

8-Nations Science and Mathematics Education Research Project

Introduction

The initial project was conceived to involve the following five countries:

China	Singapore (Team leader)
South Korea	Thailand
United States of America	

After an initial meeting in Singapore it was decided by all the countries involved to focus on the secondary school teaching of mathematics and science.

Project Outline

The project was designed to collect data from 3 sources

- (i) Students in secondary school
- (ii) Their teachers
- (iii) Teacher trainers

The project was to focus on attitudes, perceptions, and other similar attributes. It was not to focus on achievement as it was felt that this was a fruitful area to expand the participating countries knowledge and could potentially provide useful information for decision making for the various countries involved. The first phase of the project would involve the collection of data from the various sources. After the initial phase there was to have been a meeting to discuss the second phase which might include interviewing, follow up questionnaires and other issues. This component was not finalised since the specifics were to have been dependent on the outcomes of phase 1.

It was realised that with the resources available it was not possible to develop a complete questionnaire from scratch. In light of this Singapore was tasked with the development of questionnaires to be used with the students and teachers that would be translated into the appropriate languages to be administered in the various countries. Given the timeframe and resources the Singapore team used the TIMSS questionnaire as the basis for the study, but expanded it in scope. In addition a student sampling strategy was proposed that would enable the researchers to look at differences across levels (grades) and streams.

This questionnaire was then sent to all the countries representatives for comments and suggested revisions before being finalised. After receiving feedback, the final questionnaire was sent to all the participating countries.

Update

There was a meeting in St. Gallen, Switzerland, where Lionel Pereira-Mendoza, representing Lee Sing Kong, provided an update on the project. He indicated that, at that time, in addition to the Singapore data he had only received data on Science from South Korea. He expressed some concern regarding the possibility of completing the project.

The steering committee wished the project to continue and, as a result of the meeting, additional efforts were made to follow up with the countries involved. Subsequently the data sets for received from Thailand. Prior to Lionel's departure from NIE in December, 2006 and the appointment of Yap Kueh Chin as the Principal Investigator, Lionel contacted various people requesting additional information. Specifically, we needed to know which questions were adapted to the Thailand and South Korean situation. This was essential since some questions were specific to the local situation. Also, it was possible that other questions were changed and without this information no comparisons were possible,

With only data on Science from South Korea and Thailand a decision had been made by the new PI to analyse them together with the student data for science and mathematics from Singapore. No teacher educator data had been collected in Singapore since there is only one teacher education institution.

The remainder of this report is a brief summary of a number of results from the Singapore, South Korea and Thailand data to illustrate some of the information. A complete analysis has not been included since it did not seem appropriate for the steering committee meeting.

Results

The Singapore data involved students from secondary 1–4 (secondary 1 is the first year of secondary school) and from the express, normal academic and normal technical streams (express is the top regular stream and there is limited enrolment in the normal technical programme). The sample involved over 3000 students taking mathematics and over 3000 different students taking science.

The South Korea data involved students from secondary 1-4 and from urban, suburban and rural schools. The sample involved nearly 7000 science students.

The Thailand data involved students from secondary 1-4 across various science subjects. The sample involved 1400 science students.

The results of the data analyses are provided in the following section so as to provide the steering committee an overview. We only looked at some of the socio-cultural factors that may provide some clues to the performance in science and mathematic by the Singapore students and the performance in science by students from South Korea and Thailand.

English at home

Since instruction in the Singapore Education system is in English it was useful to find out about the language spoken at home. The data (Appendix 1) shows a minority of students at all levels never speak English at home (about 10%). The use of English always/almost always is greatest for the Express stream and lowest for the Normal Technical stream. It does suggest that proficiency in English may help students perform better in science and mathematics.

In addition, it should be noted, that in general the use of English at home increases from secondary 1 through secondary 4.

For the South Korea and Thailand data, this item was not analysed since it is not applicable in their context.

Perception of importance of science and mathematics

We asked students how important it was to do well in mathematics and science as perceived by their mother, father, friends and themselves.

Table 1 below summarised the perception of the different groups based on the combined “strongly agree” and “agree” responses across both science and mathematics.

Table 1. Singapore data: Perception of importance of science and mathematics.

Groups	Science students	Mathematics students
Mother	96%	96%
Father	95%	97%
Friends	91%	92%
Themselves	97%	98%

In all cases over 90% (going as high as 98% for their own perception) strongly agreed/agreed that doing well in mathematics. This was true for all streams and levels.

For both science and mathematics, only the perception of friends appeared to be slightly lower.

The data for the perception of the importance of science as expressed by South Korean and Thai students for the different groups based on the combined “strongly agree” and “agree” responses were summarized below in Table 2.

Table 2. South Korea and Thailand data: Perception of importance of science.

Groups	South Korean students	Thai students
Mother	90%	94%
Father	85%	94%
Friends	87%	93%
Themselves	89%	94%

The percentages of the parents, friends and the students themselves who agreed to the importance of science for the South Korean data appeared to be lower than that of the Singapore and Thai data. One wonders whether other disciplines are perceived as equally important in South Korea.

The complete data is in Appendix 2.

Perception of importance of sports

Students were also asked how important it was to do well in sports as perceived by their mother, father, friends and themselves.

Table 3 below summarised the perception of different groups based on the combined “strongly agree” and “agree” responses across both science and mathematics.

Table3. Singapore data: Perception of importance of sports.

Groups	Science students	Mathematics students
Mother	78%	76%
Father	84%	83%
Friends	85%	92%
Themselves	89%	86%

It is important to note that when asked about doing well in sports, the percentages were still very high (in excess of 80%) but putting in perspective, they were always lower than the importance of doing well in science and mathematics. It is not surprising that parents tend to place less importance on “doing well in sports” compared to that of friends and respondent themselves

Comment: *Given the importance placed on doing well in mathematics and science, it is not surprising that students are committed to working hard. It is particularly significant that this importance is true also of students in the Normal Technical stream.*

The data for the perception of the importance of sports as expressed by South Korean and Thai students for the different groups based on the combined “strongly agree” and “agree” responses were summarized below in Table 4.

Table4. South Korea and Thailand data: Perception of importance of sports.

Groups	South Korean students	Thai students
Mother	75%	80%
Father	75%	83%
Friends	80%	82%
Themselves	82%	83%

The trend for the South Korea and Thailand data was very similar to that for Singapore. While the percentages were still high, they were always lower than the importance of doing well in science. It is not surprising that parents tend to place less importance on “doing well in sports” compared to that of friends and respondent themselves

The complete data is in Appendix 3.

Why need to do well in science and mathematics

Students were asked why they need to do well in science and mathematics. In particular, they were asked to respond to each of the following four reasons: (1) “get the job I want”, (2) “please my parents”, (3) “continue my education”, and (4) “please myself”.

Below is Table 5 summarizing the combined “strongly agree” and “agree” responses for each of the reasons across both science and mathematics subjects.

Table 5. Singapore data: Why need to do well in science and mathematics.

Reasons	Science students	Mathematics students
(1) “get the job I want”	68%	80%
(2) “please my parents”	65%	69%
(3) “continue my education”	93%	95%
(4) “please myself”	81%	83%

Based on the data above, it was clear that students valued “continue my education” very highly while “please my parents” was valued lowest. For the science and mathematics students there was a strong desire to continue their education and in order to do that they have to do well in science and mathematics.

Comment: *In Singapore, students at the secondary level have to take at least one science subject and also one mathematics subject. In order to continue their education at the tertiary level, they have to do well in science and mathematics. Students are aware of this.*

Table 6 below is the South Korea and Thailand data when their science students were asked the same question.

Table 6. South Korea and Thailand data: Why need to do well in science.

Reasons	South Korean students	Thai students
(1) “get the job I want”	70%	93%
(2) “please my parents”	84%	91%
(3) “continue my education”	64%	98%
(4) “please myself”	79%	95%

Comparing the trend with science students in Singapore, the most surprising aspect from the South Korean data was that their students valued “please my parents” the highest and “continue my education” lowest. Perhaps, unlike in Singapore, students in South Korea do not really need to do well in one science subject in order to continue their education.

The data from the Thai students on the reasons for the “need to do well in science” were quite different from the other two countries. While the Thai students valued “continue my education” and “please myself” as slightly higher, they also valued “get the job I want” and “please my parents” very highly compared to the Singapore and South Korean students.

The complete data is provided in Appendix 4.

What is needed in order to do well in science and mathematics

Students were asked what were needed in order to do well in science and mathematics. They were specifically asked to respond to four aspects: (1) “lots of natural ability”, (2) “good luck”, (3) “lots of hard work studying at home” and (4) “pay attention in class”.

Below is Table 7 summarizing the combined “strongly agree” and “agree” responses for each of the aspects across both science and mathematics subjects.

Table 7. Singapore data: What is needed in order to do well in science and mathematics.

What is needed	Science	Mathematics
(1) “natural ability”	70%	69%
(2) “good luck”	46%	50%
(3) “hard work”	94%	95%
(4) “pay attention in class”	97%	97%

Based on the data, most of the students believed that “lots of hard work studying at home” and “pay attention in class” would be the key to success in both subjects.

A smaller percentage of the students (about 70%) believed that “natural ability” was needed for success in science and mathematics. A higher percentage of Normal Technical students appeared to believe that “natural ability” was needed for success in science and mathematics compared to Express students.

About half of the students believed that “good luck” was needed for success in science and mathematics. A higher percentage of Normal Technical students appeared to believe that “good luck” was needed for success in science and mathematics compared to Express students.

Comment: *Given that luck plays a limited role this would reinforce the fact that hard work is important for success in science and mathematics. It is important to note that even for Normal Technical students, the weakest academic students, a larger percentage feel that “lots of hard work studying at home” and “pay attention in class” do play a large role in determining success.*

Table 8 summarised the South Korea and Thailand data when their science students were asked the same question.

Table 8. South Korea and Thailand data: What is needed in order to do well in science.

What is needed	South Korean students	Thai students
(1) “natural ability”	61%	89%
(2) “good luck”	41%	47%
(3) “hard work”	93%	69%
(4) “pay attention in class”	98%	99%

Like the Singapore students, the South Korean students also believed that “hard work” and “pay attention in class” were needed to do well in science. Unlike the Singapore students, they believed less in “natural ability”.

Like students from the other two countries, the Thai students also believed that “pay attention in class” was needed to do well in science. However, unlike students from the other two countries, a very much higher percentage of their students believed that “natural ability” was needed. Surprisingly, a much lower percentage of the Thai students believed that “hard work” was needed.

The complete data is provided in Appendix 5.

What do students spend their time on?

Students were asked how they spent their time out of their normal school hours in a normal week and day. We analysed their responses to questions on whether they “take extra lessons in science in school”, “take private tuition in science” and “study or do science homework”. Table 9 summarised the data for the three countries based on all those students who indicated at least some time spent.

Table 9. Time spent outside normal school hours

	Singapore students	South Korean students	Thai students
“take extra lessons in science in school”	61%	26%	55%
“take private tuition in science”	32%	47%	45%
“study or do science homework”	87%	80%	94%

Based on the data above, it appeared that South Korean students did not have very much extra science lessons in schools beyond the normal curriculum hours. More than 50% of students in the other two countries had at least taken extra science lessons beyond their normal curriculum hours in a given week.

In a given week, more than 30% of the students in the three countries had taken private tuition.

On a normal school day, a very high proportion of the students in all the three countries had devoted some time either studying their science subject or doing their science homework.

Comment: It seems that a significant amount of students time is spent on schoolwork related study.

Concluding Remarks

We hope the results above shed some light on how the performance of the Singapore, South Korea and Thailand students could be related to some of the socio-cultural factors and practices discussed above. Of course more time and collaboration will be needed to look at some of these in a deeper manner. It will also be of interest to take a look at the data of other countries. Hopefully with other countries getting involved, we can learn from one another and come up with suggestions for a win-win situation.

Appendix 1

How often do you speak English at home? (Singapore Science data)

				How often do you speak English at home?							
				Always or almost always		Sometimes		Never		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level	Sec 1	Stream	Express	218	40.9%	286	53.7%	29	5.4%	533	100.0%
			Normal Academic	113	37.2%	167	54.9%	24	7.9%	304	100.0%
			Normal Technical	46	20.1%	159	69.4%	24	10.5%	229	100.0%
			Total	377	35.4%	612	57.4%	77	7.2%	1066	100.0%
	Sec 2	Stream	Express	268	43.9%	302	49.5%	40	6.6%	610	100.0%
			Normal Academic	69	26.8%	160	62.3%	28	10.9%	257	100.0%
			Normal Technical	42	23.6%	117	65.7%	19	10.7%	178	100.0%
			Total	379	36.3%	579	55.4%	87	8.3%	1045	100.0%
	Sec 3	Stream	Express	251	40.7%	309	50.2%	56	9.1%	616	100.0%
			Normal Academic	84	35.4%	128	54.0%	25	10.5%	237	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%
			Total	335	39.3%	437	51.2%	81	9.5%	853	100.0%
Sec 4	Stream	Express	121	51.3%	96	40.7%	19	8.1%	236	100.0%	
		Normal Academic	44	46.3%	39	41.1%	12	12.6%	95	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	165	49.8%	135	40.8%	31	9.4%	331	100.0%	
Total	Stream	Express	858	43.0%	993	49.8%	144	7.2%	1995	100.0%	
		Normal Academic	310	34.7%	494	55.3%	89	10.0%	893	100.0%	
		Normal Technical	88	21.6%	276	67.8%	43	10.6%	407	100.0%	
		Total	1256	38.1%	1763	53.5%	276	8.4%	3295	100.0%	

