

**NAME:** Ms. SILPI SAHOO

**PROJECT TITLE:** Can use of SMART BOARD technology enhance the learning skills of Special Education Needs Children in the age group of 9-12 years?

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## Personal Statement

**Name:** Silpi Sahoo

**Title of project:** Can use of SMART BOARD technology enhance the learning skills of Special Education Needs Children in the age group of 9-12 years?

**School:** SAI International School, Bhubaneswar, India

To be a part of the education sector was a choice made long back in my young mind, much before I could understand the relevance of education. I thought of teaching young minds for enhancing their logical, analytical and reasoning skills.

The Global Teacher Accreditation program of the British Council is a wonderful platform to bring in a global dimension to our School and also learn about the teaching learning practices across the globe.

Through my GTA research, I wanted to develop a deeper understanding of the learning ability of the Special Education Needs children. Although it is a globally relevant context, unfortunately, the special education needs children are not included widely in the mainstream education in my state, Odisha, India. SAI International School is an inclusive School where we strive to bring in innovative practices regardless of the child's ability.

The GTA research groomed me as a professional and the findings of my research helped fellow teachers and the Institution as a whole in knowing the learning preferences of the SEN children. It also taught me to deal with things with a different outlook and broadened my perspective. It helped me to challenge a few prejudices and notions regarding the SEN children. During the course of my research I learnt to discuss issues globally that paved way to introduce and practice innovative ideas, activities and methodologies in the School curriculum. After my research we have embedded technology such as SMART BOARD, audio visual equipments, ERP solutions and internet in our classrooms in the day to day curriculum with a mission of making education relevant to the SEN children and eventually making them a part of mainstream education. We have also taken a special need Counsellor and have created a Learning Lab for these children where they can be counselled in order to enable them to cope with their learning difficulties and challenges. The special need counsellor will formulate their intervention programs coordinated with the SEN and other teachers.

The research has also helped me grow emotionally as a person by interacting with the specially blessed children of our School. It gave me an insight into their thought process and it was quite

a surprise to know that although these children may show some learning disability they are extremely creative and intelligent.

I shall remain grateful to the team of teachers at SAI International School for giving me an insight into the subject matter and in the preparation of the evaluation tools, parents for their uninhibited support and consent to carry out this research. The special educator of our School and teachers have been a constant support through the course of my research and played a catalyst in the effective bonding that I could form with the children. I would also like to acknowledge the teachers at the UK School who gave me a chance of class observation and witnessing their technology enabled practices in the classroom including SMART BOARD. I personally took training on special needs children from our learning partners Churchdown Village Infant School, UK under the Connecting Classrooms program of the British Council. My personal training in Singapore on Early Childhood Education sector and special care for SEN children has helped me learn the globally recognized standards for educational excellence.

My thanks for my dear mentor, Mrs Manjula Chatterjee whose valuable feedback and inputs have helped me to conclude the research in the best possible manner, I can't thank her enough. I also extend a big thank you to the wonderful children who participated in the classes wholeheartedly to make this research possible. The love that I feel for them surmounts all words.

My special thanks to the British Council's GTA Project Team for providing me with a chance to learn and relearn about the different facets involved in the education of SEN children and its impact.

Last few months have been wonderfully enriching and I in all sincerity hope to bring into practice the findings of my research in the school curriculum.

Word count and declaration of originality

I hereby declare that, except where explicit attribution is made, the work presented in this assignment is entirely my own.

Word count (exclusive of appendices and references): **2668 words**

**Signed:** 

**Name:** Mrs. Silpi Sahoo

**Date:** September 20, 2014

***I will allow my work to be used in case studies or other publicity material.***

**Signed:** 

**Name:** Mrs. Silpi Sahoo

**Date:** September 20, 2014

**Name: Silpi Sahoo**

**Name of the Institution: SAI International School, Bhubaneswar, Odisha.**

**Focus of study: Can use of SMART BOARD technology enhance the learning skills of Special Education Needs Children in the age group of 9-12 years?**

**Mentor's name: Mrs Manjula Chatterjee**

### Section 1: Preparing for your enquiry

#### 1.1 Briefly describe your working context

**About my School:** SAI International is a premier institution that aims at 360 degree, comprehensive education for all. In a short span of 7 years our School has earned a reputation for itself by creating pioneering and innovative educational opportunities, teaching & learning practices that focus on both curricular and extracurricular activities. Our academic results have consistently reflected our mission of enabling, encouraging and endowing each child to initiate a lifelong pursuit of learning and excellence for being a confident and responsible global citizen.

**My role:** I am the Trustee of SAI International School. I also train teachers on the current practices to upgrade them professionally. I have been closely associated with the Education sector for a decade. As a comprehensive School, open to all, we have an increased number of Special Education Needs children (reading, writing, mathematical & analytical) in our School. In order to cater to the needs of these SEN Children, I contemplated to take up special and concrete measures to enhance their learning skills.

#### 1.2 Analyse your starting point

SAI International School believes in the intervention of ICT enabled education since it has been proved that technology plays an important role in creating excellence in School education. I had personally seen the students enjoying technology based classes which used the aids like projectors and also computer laboratory sessions.

Since the SEN children are placed in an inclusive setup, they also participate in these technology classes. However it was observed that it did not have reflective effects on the SEN children due to their disability.

Hence I was curious to find out the best suited method of imparting teaching to the SEN children and do something constructive for them. I looked on the internet, read journals & research papers, and had brainstorming sessions with my fellow mates. The conclusion was to try out the SMART BOARD technology for enhancing their learning skills in a regular fashion.

