ASTI PROGRESSIVELY LEARNING & UNDERSTANDING SCIENCE (A PLUS) 2018 REPORT

A-PLUS PILOT PROGRAMME
INTRODUCTION

Since its inception, ASTI, Association of Science, Technology and Innovation has been working towards inspiring the young generation of our nation to explore the world of science and innovation. We have many projects, including Science Fair for Young Children (SFYC), Young Inventors Challenge (YIC) and ASTI Leap Challenge (ALC), during which students will design and come up with various new inventions and innovations. We have been privileged to witness many creative and unique inventions produced by students throughout these years.

All our projects are designed as an educational tools where our participants learn for themselves from the tasks they undertake. Hence, for example in Young Inventors Challenge, our aim is not to develop inventions BUT to develop inventors.

However, we have noticed another skill could be further developed in students. We have realised that many students cannot cope with the science syllabus in secondary school. This is because although some experiments have been inserted in some chapters to explain and describe the specific chapters, but due to time constrain, teachers skip these experiments demonstrations and teach it theoretically.

We feel that to develop a student's understanding in science, particular scientific concepts and principles, the lessons have to be more hands-on, *i.e.* more experimental. Thus, in a classroom, experiments are more important than the theory. This is truer today where students can easily find these explanations on the internet (*e.g.* YouTube).

Thus we started the A-PLUS (ASTI Progressively Learning and Understanding Science) programme for SFYC Alumni students.

METHODOLOGY

In this programme, A-PLUS workshops under the name of "The A-PLUS Pilot Program" were organised.

Students were trained to conduct experiment and activities to help them understand the key scientific concepts and principles in their syllabus. The focus was less on theories since that was done at their schools. This programme aims to complement and enhance their learning experience in their classrooms.

We helped to introduce the key scientific concepts before they learn it in their schools. We helped them build a framework for their thinking before they got bombarded with information in their schools. This way, all the information they gained in their classroom were contextualized, thus helped to understand the subject better.This method of learning is based on the latest research in Brainscience.

We also helped enhance their analysing skills, handling apparatus and materials, data collection and also communications.

A total of three workshops took place this year, which were held in February, March and May 2018. We charged the students a nominal fee of RM 70/student to help cover the cost of materials and food.

OBJECTIVE

The objectives of the workshops are:

1. to build a framework of thinking for the students to understand science better
2. to increase the student's understanding level of their school's science syllabus.
3. to train student to conduct data experiments which includes data collection/extraction skill, analysing and drawing conclusions.

WORKSHOP SUMMARY

The ASTI Progressively Learning and Understanding Science (A-PLUS) were held at Association of Science, Technology and Innovation (ASTI) office. The first workshop was held on 24th February 2018, Saturday. The following workshops were held on 31st March 2018, Saturday and 5th May 2018, Saturday. The workshops started at 9.00 am and ended at 5.00 p.m. A total of 3 workshops were held in this pilot programme. The participants were Form One students.

Workshop 1, 24th February 2018, Saturday

The day started at 9.00 am with the arrival of the participants. Participants received their goody bags upon the workshop fee payment was made. There was a short briefing on the workshop's safety, rules & regulations as well as a briefing about the programme. The workshop started exactly at 9.30 a.m. After the briefing session, there was a short tea break which was followed by the second session of the day Chapter 1: Scientific Methodology. Our trainer conducted experiments related to the topic. The session ended at 1.30 p.m. and lunch break was given to the participants

After lunch, the sessions continued with Chapter 2: Cell as the Basic Unit of Life until 3.30 p.m. The following session was on Chapter 3: Coordination and Response which extended to 5.00p.m. Day one was thus over and the participants had their tea break.

Workshop 2, 31st March 2018, Saturday

The second workshop started at 9.00 a.m with the arrival of participants and breakfast was served. The first session of the workshop was on Chapter 5: Matter which started at 9.15 a.m. after a quick briefing on the class rules. Later, the participants were given a task to conduct an experiment on their own and present what they understood. This was followed by the next session, Chapter 6: Periodic Table.