How often do you speak English at home? (Singapore Mathematics data)

				always or almost always		sometimes		never		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	191	40.7%	245	52.2%	33	7.0%	469	100.0%
			normal	52	19.5%	184	68.9%	31	11.6%	267	100.0%
			academic	30	14.1%	144	67.6%	39	18.3%	213	100.0%
			technical	273	28.8%	573	60.4%	103	10.9%	949	100.0%
	Sec 2	Stream	express	191	39.6%	253	52.5%	38	7.9%	482	100.0%
			normal	74	29.2%	148	58.5%	31	12.3%	253	100.0%
			academic	20	14.3%	98	70.0%	22	15.7%	140	100.0%
			technical	285	32.6%	499	57.0%	91	10.4%	875	100.0%
	Sec 3	Stream	express	169	40.3%	209	49.9%	41	9.8%	419	100.0%
			normal	71	24.6%	189	65.4%	29	10.0%	289	100.0%
			academic	41	20.9%	127	64.8%	28	14.3%	196	100.0%
			technical	281	31.1%	525	58.1%	98	10.8%	904	100.0%
Sec 4	Stream	express	99	46.7%	97	45.8%	16	7.5%	212	100.0%	
		normal	47	48.5%	44	45.4%	6	6.2%	97	100.0%	
		academic	28	33.3%	48	57.1%	8	9.5%	84	100.0%	
		technical	174	44.3%	189	48.1%	30	7.6%	393	100.0%	
Total	Stream	express	650	41.1%	804	50.8%	128	8.1%	1582	100.0%	
		normal	244	26.9%	565	62.4%	97	10.7%	906	100.0%	
		academic	119	18.8%	417	65.9%	97	15.3%	633	100.0%	
		technical	1013	32.5%	1786	57.2%	322	10.3%	3121	100.0%	

Appendix 2

My mother thinks it is important for me to (Singapore Science data)

				Mother thinks it's important to do well in science in school									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level	Sec 1	Stream	Express	273	51.1%	252	47.2%	7	1.3%	2	.4%	534	100.0%
			Normal Academic	139	45.7%	158	52.0%	6	2.0%	1	.3%	304	100.0%
			Normal Technical	69	30.7%	116	51.6%	33	14.7%	7	3.1%	225	100.0%
			Total	481	45.2%	526	49.5%	46	4.3%	10	.9%	1063	100.0%
	Sec 2	Stream	Express	331	54.4%	267	43.8%	8	1.3%	3	.5%	609	100.0%
			Normal Academic	109	42.7%	134	52.5%	9	3.5%	3	1.2%	255	100.0%
			Normal Technical	69	38.3%	92	51.1%	14	7.8%	5	2.8%	180	100.0%
			Total	509	48.8%	493	47.2%	31	3.0%	11	1.1%	1044	100.0%
	Sec 3	Stream	Express	310	50.3%	286	46.4%	14	2.3%	6	1.0%	616	100.0%
			Normal Academic	95	40.1%	131	55.3%	11	4.6%	0	.0%	237	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	405	47.5%	417	48.9%	25	2.9%	6	.7%	853	100.0%
	Sec 4	Stream	Express	133	56.1%	99	41.8%	4	1.7%	1	.4%	237	100.0%
			Normal Academic	32	33.7%	60	63.2%	3	3.2%	0	.0%	95	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	165	49.7%	159	47.9%	7	2.1%	1	.3%	332	100.0%
Total	Stream	Express	1047	52.5%	904	45.3%	33	1.7%	12	.6%	1996	100.0%	
		Normal Academic	375	42.1%	483	54.2%	29	3.3%	4	.4%	891	100.0%	
		Normal Technical	138	34.1%	208	51.4%	47	11.6%	12	3.0%	405	100.0%	
		Total	1560	47.4%	1595	48.5%	109	3.3%	28	.9%	3292	100.0%	

My father thinks it is important for me to (Singapore Science data)

				Father thinks it's important to do well in science in school									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream	Express	284	53.9%	229	43.5%	10	1.9%	4	.8%	527	100.0%	
		Normal Academic	152	50.3%	143	47.4%	4	1.3%	3	1.0%	302	100.0%	
		Normal Technical	89	40.3%	100	45.2%	26	11.8%	6	2.7%	221	100.0%	
		Total	525	50.0%	472	45.0%	40	3.8%	13	1.2%	1050	100.0%	
Sec 2	Stream	Express	330	55.2%	256	42.8%	8	1.3%	4	.7%	598	100.0%	
		Normal Academic	109	43.1%	127	50.2%	13	5.1%	4	1.6%	253	100.0%	
		Normal Technical	83	46.9%	73	41.2%	15	8.5%	6	3.4%	177	100.0%	
		Total	522	50.8%	456	44.4%	36	3.5%	14	1.4%	1028	100.0%	
Sec 3	Stream	Express	310	50.9%	272	44.7%	20	3.3%	7	1.1%	609	100.0%	
		Normal Academic	103	43.5%	123	51.9%	9	3.8%	2	.8%	237	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	413	48.8%	395	46.7%	29	3.4%	9	1.1%	846	100.0%	
Sec 4	Stream	Express	124	53.2%	103	44.2%	4	1.7%	2	.9%	233	100.0%	
		Normal Academic	33	35.1%	58	61.7%	3	3.2%	0	.0%	94	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	157	48.0%	161	49.2%	7	2.1%	2	.6%	327	100.0%	
Total	Stream	Express	1048	53.3%	860	43.7%	42	2.1%	17	.9%	1967	100.0%	
		Normal Academic	397	44.8%	451	50.9%	29	3.3%	9	1.0%	886	100.0%	
		Normal Technical	172	43.2%	173	43.5%	41	10.3%	12	3.0%	398	100.0%	
		Total	1617	49.7%	1484	45.6%	112	3.4%	38	1.2%	3251	100.0%	

Most of my friends think it is important to (Singapore Science data)

				Friends think it's important to do well in science in school									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level	Sec 1	Stream	Express	205	38.3%	289	54.0%	37	6.9%	4	.7%	535	100.0%
			Normal Academic	105	35.0%	167	55.7%	23	7.7%	5	1.7%	300	100.0%
			Normal Technical	63	27.9%	114	50.4%	39	17.3%	10	4.4%	226	100.0%
			Total	373	35.2%	570	53.7%	99	9.3%	19	1.8%	1061	100.0%
	Sec 2	Stream	Express	273	44.8%	314	51.5%	21	3.4%	2	.3%	610	100.0%
			Normal Academic	66	25.9%	144	56.5%	35	13.7%	10	3.9%	255	100.0%
			Normal Technical	72	40.7%	81	45.8%	21	11.9%	3	1.7%	177	100.0%
			Total	411	39.4%	539	51.7%	77	7.4%	15	1.4%	1042	100.0%
	Sec 3	Stream	Express	244	39.7%	332	54.0%	31	5.0%	8	1.3%	615	100.0%
			Normal Academic	65	27.4%	150	63.3%	20	8.4%	2	.8%	237	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	309	36.3%	482	56.6%	51	6.0%	10	1.2%	852	100.0%
	Sec 4	Stream	Express	113	48.1%	110	46.8%	8	3.4%	4	1.7%	235	100.0%
			Normal Academic	31	32.3%	57	59.4%	7	7.3%	1	1.0%	96	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	144	43.5%	167	50.5%	15	4.5%	5	1.5%	331	100.0%
Total	Stream	Express	835	41.9%	1045	52.4%	97	4.9%	18	.9%	1995	100.0%	
		Normal Academic	267	30.1%	518	58.3%	85	9.6%	18	2.0%	888	100.0%	
		Normal Technical	135	33.5%	195	48.4%	60	14.9%	13	3.2%	403	100.0%	
		Total	1237	37.6%	1758	53.5%	242	7.4%	49	1.5%	3286	100.0%	

I think it is important to (Singapore Science data)

				Student thinks it's important to do well in science in school									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level	Sec 1	Stream	Express	360	67.3%	167	31.2%	6	1.1%	2	.4%	535	100.0%
			Normal Academic	179	59.7%	111	37.0%	8	2.7%	2	.7%	300	100.0%
			Normal Technical	118	52.4%	81	36.0%	21	9.3%	5	2.2%	225	100.0%
			Total	657	62.0%	359	33.9%	35	3.3%	9	.8%	1060	100.0%
	Sec 2	Stream	Express	404	66.6%	196	32.3%	5	.8%	2	.3%	607	100.0%
			Normal Academic	147	57.0%	98	38.0%	10	3.9%	3	1.2%	258	100.0%
			Normal Technical	102	56.4%	67	37.0%	9	5.0%	3	1.7%	181	100.0%
			Total	653	62.4%	361	34.5%	24	2.3%	8	.8%	1046	100.0%
	Sec 3	Stream	Express	398	64.6%	209	33.9%	7	1.1%	2	.3%	616	100.0%
			Normal Academic	135	57.2%	95	40.3%	6	2.5%	0	.0%	236	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	533	62.6%	304	35.7%	13	1.5%	2	.2%	852	100.0%
	Sec 4	Stream	Express	160	68.4%	71	30.3%	1	.4%	2	.9%	234	100.0%
			Normal Academic	52	54.7%	43	45.3%	0	.0%	0	.0%	95	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	212	64.4%	114	34.7%	1	.3%	2	.6%	329	100.0%
Total	Stream	Express	1322	66.4%	643	32.3%	19	1.0%	8	.4%	1992	100.0%	
		Normal Academic	513	57.7%	347	39.0%	24	2.7%	5	.6%	889	100.0%	
		Normal Technical	220	54.2%	148	36.5%	30	7.4%	8	2.0%	406	100.0%	
		Total	2055	62.5%	1138	34.6%	73	2.2%	21	.6%	3287	100.0%	


Mother thinks it's important to do well in mathematics in school (*Singapore Mathematics data*)

				strongly agree		agree		disagree		strongly disagree		Total		
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	
Level	Sec 1	Stream	express	282	59.9%	181	38.4%	8	1.7%	0	.0%	471	100.0%	
			normal	150	56.6%	107	40.4%	5	1.9%	3	1.1%	265	100.0%	
			academic											
			normal	106	49.5%	95	44.4%	11	5.1%	2	.9%	214	100.0%	
			technical											
			Total	538	56.6%	383	40.3%	24	2.5%	5	.5%	950	100.0%	
	Sec 2	Stream	express	291	60.2%	184	38.1%	6	1.2%	2	.4%	483	100.0%	
			normal	128	50.8%	118	46.8%	4	1.6%	2	.8%	252	100.0%	
			academic											
			normal	76	54.3%	46	32.9%	13	9.3%	5	3.6%	140	100.0%	
			technical											
			Total	495	56.6%	348	39.8%	23	2.6%	9	1.0%	875	100.0%	
	Sec 3	Stream	express	250	59.7%	161	38.4%	6	1.4%	2	.5%	419	100.0%	
			normal	134	46.4%	137	47.4%	16	5.5%	2				
			academic											

Father thinks it's important to do well in mathematics in school (Singapore Mathematics data)

				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	286	61.8%	170	36.7%	6	1.3%	1	.2%	463	100.0%
			normal	164	62.6%	93	35.5%	3	1.1%	2	.8%	262	100.0%
			academic	124	59.0%	79	37.6%	4	1.9%	3	1.4%	210	100.0%
			technical	574	61.4%	342	36.6%	13	1.4%	6	.6%	935	100.0%
Total													
Sec 2	Stream	Stream	express	295	61.5%	178	37.1%	4	.8%	3	.6%	480	100.0%
			normal	138	55.2%	106	42.4%	5	2.0%	1	.4%	250	100.0%
			academic	74	54.0%	53	38.7%	7	5.1%	3	2.2%	137	100.0%
			technical	507	58.5%	337	38.9%	16	1.8%	7	.8%	867	100.0%
Total													
Sec 3	Stream	Stream	express	236	57.6%	168	41.0%	5	1.2%	1	.2%	410	100.0%
			normal	149	52.7%	126	44.5%	5	1.8%	3	1.1%	283	100.0%
			academic	103	53.6%	77	40.1%	9	4.7%	3	1.6%	192	100.0%
			technical	488	55.1%	371	41.9%	19	2.1%	7	.8%	885	100.0%
Total													
Sec 4	Stream	Stream	express	122	58.4%	75	35.9%	9	4.3%	3	1.4%	209	100.0%
			normal	51	54.8%	38	40.9%	3	3.2%	1	1.1%	93	100.0%
			academic										

Friends think it's important to do well in mathematics in school (Singapore Mathematics data)

		strongly agree		agree		disagree		strongly disagree		Total	
		Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
											

I think it's important to do well in mathematics in school (Singapore Mathematics data)

	strongly agree		agree		disagree		strongly disagree		Total	
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %

My mother thinks it is important for me to (South Korea Science data)

				My mother thinks it is important for me to do well in science at school								Total	
				strongly disagree		disagree		agree		strongly agree			
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	3	.5%	38	6.5%	321	54.8%	224	38.2%	586	100.0%
			Sec2	7	1.2%	53	8.8%	320	53.4%	219	36.6%	599	100.0%
			Sec3	3	.5%	66	11.6%	298	52.4%	202	35.5%	569	100.0%
			Sec4	7	1.0%	72	9.9%	381	52.4%	267	36.7%	727	100.0%
			Total	20	.8%	229	9.2%	1320	53.2%	912	36.8%	2481	100.0%
	Suburban and Rural	Grade	Sec1	10	.9%	82	7.4%	568	51.0%	453	40.7%	1113	100.0%
			Sec2	18	1.6%	96	8.7%	591	53.8%	393	35.8%	1098	100.0%
			Sec3	10	.9%	86	7.7%	657	58.5%	370	32.9%	1123	100.0%
			Sec4	8	.8%	125	12.0%	613	58.7%	298	28.5%	1044	100.0%
			Total	46	1.1%	389	8.9%	2429	55.5%	1514	34.6%	4378	100.0%
Total	Grade	Sec1	13	.8%	120	7.1%	889	52.3%	677	39.8%	1699	100.0%	
		Sec2	25	1.5%	149	8.8%	911	53.7%	612	36.1%	1697	100.0%	
		Sec3	13	.8%	152	9.0%	955	56.4%	572	33.8%	1692	100.0%	
		Sec4	15	.8%	197	11.1%	994	56.1%	565	31.9%	1771	100.0%	
		Total	66	1.0%	618	9.0%	3749	54.7%	2426	35.4%	6859	100.0%	

My father thinks it is important for me to (South Korea Science data)