In order to enhance their learning skills I felt it was imperative to introduce them to the SMART BOARD technology since the students were already attending remedial classes provided by the special educator.

The SEN children are identified to have low motivation and interest level in academics. They find it hard to understand few abstract concepts.

I believe that SMART BOARD technology induces fun learning in class that is constructive and purposeful that is primarily essential for SEN children. Whether it would give the same results for SEN children was my area of concern.

### **1.3 Framing your research question. What do you hope will change as a result?**

Research question: **Can use of SMART BOARD technology enhance the learning skills of Special Education Needs Children in the age group of 9-12 years?**

(Singh & Ramachandran, 2014) studied the effectiveness of smart board technology in improving the psychological processes of students with learning disability. According to their research “students with learning disability prefer learning in the way their brain perceives and processes what it needs to learn. Using Smart Board technology and combining the auditory, visual and tactile/ kinaesthetic senses, we can modify the learning environment and help these students improve their psychological processes.”

As a Mother figure of my School I too wish to see positive results (increased motivation and interest, stronger understanding) in the SEN children. I believe SMART BOARD technology is a platform for fun learning and will help to increase motivation in the SEN children. Learning skills for me is not only the ability to grasp the subject matter emotionally and academically but to also have an increased motivation level along with a desire to learn. By introducing SMART BOARD as a learning medium in comparison to general projectors, I would like to check if there is an increase in students motivational and interest level. The student’s interest level will also be assessed during my research. The student’s learning will also be tested in different subjects.

It is imperative for children to interact without inhibition and by using SMART BOARD I will see the difference in the way the SEN children interact with their teachers and among themselves. Whether the SEN children show increased level of understanding with the help of SMART BOARD would be an area to observe.

**1.4 Access to mentoring**

The area of focus for my research is “Using SMART BOARD technology to enhance the learning skills of SEN children. For this purpose, I spoke to the counsellor for special children in our School, the class teachers and subject teachers of the identified children to gain a better insight.

I am also reading and updating myself of the current parameters of carrying out a research. I was extremely privileged to be under the constant guidance of Mrs. Manjula Chatterjee, an expert Mentor. I was in regular discussions with her over the phone and email to seek her guidance for carrying out the research.

**1.5 What is the focus for your learning?**

My focus will be to help SEN children of our School between the age group of 9-12 years (boys and girls), on their learning skills with regards to their motivation, interest level and involvement. Through this I also wish to encourage them to be lifelong learners on a pursuit of continuous learning.

During this school year, in the month of April 2014, I had an opportunity to be a part of a student & teacher exchange program to Gloucestershire, UK. During this time I had an opportunity to observe one of the SEN classes, where the Special Education teacher was using SMART BOARD and the students were interacting and participating actively. During a discussion with the special educators I understood their practices of using SMART BOARD and I decided to implement the same in our School.

**1.6 Are you aware of any ethical issues which you need to take into account?**

I understand the sensitivity of both parents and students for exercises like these. I shall take their consent duly signed and shall give them details about the exercise, for them to voluntarily be a part of my research. I shall at no point try to involve any child in my research without their parent’s approval. In a very subtle manner, I shall also try to make the SEN children aware about the tests and motivate them to enjoy the exercise. **(Refer to the Appendix –E)**

**1.7 What diversity / equal opportunities have you identified in relation to, for example gender, ethnicity, language, or disability?**

Ours is a co-educational, comprehensive, cosmopolitan School and the students are from different backgrounds (social, economic and lingual). I will make sure there is no discrimination on the grounds of gender, social and economic status or the disability of these children. The students would be selected using the random sampling technique. The input of the subject teacher, class teacher and the special educator will be taken while selecting the sample. From the sample group of 16 students, 10 students will be selected to do the research.



Section 2: Creating your plan

Action Plan

Outcome	Actions	Timescales/Key dates	Resources/People inc. sources of support and challenge	Success criteria	Comments/ Amendments to plan
To have a collection of researched data	Pre research reading and understanding of the subject matter	2 <sup>nd</sup> & 3 <sup>rd</sup> week of April, 2014	Talking to special educators, psychologists, reading books and journals and gain knowledge from internet sources	Gained an insight on the topic to be researched	Had an insight of how to go about the research
To check the student's present level of functioning	Planning a questionnaire for already identified SEN children in the School <b>Activity:</b> Grade level assessment questionnaire on environmental science was prepared and student's response will be received	2 <sup>nd</sup> week of April, 2014	Talk to the subject teachers, grade level teachers to frame the questionnaire Studying the textbooks of grade 4, 5 and 6 to prepare the questionnaire(tool for learning assessment)	Preparing the questionnaire and conducting of the test	Feedback of the subject teacher was included
To get more child specific information from the	Talking to the teachers to get more insight into the SEN children and	3 <sup>rd</sup> week of April	Questionnaire to be sent to teachers to gain knowledge about strengths/weaknesses of	Receive the questionnaire duly filled by the teachers	The questionnaire was collected and confidentiality was maintained