At 1.30pm, the participants had their lunch break. The afternoon session continued with Chapter 6: Periodic Table which ended at 3.30 p.m. The workshop concluded with Chapter 7: Air.

Workshop 3, 5th May 2018, Saturday

The third workshop started at 9.00 a.m. with the first session on Chapter 8: Light and Optics followed by experiments based on the chapter. Students were given materials needed to conduct an experiment in groups. The session ended at 1.30 p.m. and continued with lunch break.

The following session after lunch was on Chapter 9: Earth. The workshop ended at 5.00pm with the Closing Ceremony during which a Certificate of Participation was presented to each participant.

SUMMARY OF EVENT AGENDA

	WORKSHOP 1	
DATE	**TIME**	**ITENARY**
24/02/2018	9.00am - 9.10am	Registration
	9.10am - 9.15am	Breakfast
	9.15am - 9.30am	Briefing on workshop safety, rules & regulations
	9.30am – 1.30pm	Chapter 1: Scientific Methodology
	1.30pm - 2.30pm	Lunch
	2.00pm - 3.30pm	Chapter 2: Cell as the Basic Unit of Life
	3.30pm - 5.00pm	Chapter 3: Coordination and Response

	WORKSHOP 2	
DATE	**TIME**	**ITENARY**
31/03/2018	9.00am - 9.10am	Breakfast
	9.10am - 9.15am	Briefing on class rules
	9.15am - 9.30am	Chapter 5: Matter
	9.30am – 1.30pm	Chapter 6: Periodic Table
	1.30pm - 2.30pm	Lunch
	2.00pm - 3.30pm	Chapter 6: Periodic Table
	3.30pm - 5.00pm	Chapter 7: Air

	WORKSHOP 3	
DATE	**TIME**	**ITENARY**
05/05/2018	9.00am - 9.10am	Breakfast
	9.10am – 1.30am	Chapter 8: Light and Optics
	1.30pm - 2.30pm	Lunch
	2.30pm - 4.30pm	Chapter 9: Earth
	3.30pm - 5.00pm	Closing ceremony

WORKSHOP EVALUATION

At the end of second and third workshop, survey forms were distributed to the participants to get their feedback on the workshops. This was done so that we can further improve the training in the coming years. In the form, they were asked to give feedback on the presentations, trainers and their overall rating of the workshop.