			My dad thinks it is important for me to do well in science at school									
			strongly disagree		disagree		agree		strongly agree		Total	
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Urban	Grade	Sec1	4	.7%	75	12.7%	359	61.0%	151	25.6%	589	100.0%
		Sec2	10	1.7%	80	13.4%	380	63.5%	128	21.4%	598	100.0%
		Sec3	7	1.2%	102	18.1%	332	58.8%	124	21.9%	565	100.0%
		Sec4	14	1.9%	85	11.7%	433	59.6%	195	26.8%	727	100.0%
		Total	35	1.4%	342	13.8%	1504	60.7%	598	24.1%	2479	100.0%
		Sec1	9	.8%	111	9.9%	699	62.5%	300	26.8%	1119	100.0%
		Sec2	22									

My friends think it is important to (South Korea Science data)

				My friends think it is important for me to do well in science at school								Total	
				strongly disagree		disagree		agree		strongly agree			
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	11	1.9%	57	9.7%	325	55.6%	192	32.8%	585	100.0%
			Sec2	10	1.7%	84	14.2%	327	55.1%	172	29.0%	593	100.0%
			Sec3	10	1.8%	75	13.2%	335	58.8%	150	26.3%	570	100.0%
			Sec4	8	1.1%	66	9.1%	380	52.3%	273	37.6%	727	100.0%
			Total	39	1.6%	282	11.4%	1367	55.2%	787	31.8%	2475	100.0%
	Suburban and Rural	Grade	Sec1	16	1.5%	104	9.5%	602	55.0%	372	34.0%	1094	100.0%
			Sec2	37	3.4%	125	11.5%	556	51.2%	367	33.8%	1085	100.0%
			Sec3	23	2.0%	107	9.5%	615	54.8%	377	33.6%	1122	100.0%
			Sec4	8	.8%	136	13.2%	573	55.6%	314	30.5%	1031	100.0%
			Total	84	1.9%	472	10.9%	2346	54.2%	1430	33.0%	4332	100.0%
Total	Grade	Sec1	27	1.6%	161	9.6%	927	55.2%	564	33.6%	1679	100.0%	
		Sec2	47	2.8%	209	12.5%	883	52.6%	539	32.1%	1678	100.0%	
		Sec3	33	2.0%	182	10.8%	950	56.1%	527	31.1%	1692	100.0%	
		Sec4	16	.9%	202	11.5%	953	54.2%	587	33.4%	1758	100.0%	
		Total	123	1.8%	754	11.1%	3713	54.5%	2217	32.6%	6807	100.0%	

I think it is important to (South Korea Science data)

				I think it is important to do well in science at school								Total	
				strongly disagree		disagree		agree		strongly agree			
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	6	1.0%	45	7.4%	322	53.1%	233	38.4%	606	100.0%
			Sec2	8	1.3%	58	9.6%	338	56.1%	198	32.9%	602	100.0%
			Sec3	11	1.9%	79	13.7%	297	51.5%	190	32.9%	577	100.0%
			Sec4	6	.8%	59	8.0%	350	47.7%	318	43.4%	733	100.0%
			Total	31	1.2%	241	9.6%	1307	51.9%	939	37.3%	2518	100.0%
	Suburban and Rural	Grade	Sec1	20	1.8%	69	6.1%	589	52.0%	455	40.2%	1133	100.0%
			Sec2	27	2.4%	108	9.7%	584	52.2%	399	35.7%	1118	100.0%
			Sec3	20	1.8%	103	9.1%	595	52.4%	418	36.8%	1136	100.0%
			Sec4	20	1.9%	110	10.5%	557	53.2%	360	34.4%	1047	100.0%
			Total	87	2.0%	390	8.8%	2325	52.4%	1632	36.8%	4434	100.0%
Total	Grade	Sec1	26	1.5%	114	6.6%	911	52.4%	688	39.6%	1739	100.0%	
		Sec2	35	2.0%	166	9.7%	922	53.6%	597	34.7%	1720	100.0%	
		Sec3	31	1.8%	182	10.6%	892	52.1%	608	35.5%	1713	100.0%	
		Sec4	26	1.5%	169	9.5%	907	51.0%	678	38.1%	1780	100.0%	
		Total	118	1.7%	631	9.1%	3632	52.2%	2571	37.0%	6952	100.0%	

My mother thinks it is important for me to (Thailand Science data)

				Mother thinks it's important to do well in science in school									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	1	Subject	Lower Secondary Science	90	31.1%	184	63.7%	15	5.2%	0	.0%	289	100.0%
			Total	90	31.1%	184	63.7%	15	5.2%	0	.0%	289	100.0%
2	2	Subject	Lower Secondary Science	113	40.2%	146	52.0%	22	7.8%	0	.0%	281	100.0%
			Combined Science (Bio-Chem)	1	100.0%	0	.0%	0	.0%	0	.0%	1	100.0%
			Total	114	40.4%	146	51.8%	22	7.8%	0	.0%	282	100.0%
3	3	Subject	Lower Secondary Science	101	33.9%	182	61.1%	15	5.0%	0	.0%	298	100.0%
			Total	101	33.9%	182	61.1%	15	5.0%	0	.0%	298	100.0%
4	4	Subject	Lower Secondary Science	4	33.3%	5	41.7%	3	25.0%	0	.0%	12	100.0%
			Combined Science (Bio-Chem)	2	20.0%	7	70.0%	1	10.0%	0	.0%	10	100.0%
			Combined Science (Bio-Phy)	4	30.8%	9	69.2%	0	.0%	0	.0%	13	100.0%
			Combined Science (Phy-Chem)	3	33.3%	6	66.7%	0	.0%	0	.0%	9	100.0%
			Pure Biology	36	31.3%	70	60.9%	9	7.8%	0	.0%	115	100.0%
			Pure Chem	39	41.5%	44	46.8%	10	10.6%	1	1.1%	94	100.0%
			Pure Physics	29	36.3%	47	58.8%	4	5.0%	0	.0%	80	100.0%
			Others	100	44.6%	113	50.4%	11	4.9%	0	.0%	224	100.0%
			Total	217	39.0%	301	54.0%	38	6.8%	1	.2%	557	100.0%
			Total	522	36.6%	813	57.0%	90	6.3%	1	.1%	1426	100.0%

My father thinks it is important for me to (Thailand Science data)

			Father thinks it's important to do well in science in school								Total	
			strongly agree		agree		disagree		strongly disagree		Total	
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	Subject	Lower Secondary Science	95	33.6%	175	61.8%	13	4.6%	0	.0%	283	100.0%
		Total	95	33.6%	175	61.8%	13	4.6%	0	.0%	283	100.0%
2	Subject	Lower Secondary Science	112	40.1%	137	49.1%	30	10.8%	0	.0%	279	100.0%
		Combined Science (Bio-Chem)	1	100.0%	0	.0%	0	.0%	0	.0%	1	100.0%
		Total	113	40.4%	137	48.9%	30	10.7%	0	.0%	280	100.0%
3	Subject	Lower Secondary Science	114	38.4%	171	57.6%	12	4.0%	0	.0%	297	100.0%
		Total	114	38.4%	171	57.6%	12	4.0%	0	.0%	297	100.0%
4	Subject	Lower Secondary Science	7	58.3%	3	25.0%	2	16.7%	0	.0%	12	100.0%
		Combined Science (Bio-Chem)	5	50.0%	5	50.0%	0	.0%	0	.0%	10	100.0%
		Combined Science (Bio-Phy)	3	23.1%	10	76.9%	0	.0%	0	.0%	13	100.0%
		Combined Science (Phy-Chem)	4	44.4%	5	55.6%	0	.0%	0	.0%	9	100.0%
		Pure Biology	35	31.0%	70	61.9%	8	7.1%	0	.0%	113	100.0%
		Pure Chem	41	44.6%	41	44.6%	10	10.9%	0	.0%	92	100.0%
		Pure Physics	30	37.5%	48	60.0%	2	2.5%	0	.0%	80	100.0%
		Others	99	45.8%	108	50.0%	9	4.2%	0	.0%	216	100.0%
		Total	224	41.1%	290	53.2%	31	5.7%	0	.0%	545	100.0%
Total			546	38.9%	773	55.0%	86	6.1%	0	.0%	1405	100.0%

My friends think it is important to (Thailand Science data)

				Friends think it's important to do well in science in school									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	1	Subject	Lower Secondary Science	82	28.8%	188	66.0%	15	5.3%	0	.0%	285	100.0%
			Total	82	28.8%	188	66.0%	15	5.3%	0	.0%	285	100.0%
2	2	Subject	Lower Secondary Science	96	34.4%	161	57.7%	21	7.5%	1	.4%	279	100.0%
			Combined Science (Bio-Chem)	1	100.0%	0	.0%	0	.0%	0	.0%	1	100.0%
			Total	97	34.6%	161	57.5%	21	7.5%	1	.4%	280	100.0%
3	3	Subject	Lower Secondary Science	90	30.1%	197	65.9%	12	4.0%	0	.0%	299	100.0%
			Total	90	30.1%	197	65.9%	12	4.0%	0	.0%	299	100.0%
4	4	Subject	Lower Secondary Science	3	25.0%	4	33.3%	5	41.7%	0	.0%	12	100.0%
			Combined Science (Bio-Chem)	4	40.0%	6	60.0%	0	.0%	0	.0%	10	100.0%
			Combined Science (Bio-Phy)	2	15.4%	11	84.6%	0	.0%	0	.0%	13	100.0%
			Combined Science (Phy-Chem)	2	22.2%	7	77.8%	0	.0%	0	.0%	9	100.0%
			Pure Biology	30	26.5%	66	58.4%	17	15.0%	0	.0%	113	100.0%
			Pure Chem	40	43.5%	43	46.7%	9	9.8%	0	.0%	92	100.0%
			Pure Physics	29	36.3%	42	52.5%	9	11.3%	0	.0%	80	100.0%
			Others	89	40.6%	120	54.8%	10	4.6%	0	.0%	219	100.0%
			Total	199	36.3%	299	54.6%	50	9.1%	0	.0%	548	100.0%
			Total	468	33.1%	845	59.8%	98	6.9%	1	.1%	1412	100.0%

I think it is important to (Thailand Science data)

			Student thinks it's important to do well in science in school								Total	
			strongly agree		agree		disagree		strongly disagree			
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
1	Subject	Lower Secondary Science	110	38.6%	161	56.5%	13	4.6%	1	.4%	285	100.0%
		Total	110	38.6%	161	56.5%	13	4.6%	1	.4%	285	100.0%
2	Subject	Lower Secondary Science	140	50.4%	115	41.4%	23	8.3%	0	.0%	278	100.0%
		Combined Science (Bio-Chem)	1	100.0%	0	.0%	0	.0%	0	.0%	1	100.0%
		Total	141	50.5%	115	41.2%	23	8.2%	0	.0%	279	100.0%
3		Lower Secondary Science	149	50.0%	135	45.3%	14	4.7%	0	.0%	298	100.0%

Appendix 3

My mother thinks it is important for me to (Singapore Science data)

				Mother thinks it's important to be good at sports									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level	Sec 1	Stream Express	89	16.6%	332	61.9%	106	19.8%	9	1.7%	536	100.0%	
		Normal Academic	65	21.5%	191	63.0%	44	14.5%	3	1.0%	303	100.0%	
		Normal Technical	68	30.0%	118	52.0%	37	16.3%	4	1.8%	227	100.0%	
		Total	222	20.8%	641	60.1%	187	17.5%	16	1.5%	1066	100.0%	
	Sec 2	Stream Express	121	19.9%	354	58.1%	123	20.2%	11	1.8%	609	100.0%	
		Normal Academic	61	23.9%	147	57.6%	38	14.9%	9	3.5%	255	100.0%	
		Normal Technical	40	22.3%	100	55.9%	33	18.4%	6	3.4%	179	100.0%	
		Total	222	21.3%	601	57.6%	194	18.6%	26	2.5%	1043	100.0%	
	Sec 3	Stream Express	93	15.2%	348	56.9%	155	25.3%	16	2.6%	612	100.0%	
		Normal Academic	39	16.4%	146	61.3%	49	20.6%	4	1.7%	238	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	132	15.5%	494	58.1%	204	24.0%	20	2.4%	850	100.0%	
	Sec 4	Stream Express	46	19.5%	127	53.8%	52	22.0%	11	4.7%	236	100.0%	
		Normal Academic	16	16.7%	62	64.6%	17	17.7%	1	1.0%	96	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	62	18.7%	189	56.9%	69	20.8%	12	3.6%	332	100.0%	
Total	Stream	Express	349	17.5%	1161	58.3%	436	21.9%	47	2.4%	1993	100.0%	
		Normal Academic	181	20.3%	546	61.2%	148	16.6%	17	1.9%	892	100.0%	
		Normal Technical	108	26.6%	218	53.7%	70	17.2%	10	2.5%	406	100.0%	
		Total	638	19.4%	1925	58.5%	654	19.9%	74	2.2%	3291	100.0%	

My father thinks it is important for me to (Singapore Science data)

				Father thinks it's important to be good at sports									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level	Sec 1	Stream	Express	159	29.9%	291	54.8%	65	12.2%	16	3.0%	531	100.0%
			Normal Academi	108	35.8%	160	53.0%	29	9.6%	5	1.7%	302	100.0%
			Normal Technica	76	34.4%	109	49.3%	26	11.8%	10	4.5%	221	100.0%
			Total	343	32.5%	560	53.1%	120	11.4%	31	2.9%	1054	100.0%
	Sec 2	Stream	Express	183	30.7%	315	52.9%	89	14.9%	9	1.5%	596	100.0%
			Normal Academi	89	35.2%	127	50.2%	27	10.7%	10	4.0%	253	100.0%
			Normal Technica	63	36.2%	83	47.7%	22	12.6%	6	3.4%	174	100.0%
			Total	335	32.7%	525	51.3%	138	13.5%	25	2.4%	1023	100.0%
	Sec 3	Stream	Express	159	26.2%	330	54.4%	98	16.1%	20	3.3%	607	100.0%
			Normal Academi	66	27.8%	129	54.4%	37	15.6%	5	2.1%	237	100.0%
			Normal Technica	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	225	26.7%	459	54.4%	135	16.0%	25	3.0%	844	100.0%
	Sec 4	Stream	Express	69	29.6%	117	50.2%	34	14.6%	13	5.6%	233	100.0%
			Normal Academi	22	23.7%	61	65.6%	8	8.6%	2	2.2%	93	100.0%
			Normal Technica	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	91	27.9%	178	54.6%	42	12.9%	15	4.6%	326	100.0%
Total	Stream	Express	570	29.0%	1053	53.5%	286	14.5%	58	2.9%	1967	100.0%	
		Normal Academi	285	32.2%	477	53.9%	101	11.4%	22	2.5%	885	100.0%	
		Normal Technica	139	35.2%	192	48.6%	48	12.2%	16	4.1%	395	100.0%	
		Total	994	30.6%	1722	53.0%	435	13.4%	96	3.0%	3247	100.0%	