teachers	receiving their consent <b>Activity :</b> Questionnaire given to teachers will be filled and received		each sample	maintaining the confidentiality	
To get more child specific concerns from the parents	Talking to the parents to gain an understanding of the child's educational needs <b>Activity:</b> Questionnaire given to parents will be filled and received	3 <sup>rd</sup> week of April	Questionnaire to be sent to parents and teachers to gain knowledge about the background information	Receive the questionnaire duly filled by the parents maintaining the confidentiality	Duly filled questionnaire was collected from the teachers
To gain more knowledge on use of SBT for SEN children in UK	Visit to UK School to gain more understanding on the use of SBT to SEN children <b>Activity:</b> Conduct a survey and observe a special education classroom using the SBT in UK SEN School	4 <sup>th</sup> week of April	Talking to special educators in UK SEN school	Gained an insight on the topic to be researched	Classroom observation was done, interview with the special educator was conducted and information was used in the action research
To organize the teachable content and	Talking to the teachers and special educator for planning	1 <sup>st</sup> half of May 2014 (School closed	Discussion with the teachers and special educator	Organizing and planning the sessions	The sessions were planned and schedule was

divide into sessions	30 sessions according to the curriculum breakup. <b>(Appendix G.1)</b> <b>Activity:</b> A detailed table to be prepared with the action plan of each session	for Summer break)			prepared
To proceed with the research	Commencement of sessions <b>(Curriculum plan day wise attached- Appendix- G.2)</b> <b>Activity:</b> A session of forty five minutes will be conducted on the pre planned topics	2 <sup>nd</sup> week of June	Special education classroom set up with SMART BOARD was used. Special educator was also involved.	Content was taught according to the lesson plan	The students response was observed and sessions were altered accordingly
Continuing with the research	Mid-assessment through a discussion among the students and teacher. <b>Activity:</b> A verbal interaction between students and teacher to test the learning outcome	2 <sup>nd</sup> week of July	Teachers and students	Learning outcome was interpreted	The students response was observed and the required changes were made in the teaching sessions
Research in progress	Non responsive students during the discussion will be identified and more	3 <sup>rd</sup> & 4 <sup>th</sup> week of July	Teachers and students	Learning outcome was interpreted	Non - responsive students were identified and extra classes were

	<p>sessions will be included</p> <p><b>Activity:</b> Sessions will resume with more SBT</p>				arranged
To interpret the data	<p>Observing the results and recording them</p> <p><b>Activity:</b> Tabulate the results as per quantitative and qualitative analysis</p>	August 2014	Talking to special educators, teachers and parents about the progress and changes seen in the SEN children	Ensuring the validity of research that sample is not taught elsewhere	The data was tabulated and interpreted
To write the report	<p>Writing of report</p> <p><b>Activity:</b> Gathering and putting all the information together in to a report</p>	August 2014	Mentors feedback	Final sharing of results	Changes were made on the final report as per the suggestions by the mentor.
Conclude the research	Submission of the report	September 2014			

**Section 3: Developing your enquiry****3.1 What were the key learning outcomes?**

The purpose of my research was to examine the use of technology integration in special education classroom, specifically the use of a new SMART BOARD. For this purpose ten students with learning disability were selected. Pre-tests and post-tests were conducted before and after the completion of the sessions. **Refer Appendix A.1** showing scores obtained by the students. **Appendix A.2, A.3** - The students were tested on their level of motivation, interest and understanding, **Appendix A.4** - The comparative analysis of the Pre- Test and Post –Test.

The teachers found it very interesting to teach using SMART BOARD. The technology provides teachers with an easy way to prepare the content. The smart board makes it easy to project worksheets, pictures or any other visual. The teacher finds it easy to explain the concepts when visually shown and demonstrated in front of the students.

SMART BOARDS allow teachers to include all learning styles such as visual, auditory, and kinaesthetic. The students are able to access large visuals, sounds, and even physically interact with it, which helps improve student's fine and gross motor skills. The special education students respond to visuals and sounds better.

During my research, I learned how effective a technology could be for teaching. Earlier I was little hesitant as it was a new thing for me but when my students started responding positively towards the interactive SMART BOARD, I was also motivated to use it more effectively.

After finishing the session of six weeks, a post test was conducted to check the learning outcome of the students. The results of the test showed a very impressive data that denotes that the students have gained a complete understanding of the topics taught. The students were able to generalize the concepts taught into their day to day life. The students were curious to learn more on those topics. The teacher could see the remarkable improvement in their motivational level and the interest that these students developed in those topics.

(**Appendix A.4**- The comparative analysis of the Pre- Test and Post –Test)

(**Appendix B**- Student's present level of functioning)

(**Appendix C**- The qualitative feedback)

**3.2 How did you evaluate your intended learning outcomes?**

The post - test was conducted after the completion of the sessions. The students scored significantly high in the post - test and the students were very happy to share these test results with their subject teachers and parents. The teacher's concerns and feedback were taken in a pre and post questionnaire. The parents were also requested to give their concerns and feedbacks.

**(Appendix A.4-** The comparative analysis of the Pre- Test and Post –Test)

**(Appendix C-** The qualitative feedback)

**(Appendix D-** Parent feedback)

**(Appendix F.1.1, F.1.2, F.1.3 F.2.1, F.2.2, F.2.3, F.3.1, F.3.2, F.3.3-** Student Questionnaire)

**(Appendix F.4-** Teacher Questionnaire)

**(Appendix F.5-** Parent Questionnaire)

**3.3 What has been the influence of engaging with the knowledge base?**

My research began with the following questions: Does the use of a SMART BOARD impact the learning skills of special needs students? How does SMART BOARD technology change the achievement level of these students? How will using interactive technology influence my students' motivation and engagement in learning?

