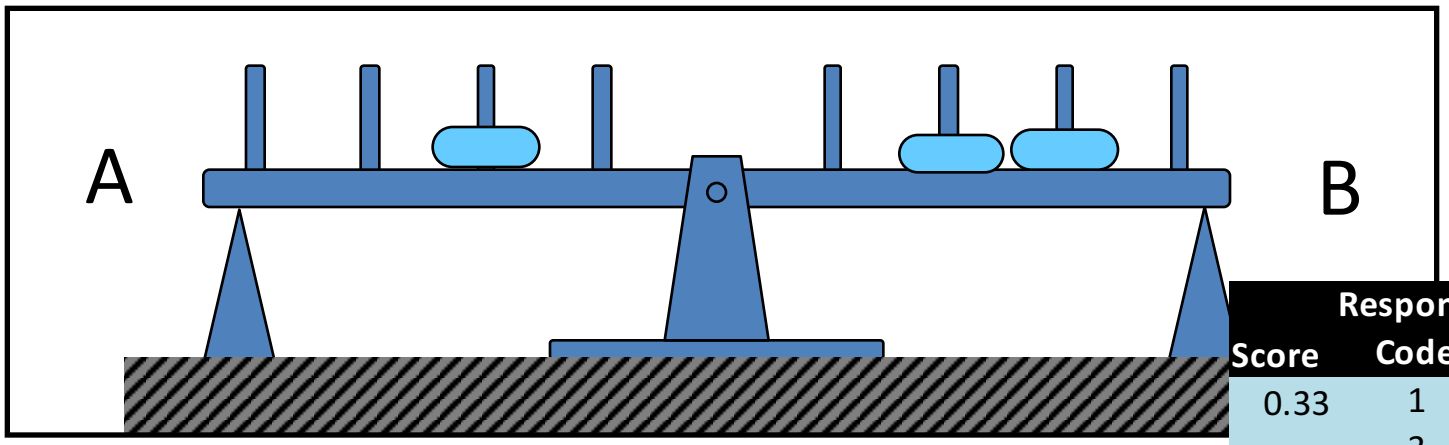
Can you tell which box the paints came from?

Score	Response Code	Count PRE	Count POST
0.00	0	5	1
	1	2	4
	3	4	3
1.00	2	29	30

- ○ You cannot tell which box the paints came from.
- ● The paints came from box A.
- ○ The paints came from box B.

	PRE		POST	
1	2	5%	4	11%
2	29	73%	30	79%
3	4	10%	3	8%
None	5	13%	1	3%

All of the beads weigh the same amount. Terry says that side B will go down because it has more beads.



Twice as many chose option1 as Option2

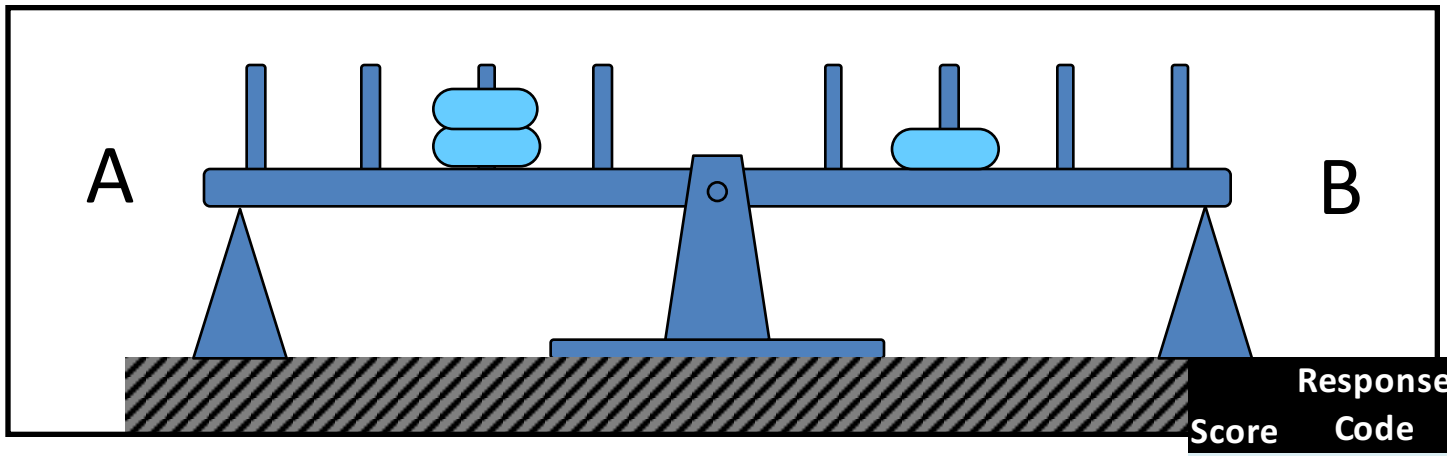
Score	Response Code	Count PRE	Count POST
0.33	1	21	23
	3	0	2
	123	1	0
0.67	0	2	1
	12	2	1
	23	0	1
1.00	2	13	11

What do you think?

	PRE		POST	
1	24	62%	24	62%
2	16	41%	13	33%
3	1	3%	3	8%
None	2	5%	1	3%

- ○ Terry is right.
- ● Terry might be right, but it could also be that side B will go down because the beads are farther from middle.
- ○ Terry is wrong because side A has the same number of beads.

All of the beads weigh the same amount. Jim says that side A will go down because it has more beads.



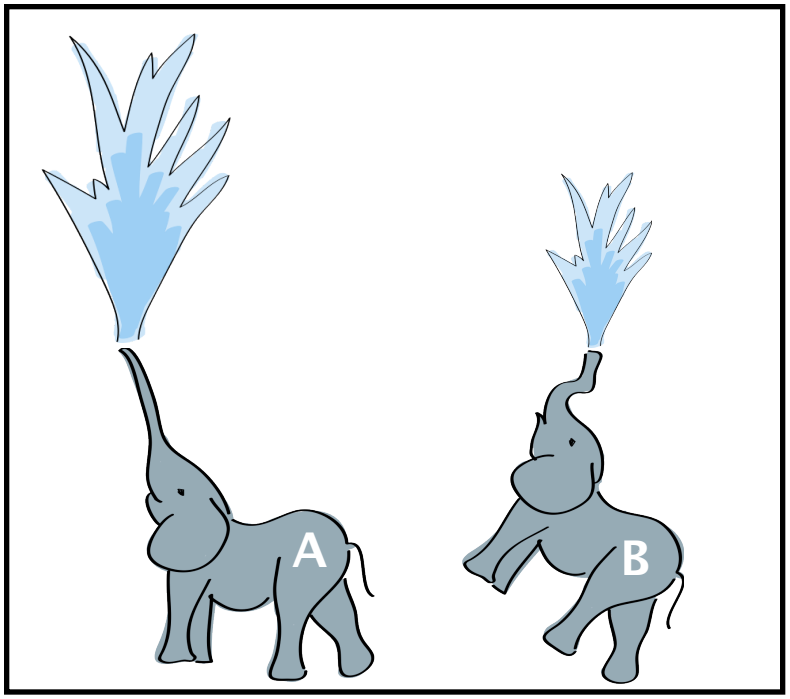
Score	Response Code	Count PRE	Count POST
0.00	0	2	3
	1	1	1
	2	14	15
1.00	3	24	23

What do you think?