Most of my friends think it is important to (Singapore Science data)

				Friends thinks it's important to be good at sports									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream	Express	201	37.5%	264	49.3%	65	12.1%	6	1.1%	536	100.0%	
		Normal Academic	142	47.2%	124	41.2%	29	9.6%	6	2.0%	301	100.0%	
		Normal Technical	80	35.4%	118	52.2%	21	9.3%	7	3.1%	226	100.0%	
		Total	423	39.8%	506	47.6%	115	10.8%	19	1.8%	1063	100.0%	
Sec 2	Stream	Express	191	31.4%	328	53.9%	75	12.3%	15	2.5%	609	100.0%	
		Normal Academic	95	37.3%	116	45.5%	37	14.5%	7	2.7%	255	100.0%	
		Normal Technical	73	41.2%	79	44.6%	18	10.2%	7	4.0%	177	100.0%	
		Total	359	34.5%	523	50.2%	130	12.5%	29	2.8%	1041	100.0%	
Sec 3	Stream	Express	188	30.6%	330	53.7%	85	13.8%	11	1.8%	614	100.0%	
		Normal Academic	71	30.0%	128	54.0%	31	13.1%	7	3.0%	237	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	259	30.4%	458	53.8%	116	13.6%	18	2.1%	851	100.0%	
Sec 4	Stream	Express	78	33.2%	117	49.8%	37	15.7%	3	1.3%	235	100.0%	
		Normal Academic	34	35.4%	46	47.9%	15	15.6%	1	1.0%	96	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	112	33.8%	163	49.2%	52	15.7%	4	1.2%	331	100.0%	
Total	Stream	Express	658	33.0%	1039	52.1%	262	13.1%	35	1.8%	1994	100.0%	
		Normal Academic	342	38.5%	414	46.6%	112	12.6%	21	2.4%	889	100.0%	
		Normal Technical	153	38.0%	197	48.9%	39	9.7%	14	3.5%	403	100.0%	
		Total	1153	35.1%	1650	50.2%	413	12.6%	70	2.1%	3286	100.0%	

I think it is important to (Singapore Science data)

				Student thinks it's important to be good at sports									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level	Sec 1	Stream	Express	290	54.1%	191	35.6%	46	8.6%	9	1.7%	536	100.0%
			Normal Academic	164	54.5%	110	36.5%	19	6.3%	8	2.7%	301	100.0%
			Normal Technical	119	52.4%	88	38.8%	16	7.0%	4	1.8%	227	100.0%
			Total	573	53.9%	389	36.6%	81	7.6%	21	2.0%	1064	100.0%
	Sec 2	Stream	Express	299	49.3%	240	39.5%	56	9.2%	12	2.0%	607	100.0%
			Normal Academic	137	53.3%	94	36.6%	21	8.2%	5	1.9%	257	100.0%
			Normal Technical	96	53.0%	64	35.4%	15	8.3%	6	3.3%	181	100.0%
			Total	532	50.9%	398	38.1%	92	8.8%	23	2.2%	1045	100.0%
	Sec 3	Stream	Express	285	46.3%	252	40.9%	65	10.6%	14	2.3%	616	100.0%
			Normal Academic	109	46.2%	99	41.9%	26	11.0%	2	.8%	236	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	394	46.2%	351	41.2%	91	10.7%	16	1.9%	852	100.0%
	Sec 4	Stream	Express	118	50.2%	85	36.2%	25	10.6%	7	3.0%	235	100.0%
			Normal Academic	47	49.5%	39	41.1%	8	8.4%	1	1.1%	95	100.0%
			Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	165	50.0%	124	37.6%	33	10.0%	8	2.4%	330	100.0%
Total	Stream	Express	992	49.7%	768	38.5%	192	9.6%	42	2.1%	1994	100.0%	
		Normal Academic	457	51.4%	342	38.5%	74	8.3%	16	1.8%	889	100.0%	
		Normal Technical	215	52.7%	152	37.3%	31	7.6%	10	2.5%	408	100.0%	
		Total	1664	50.6%	1262	38.3%	297	9.0%	68	2.1%	3291	100.0%	

Mother thinks it's important to be good at sports (Singapore Mathematics data)

				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	96	20.4%	281	59.8%	81	17.2%	12	2.6%	470	100.0%
			normal academic	57	21.4%	174	65.4%	24	9.0%	11	4.1%	266	100.0%
			normal technical	64	29.9%	103	48.1%	39	18.2%	8	3.7%	214	100.0%
			Total	217	22.8%	558	58.7%	144	15.2%	31	3.3%	950	100.0%
	Sec 2	Stream	express	83	17.2%	280	58.1%	109	22.6%	10	2.1%	482	100.0%
			normal academic	34	13.5%	162	64.3%	46	18.3%	10	4.0%	252	100.0%
			normal technical	26	18.6%	82	58.6%	25	17.9%	7	5.0%	140	100.0%
			Total	143	16.4%	524	60.0%	180	20.6%	27	3.1%	874	100.0%
	Sec 3	Stream	express	72	17.3%	224	53.7%	109	26.1%	12	2.9%	417	100.0%
			normal academic	43	14.9%	172	59.7%	60	20.8%	13	4.5%	288	100.0%
			normal technical	45	23.1%	107	54.9%	36	18.5%	7	3.6%	195	100.0%
			Total	160	17.8%	503	55.9%	205	22.8%	32	3.6%	900	100.0%
	Sec 4	Stream	express	30	14.1%	114	53.5%	60	28.2%	9	4.2%	213	100.0%
			normal academic	13	13.7%	47	49.5%	30	31.6%	5	5.3%	95	100.0%
			normal technical	17	20.5%	46	55.4%	14	16.9%	6	7.2%	83	100.0%
			Total	60	15.3%	207	52.9%	104	26.6%	20	5.1%	391	100.0%
Total	Stream	express	281	17.8%	899	56.8%	359	22.7%	43	2.7%	1582	100.0%	
		normal academic	147	16.3%	555	61.6%	160	17.8%	39	4.3%	901	100.0%	
		normal technical	152	24.1%	338	53.5%	114	18.0%	28	4.4%	632	100.0%	
		Total	580	18.6%	1792	57.5%	633	20.3%	110	3.5%	3115	100.0%	

Father thinks it's important to be good at sports (Singapore Mathematics data)

				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	157	34.1%	239	51.8%	58	12.6%	7	1.5%	461	100.0%
			normal academic	91	34.7%	136	51.9%	27	10.3%	8	3.1%	262	100.0%
			normal technical	72	34.4%	98	46.9%	31	14.8%	8	3.8%	209	100.0%
			Total	320	34.3%	473	50.8%	116	12.4%	23	2.5%	932	100.0%
	Sec 2	Stream	express	137	28.6%	256	53.4%	76	15.9%	10	2.1%	479	100.0%
			normal academic	77	30.8%	130	52.0%	36	14.4%	7	2.8%	250	100.0%
			normal technical	36	26.3%	81	59.1%	15	10.9%	5	3.6%	137	100.0%
			Total	250	28.9%	467	53.9%	127	14.7%	22	2.5%	866	100.0%
	Sec 3	Stream	express	127	30.9%	199	48.4%	74	18.0%	11	2.7%	411	100.0%
			normal academic	71	25.1%	164	58.0%	44	15.5%	4	1.4%	283	100.0%
			normal technical	60	31.4%	98	51.3%	31	16.2%	2	1.0%	191	100.0%
			Total	258	29.2%	461	52.1%	149	16.8%	17	1.9%	885	100.0%
	Sec 4	Stream	express	53	25.4%	116	55.5%	36	17.2%	4	1.9%	209	100.0%
			normal academic	24	25.8%	47	50.5%	19	20.4%	3	3.2%	93	100.0%
			normal technical	31	38.8%	36	45.0%	10	12.5%	3	3.8%	80	100.0%
			Total	108	28.3%	199	52.1%	65	17.0%	10	2.6%	382	100.0%
Total	Stream	express	474	30.4%	810	51.9%	244	15.6%	32	2.1%	1560	100.0%	
		normal academic	263	29.6%	477	53.7%	126	14.2%	22	2.5%	888	100.0%	
		normal technical	199	32.3%	313	50.7%	87	14.1%	18	2.9%	617	100.0%	
		Total	936	30.5%	1600	52.2%	457						

Friends think it's important to be good at sports (Singapore Mathematics data)

				strongly agree		agree		disagree		strongly disagree		Total		
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	
Level	Sec 1	Stream	express	157	33.4%	251	53.4%	54	11.5%	8	1.7%	470	100.0%	
			normal	106	40.0%	136	51.3%	23	8.7%	0	.0%	265	100.0%	
			academic											
			technical	93	43.7%	92	43.2%	26	12.2%	2	.9%	213	100.0%	
			Total	356	37.6%	479	50.5%	103	10.9%	10	1.1%	948	100.0%	
	Sec 2	Stream	express	141	29.3%	263	54.7%	69	14.3%	8	1.7%	481	100.0%	
			normal	77	30.4%	132	52.2%	42	16.6%	2	.8%	253	100.0%	
			academic											
			technical	42	30.0%	77	55.0%	14	10.0%	7	5.0%	140	100.0%	
			Total	260	29.7%	472	54.0%	125	14.3%	17	1.9%	874	100.0%	
	Sec 3	Stream	express	106	25.4%	212	50.7%	89	21.3%	11	2.6%	418	100.0%	
			normal	80	27.8%	159	55.2%	47	16.3%	2	.7%	288	100.0%	
			academic											
			technical	66	33.7%	99	50.5%	27	13.8%	4	2.0%	196	100.0%	
			Total	252	27.9%	470	52.1%	163	18.1%	17	1.9%	902	100.0%	
	Sec 4	Stream	express	52	24.4%	118	55.4%	41	19.2%	2	.9%	213	100.0%	
			normal	20	20.6%	51	52.6%	25	25.8%	1				
			academic											

I think it's important to be good at sports (Singapore Mathematics data)

				strongly agree		agree		disagree		strongly disagree		Total		
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	
Level	Sec 1	Stream	express	238	50.5%	188	39.9%	35	7.4%	10	2.1%	471	100.0%	
			normal	144	54.1%	92	34.6%	23	8.6%	7	2.6%	266	100.0%	
			academic											
			technical	112	51.9%	77	35.6%	23	10.6%	4	1.9%	216	100.0%	
Total				494	51.8%	357	37.5%	81	8.5%	21	2.2%	953	100.0%	
	Sec 2	Stream	express	228	47.3%	185	38.4%	55	11.4%	14	2.9%	482	100.0%	
			normal	111	43.9%	107	42.3%	27	10.7%	8	3.2%	253	100.0%	
			academic											
			technical	55	39.6%	66	47.5%	15	10.8%	3	2.2%	139	100.0%	
Total				394	45.1%	358	41.0%	97	11.1%	25	2.9%	874	100.0%	
	Sec 3	Stream	express	202	48.1%	151	36.0%	53	12.6%	14	3.3%	420	100.0%	
			normal	115	39.8%	128	44.3%	35	12.1%	11	3.8%	289	100.0%	
			academic											
			technical	81	41.8%	78	40.2%	32	16.5%	3	1.5%	194	100.0%	
Total				398	44.1%	357	39.5%	120	13.3%	28	3.1%	903	100.0%	
	Sec 4	Stream	express	100	47.2%	82	38.7%	26	12.3%	4	1.9%	212	100.0%	
			normal	36	37.1%	46	47.4%	13	13.4%	2	2.1%	97	100.0%	
			academic											
			technical	43	53.1%	26	32.1%	7	8.6%	5	6.2%	81	100.0%	
Total				179	45.9%	154	39.5%	46	11.8%	11	2.8%	390	100.0%	
Total	Stream	express	768	48.5%	606	38.2%	169	10.7%	42	2.6%	1585	100.0%		
		normal	406	44.9%	373	41.2%	98	10.8%	28	3.1%	905	100.0%		
		academic												
		technical	291	46.2%	247	39.2%	77	12.2%	15	2.4%	630	100.0%		
Total				1465	47.0%	1226	39.3%	344	11.0%	85	2.7%	3120	100.0%	

My mother thinks it is important for me to (South Korea Science data)

				My mother thinks it is important for me to be good at sports								Total	
				strongly disagree		disagree		agree		strongly agree			
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	15	2.6%	101	17.4%	271	46.6%	195	33.5%	582	100.0%
			Sec2	14	2.3%	125	20.9%	285	47.7%	174	29.1%	598	100.0%
			Sec3	18	3.2%	149	26.3%	234	41.3%	165	29.2%	566	100.0%
			Sec4	25	3.4%	173	23.8%	361	49.6%	169	23.2%	728	100.0%
			Total	72	2.9%	548	22.2%	1151	46.5%	703	28.4%	2474	100.0%
	Suburban and Rural	Grade	Sec1	39	3.5%	211	19.0%	464	41.8%	396	35.7%	1110	100.0%
			Sec2	36	3.3%	219	19.9%	496	45.2%	347	31.6%	1098	100.0%
			Sec3	40	3.6%	239	21.3%	554	49.3%	291	25.9%	1124	100.0%
			Sec4	37	3.6%	282	27.1%	477	45.9%	243	23.4%	1039	100.0%
			Total	152	3.5%	951	21.8%	1991	45.6%	1277	29.2%	4371	100.0%
Total	Grade	Sec1	54	3.2%	312	18.4%	735	43.4%	591	34.9%	1692	100.0%	
		Sec2	50	2.9%	344	20.3%	781	46.0%	521	30.7%	1696	100.0%	
		Sec3	58	3.4%	388	23.0%	788	46.6%	456	27.0%	1690	100.0%	
		Sec4	62	3.5%	455	25.7%	838	47.4%	412	23.3%	1767	100.0%	
		Total	224	3.3%	1499	21.9%	3142	45.9%	1980	28.9%	6845	100.0%	