DAY 2

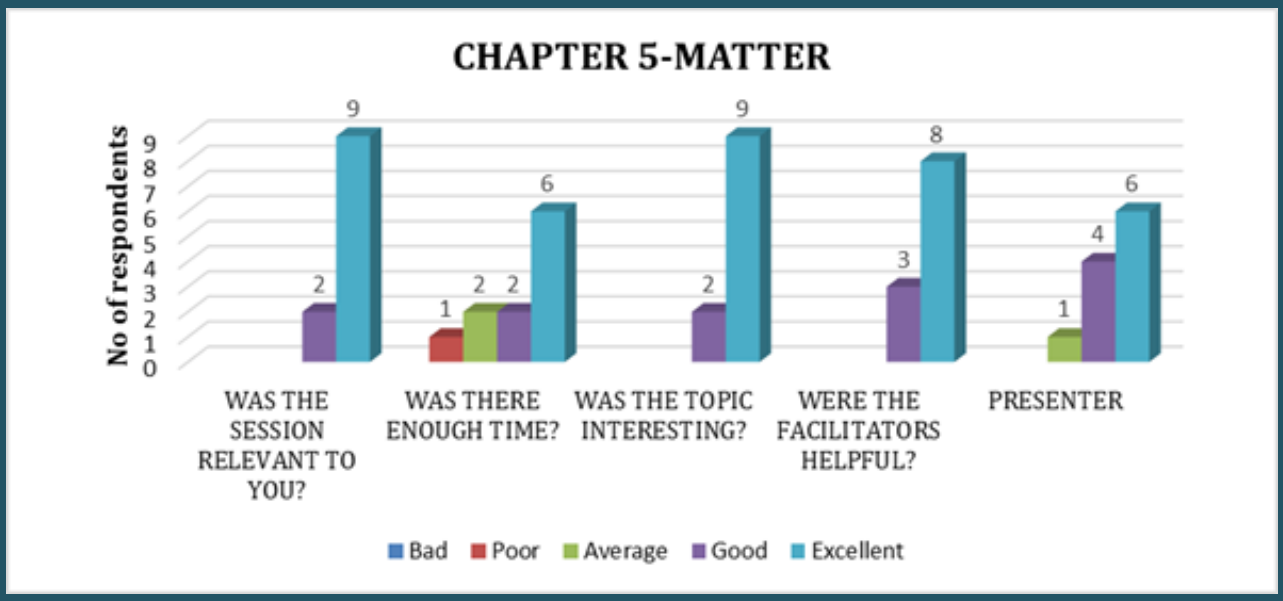

Figure 1: Chapter 5-Matter

Figure 1 shows the module for Chapter 5 was generally well received. However, there were some who felt more time could have been allocated to this session.

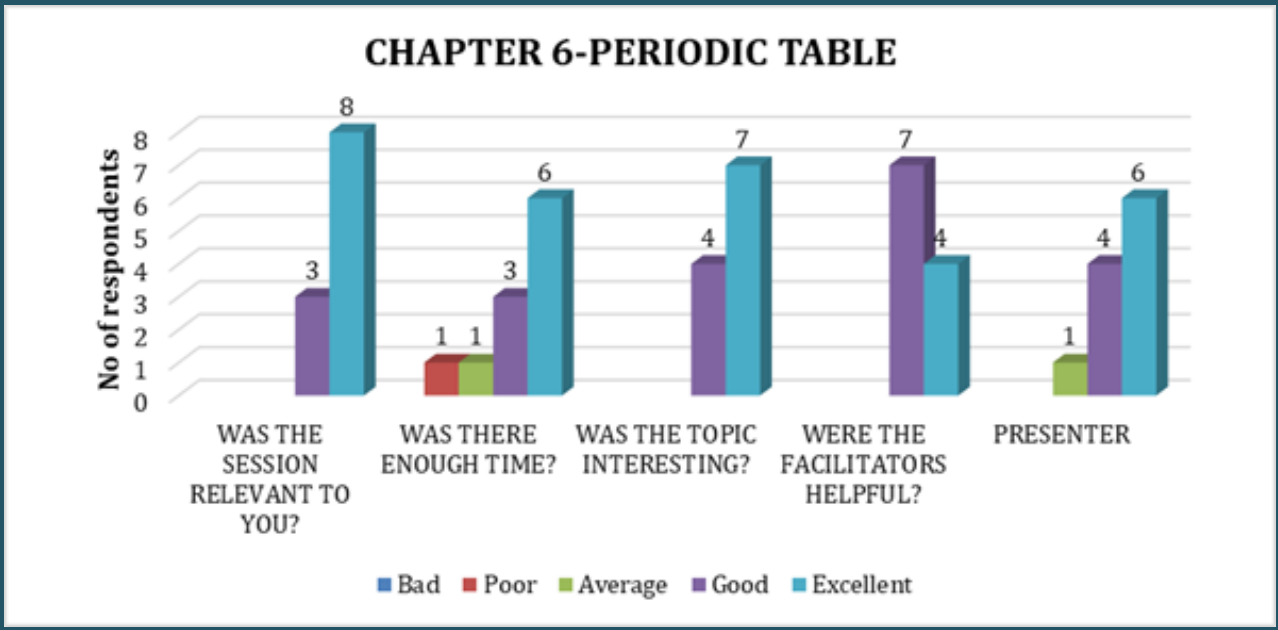

Figure 2: Chapter 6-Periodic Table

Figure 2 shows, majority of the participants found Chapter 6-Periodic Table module to be either excellent across all the aspects with a few of the participants rating it as average.