- Jim is wrong because side B has the same number of beads.
- Jim might be right, but it could also be that side A will go down because the beads are farther from middle.
- Jim is right.

	PRE		POST	
1	1	2%	1	2%
2	14	34%	15	36%
3	24	59%	23	55%
None	2	5%	3	7%

Armando says elephant A sprays water higher because he holds his trunk straighter.



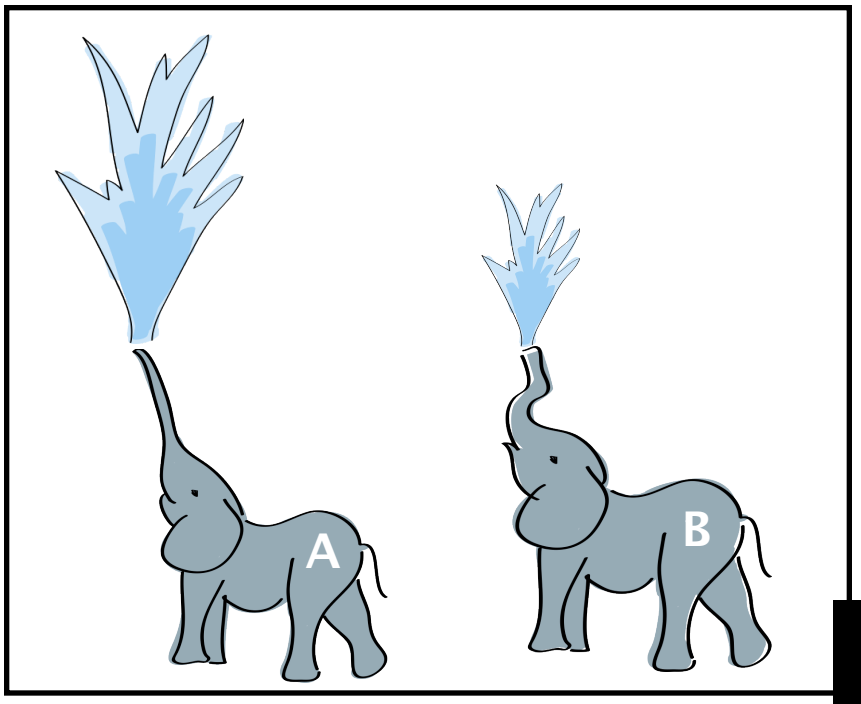
Score	Response Code	Count PRE	Count POST
0.33	1	21	23
	3	3	4
0.67	0	2	2
	12	2	2
1.00	2	14	8

What do you think?

	PRE		POST	
1	23	55%	25	64%
2	16	38%	10	26%
3	3	7%	4	10%
None	2	5%	2	5%

- ○ Armando is right.
- ● Armando might be right, but it could also be that elephant A sprays water higher because he is standing on more legs.
- ○ Armando is wrong because elephant B keeps his trunk as straight as elephant A.

Arjun says elephant A sprays water higher because he holds his trunk straighter.