My father thinks it is important for me to (South Korea Science data)

				My dad thinks it is important for me to be good at sports								Total	
				strongly disagree		disagree		agree		strongly agree			
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	8	1.4%	111	18.8%	291	49.4%	179	30.4%	589	100.0%
			Sec2	15	2.5%	131	22.0%	290	48.7%	160	26.8%	596	100.0%
			Sec3	15	2.7%	140	24.8%	286	50.7%	123	21.8%	564	100.0%
			Sec4	27	3.7%	167	23.0%	376	51.9%	155	21.4%	725	100.0%
			Total	65	2.6%	549	22.2%	1243	50.2%	617	24.9%	2474	100.0%
	Suburban and Rural	Grade	Sec1	20	1.8%	228	20.5%	534	47.9%	332	29.8%	1114	100.0%
			Sec2	42	3.8%	217	19.7%	557	50.7%	283	25.8%	1099	100.0%
			Sec3	34	3.0%	239	21.3%	591	52.6%	260	23.1%	1124	100.0%
			Sec4	36	3.5%	283	27.2%	512	49.2%	210	20.2%	1041	100.0%
			Total	132	3.0%	967	22.1%	2194	50.1%	1085	24.8%	4378	100.0%
Total	Grade	Sec1	28	1.6%	339	19.9%	825	48.4%	511	30.0%	1703	100.0%	
		Sec2	57	3.4%	348	20.5%	847	50.0%	443	26.1%	1695	100.0%	
		Sec3	49	2.9%	379	22.5%	877	52.0%	383	22.7%	1688	100.0%	
		Sec4	63	3.6%	450	25.5%	888	50.3%	365	20.7%	1766	100.0%	
		Total	197	2.9%	1516	22.1%	3437	50.2%	1702	24.8%	6852	100.0%	

My friends think it is important for me to (South Korea Science data)

				My friends think it is important for me to be good at sports								Total	
				strongly disagree		disagree		agree		strongly agree			
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	14	2.4%	87	14.9%	254	43.6%	228	39.1%	583	100.0%
			Sec2	21	3.5%	104	17.5%	263	44.3%	206	34.7%	594	100.0%
			Sec3	17	3.0%	111	19.6%	256	45.1%	183	32.3%	567	100.0%
			Sec4	23	3.2%	146	20.1%	319	43.9%	238	32.8%	726	100.0%
			Total	75	3.0%	448	18.1%	1092	44.2%	855	34.6%	2470	100.0%
	Suburban and Rural	Grade	Sec1	21	1.9%	161	14.7%	489	44.8%	421	38.6%	1092	100.0%
			Sec2	46	4.2%	173	16.0%	461	42.5%	404	37.3%	1084	100.0%
			Sec3	34	3.0%	175	15.7%	539	48.2%	370	33.1%	1118	100.0%
			Sec4	44	4.3%	214	20.8%	471	45.7%	302	29.3%	1031	100.0%
			Total	145	3.4%	723	16.7%	1960	45.3%	1497	34.6%	4325	100.0%
Total	Grade	Sec1	35	2.1%	248	14.8%	743	44.4%	649	38.7%	1675	100.0%	
		Sec2	67	4.0%	277	16.5%	724	43.1%	610	36.4%	1678	100.0%	
		Sec3	51	3.0%	286	17.0%	795	47.2%	553	32.8%	1685	100.0%	
		Sec4	67	3.8%	360	20.5%	790	45.0%	540	30.7%	1757	100.0%	
		Total	220	3.2%	1171	17.2%	3052	44.9%	2352	34.6%	6795	100.0%	

I think it is important for me to (South Korea Science data)

				I think it is important for me to be good at sports								Total	
				strongly disagree		disagree		agree		strongly agree			
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	17	2.8%	81	13.4%	246	40.6%	262	43.2%	606	100.0%
			Sec2	13	2.1%	82	13.6%	274	45.3%	236	39.0%	605	100.0%
			Sec3	26	4.5%	94	16.3%	240	41.6%	217	37.6%	577	100.0%
			Sec4	30	4.1%	122	16.6%	319	43.5%	262	35.7%	733	100.0%
			Total	86	3.4%	379	15.0%	1079	42.8%	977	38.8%	2521	100.0%
	Suburban and Rural	Grade	Sec1	35	3.1%	164	14.5%	460	40.7%	472	41.7%	1131	100.0%
			Sec2	51	4.6%	147	13.2%	458	41.1%	459	41.2%	1115	100.0%
			Sec3	41	3.6%	167	14.7%	490	43.1%	439	38.6%	1137	100.0%
			Sec4	41	3.9%	169	16.2%	438	41.9%	397	38.0%	1045	100.0%
			Total	168	3.8%	647	14.6%	1846	41.7%	1767	39.9%	4428	100.0%
Total	Grade	Sec1	52	3.0%	245	14.1%	706	40.6%	734	42.3%	1737	100.0%	
		Sec2	64	3.7%	229	13.3%	732	42.6%	695	40.4%	1720	100.0%	
		Sec3	67	3.9%	261	15.2%	730	42.6%	656	38.3%	1714	100.0%	
		Sec4	71	4.0%	291	16.4%	757	42.6%	659	37.1%	1778	100.0%	
		Total	254	3.7%	1026	14.8%	2925	42.1%	2744	39.5%	6949	100.0%	

My mother thinks it is important for me to (Thailand Science data)

				Mother thinks it's important to be good at sports									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	1	Subject	Lower Secondary Science	64	22.4%	160	55.9%	55	19.2%	7	2.4%	286	100.0%
			Total	64	22.4%	160	55.9%	55	19.2%	7	2.4%	286	100.0%
2	2	Subject	Lower Secondary Science	74	26.4%	155	55.4%	44	15.7%	7	2.5%	280	100.0%
			Combined Science (Bio-Chem)	0	.0%	1	100.0%	0	.0%	0	.0%	1	100.0%
			Total	74	26.3%	156	55.5%	44	15.7%	7	2.5%	281	100.0%
3	3	Subject	Lower Secondary Science	59	19.7%	192	64.2%	46	15.4%	2	.7%	299	100.0%
			Total	59	19.7%	192	64.2%	46	15.4%	2	.7%	299	100.0%
4	4	Subject	Lower Secondary Science	1	8.3%	9	75.0%	2	16.7%	0	.0%	12	100.0%
			Combined Science (Bio-Chem)	2	20.0%	6	60.0%	2	20.0%	0	.0%	10	100.0%
			Combined Science (Bio-Phy)	4	30.8%	7	53.8%	2	15.4%	0	.0%	13	100.0%
			Combined Science (Phy-Chem)	0	.0%	3	33.3%	6	66.7%	0	.0%	9	100.0%
			Pure Biology	14	12.2%	69	60.0%	32	27.8%	0	.0%	115	100.0%
			Pure Chem	20	21.3%	55	58.5%	18	19.1%	1	1.1%	94	100.0%
			Pure Physics	20	25.0%	41	51.3%	18	22.5%	1	1.3%	80	100.0%
			Others	39	17.4%	136	60.7%	45	20.1%	4	1.8%	224	100.0%
			Total	100	18.0%	326	58.5%	125	22.4%	6	1.1%	557	100.0%
			Total	297	20.9%	834	58.6%	270	19.0%	22	1.5%	1423	100.0%

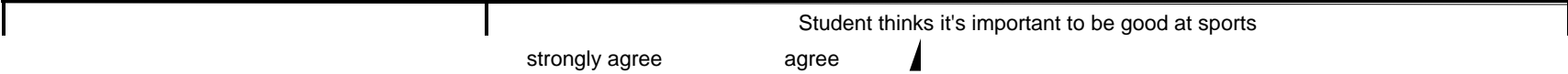
My father thinks it is important for me to (Thailand Science data)

			Father thinks it's important to be good at sports								Total	
			strongly agree		agree		disagree		strongly disagree			
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
1	Subject	Lower Secondary Science	77	27.3%	158	56.0%	41	14.5%	6	2.1%	282	100.0%
		Total	77	27.3%	158	56.0%	41	14.5%	6	2.1%	282	100.0%
2	Subject	Lower Secondary Science	94	33.7%	139	49.8%	42	15.1%	4	1.4%	279	100.0%
		Combined Science (Bio-Chem)	0	.0%	1	100.0%	0	.0%	0	.0%	1	100.0%
		Total	94	33.6%	140	50.0%	42	15.0%	4	1.4%	280	100.0%
3	Subject	Lower Secondary Science	84	28.3%	179	60.3%	32	10.8%	2	.7%	297	100.0%
		Total	84	28.3%	179	60.3%	32	10.8%	2	.7%	297	100.0%
		Lower Secondary Science	4	33.3%	6	50.0%	2	16.7%	0	.0%	12	100.0%
		Combined Science (Bio-Chem)	2	20.0%	7	70.0%	1	10.0%	0	.0%	10	100.0%
		Combined Science (Bio-Phy)	8	61.5%	4	30.8%	1	7.7%	0	.0%	13	100.0%
		Combined Science (Phy-Chem)	1	11.1%	3	33.3%	5	55.6%	0	.0%	9	100.0%
		Pure Biology	20	17.7%	67	59.3%	23	20.4%	3	2.7%	113	100.0%
		Pure Chem	27	29.3%	44	47.8%	21	22.8%	0	.0%	92	100.0%
		Pure Physics	23	28.8%	42	52.5%	15	18.8%	0	.0%	80	100.0%
		Others	53	24.5%	121	56.0%	37	17.1%	5	2.3%	216	100.0%
		Total										

My friends think it is important for me to (Thailand Science data)

				Friends thinks it's important to be good at sports									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	1	Subject	Lower Secondary Science	74	26.0%	153	53.7%	50	17.5%	8	2.8%	285	100.0%
			Total	74	26.0%	153	53.7%	50	17.5%	8	2.8%	285	100.0%
2	2	Subject	Lower Secondary Science	86	30.9%	146	52.5%	39	14.0%	7	2.5%	278	100.0%
			Combined Science (Bio-Chem)	0	.0%	1	100.0%	0	.0%	0	.0%	1	100.0%
			Total	86	30.8%	147	52.7%	39	14.0%	7	2.5%	279	100.0%
3	3	Subject	Lower Secondary Science	84	28.1%	173	57.9%	41	13.7%	1	.3%	299	100.0%
			Total	84	28.1%	173	57.9%	41	13.7%	1	.3%	299	100.0%
4	4	Subject	Lower Secondary Science	2	16.7%	8	66.7%	2	16.7%	0	.0%	12	100.0%
			Combined Science (Bio-Chem)	3	30.0%	5	50.0%	2	20.0%	0	.0%	10	100.0%
			Combined Science (Bio-Phy)	10	76.9%	2	15.4%	1	7.7%	0	.0%	13	100.0%
			Combined Science (Phy-Chem)	2	22.2%	3	33.3%	4	44.4%	0	.0%	9	100.0%
			Pure Biology	16	14.2%	72	63.7%	22	19.5%	3	2.7%	113	100.0%
			Pure Chem	32	34.8%	41	44.6%	19	20.7%	0	.0%	92	100.0%
			Pure Physics	20	25.0%	42	52.5%	18	22.5%	0	.0%	80	100.0%
			Others	63	28.9%	117	53.7%	36	16.5%	2	.9%	218	100.0%
			Total	148	27.1%	290	53.0%	104	19.0%	5	.9%	547	100.0%
			Total	392	27.8%	763	54.1%	234	16.6%	21	1.5%	1410	100.0%

I think it is important for me to (Thailand Science data)



Appendix 4

I need to do well in science (Singapore Science data)

				To get the job i want									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream	Express	134	25.0%	223	41.6%	160	29.9%	19	3.5%	536	100.0%	
		Normal Academi	73	24.4%	120	40.1%	89	29.8%	17	5.7%	299	100.0%	
		Normal Technica	68	29.7%	93	40.6%	56	24.5%	12	5.2%	229	100.0%	
		Total	275	25.8%	436	41.0%	305	28.7%	48	4.5%	1064	100.0%	
Sec 2	Stream	Express	163	26.7%	276	45.2%	150	24.6%	21	3.4%	610	100.0%	
		Normal Academi	61	23.6%	102	39.5%	83	32.2%	12	4.7%	258	100.0%	
		Normal Technica	46	25.3%	82	45.1%	44	24.2%	10	5.5%	182	100.0%	
		Total	270	25.7%	460	43.8%	277	26.4%	43	4.1%	1050	100.0%	
Sec 3	Stream	Express	176	28.6%	264	42.9%	154	25.0%	21	3.4%	615	100.0%	
		Normal Academi	46	19.3%	94	39.5%	89	37.4%	9	3.8%	238	100.0%	
		Normal Technica	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	222	26.0%	358	42.0%	243	28.5%	30	3.5%	853	100.0%	
Sec 4	Stream	Express	72	30.8%	87	37.2%	64	27.4%	11	4.7%	234	100.0%	
		Normal Academi	20	21.3%	48	51.1%	21	22.3%	5	5.3%	94	100.0%	
		Normal Technica	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	92	28.0%	135	41.2%	85	25.9%	16	4.9%	328	100.0%	
Total	Stream	Express	545	27.3%	850	42.6%	528	26.5%	72	3.6%	1995	100.0%	
		Normal Academi	200	22.5%	364	40.9%	282	31.7%	43	4.8%	889	100.0%	
		Normal Technica	114	27.7%	175	42.6%	100	24.3%	22	5.4%	411	100.0%	
		Total	859	26.1%	1389	42.2%	910	27.6%	137	4.2%	3295	100.0%	

I need to do well in science (Singapore Science data)