To start with this I had series of discussion with my general education teachers and special education teacher. During these discussions I came to know more about the needs and wants of these children. The students are presently in an inclusive setup and are attending remedial classes as and when required. The regular education curriculum provides the regular classroom accommodations, such as small group instructions, differential instruction, and peer tutoring. The general education teacher feels that there are many concepts that are difficult for these special students to understand when compared to their normal peer group. The students are stuck at that point and it becomes difficult for the teacher to proceed with the class. During my interaction with the science teacher, I learnt that there are many basic things that are around us, that we see every day and learn automatically, but difficult for special students to understand. I personally visited these students in their remedial sessions and the special education teacher was using pictures to explain "water cycle". The teacher even showed a video, few students were able to understand but few lacked interest to see the video on the computer screen.

During the research I used many sources to gain knowledge. The training which I undertook on special needs children from our learning partners Churchdown Village Infant School, UK under the Connecting Classrooms program of the British Council and in Singapore on Early Childhood Education sector and special care for SEN children helped me learn the globally recognized standards for educational excellence.

The websites and the books that I have used have been presented in the reference column at the end of this section. I had few discussions with subject teacher, classroom teacher, science coordinator and special educator for the research **(Picture story attached)**. I had visited one of the SEN classrooms in United Kingdom to gain more knowledge about the use of technology in other countries. I also attended an in-service training to learn how to use smart board. **(Picture story attached)**.

**3.4 How did mentoring influence the way you learned and / or the outcomes of your learning?**

My mentor Mrs. Manjula Chatterjee has been extremely kind and generous in giving me not only her time but her most valuable feedback and suggestions during the course of the research. Originally the sessions were designed to have a specific time slot for the videos to play but after the discussion with my mentor the time slot was modified according to the student's ability. The students needed explanation during the video and the video was paused several times in between for an explanation. The duration for couple of sessions was extended for more 15 minutes as the students needed more time to understand and respond.

**3.5 What, if any, changes were made along the way? What impact did the review have on the remainder of your learning plan?**

Receiving a feedback from my mentor and the assessor of MS University of Baroda, Prof. N. Pradhan helped me complete the research effectively and rework on the points that were of concern. According to the suggestions, I made changes along the way to finally come up with positive findings of my research.

**3.6 Refer back to any ethical issues you identified in your plan and show how these were considered and addressed.**

A parent consent form was obtained and all the concerns and questions were addressed before the research and hence there were no ethical issues to be addressed  
(Appendix E- Parent consent form)

**3.7 Refer back to any diversity / equal opportunities issues you identified. Show how these were considered and what actions you took to secure best possible outcomes. Were all in the group you worked with able to be fully involved? Did you have to differentiate your approach to ensure that all could participate?**

Every child was given equal opportunities to participate in the SMART BOARD classes that involved using the interactive SMART BOARD. Each child was given an equal chance to do worksheets and also play videos and read stories. Adaptive seating arrangements were made for the students with Cerebral Palsy.

**3.8 How did you share your learning with others?**

I shared my learning with my co teachers especially teachers dealing with the SEN children of the School. The special educator was involved throughout the project and gave valuable insights and advice as and when required. I also shared the findings, learning outcome with the principal of the School and he was keen to incorporate the SMART BOARD in day to day curriculum of the School more constructively. The principal had even recommended to the school committee. The School is now technology driven and smart board is in every classroom to enhance the teaching learning style. Involvement of the parents and teachers of the SEN children during the entire course of the research was a big confidence booster for me. The parents had given a very positive feedback which has been a very big encouragement for me. I was curious to see if SMART BOARD can also be used in different subjects and not just environmental science. The English teacher was very happy to use it for story telling competition. Few students were asked to use flashcards and narrate a story and few were made to watch video on the SMART BOARD and narrate it. The students who used SMART BOARD did wonderful in the story telling competition. I was also curious to see what my students (who were part of my research) would do, when provided with a platform to generalize their learning. The students were teamed for a science quiz, and they were able to secure second position while competing with the general education students.

The findings are enclosed in **Appendix H.1 and H.2 (Additional activities to assess progress of SEN students after the Action Research done)**



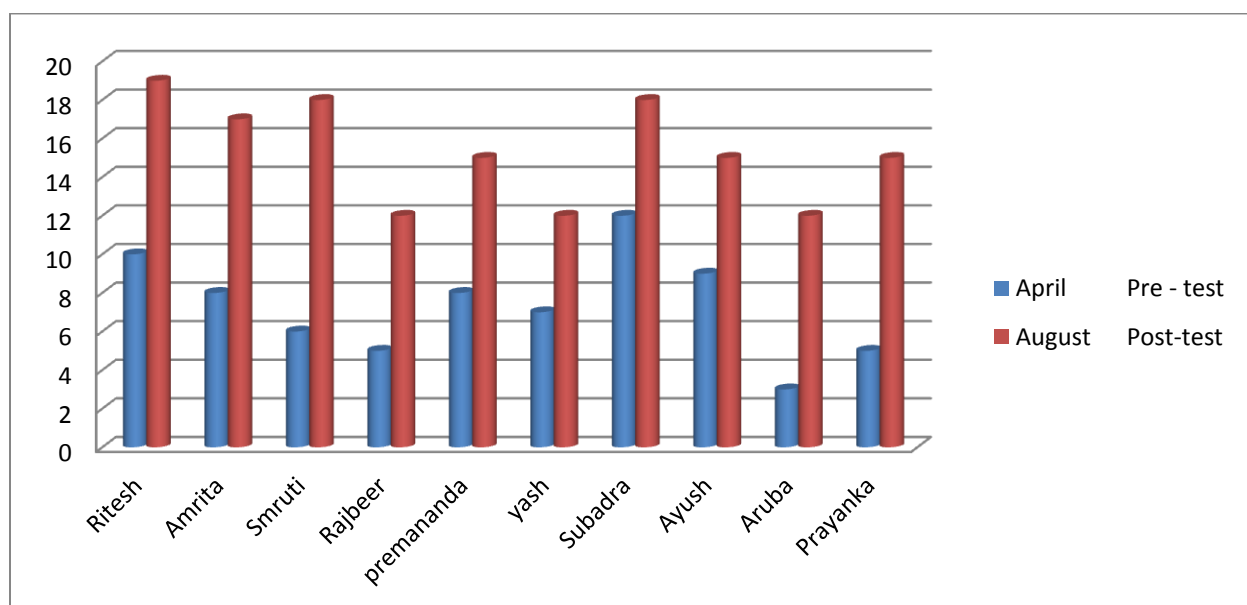
## REFERENCES:

Author	Date of publication	Title of book/article etc.	Publication or website detail, URL and date the website was last accessed
Radana Dvorak	2012	SMART Board Interactive Whiteboard for Dummies	John Wiley & Sons.
Anugarini singh Rajesh Ramachandra	2014	Study On The Effectiveness Of Smart Board Technology In Improving The Psychological Processes Of Students With Learning Disability	Sai Om Publications
iDiscovery Education	2011	XSEED foundation of life	iDiscovery Education pvt ltd.
Extra marks	2014		<a href="http://www.extramarks.com/">http://www.extramarks.com/</a>
Barone, D., & Wright, T.	2008	Literacy instruction with Digital and media technologies.	Reading Teacher, 62 ( 4), 292-303
Savoie, M. (n.d.).	2007	<i>Report on the use of the SMART Board Interactive Whiteboard to enhance math motivation in students with disabilities.</i>	<a href="http://downloads01.smarttech.com/media/sitecore/en/pdf/research_library/math/math_motivation_with_smart_board_technology.pdf">http://downloads01.smarttech.com/media/sitecore/en/pdf/research_library/math/math_motivation_with_smart_board_technology.pdf</a>

## Appendix A.1

Table 1 showing scores obtained by the students on the environmental science concepts.

No	Name of the student	April Pre-Test (11-04-2014)					August Post-Test 04-08-2014)				
		Part – I(plants)	Part – II(animal life)	Part – III (human body)	Part –IV (food)	Total marks	Part – I	Part – II	Part – III	Part – IV	Total marks
1	Ritesh	2	2	3	3	10	5	5	5	4	19
2	Amrita	2	2	1	3	8	4	4	4	5	17
3	Smruti	3	2	0	1	6	4	5	5	4	18
4.	Rajbeer	1	1	2	1	5	4	3	3	2	12
5.	Premananda	2	4	0	2	8	3	4	4	4	15
6.	Yash	2	2	2	1	7	3	3	3	3	12
7.	Subadra	2	4	3	3	12	4	5	4	5	18
8.	Ayush	3	2	2	2	9	5	5	3	2	15
9.	Aruba	1	1	0	1	3	4	3	3	2	12
10.	Prayanka	2	2	1	0	5	3	4	3	5	15