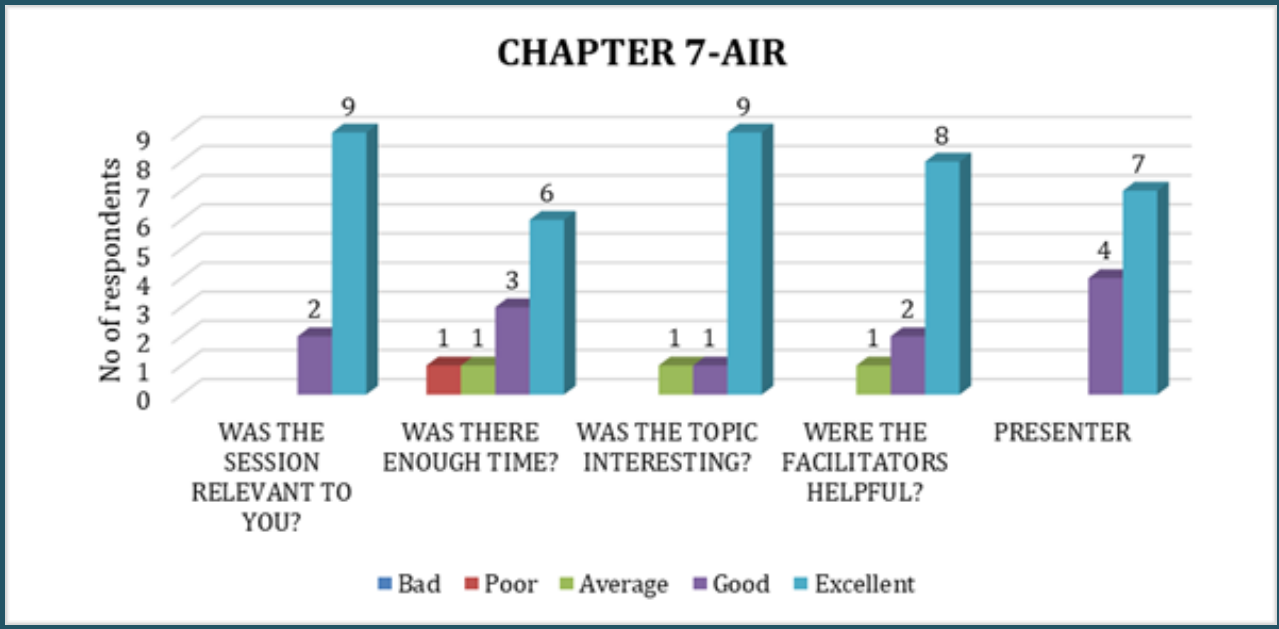

Figure 3: Chapter 7-Air

Figure 3 shows that a majority of the participants rated good and excellent for all the aspects in the Chapter 7-Air module.