				To please my parents									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream	Express	126	23.5%	245	45.7%	134	25.0%	31	5.8%	536	100.0%	
		Normal Academic	89	29.8%	118	39.5%	78	26.1%	14	4.7%	299	100.0%	
		Normal Technical	59	26.2%	92	40.9%	61	27.1%	13	5.8%	225	100.0%	
		Total	274	25.8%	455	42.9%	273	25.8%	58	5.5%	1060	100.0%	
Sec 2	Stream	Express	122	20.0%	274	45.0%	179	29.4%	34	5.6%	609	100.0%	
		Normal Academic	59	23.0%	106	41.2%	76	29.6%	16	6.2%	257	100.0%	
		Normal Technical	41	22.7%	75	41.4%	57	31.5%	8	4.4%	181	100.0%	
		Total	222	21.2%	455	43.5%	312	29.8%	58	5.5%	1047	100.0%	
Sec 3	Stream	Express	118	19.2%	275	44.8%	180	29.3%	41	6.7%	614	100.0%	
		Normal Academic	38	16.0%	96	40.3%	88	37.0%	16	6.7%	238	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	156	18.3%	371	43.5%	268	31.5%	57	6.7%	852	100.0%	
Sec 4	Stream	Express	34	14.5%	110	47.0%	75	32.1%	15	6.4%	234	100.0%	
		Normal Academic	15	15.6%	42	43.8%	33	34.4%	6	6.3%	96	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	49	14.8%	152	46.1%	108	32.7%	21	6.4%	330	100.0%	
Total	Stream	Express	400	20.1%	904	45.4%	568	28.5%	121	6.1%	1993	100.0%	
		Normal Academic	201	22.6%	362	40.7%	275	30.9%	52	5.8%	890	100.0%	
		Normal Technical	100	24.6%	167	41.1%	118	29.1%	21	5.2%	406	100.0%	
		Total	701	21.3%	1433	43.6%	961	29.2%	194	5.9%	3289	100.0%	

I need to do well in science (Singapore Science data)

				To continue my education									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level	Sec 1	Stream	Express	243	45.4%	274	51.2%	16	3.0%	2	.4%	535	100.0%
			Normal Academ	135	45.0%	143	47.7%	16	5.3%	6	2.0%	300	100.0%
			Normal Technica	94	41.0%	104	45.4%	25	10.9%	6	2.6%	229	100.0%
			Total	472	44.4%	521	49.0%	57	5.4%	14	1.3%	1064	100.0%
	Sec 2	Stream	Express	254	41.8%	318	52.3%	28	4.6%	8	1.3%	608	100.0%
			Normal Academ	99	38.4%	125	48.4%	26	10.1%	8	3.1%	258	100.0%
			Normal Technica	73	40.1%	90	49.5%	14	7.7%	5	2.7%	182	100.0%
			Total	426	40.6%	533	50.9%	68	6.5%	21	2.0%	1048	100.0%
	Sec 3	Stream	Express	247	40.2%	335	54.5%	26	4.2%	7	1.1%	615	100.0%
			Normal Academ	82	34.5%	135	56.7%	17	7.1%	4	1.7%	238	100.0%
			Normal Technica	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	329	38.6%	470	55.1%	43	5.0%	11	1.3%	853	100.0%
	Sec 4	Stream	Express	102	43.4%	112	47.7%	15	6.4%	6	2.6%	235	100.0%
			Normal Academ	33	34.4%	62	64.6%	1	1.0%	0	.0%	96	100.0%
			Normal Technica	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%
			Total	135	40.8%	174	52.6%	16	4.8%	6	1.8%	331	100.0%
	Total	Stream	Express	846	42.4%	1039	52.1%	85	4.3%	23	1.2%	1993	100.0%
			Normal Academ	349	39.1%	465	52.1%	60	6.7%	18	2.0%	892	100.0%
			Normal Technica	167	40.6%	194	47.2%	39	9.5%	11	2.7%	411	100.0%
			Total	1362	41.3%	1698	51.5%	184	5.6%	52	1.6%	3296	100.0%

I need to do well in science (Singapore Science data)

				To please myself									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream Express	197	36.8%	247	46.2%	80	15.0%	11	2.1%	535	100.0%		
	Normal Academic	93	31.1%	136	45.5%	56	18.7%	14	4.7%	299	100.0%		
	Normal Technical	87	37.8%	99	43.0%	29	12.6%	15	6.5%	230	100.0%		
	Total	377	35.4%	482	45.3%	165	15.5%	40	3.8%	1064	100.0%		
Sec 2	Stream Express	211	34.6%	287	47.1%	93	15.3%	18	3.0%	609	100.0%		
	Normal Academic	81	31.4%	114	44.2%	46	17.8%	17	6.6%	258	100.0%		
	Normal Technical	53	29.3%	85	47.0%	33	18.2%	10	5.5%	181	100.0%		
	Total	345	32.9%	486	46.4%	172	16.4%	45	4.3%	1048	100.0%		
Sec 3	Stream Express	213	34.7%	288	46.9%	82	13.4%	31	5.0%	614	100.0%		
	Normal Academic	68	28.6%	115	48.3%	52	21.8%	3	1.3%	238	100.0%		
	Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%		
	Total	281	33.0%	403	47.3%	134	15.7%	34	4.0%	852	100.0%		
Sec 4	Stream Express	86	36.8%	117	50.0%	25	10.7%	6	2.6%	234	100.0%		
	Normal Academic	31	32.3%	51	53.1%	13	13.5%	1	1.0%	96	100.0%		
	Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%		
	Total	117	35.5%	168	50.9%	38	11.5%	7	2.1%	330	100.0%		
Total	Stream Express	707	35.5%	939	47.1%	280	14.1%	66	3.3%	1992	100.0%		
	Normal Academic	273	30.6%	416	46.7%	167	18.7%	35	3.9%	891	100.0%		
	Normal Technical	140	34.1%	184	44.8%	62	15.1%	25	6.1%	411	100.0%		
	Total	1120	34.0%	1539	46.7%	509	15.5%	126	3.8%	3294	100.0%		

I need to do well in mathematics..... (Singapore Mathematics data)

				To get the job i want										
				strongly agree		agree		disagree		strongly disagree		Total		
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	
Level	Sec 1	Stream	express	157	33.3%	209	44.4%	82	17.4%	23	4.9%	471	100.0%	
			normal	100	37.6%	116	43.6%	41	15.4%	9	3.4%	266	100.0%	
			academic											
			technical	101	46.8%	88	40.7%	23	10.6%	4	1.9%	216	100.0%	
			Total	358	37.6%	413	43.3%	146	15.3%	36	3.8%	953	100.0%	
	Sec 2	Stream	express	164	34.1%	210	43.7%	84	17.5%	23	4.8%	481	100.0%	
			normal	101	40.1%	111	44.0%	31	12.3%	9	3.6%	252	100.0%	
			academic											
			technical	61	43.9%	60	43.2%	15	10.8%	3	2.2%	139	100.0%	
			Total	326	37.4%	381	43.7%	130	14.9%	35	4.0%	872	100.0%	
	Sec 3	Stream	express	122	29.1%	194	46.3%	87	20.8%	16	3.8%	419	100.0%	
			normal	101	35.1%	136	47.2%	39	13.5%	12	4.2%	288	100.0%	
			academic											
technical			79	40.1%	89	45.2%	27	13.7%	2	1.0%	197	100.0%		
		Total	302	33.4%	419	46.3%	153	16.9%	30	3.3%	904	100.0%		
Sec 4	Stream	express	63	29.7%	90	42.5%	48	22.6%	11	5.2%	212	100.0%		
		normal	29	29.9%	43	44.3%	22	22.7%	3	3.1%	97	100.0%		
		academic												
		technical	38	45.8%	34	41.0%	7	8.4%	4	4.8%	83	100.0%		
		Total	130	33.2%	167	42.6%	77	19.6%	18	4.6%	392	100.0%		
Total	Stream	express	506	32.0%	703	44.4%	301	19.0%	73	4.6%	1583	100.0%		
		normal	331	36.7%	406	45.0%	133	14.7%	33	3.7%	903	100.0%		
		academic												
		technical	279	43.9%	271	42.7%	72	11.3%	13	2.0%	635	100.0%		
		Total	1116	35.8%	1380	44.2%	506	16.2%						

I need to do well in mathematics..... (Singapore Mathematics data)

				To please my parents										
				strongly agree		agree		disagree		strongly disagree		Total		
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	
Level	Sec 1	Stream	express	167	35.4%	183	38.8%	94	19.9%	28	5.9%	472	100.0%	
			normal	96	36.1%	89	33.5%	62	23.3%	19	7.1%	266	100.0%	
			academic											
			technical	75	34.7%	104	48.1%	29	13.4%	8	3.7%	216	100.0%	
			Total	338	35.4%	376	39.4%	185	19.4%	55	5.8%	954	100.0%	
	Sec 2	Stream	express	142	29.5%	194	40.3%	110	22.9%	35	7.3%	481	100.0%	
			normal	72	28.6%	100	39.7%	57	22.6%	23	9.1%	252	100.0%	
			academic											
			technical	38	27.3%	48	34.5%	43	30.9%	10	7.2%	139	100.0%	
			Total	252	28.9%	342	39.2%	210	24.1%	68	7.8%	872	100.0%	
	Sec 3	Stream	express	116	27.7%	165	39.4%	105	25.1%	33	7.9%	419	100.0%	
			normal	63	21.9%	124	43.1%	69	24.0%	32	11.1%	288	100.0%	
			academic											
			technical	54	27.4%	80	40.6%	51	25.9%	12	6.1%	197	100.0%	
			Total	233	25.8%	369	40.8%	225	24.9%	77	8.5%	904	100.0%	
	Sec 4	Stream	express	46	21.7%	89	42.0%	59	27.8%	18	8.5%	212	100.0%	
			normal	18	18.8%	47	49.0%	23	24.0%	8				
			academic											

I need to do well in mathematics..... (Singapore Mathematics data)

				To continue my education									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	272	57.6%	182	38.6%	14	3.0%	4	.8%	472	100.0%
			normal academic	148	55.4%	103	38.6%	13	4.9%	3	1.1%	267	100.0%
			normal technical	112	52.1%	86	40.0%	13	6.0%	4	1.9%	215	100.0%
			Total	532	55.8%	371	38.9%	40					

I need to do well in mathematics..... (Singapore Mathematics data)

				To please myself									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	218	46.2%	190	40.3%	39	8.3%	25	5.3%	472	100.0%
			normal	108	40.6%	111	41.7%	32					
			academic										

I need to do well in science (South Korea Science data)

I need to do well in science to get the job I want									
Strongly agree		Agree		Disagree		Strongly disagree		Total	
Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %

I need to do well in science (South Korea Science data)

				I need to do well in science to please my parents								Total	
				Strongly agree		Agree		Disagree		Strongly disagree			
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	297	49.3%	248	41.1%	50	8.3%	8	1.3%	603	100.0%
			Sec2	265	44.0%	266	44.2%	57	9.5%	14	2.3%	602	100.0%
			Sec3	195	33.7%	270	46.7%	88	15.2%	25	4.3%	578	100.0%
			Sec4	224	30.7%	344	47.1%	145	19.9%	17	2.3%	730	100.0%
			Total	981	39.0%	1128	44.9%	340	13.5%	64	2.5%	2513	100.0%
	Suburban and Rural	Grade	Sec1	563	49.9%	450	39.9%	97	8.6%	19	1.7%	1129	100.0%
			Sec2	492	44.0%	486	43.5%	109	9.7%	31	2.8%	1118	100.0%
			Sec3	429	37.8%	524	46.2%	151	13.3%	30	2.6%	1134	100.0%
			Sec4	279	26.6%	523	50.0%	210	20.1%	35	3.3%	1047	100.0%
			Total	1763	39.8%	1983	44.8%	567	12.8%	115	2.6%	4428	100.0%
Total	Grade	Sec1	860	49.7%	698	40.3%	147	8.5%	27	1.6%	1732	100.0%	
		Sec2	757	44.0%	752	43.7%	166	9.7%	45	2.6%	1720	100.0%	
		Sec3	624	36.4%	794	46.4%	239	14.0%	55	3.2%	1712	100.0%	
		Sec4	503	28.3%	867	48.8%	355	20.0%	52	2.9%	1777	100.0%	
		Total	2744	39.5%	3111	44.8%	907	13.1%	179	2.6%	6941	100.0%	

I need to do well in science (South Korea Science data)

I need to do well in science to continue my education									
Strongly agree		Agree		Disagree		Strongly disagree		Total	
Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %

I need to do well in science (South Korea Science data)

I need to do well in science to please myself									
Strongly agree		Agree		Disagree		Strongly disagree		Total	
Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %

I need to do well in science (Thailand Science data)

			To get desired job								Total	
			strongly agree		agree		disagree		strongly disagree			
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
1	Subject	Lower Secondary Science	91	31.8%	166	58.0%	29	10.1%	0	.0%	286	100.0%
		Total	91	31.8%	166	58.0%	29	10.1%	0	.0%	286	100.0%
2	Subject	Lower Secondary Science	90	32.0%	168	59.8%	21	7.5%	2	.7%	281	100.0%
		Combined Science (Bio-Chem)	1	100.0%	0	.0%	0	.0%	0	.0%	1	100.0%
		Total	91	32.3%	168	59.6%	21	7.4%	2	.7%	282	100.0%
3	Subject	Lower Secondary Science	106	35.8%	164	55.4%	24	8.1%	2	.7%	296	100.0%
		Total	106	35.8%	164	55.4%	24	8.1%	2	.7%	296	100.0%
		Lower Secondary Science	4	33.3%	8	66.7%	0	.0%	0	.0%	12	100.0%
		Combined Science (Bio-Chem)	2	20.0%	7	70.0%	1	10.0%	0	.0%	10	100.0%
		Combined Science (Bio-Phy)										

I need to do well in science (Thailand Science data)