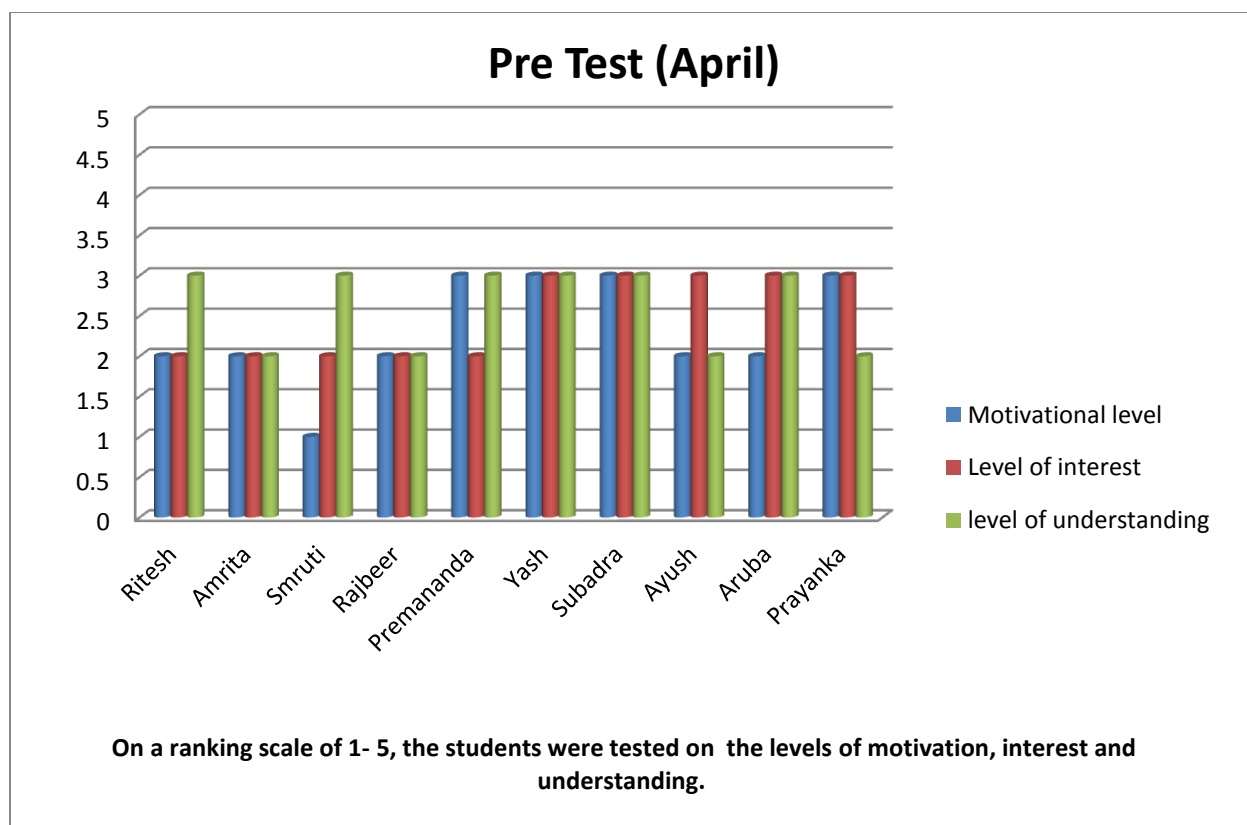


**Table 2****Appendix A.2**

On the tailor made ranking scale from 1- 5, the sample students were tested for their level of motivation, interest and understanding. The table below displays the result of the ranking scale

**Pre – test (April)**

Name of the student	Motivational level	Level of interest	Level of understanding
Ritesh	2	2	3
Amrita	2	2	2
Smruti	1	2	3
Rajbeer	2	2	2
Premananda	3	2	3
Yash	3	3	3
Subadra	3	3	3
Ayush	2	3	2
Aruba	2	3	3
Prayanka	3	3	2

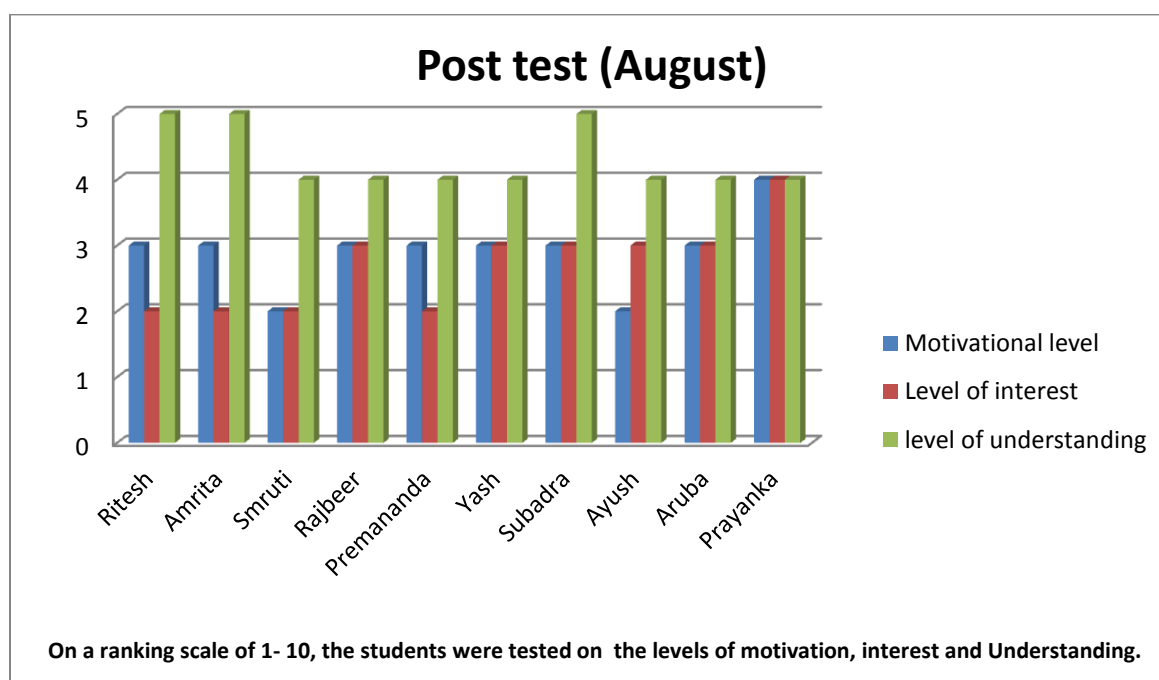


**Table - 3****Appendix A.3**

On the tailor made ranking scale from 1- 10, the sample students were tested for their level of motivation, interest and understanding. The table below displays the result of the ranking scale.