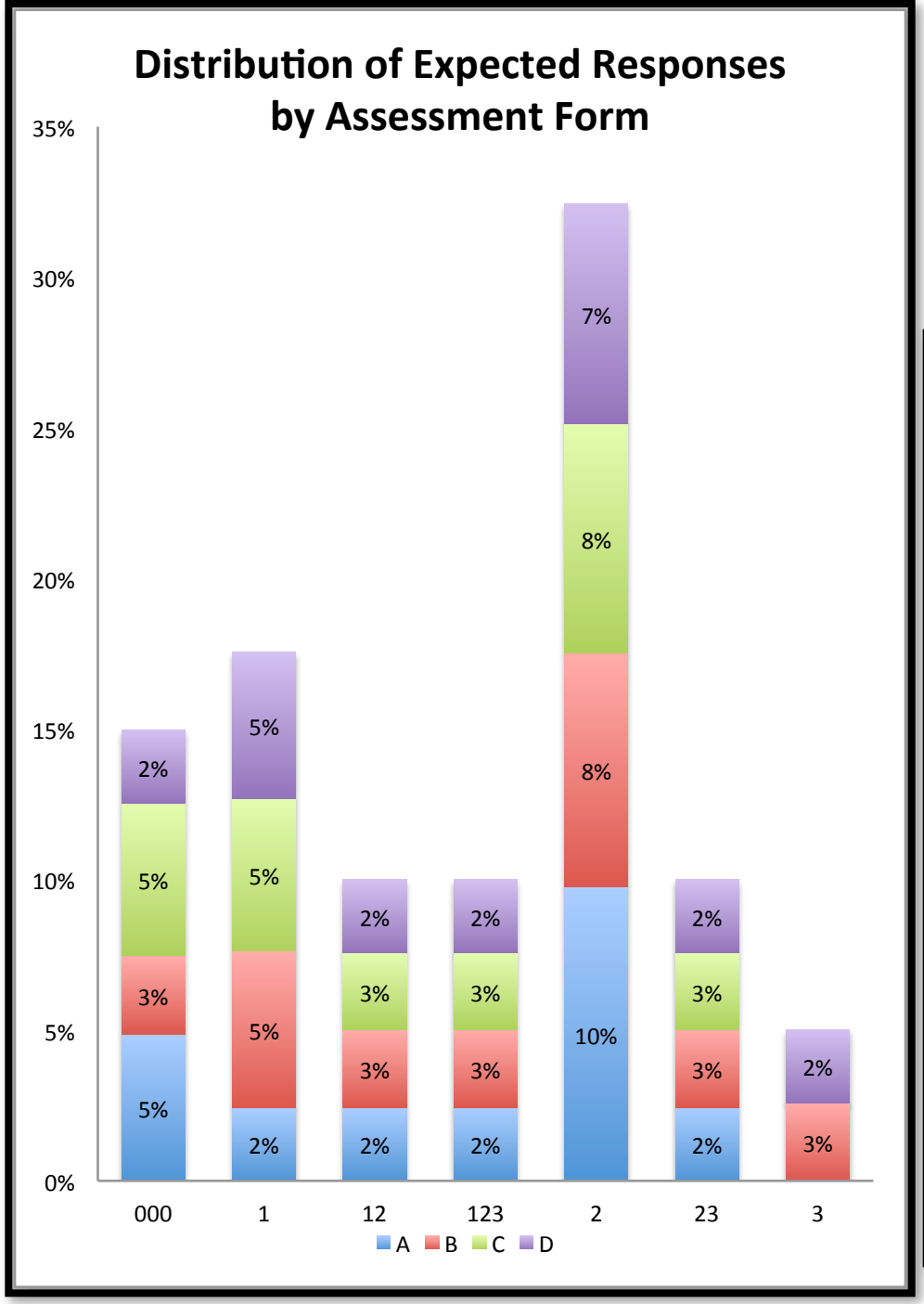


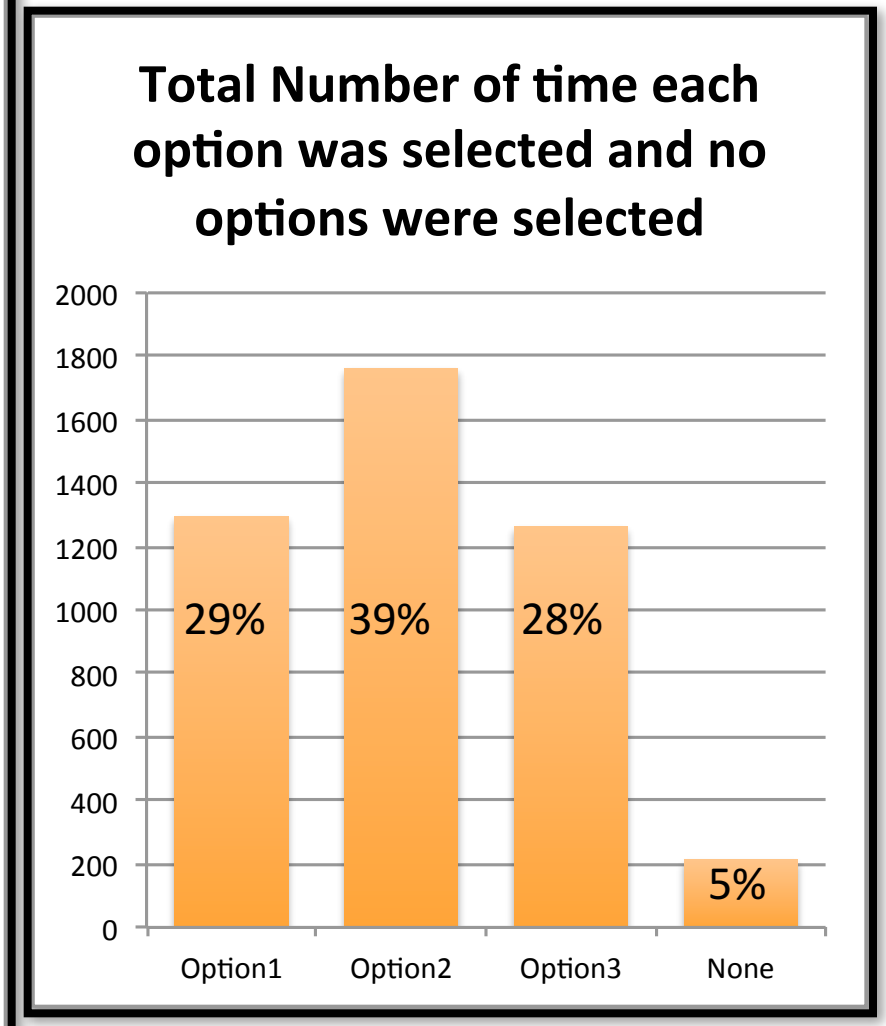
Score	Response Code	Count PRE	Count POST
0.33	1	8	4
	2	10	12
0.67	23	2	1
1.00	3	20	21

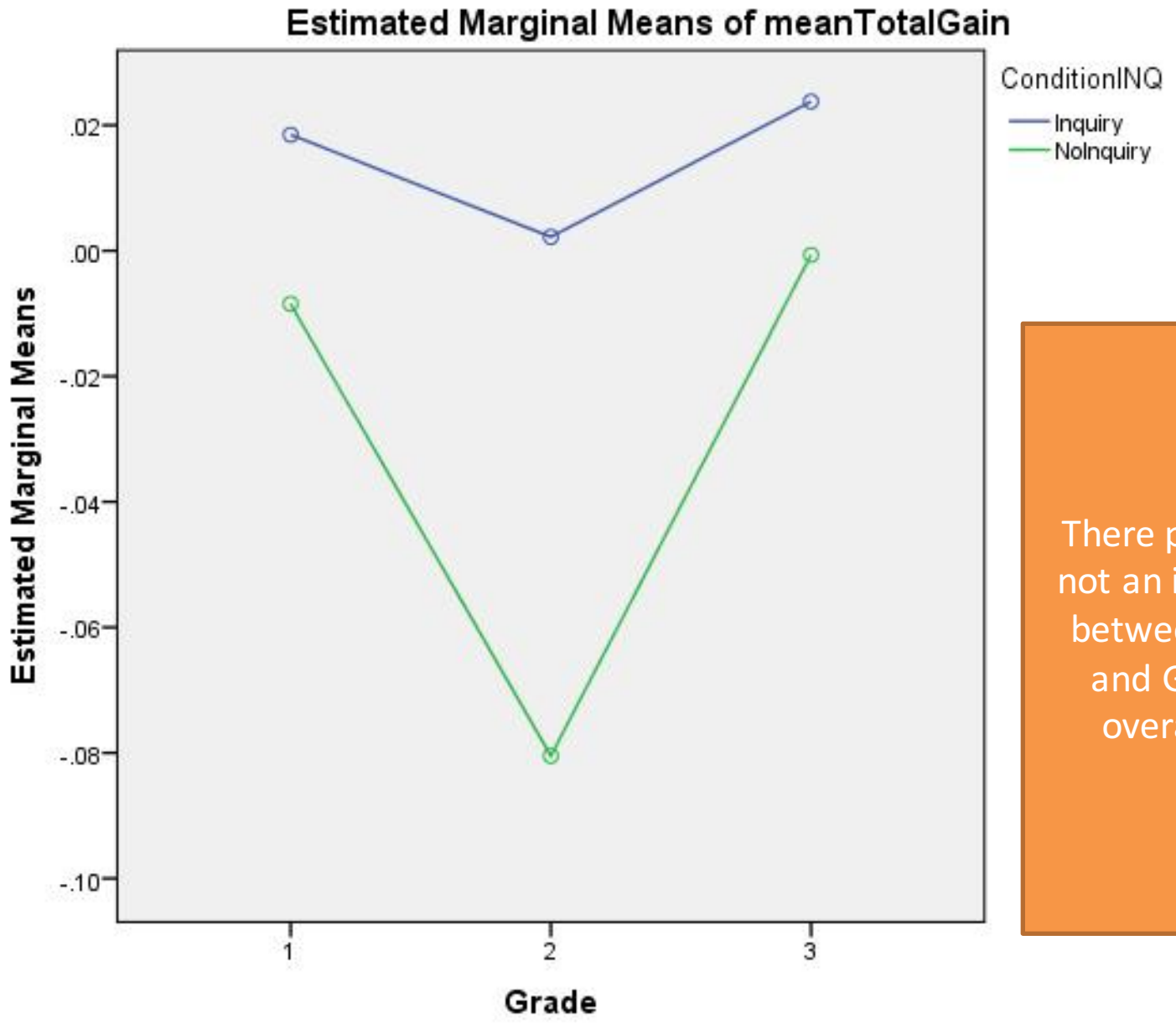
	PRE		POST	
1	8	20%	4	11%
2	12	30%	13	34%
3	22	55%	22	58%
None	0	0%	0	0%

What do you think?