			To please parents									
			strongly agree		agree		disagree		strongly disagree		Total	
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	1	Subject Lower Secondary Science	113	39.4%	151	52.6%	22	7.7%	1	.3%	287	100.0%
		Total	113	39.4%	151	52.6%	22	7.7%	1	.3%	287	100.0%
2	2	Subject Lower Secondary Science	113	40.2%	154	54.8%	11	3.9%	3	1.1%	281	100.0%
		Combined Science (Bio-Chem)	0	.0%	0	.0%	1	100.0%	0	.0%	1	100.0%
		Total	113	40.1%	154	54.6%	12	4.3%	3	1.1%	282	100.0%
3	3	Subject Lower Secondary Science	98	33.1%	172	58.1%	25	8.4%	1	.3%	296	100.0%
		Total	98	33.1%	172	58.1%	25	8.4%	1	.3%	296	100.0%
4	4	Subject Lower Secondary Science	6	50.0%	4	33.3%	2	16.7%	0	.0%	12	100.0%
		Combined Science (Bio-Chem)	2	20.0%	6	60.0%	2	20.0%	0	.0%	10	100.0%
		Combined Science (Bio-Phy)	3	23.1%	7	53.8%	3	23.1%	0	.0%	13	100.0%
		Combined Science (Phy-Chem)	4	44.4%	3	33.3%	2	22.2%	0	.0%	9	100.0%
		Pure Biology	29	25.2%	72	62.6%	14	12.2%	0	.0%	115	100.0%
		Pure Chem	28	30.1%	52	55.9%	13	14.0%	0	.0%	93	100.0%
		Pure Physics	31	38.8%	39	48.8%	9	11.3%	1	1.3%	80	100.0%
		Others	85	37.8%	117	52.0%	21	9.3%	2	.9%	225	100.0%
		Total	188	33.8%	300	53.9%	66	11.8%	3	.5%	557	100.0%
Total			512	36.0%	777	54.6%	125	8.8%	8	.6%	1422	100.0%

I need to do well in science (Thailand Science data)

			To continue education								Total	
			strongly agree		agree		disagree		strongly disagree			
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
1	Subject	Lower Secondary Science	150	52.3%	129	44.9%	8	2.8%	0	.0%	287	100.0%
		Total	150	52.3%	129	44.9%	8	2.8%	0	.0%	287	100.0%
2	Subject	Lower Secondary Science	162	57.7%	111	39.5%	8	2.8%	0	.0%	281	100.0%
		Combined Science (Bio-Chem)	0	.0%	1	100.0%	0	.0%	0	.0%	1	100.0%
		Total	162	57.4%	112	39.7%	8	2.8%	0	.0%	282	100.0%
3	Subject	Lower Secondary Science	168	56.8%	119	40.2%	9	3.0%	0	.0%	296	100.0%
		Total	168	56.8%	119	40.2%	9	3.0%	0	.0%	296	100.0%
	Lower Secondary Science	7	58.3%	5	41.7%	0	.0%	0	.0%	12	100.0%	
	Combined Science (Bio-Chem)	6	60.0%	4	40.0%	0	.0%	0	.0%	10	100.0%	
	Combined Science (Bio-Phy)	3	23.1%	10	76.9%	0	.0%	0	.0%	13		

I need to do well in science (Thailand Science data)

				To please yourself									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	1	Subject	Lower Secondary Science	122	42.5%	148	51.6%	16	5.6%	1	.3%	287	100.0%
			Total	122	42.5%	148	51.6%	16	5.6%	1	.3%	287	100.0%
2	2	Subject	Lower Secondary Science	120	42.7%	146	52.0%	15	5.3%	0	.0%	281	100.0%
			Combined Science (Bio-Chem)	1	100.0%	0	.0%	0	.0%	0	.0%	1	100.0%
			Total	121	42.9%	146	51.8%	15	5.3%	0	.0%	282	100.0%
3	3	Subject	Lower Secondary Science	122	41.2%	160	54.1%	13	4.4%	1	.3%	296	100.0%
			Total	122	41.2%	160	54.1%	13	4.4%	1	.3%	296	100.0%
4	4	Subject	Lower Secondary Science	6	50.0%	5	41.7%	1	8.3%	0	.0%	12	100.0%
			Combined Science (Bio-Chem)	2	20.0%	8	80.0%	0	.0%	0	.0%	10	100.0%
			Combined Science (Bio-Phy)	7	53.8%	6	46.2%	0	.0%	0	.0%	13	100.0%
			Combined Science (Phy-Chem)	2	22.2%	7	77.8%	0	.0%	0	.0%	9	100.0%
			Pure Biology	48	41.7%	62	53.9%	5	4.3%	0	.0%	115	100.0%
			Pure Chem	41	43.6%	47	50.0%	6	6.4%	0	.0%	94	100.0%
			Pure Physics	37	46.3%	40	50.0%	3	3.8%	0	.0%	80	100.0%
			Others	121	53.8%	96	42.7%	6	2.7%	2	.9%	225	100.0%
			Total	264	47.3%	271	48.6%	21	3.8%	2	.4%	558	100.0%
			Total	629	44.2%	725	50.9%	65	4.6%	4	.3%	1423	100.0%

Appendix 5

To do well in science at school you need ... Singapore (Science data)

				lots of natural ability									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream	Express	97	18.1%	257	48.0%	161	30.1%	20	3.7%	535	100.0%	
		Normal Academic	76	25.1%	157	51.8%	62	20.5%	8	2.6%	303	100.0%	
		Normal Technical	75	32.9%	117	51.3%	31	13.6%	5	2.2%	228	100.0%	
		Total	248	23.3%	531	49.8%	254	23.8%	33	3.1%	1066	100.0%	
Sec 2	Stream	Express	94	15.4%	279	45.8%	221	36.3%	15	2.5%	609	100.0%	
		Normal Academic	56	21.8%	123	47.9%	74	28.8%	4	1.6%	257	100.0%	
		Normal Technical	52	29.4%	99	55.9%	20	11.3%	6	3.4%	177	100.0%	
		Total	202	19.4%	501	48.0%	315	30.2%	25	2.4%	1043	100.0%	
Sec 3	Stream	Express	100	16.2%	326	52.9%	175	28.4%	15	2.4%	616	100.0%	
		Normal Academic	53	22.4%	123	51.9%	52	21.9%	9	3.8%	237	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	153	17.9%	449	52.6%	227	26.6%	24	2.8%	853	100.0%	
Sec 4	Stream	Express	45	19.1%	120	50.8%	66	28.0%	5	2.1%	236	100.0%	
		Normal Academic	12	12.6%	48	50.5%	32	33.7%	3	3.2%	95	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	57	17.2%	168	50.8%	98	29.6%	8	2.4%	331	100.0%	
Total	Stream	Express	336	16.8%	982	49.2%	623	31.2%	55	2.8%	1996	100.0%	
		Normal Academic	197	22.1%	451	50.6%	220	24.7%	24	2.7%	892	100.0%	
		Normal Technical	127	31.4%	216	53.3%	51	12.6%	11	2.7%	405	100.0%	
		Total	660	20.0%	1649	50.1%	894	27.1%	90	2.7%	3293	100.0%	

To do well in science at school you need ... (Singapore Science data)

				good luck									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream Express	43	8.0%	161	30.0%	251	46.8%	81	15.1%	536	100.0%		
	Normal Academic	36	11.9%	95	31.5%	129	42.7%	42	13.9%	302	100.0%		
	Normal Technical	56	24.5%	88	38.4%	63	27.5%	22	9.6%	229	100.0%		
	Total	135	12.7%	344	32.2%	443	41.5%	145	13.6%	1067	100.0%		
Sec 2	Stream Express	54	8.9%	191	31.4%	302	49.6%	62	10.2%	609	100.0%		
	Normal Academic	35	13.7%	89	34.8%	105	41.0%	27	10.5%	256	100.0%		
	Normal Technical	44	24.7%	69	38.8%	47	26.4%	18	10.1%	178	100.0%		
	Total	133	12.8%	349	33.5%	454	43.5%	107	10.3%	1043	100.0%		
Sec 3	Stream Express	70	11.4%	213	34.6%	257	41.7%	76	12.3%	616	100.0%		
	Normal Academic	31	13.1%	72	30.5%	111	47.0%	22	9.3%	236	100.0%		
	Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%		
	Total	101	11.9%	285	33.5%	368	43.2%	98	11.5%	852	100.0%		
Sec 4	Stream Express	45	19.1%	92	39.0%	87	36.9%	12	5.1%	236	100.0%		
	Normal Academic	10	10.6%	31	33.0%	48	51.1%	5	5.3%	94	100.0%		
	Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%		
	Total	55	16.7%	123	37.3%	135	40.9%	17	5.2%	330	100.0%		
Total	Stream Express	212	10.6%	657	32.9%	897	44.9%	231	11.6%	1997	100.0%		
	Normal Academic	112	12.6%	287	32.3%	393	44.3%	96	10.8%	888	100.0%		
	Normal Technical	100	24.6%	157	38.6%	110	27.0%	40	9.8%	407	100.0%		
	Total	424	12.9%	1101	33.4%	1400	42.5%	367	11.1%	3292	100.0%		

To do well in science at school you need ... (Singapore Science data)

				lots of hard work studying at home									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream Express	Express	310	57.8%	197	36.8%	25	4.7%	4	.7%	536	100.0%	
		Normal Academic	185	61.3%	102	33.8%	12	4.0%	3	1.0%	302	100.0%	
		Normal Technical	119	52.2%	88	38.6%	17	7.5%	4	1.8%	228	100.0%	
		Total	614	57.6%	387	36.3%	54	5.1%	11	1.0%	1066	100.0%	
Sec 2	Stream Express	Express	359	58.9%	219	36.0%	27	4.4%	4	.7%	609	100.0%	
		Normal Academic	125	48.6%	116	45.1%	9	3.5%	7	2.7%	257	100.0%	
		Normal Technical	91	50.6%	64	35.6%	19	10.6%	6	3.3%	180	100.0%	
		Total	575	55.0%	399	38.1%	55	5.3%	17	1.6%	1046	100.0%	
Sec 3	Stream Express	Express	346	56.2%	237	38.5%	26	4.2%	7	1.1%	616	100.0%	
		Normal Academic	114	48.3%	105	44.5%	16	6.8%	1	.4%	236	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	460	54.0%	342	40.1%	42	4.9%	8	.9%	852	100.0%	
Sec 4	Stream Express	Express	130	55.1%	92	39.0%	10	4.2%	4	1.7%	236	100.0%	
		Normal Academic	44	46.3%	45	47.4%	6	6.3%	0	.0%	95	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	174	52.6%	137	41.4%	16	4.8%	4	1.2%	331	100.0%	
Total	Stream Express	Express	1145	57.3%	745	37.3%	88	4.4%	19	1.0%	1997	100.0%	
		Normal Academic	468	52.6%	368	41.3%	43	4.8%	11	1.2%	890	100.0%	
		Normal Technical	210	51.5%	152	37.3%	36	8.8%	10	2.5%	408	100.0%	
		Total	1823	55.3%	1265	38.4%	167	5.1%	40	1.2%	3295	100.0%	

To do well in science at school you need ... (Singapore Science data)

				to pay attention in class									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level Sec 1	Stream	Express	388	72.5%	137	25.6%	8	1.5%	2	.4%	535	100.0%	
		Normal Academic	202	66.4%	95	31.3%	5	1.6%	2	.7%	304	100.0%	
		Normal Technical	145	65.0%	73	32.7%	4	1.8%	1	.4%	223	100.0%	
		Total	735	69.2%	305	28.7%	17	1.6%	5	.5%	1062	100.0%	
Sec 2	Stream	Express	420	69.1%	172	28.3%	14	2.3%	2	.3%	608	100.0%	
		Normal Academic	173	67.3%	75	29.2%	6	2.3%	3	1.2%	257	100.0%	
		Normal Technical	106	58.9%	64	35.6%	7	3.9%	3	1.7%	180	100.0%	
		Total	699	66.9%	311	29.8%	27	2.6%	8	.8%	1045	100.0%	
Sec 3	Stream	Express	427	69.3%	176	28.6%	8	1.3%	5	.8%	616	100.0%	
		Normal Academic	154	65.0%	76	32.1%	7	3.0%	0	.0%	237	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	581	68.1%	252	29.5%	15	1.8%	5	.6%	853	100.0%	
Sec 4	Stream	Express	143	60.6%	78	33.1%	9	3.8%	6	2.5%	236	100.0%	
		Normal Academic	56	58.9%	39	41.1%	0	.0%	0	.0%	95	100.0%	
		Normal Technical	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	
		Total	199	60.1%	117	35.3%	9	2.7%	6	1.8%	331	100.0%	
Total	Stream	Express	1378	69.1%	563	28.2%	39	2.0%	15	.8%	1995	100.0%	
		Normal Academic	585	65.5%	285	31.9%	18	2.0%	5	.6%	893	100.0%	
		Normal Technical	251	62.3%	137	34.0%	11	2.7%	4	1.0%	403	100.0%	
		Total	2214	67.3%	985	29.9%	68	2.1%	24	.7%	3291	100.0%	

To do well in mathematics in school you need..... (Singapore Mathematics data)

				Lots of natural ability									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	82	17.4%	206	43.6%	147	31.1%	37	7.8%	472	100.0%
			normal academic	69	26.0%	130	49.1%	52	19.6%	14	5.3%	265	100.0%
			normal technical	74	34.4%	108	50.2%	27	12.6%	6	2.8%	215	100.0%
			Total	225	23.6%	444	46.6%	226	23.7%	57	6.0%	952	100.0%
	Sec 2	Stream	express	85	17.7%	229	47.6%	129	26.8%	38	7.9%	481	

To do well in mathematics in school you need..... (Singapore Mathematics data)

				Good luck									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	56	11.9%	137	29.0%	203	43.0%	76	16.1%	472	100.0%
			normal	34	12.8%	100	37.6%	93	35.0%	39	14.7%	266	100.0%
			academic										
			normal	58	26.9%	77	35.6%	63	29.2%	18	8.3%	216	100.0%
			technical										
			Total	148	15.5%	314	32.9%	359	37.6%	133	13.9%	954	

To do well in mathematics in school you need..... (Singapore Mathematics data)

				Lots of hard work studying at home									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	310	65.7%	136	28.8%	18	3.8%	8	1.7%	472	100.0%
			normal academic	192	72.5%	69	26.0%	4	1.5%	0	.0%	265	100.0%
			normal technical	126	58.3%	70	32.4%	17	7.9%	3	1.4%	216	

To do well in mathematics in school you need..... (Singapore Mathematics data)