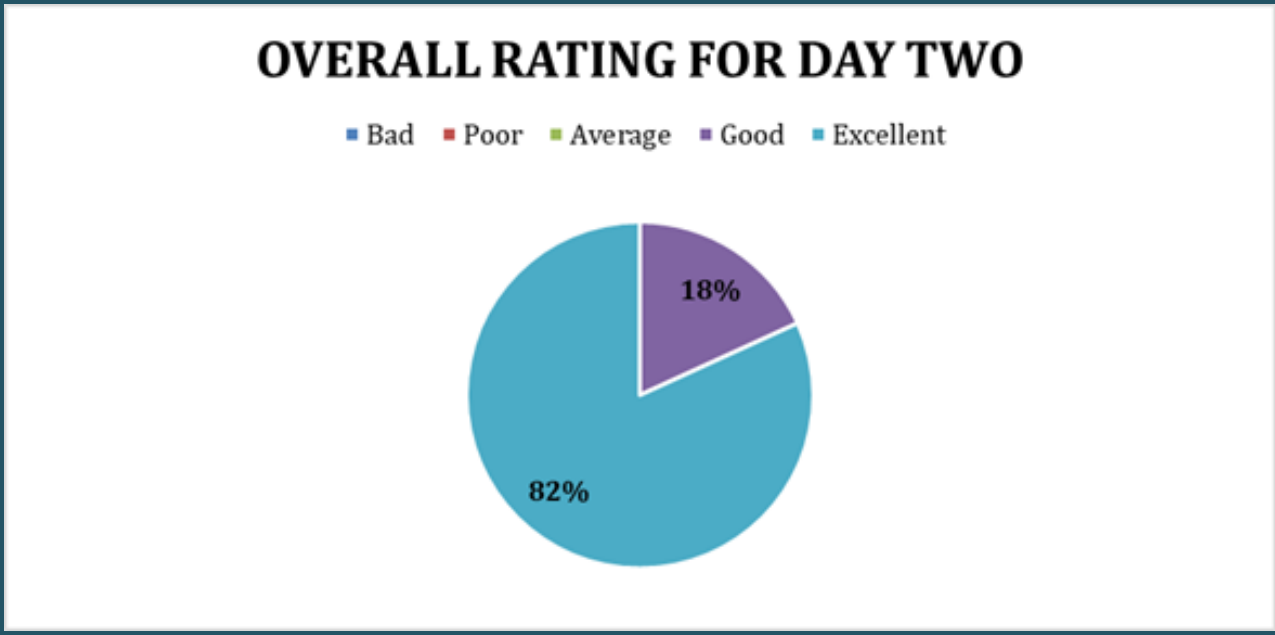

Figure 4: Overall Rating for Day Two

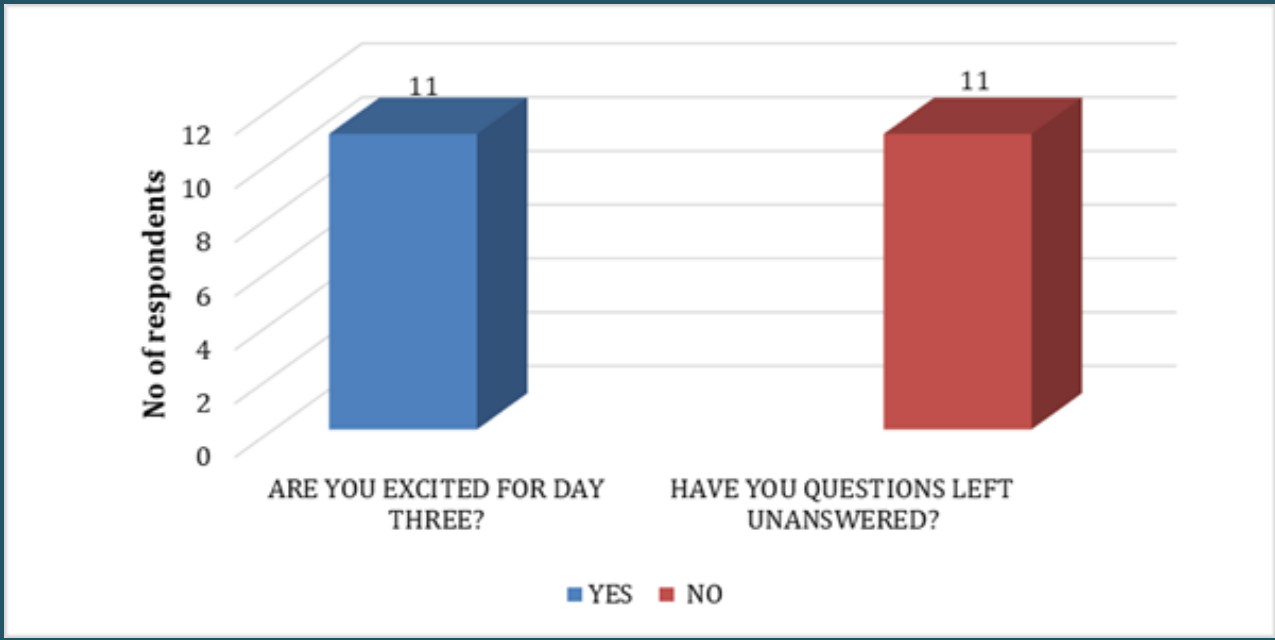

Figure 5: Overall Rating for Day Two

Figure 4 and 5 is on the overall rating for Day 2. Most participants rated Day Two as excellent and good. They were happy with the activities that were conducted and excited for Day Three.