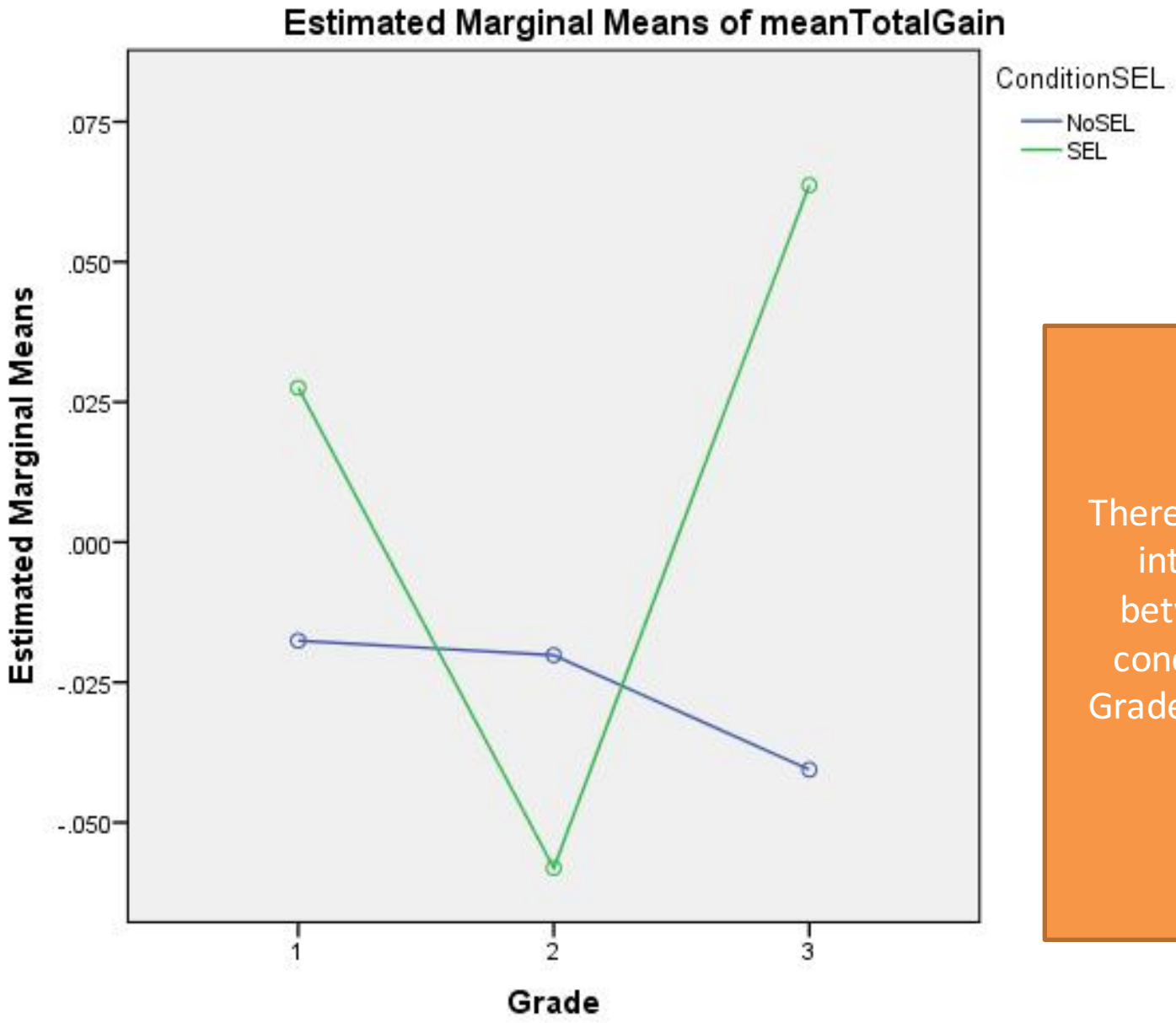
- ○ Arjun is wrong because elephant B keeps his trunk as straight as elephant A.
- ○ Arjun might be right, but it could also be that elephant A sprays water higher because he is bigger.
- ● Arjun is right.


Distribution of Expected Responses by Assessment Form
35%
30%
25%
20%
15%
10%
5%
0%
000
1
12
123
2
23
3
A
B
C
D
2%
5%
3%
5%
5%
5%
2%
3%
3%
2%
2%
3%
3%
2%
2%
3%
3%
2%
7%
8%
8%
10%
2%
3%