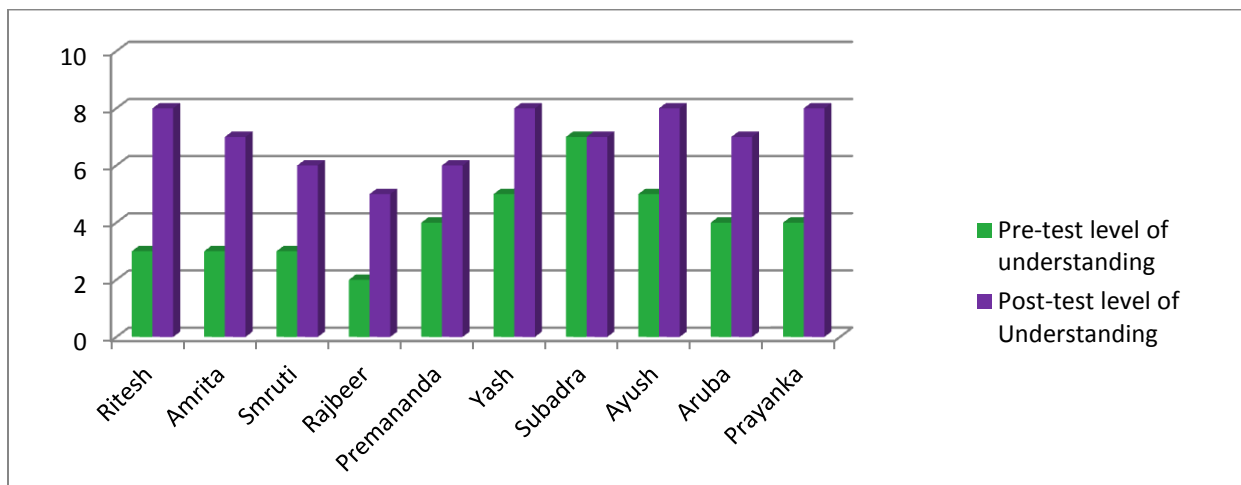
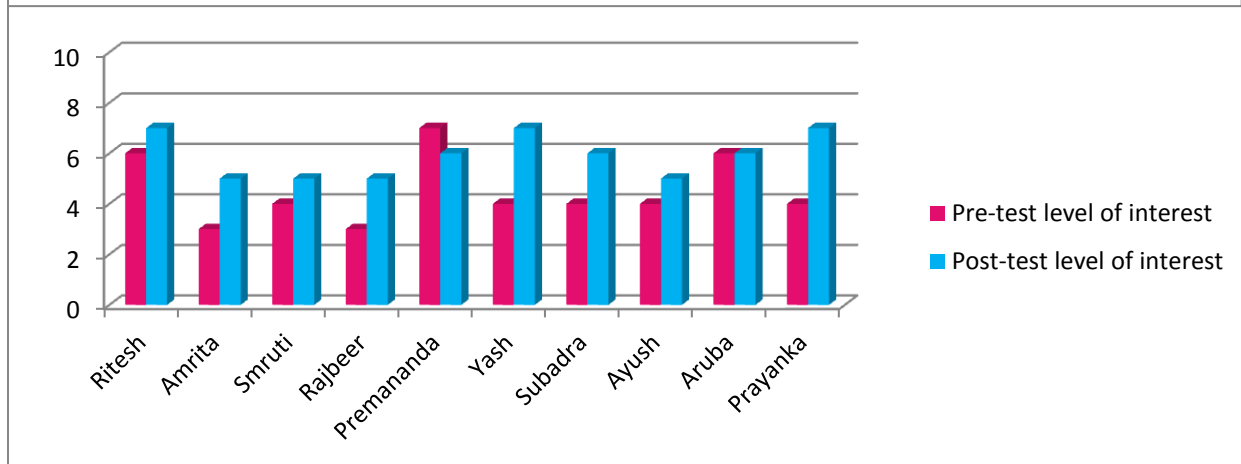
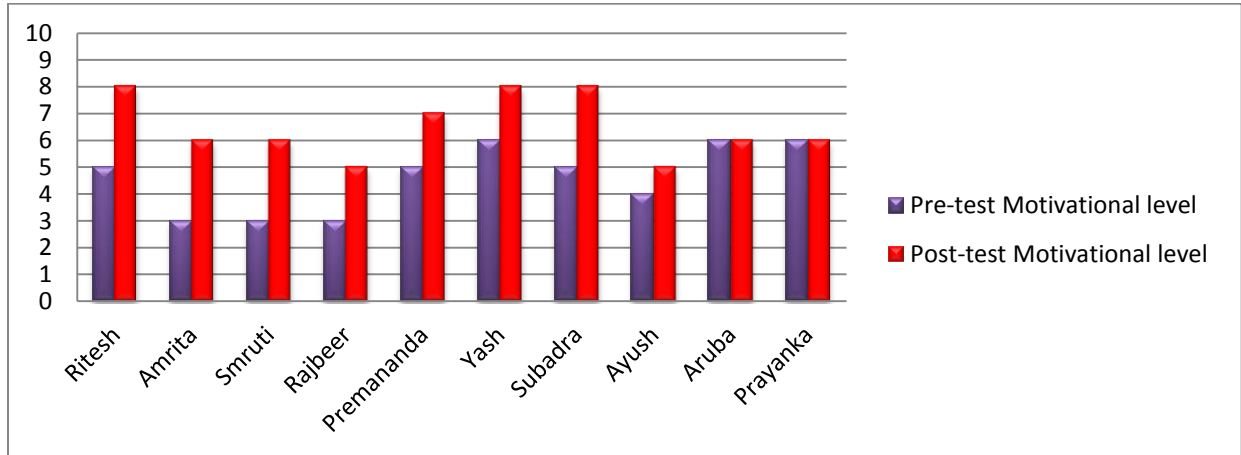
**Post-Test (August)**

Name of the student	Motivational level	Level of interest	level of understanding
Ritesh	3	2	5
Amrita	3	2	5
Smruti	2	2	4
Rajbeer	3	3	4
Premananda	3	2	4
Yash	3	3	4
Subadra	3	3	5
Ayush	2	3	4
Aruba	3	3	4
Prayanka	4	4	4



Appendix- A.4

The comparative analysis of the Pre - Test and Post -Test on the learning parameters



## Appendix -B

### Student's present level of functioning before the Action Research

The subject teachers and the classroom teacher were asked to complete a questionnaire which would provide more information about these students in a regular set up. According to the science teachers it was found that these SEN students were lacking behind in few concepts. Some of the abstract concepts were very hard for these students to understand. Few students struggled to pay attention and missed out the content. Some of them had difficulty in remembering things.