				To pay attention in class									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Level	Sec 1	Stream	express	373	79.0%	88	18.6%	5	1.1%	6	1.3%	472	100.0%
			normal academic	215	81.4%	48	18.2%	0	.0%	1	.4%	264	100.0%
			normal technical	153	71.2%	56	26.0%	2	.9%	4	1.9%	215	100.0%
			Total	741	77.9%	192	20.2%	7	.7%	11	1.2%	951	100.0%
	Sec 2	Stream	express	365	76.2%	105	21.9%	2	.4%	7	1.5%	479	100.0%
			normal academic	183	72.6%	61	24.2%	5	2.0%	3	1.2%	252	100.0%
			normal technical	97	69.8%	40	28.8%	2	1.4%	0	.0%	139	100.0%
			Total	645	74.1%	206	23.7%	9	1.0%	10	1.1%	870	100.0%
	Sec 3	Stream	express	304	72.6%	106	25.3%	7	1.7%	2	.5%	419	100.0%
			normal academic	215	74.7%	65	22.6%	5	1.7%	3	1.0%	288	100.0%
			normal technical	131	66.5%	60	30.5%	5	2.5%	1	.5%	197	100.0%
			Total	650	71.9%	231	25.6%	17	1.9%	6	.7%	904	100.0%
Sec 4	Stream	express	158	74.2%	41	19.2%	8	3.8%	6	2.8%	213	100.0%	
		normal academic	69	71.1%	26	26.8%	0	.0%	2	2.1%	97	100.0%	



To do well in science at school you need ... (South Korea Science data)

				lots of natural ability									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	94	15.6%	269	44.8%	190	31.6%	48	8.0%	601	100.0%
			Sec2	81	13.5%	270	44.9%	194	32.2%	57	9.5%	602	100.0%
			Sec3	88	15.3%	262	45.5%	185	32.1%	41	7.1%	576	100.0%
			Sec4	108	14.8%	399	54.6%	181	24.8%	43	5.9%	731	100.0%
			Total	371	14.8%	1200	47.8%	750	29.9%	189	7.5%	2510	100.0%
	Suburban and Rural	Grade	Sec1	187	16.6%	465	41.3%	379	33.6%	96	8.5%	1127	100.0%
			Sec2	185	16.6%	461	41.3%	362	32.4%	109	9.8%	1117	100.0%
			Sec3	158	13.9%	521	45.9%	367	32.4%	88	7.8%	1134	100.0%
			Sec4	174	16.6%	524	50.0%	291	27.8%	58	5.5%	1047	100.0%
			Total	704	15.9%	1971	44.5%	1399	31.6%	351	7.9%	4425	100.0%
	Total	Grade	Sec1	281	16.3%	734	42.5%	569	32.9%	144	8.3%	1728	100.0%
			Sec2	266	15.5%	731	42.5%	556	32.3%	166	9.7%	1719	100.0%
			Sec3	246	14.4%	783	45.8%	552	32.3%	129	7.5%	1710	100.0%
			Sec4	282	15.9%	923	51.9%	472	26.5%	101	5.7%	1778	100.0%
Total			1075	15.5%	3171	45.7%	2149	31.0%	540	7.8%	6935	100.0%	

To do well in science at school you need ... (South Korea Science data)

				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	65	10.8%	164	27.3%	265	44.2%	106	17.7%	600	100.0%
			Sec2	60	10.0%	186	30.8%	258	42.8%	99	16.4%	603	100.0%
			Sec3	66	11.4%	177	30.7%	259	44.9%	75	13.0%	577	100.0%
			Sec4	75	10.3%	249	34.1%	319	43.6%	88	12.0%	731	100.0%
			Total	266	10.6%	776	30.9%	1101	43.8%	368	14.7%	2511	100.0%
	Suburban and Rural	Grade	Sec1	138	12.3%	284	25.3%	501	44.6%	201	17.9%	1124	100.0%
			Sec2	136	12.2%	344	30.9%	451	40.5%	183	16.4%	1114	100.0%
			Sec3	119	10.5%	337	29.7%	517	45.6%	161	14.2%	1134	100.0%
			Sec4	84	8.0%	353	33.7%	469	44.8%	141	13.5%	1047	100.0%
			Total	477	10.8%	1318	29.8%	1938	43.9%	686	15.5%	4419	100.0%
Total	Grade	Sec1	203	11.8%	448	26.0%	766	44.4%	307	17.8%	1724	100.0%	
		Sec2	196	11.4%	530	30.9%	709	41.3%	282	16.4%	1717	100.0%	
		Sec3	185	10.8%	514	30.0%	776	45.4%	236	13.8%	1711	100.0%	
		Sec4	159	8.9%	602	33.9%	788	44.3%	229	12.9%	1778	100.0%	
		Total	743	10.7%	2094	30.2%	3039	43.9%	1054	15.2%	6930	100.0%	

To do well in science at school you need ... (South Korea Science data)

				lots of hard work studying at home									
				Strongly agree		Agree		Disagree		Strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
School location	Urban	Grade	Sec1	297	49.5%	266	44.3%	31	5.2%	6	1.0%	600	100.0%
			Sec2	250	41.5%	298	49.5%	46	7.6%	8	1.3%	602	100.0%
			Sec3	247	42.8%	292	50.6%	31	5.4%	7	1.2%	577	100.0%
			Sec4	357	48.8%	322	44.0%	46	6.3%	6	.8%	731	100.0%
			Total	1151	45.9%	1178	46.9%	154	6.1%	27	1.1%	2510	100.0%
	Suburban and Rural	Grade	Sec1	493	43.8%	520	46.2%	88	7.8%	24	2.1%	1125	100.0%
			Sec2	508	45.6%	517	46.4%	63	5.7%	27	2.4%	1115	100.0%
			Sec3	509	44.8%	555	48.8%	55	4.8%	18	1.6%	1137	100.0%
			Sec4	484	46.2%	508	48.5%	45	4.3%	11	1.0%	1048	100.0%
			Total	1994	45.1%	2100	47.5%	251	5.7%	80	1.8%	4425	100.0%
Total	Grade	Sec1	790	45.8%	786	45.6%	119	6.9%	30	1.7%	1725	100.0%	
		Sec2	758	44.1%	815	47.5%	109	6.3%	35	2.0%	1717	100.0%	
		Sec3	756	44.1%	847	49.4%	86	5.0%	25	1.5%	1714	100.0%	
		Sec4	841	47.3%	830	46.7%	91	5.1%	17	1.0%	1779	100.0%	
		Total	3145	45.3%	3278	47.3%	405						

To do well in science at school you need ... (South Korea Science data)

		to pay attention in class									
		Strongly agree		Agree		Disagree		Strongly disagree		Total	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Sec1		441	73.4%	148	24.6%	9	1.5%	3	.5%	601	100.0%
Sec2		406	67.3%	182	30.2%	13	2.2%	2	.3%	603	100.0%
Sec3		385	66.6%	177	30.6%						

To do well in science at school you need ... (Thailand Science data)

			Natural Ability								Total	
			strongly agree		agree		disagree		strongly disagree			
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	Subject	Lower Secondary Science	91	31.8%	176	61.5%	18	6.3%	1	.3%	286	100.0%
		Total	91	31.8%	176	61.5%	18	6.3%	1	.3%	286	100.0%
2	Subject	Lower Secondary Science	88	31.3%	162	57.7%	31	11.0%	0	.0%	281	100.0%
		Combined Science (Bio-Chem)	1	100.0%	0	.0%	0	.0%	0	.0%	1	100.0%
		Total	89	31.6%	162	57.4%	31	11.0%	0	.0%	282	100.0%
3	Subject	Lower Secondary Science	102	34.2%	169	56.7%	26	8.7%	1	.3%	298	100.0%
		Total	102	34.2%	169	56.7%	26	8.7%	1	.3%	298	100.0%
4	Subject	Lower Secondary Science	2	16.7%	8	66.7%	2	16.7%	0	.0%	12	100.0%
		Combined Science (Bio-Chem)	3	30.0%	6	60.0%	1	10.0%	0	.0%	10	100.0%
		Combined Science (Bio-Phy)	6	46.2%	6	46.2%	1	7.7%	0	.0%	13	100.0%
		Combined Science (Phy-Chem)	3	33.3%	5	55.6%	1	11.1%	0	.0%	9	100.0%
		Pure Biology	22	19.1%	70	60.9%	23	20.0%	0	.0%	115	100.0%
		Pure Chem	30	31.9%	47	50.0%	17	18.1%	0	.0%	94	100.0%
		Pure Physics	24	30.4%	42	53.2%	13	16.5%	0	.0%	79	100.0%
		Others	62	27.6%	146	64.9%	17	7.6%	0	.0%	225	100.0%
		Total	152	27.3%	330	59.2%	75	13.5%	0	.0%	557	100.0%
		Total			434	30.5%	837	58.8%	150	10.5%	2	.1%

To do well in science at school you need ... (Thailand Science data)

			Good luck									
			strongly agree		agree		disagree		strongly disagree		Total	
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	1	Subject Lower Secondary Science	12	4.2%	139	48.8%	126	44.2%	8	2.8%	285	100.0%
		Total	12	4.2%	139	48.8%	126	44.2%	8	2.8%	285	100.0%
2	Subject	Lower Secondary Science	24	8.6%	99	35.4%	146	52.1%	11	3.9%	280	100.0%
		Combined Science (Bio-Chem)	0	.0%	0	.0%	1	100.0%	0	.0%	1	100.0%
Total			24	8.5%	99	35.2%	147	52.3%	11	3.9%	281	100.0%
3	Subject	Lower Secondary Science	28	9.4%	107	35.9%	140	47.0%	23	7.7%	298	100.0%
		Total	28	9.4%	107	35.9%	140	47.0%	23	7.7%	298	100.0%
4	Subject	Lower Secondary Science	2	16.7%	2	16.7%	8	66.7%	0	.0%	12	100.0%
		Combined Science (Bio-Chem)	0	.0%	4	40.0%	5	50.0%	1	10.0%	10	100.0%
		Combined Science (Bio-Phy)	0	.0%	8	61.5%	3	23.1%	2	15.4%	13	100.0%
		Combined Science (Phy-Chem)	1	11.1%	0	.0%	8	88.9%	0	.0%	9	100.0%
		Pure Biology	1	.9%	53	46.5%	57	50.0%	3	2.6%	114	100.0%
		Pure Chem	7	7.4%	33	35.1%	51	54.3%	3	3.2%	94	100.0%
		Pure Physics	4	5.1%	28	35.4%	45	57.0%	2	2.5%	79	100.0%
		Others	19	8.4%	97	43.1%	103	45.8%	6	2.7%	225	100.0%
		Total	34	6.1%	225	40.5%	280	50.4%	17	3.1%	556	100.0%
Total			98	6.9%	570	40.1%	693	48.8%	59	4.2%	1420	100.0%

To do well in science at school you need ... (Thailand Science data)

				Hard work studying at home									
				strongly agree		agree		disagree		strongly disagree		Total	
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Level 1	1	Subject	Lower Secondary Science	41	14.3%	147	51.4%	95	33.2%	3	1.0%	286	100.0%
			Total	41	14.3%	147	51.4%	95	33.2%	3	1.0%	286	100.0%
2	2	Subject	Lower Secondary Science	45	16.0%	142	50.5%	92	32.7%	2	.7%	281	100.0%
			Combined Science (Bio-Chem)	0	.0%	1	100.0%	0	.0%	0	.0%	1	100.0%
			Total	45	16.0%	143	50.7%	92	32.6%	2	.7%	282	100.0%
3	3	Subject	Lower Secondary Science	47	15.8%	157	52.7%	91	30.5%	3	1.0%	298	100.0%
			Total	47	15.8%	157	52.7%	91	30.5%	3	1.0%	298	100.0%
4	4	Subject	Lower Secondary Science	1	8.3%	9	75.0%	2	16.7%	0	.0%	12	100.0%
			Combined Science (Bio-Chem)	1	10.0%	5	50.0%	4	40.0%	0	.0%	10	100.0%
			Combined Science (Bio-Phy)	1	7.7%	9	69.2%	3	23.1%	0	.0%	13	100.0%
			Combined Science (Phy-Chem)	2	22.2%	3	33.3%	4	44.4%	0	.0%	9	100.0%
			Pure Biology	19	16.5%	58	50.4%	38	33.0%	0	.0%	115	100.0%
			Pure Chem	18	19.1%	51	54.3%	25	26.6%	0	.0%	94	100.0%
			Pure Physics	17	21.5%	45	57.0%	17	21.5%	0	.0%	79	100.0%
			Others	52	23.1%	106	47.1%	65	28.9%	2	.9%	225	100.0%
			Total	111	19.9%	286	51.3%	158	28.4%	2	.4%	557	100.0%
			Total	244	17.1%	733	51.5%	436	30.6%	10	.7%	1423	100.0%

To do well in science at school you need ... (Thailand Science data)

			Pay attention in class								Total	
			strongly agree		agree		disagree		strongly disagree			
			Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
1	Subject	Lower Secondary Science	195	68.2%	86	30.1%	5	1.7%	0	.0%	286	100.0%
		Total	195	68.2%	86	30.1%	5	1.7%	0	.0%	286	100.0%
2	Subject	Lower Secondary Science	207	73.9%	73	26.1%	0	.0%	0	.0%	280	100.0%
		Combined Science (Bio-Chem)	1	100.0%	0	.0%	0	.0%	0	.0%	1	100.0%
		Total	208	74.0%	73	26.0%	0	.0%	0	.0%	281	100.0%
3	Subject	Lower Secondary Science	222	74.5%	74	24.8%	2	.7%	0	.0%	298	100.0%
		Total	222	74.5%	74	24.8%	2	.7%	0	.0%	298	100.0%
		Lower Secondary Science	7	58.3%	5	41.7%	0	.0%	0	.0%	12	100.0%
		Combined Science (Bio-Chem)	8	80.0%	2	20.0%	0	.0%	0	.0%	10	100.0%
		Combined Science (Bio-Phy)	12	92.3%	1	7.7%	0	.0%	0	.0%	13	100.0%
		Combined Science (Phy-Chem)	6	66.7%	3	33.3%	0	.0%	0	.0%	9	100.0%
		Pure Biology	79	68.7%	33	28.7%	3	2.6%	0	.0%	115	100.0%
		Pure Chem	64	68.1%	28	29.8%	2	2.1%	0	.0%	94	100.0%
		Pure Physics	60	76.9%	16	20.5%	2	2.6%	0	.0%	78	100.0%
		Others	161	71.9%	60	26.8%	3	1.3%	0	.0%	224	100.0%
		Total	397	71.5%	148							