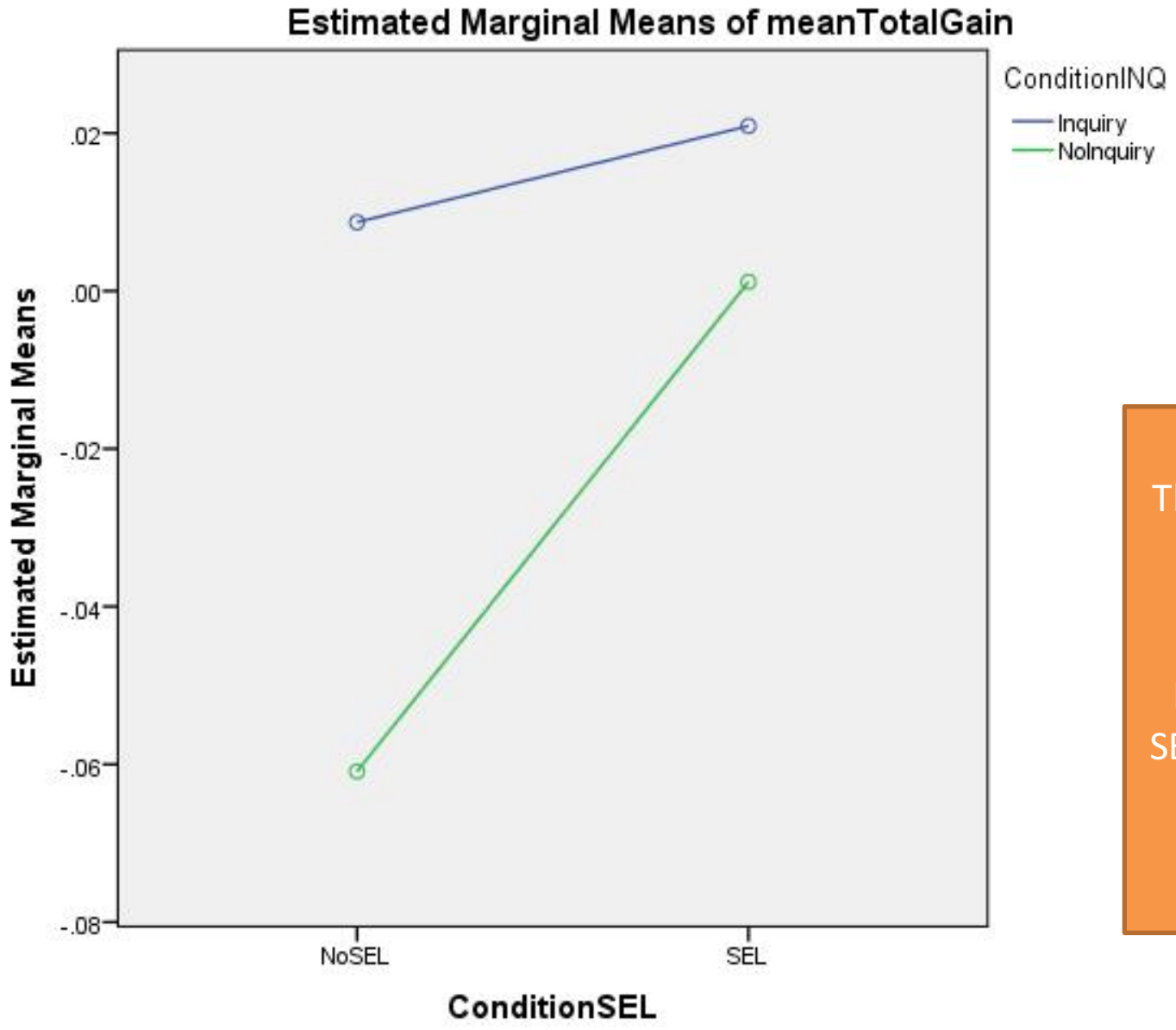

Total Number of time each option was selected and no options were selected
2000
1800
1600
1400
1200
1000
800
600
400
200
0
29%
39%
28%
5%
Option1
Option2
Option3
None



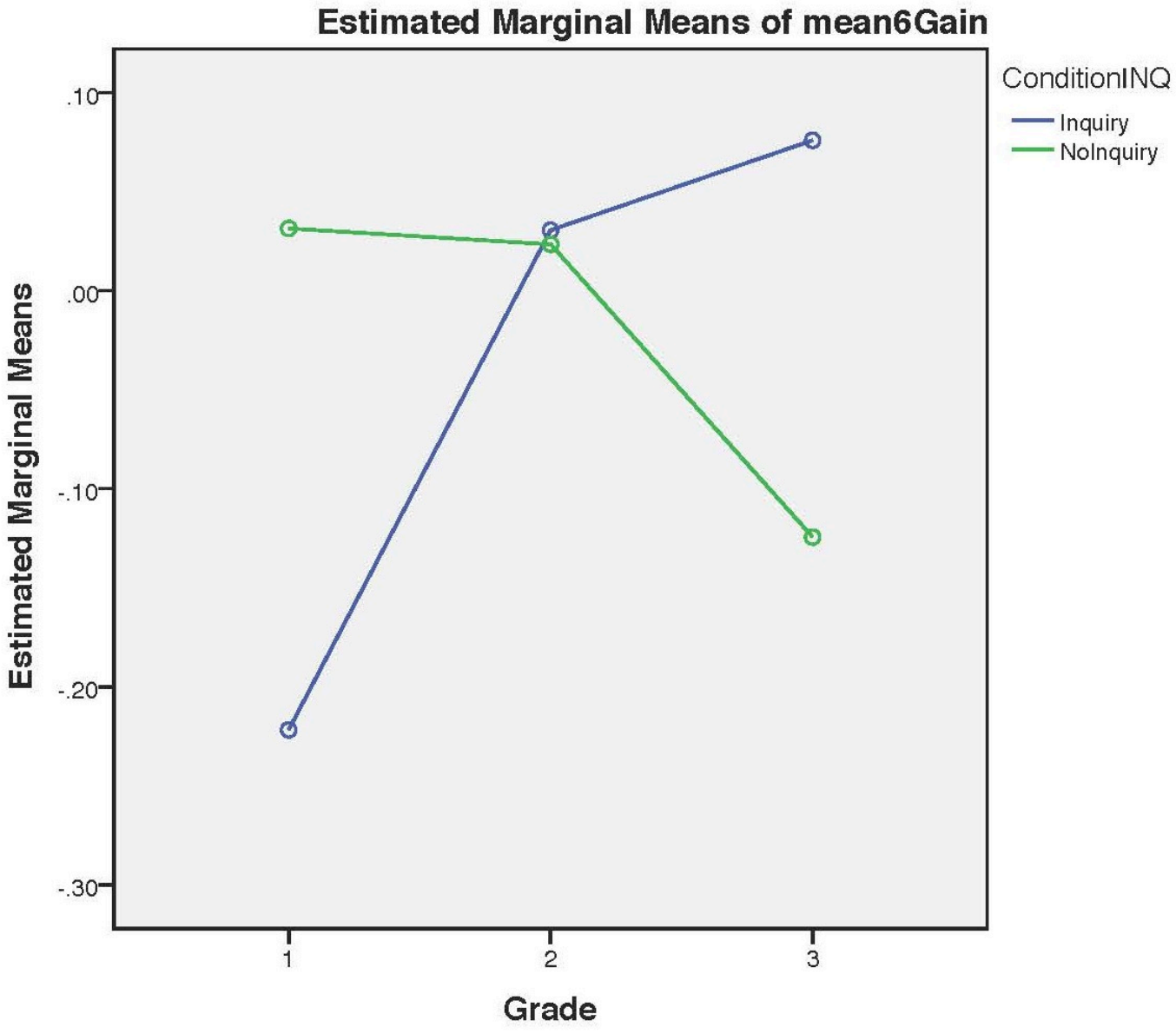
There probably is not an interaction between Inquiry and Grade for overall gains



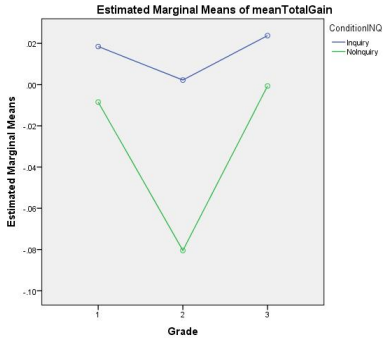
There may be an interaction between SEL condition and Grade for overall gains