DAY 3

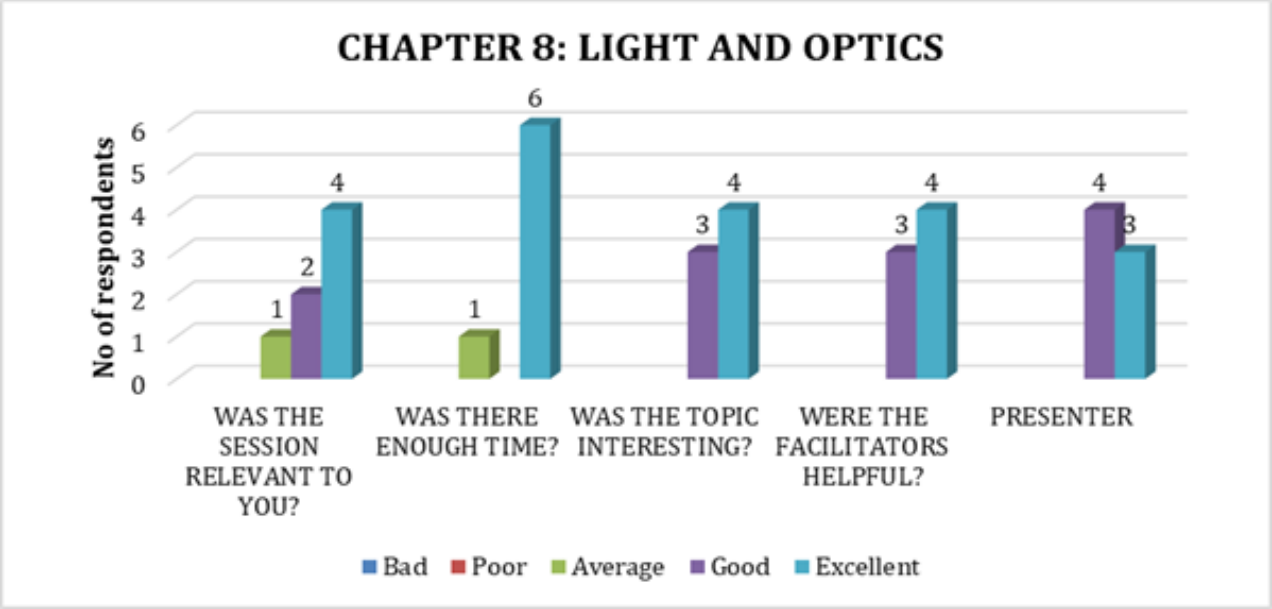

Figure 6: Chapter 8-Light and Optics

As Figure 6 shows, once again majority of the participants rated all the aspects of this module session as excellent and good with a small fraction rating as average in some aspects.