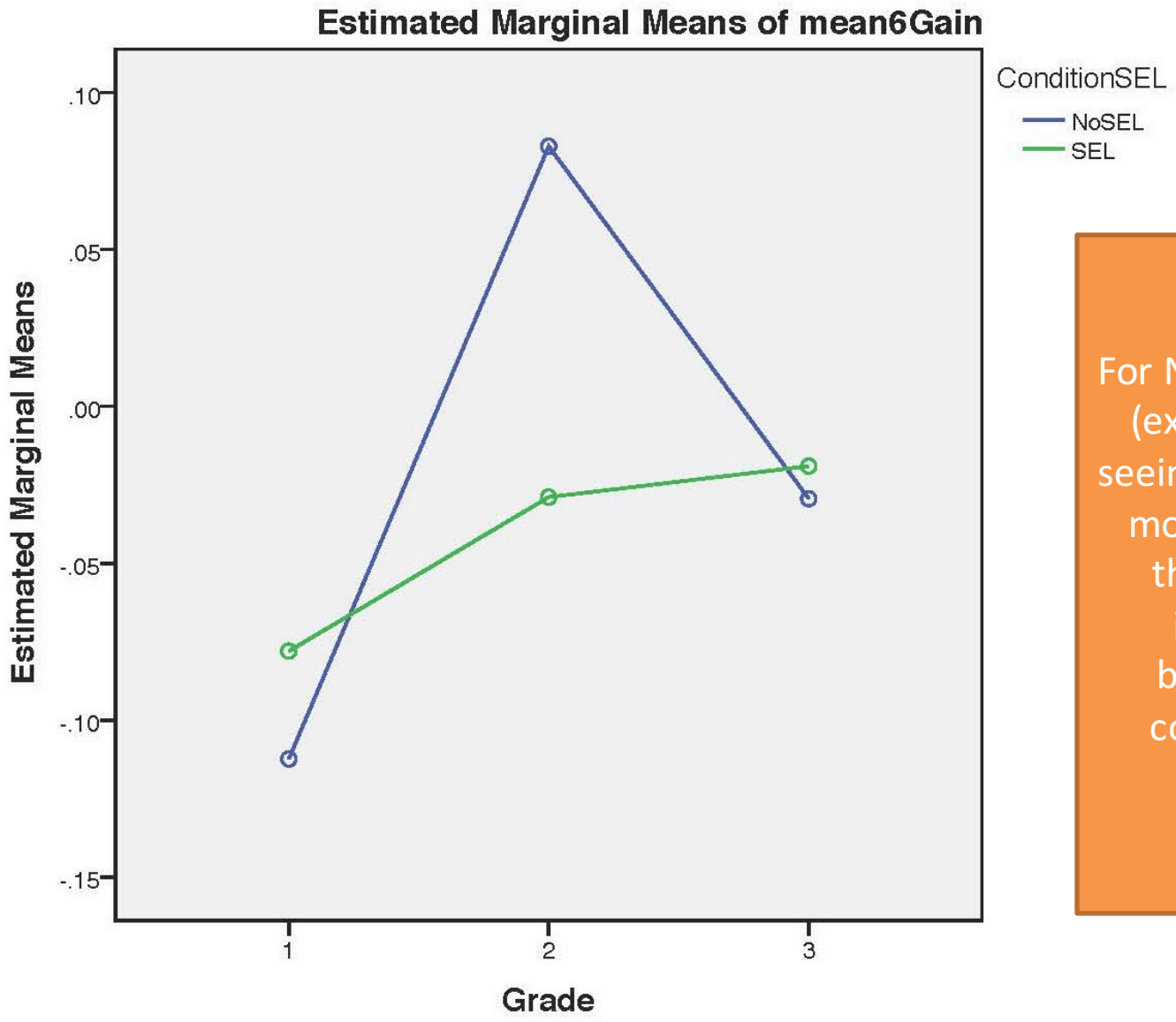


There is not a clear interaction between Inquiry and SEL conditions for overall gains

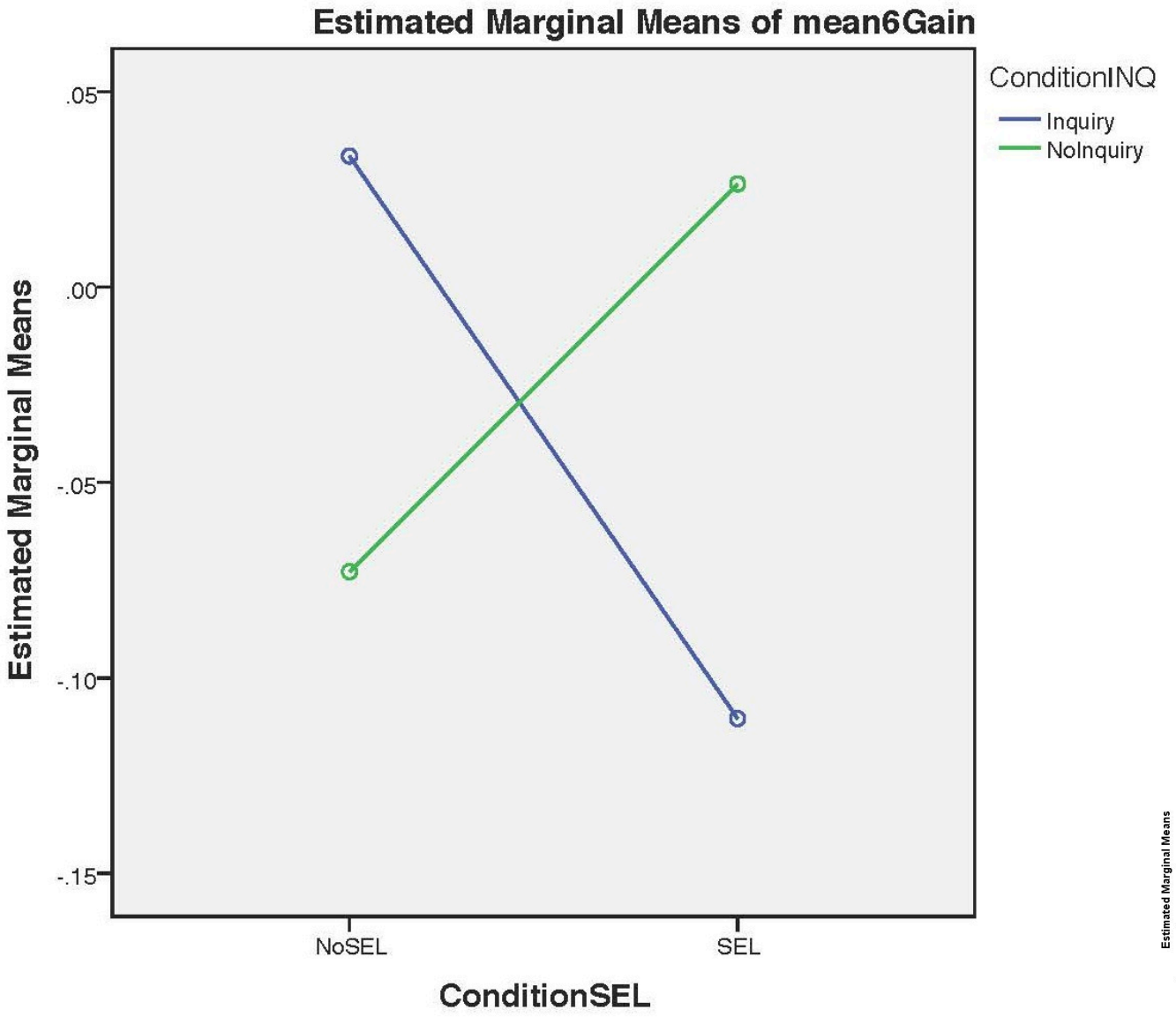


For NRC Practice #6 (explaining, and seeing possibility of more than one), there is clearly an interaction between Inquiry condition and grade **(as opposed to the lack of interaction when looking at overall score gain—copied below)**



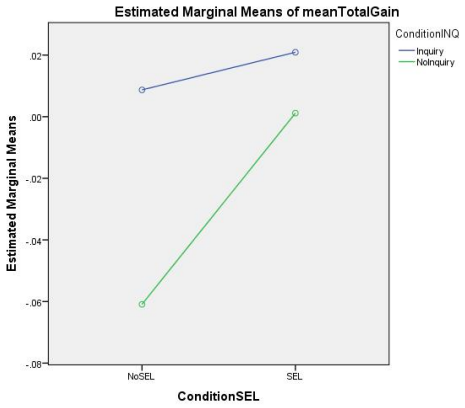


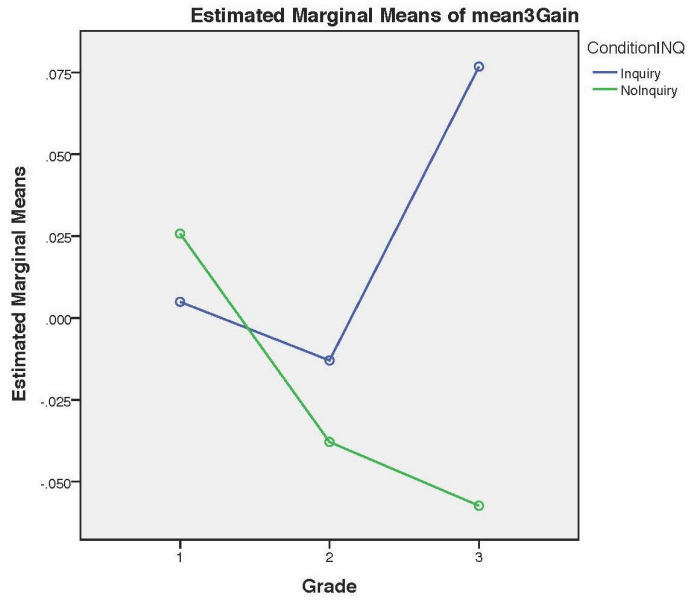
For NRC Practice #6 (explaining, and seeing possibility of more than one), there may be interaction between SEL condition and grade

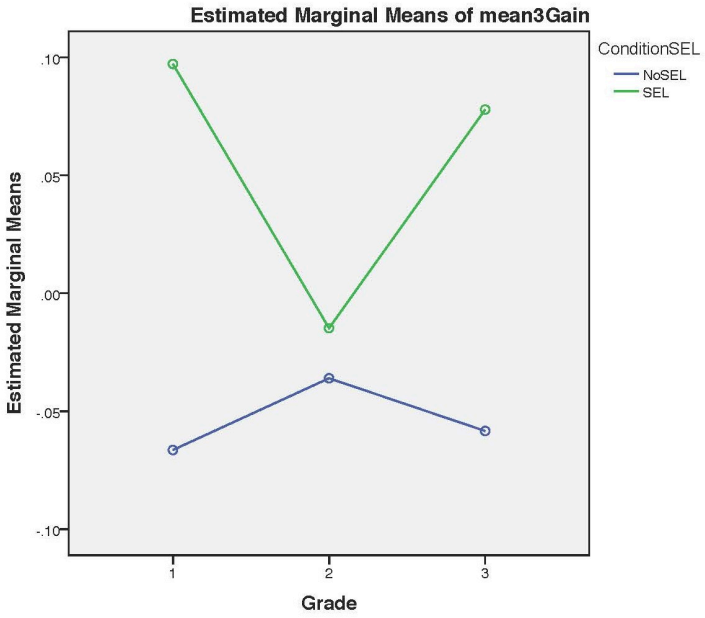


For NRC Practice #6 (explaining, and seeing possibility of more than one), there is lots of interaction between Inquiry condition and SEL condition. Being in either one of the conditions, but not both.

(Inquiry condition slopes the other way in mean gain—copied below)



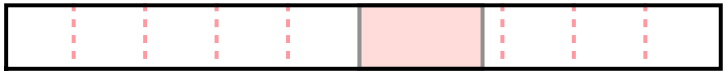




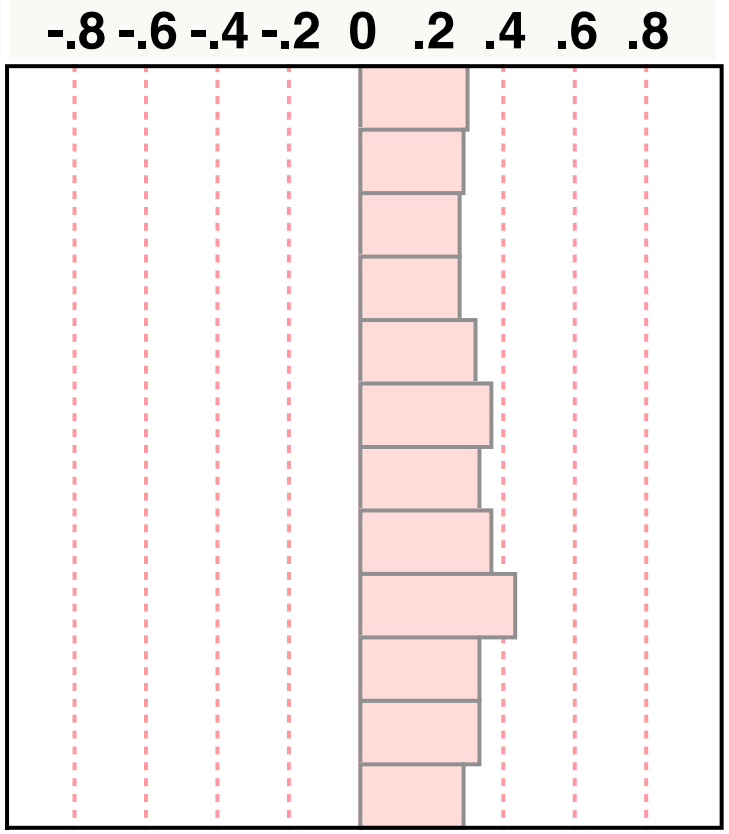
For NRC Practice #3 (identifying features) there is an interaction between Grade and all conditions

Cronbach's α

	α
Entire set	0.3499



Excluded Col	α
POST-3.1.BS	0.3011
POST-3.1.E	0.2919
POST-4.1.BS	0.2782
POST-4.1.E	0.2840
POST-4.3.BS	0.3187
POST-4.3.E	0.3727
POST-4.4.BS	0.3385
POST-4.4.E	0.3663
POST-4.5.C	0.4352
POST-4.5.W	0.3387
POST-6.2.BS	0.3371
POST-6.2.E	0.2888