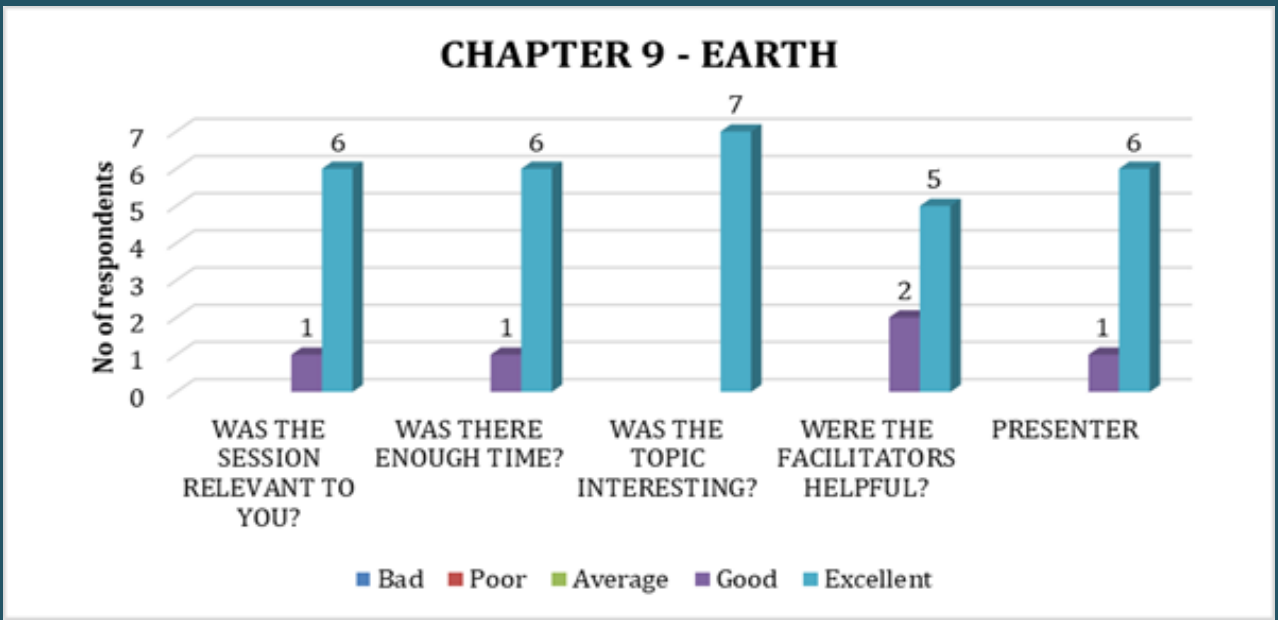

Figure 7: Chapter 9-Earth

Figure 7 shows that once again a majority of participants rated all the aspects of this module as excellent. Thus, this module as a whole can be said to be successful.