I'm not totally clear on how to interpret this, but looks like there is almost no "internal consistency" in the assessment (0.7 is "acceptable"?), and dropping any item doesn't improve things

Correlations between posttest scores for all items

Correlations

	POST-3.1.BS	POST-3.1.E	POST-4.1.BS	POST-4.1.E	POST-4.3.BS	POST-4.3.E	POST-4.4.BS	POST-4.4.E	POST-4.5.C	POST-4.5.W	POST-6.2.BS	POST-6.2.E
POST-3.1.BS	1.0000	0.0000	0.5606	0.2434	-0.3054	0.2334	0.0000	-0.0360	0.0438	0.2029	0.0237	0.0000
POST-3.1.E	0.0000	1.0000	0.0941	0.4346	-0.0681	-0.2197	0.1312	0.0000	0.0622	0.2916	0.0000	0.1299
POST-4.1.BS	0.5606	0.0941	1.0000	0.0000	0.0000	0.0735	0.4255	0.1127	0.0599	-0.0325	0.1718	-0.0090
POST-4.1.E	0.2434	0.4346	0.0000	1.0000	0.0618	0.0000	-0.0243	-0.1015	-0.1685	0.4159	-0.1724	0.4447
POST-4.3.BS	-0.3054	-0.0681	0.0000	0.0618	1.0000	0.0000	0.1667	0.2913	0.0841	0.1143	0.0314	0.1591
POST-4.3.E	0.2334	-0.2197	0.0735	0.0000	0.0000	1.0000	-0.2312	-0.0080	0.1222	-0.0514	0.0049	-0.1124
POST-4.4.BS	0.0000	0.1312	0.4255	-0.0243	0.1667	-0.2312	1.0000	0.0000	-0.0217	0.0878	0.0000	-0.0455
POST-4.4.E	-0.0360	0.0000	0.1127	-0.1015	0.2913	-0.0080	0.0000	1.0000	-0.0188	-0.0999	0.0430	0.0000
POST-4.5.C	0.0438	0.0622	0.0599	-0.1685	0.0841	0.1222	-0.0217	-0.0188	1.0000	-0.4226	0.2184	0.0034
POST-4.5.W	0.2029	0.2916	-0.0325	0.4159	0.1143	-0.0514	0.0878	-0.0999	-0.4226	1.0000	0.0264	0.2937
POST-6.2.BS	0.0237	0.0000	0.1718	-0.1724	0.0314	0.0049	0.0000	0.0430	0.2184	0.0264	1.0000	0.0000
POST-6.2.E	0.0000	0.1299	-0.0090	0.4447	0.1591	-0.1124	-0.0455	0.0000	0.0034	0.2937	0.0000	1.0000

There are 158 missing values. The correlations are estimated by Pairwise method.

I'm not seeing a lot of correlation at all

Correlations between average posttest scores for domains and NRC practice

Correlations

	meanTotalGain	POST-SUM-TOTAL	POST-3-AVE	POST-4-AVE	POST-6-AVE	POST-BS-AVE	POST-E-AVE	POST-CW-AVE
meanTotalGain	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
POST-SUM-TOTAL	0.0000	1.0000	0.7523	0.9093	0.4401	0.6041	0.7184	0.6880
POST-3-AVE	0.0000	0.7523	1.0000	0.5305	0.3119	0.6455	0.6370	0.2327
POST-4-AVE	0.0000	0.9093	0.5305	1.0000	0.0980	0.4987	0.7636	0.6242
POST-6-AVE	0.0000	0.4401	0.3119	0.0980	1.0000	0.2308	-0.0612	0.5661
POST-BS-AVE	0.0000	0.6041	0.6455	0.4987	0.2308	1.0000	0.2920	0.0349
POST-E-AVE	0.0000	0.7184	0.6370	0.7636	-0.0612	0.2920	1.0000	0.2219
POST-CW-AVE	0.0000	0.6880	0.2327	0.6242	0.5661	0.0349	0.2219	1.0000

There are 8 missing values. The correlations are estimated by Pairwise method.

NRC practices seem to correlate somewhat

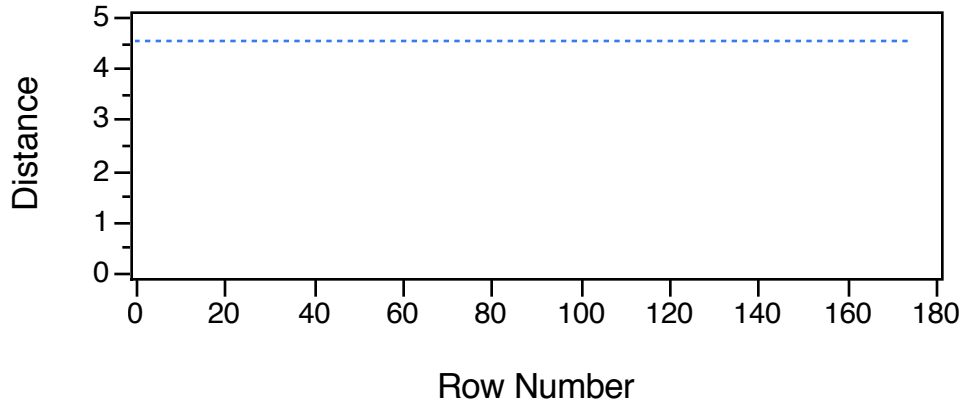
Domains do not seem to correlate well

One's NRC Practice #4 (recognizing supporting and refuting evidence) score correlates strongly with one's Sum Total (which is not an average)

One's NRC Practice #6 (explaining observations) score does not correlate strongly with anything

Outlier Analysis

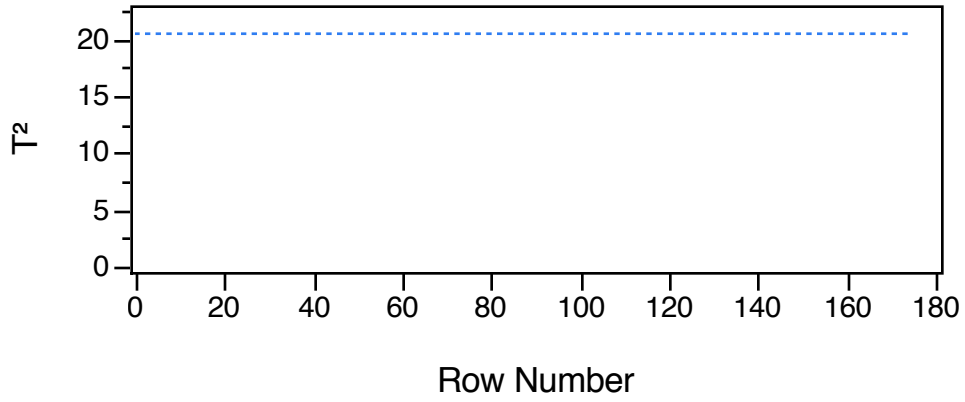
Mahalanobis Distances



No Outliers?

Note: The generalized inverse is used for distance calculation.

T^2



Note: The generalized inverse is used for distance calculation.