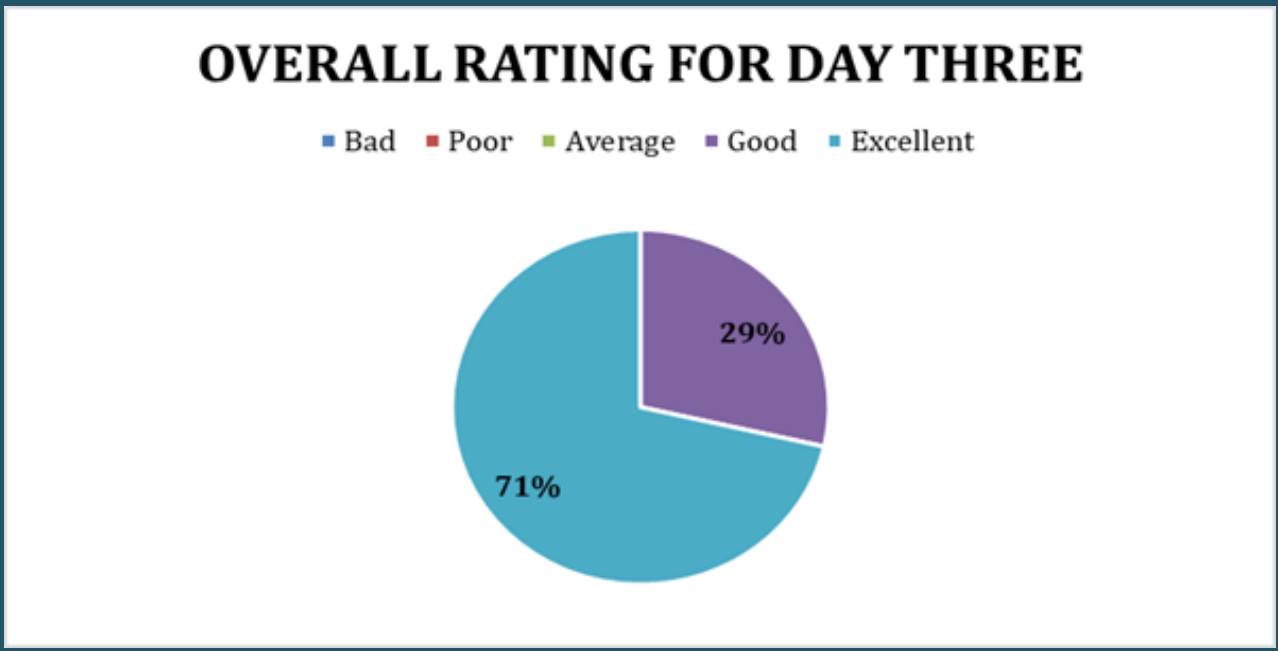

Figure 8: Overall Rating for Day Three

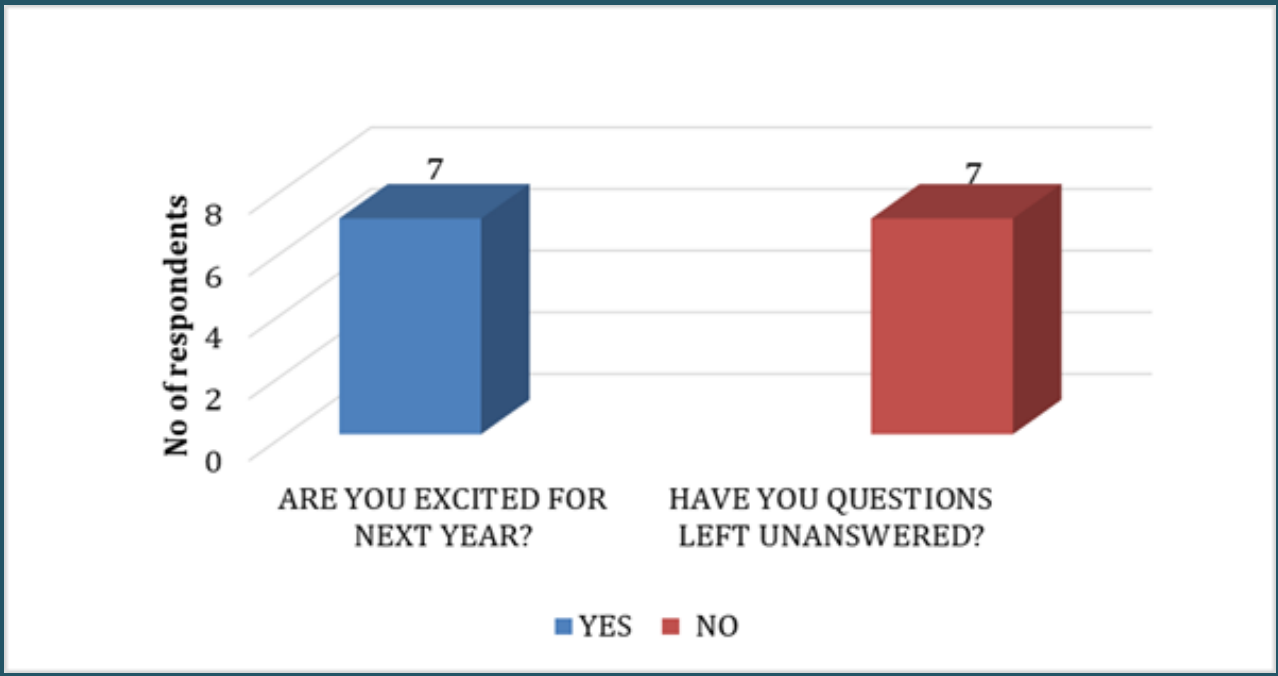

Figure 9: Overall Rating for Day Three

Figure 8 and 9 shows the overall rating for Day 3. Most participants rated Day Three as excellent and good. They were happy with the activities that were conducted and excited for next year's activities.

CONCLUSION

A-PLUS workshops enable us to empower our young students to think on their own and develop higher order thinking capacities. It has become a way to equip them further and to ensure their excellence as they progress on to higher studies and the working world.

On behalf of ASTI, we want to extend our heartfelt gratitude to the parents of our participants without which this venture would not be possible.

We hope in years to come we will reach more students and achieve greater heights in our project that the students can achieve more in their education. We will be a part for their success and bring them to a quality life.