The class teacher, who is working on these students, said that they are lagging behind in academics. Some of them are good in sports and extracurricular activities but when it comes to studies they have problems. Few of the students also have medical issues such as seizure disorder and cerebral palsy and they lack confidence. These students need a lot of simulating activities to make them interested and motivated.

The special education teacher was asked for her input in this regard. The teacher said that when anything is displayed or demonstrated the students find it interesting and are able to respond but when anything is written and are asked to read and understand they find it difficult. Apart from the direct instruction and small group instruction the teacher feels that if there is any interactive media which would be benefiting to these students.

## STUDENTS PROFILE

### **Ritesh Pattanayak - Class III Case1**

Case 1 is a student studying in class III. He is very friendly and trouble maker as well. He is very distractive in the class. He keeps asking irrelevant questions and wants to seek everybody's attention. He is sometimes very restless and finds it hard to sit in one place for long period. He finds it hard to complete written assignments; he wants to answer verbally but doesn't want to write. He finds it difficult to organize his thoughts and put them properly, while answering open ended questions. He is good in comprehension but poor in reading so has difficulty in understanding what he has read, however if anything is read to him by others, he is able to understand and relate.

### **Amrita Nanda - Class III Case 2**

Case 2 is presently studying in class III. She lacks patience in doing task for more than few minutes and then wants to switch to new task. She cannot go fast and as she get very excited to do a task, she needs help to calm herself down and settle down to do a task, but doesn't have sustained attention for that task. She gets distracted very easily and likes to make conversation

even if the other person is not ready. In academic, case 3 is below average, she needs prompts to finish her work and take a long time to finish her task. As far as reading is concerns he is poor in reading and has limited vocabulary. Writing long sentences is challenging for her. Comprehension is also below average.

### **Smruti Pragya - Class III case 3**

Case 3 is presently studying in class III. She is very friendly and a loving child. She is very cooperative with her classmates. She needs help in organizing her work. She is significantly slow than her fellow mates and constantly needs prompting to catch up with her friends. She is slow in all the domain of academics. She is fairly good in sports. Her reading and writing skills are below her grade level. She seems lost at times while the lesson is going on and needs constant wake up activities to keep her motivated to learn. She is unable to understand abstract concepts taught during the class, thus failing to finish her assignment. She is regularly attending remedial classes provided by the special educator.

### **Rajbeer - Class III Case 4**

Rajbeer is a very hardworking student. He is very interested in studies but unable to cope up with the high standard. He is below grade level in academics and struggling hard in all domains of academics. He wants to read but has difficulty in reading bigger words, thus has difficulty in reading grade level concepts. He needs repeated explanation on many topics. He is fair in writing and able to manage his written assignment. His comprehension is also affected due to his poor reading. He is presently attending remedial classes as well.

### **Premananda - Class IV Case 5**

Premananda is well known in the school for his violent outburst. The child seems irritated with things around him. He is unable to make friends and even if he does, he is unable to sustain the friendship for a longer period. He seems selfish many times when it comes to group activities and wants to do things alone. He is presently attending anger management counselling session to calm him done. He is provided with teacher proximity to have a constant watch on his actions. Academically the child seems confused and lost. The child is struggling with reading as it is hard for him to focus. He is having difficulty in comprehension due to his poor reading. Writing from his memory is challenging for Premananda, however he is good in copying from the board and from others' book.

### **Yash Priyadarshi - Class IV Case 6**

Case 6 is presently studying in class IV. He is not able to understand instructions clearly and follow them sequentially. He has comprehension difficulty; finds it difficult to understand long sentences which have abstract concepts. Besides that, he finds it difficult to express his own

thoughts cogently. He gets easily distracted and less interested in everything that demands attention and planning. He lacks motivation and does not care to attend to the questions. However with support and remedial teaching he is able to cope up in academics.

### **Subadra Yadav - Class IV Case 7**

Subadra is studying in class III. The child was diagnosed for seizure disorder, she is under medication presently. She finds it hard to concentrate in the class and feels lazy due to the medication. She is slow in reading and has difficulty in modifying reading rate. She has poor comprehension and retention of written material thus has difficulty integrating new vocabulary. She has difficulty in orally expressing her ideas. She is unable to sequence the events in proper manner, thus has difficulty in managing more than one task at a time or retaining a list of information.

### **Ayush - Class IV Case 8**

Ayush is very interested in studies. The child has mild cerebral palsy, his left side of the body is affected and that hinders his learning. The child struggles in writing due to his disability. He has poor hand writing. His reading skills are also affected due his disability. He is very good in mathematics and does computation orally. The child loves to interact with friends and likes to come to school. His friends are very cooperative and help him in his daily school activities. The child is struggling to cope up with grade three level curriculums. He is presently attending remedial classes provided by the special educator.

### **Prayanka Sarangi - Class V Case 9**

Case 9 is presently studying in class V. He is diagnosed with borderline intelligence with learning difficulties, mostly in reading, writing expression and sustained attention. He is not that sociable and needs help to perform routine chores. He is able to answer simple questions when asked by the teacher. He however lacks initiative to make a conversation. He is shy and hesitant to meet new people. Academically, he is below average and needs assistance in academics. He is presently attending remedial classes along with his regular classes. His writing skills are average but his comprehension skills are below average.

### **Aruba Javed - Class V Case 10**

Aruba is very friendly and liked by her friends and teacher. She has mild cerebral palsy which has affected her physically and mentally. The child is struggling to cope up with the class V curriculum; however essential accommodations and modification are done according to her educational level. The child is presently attending regular special education classes. The child is able to read but requires bigger font, so the teaching material in bigger font is provided to her. The child is able to manage reading and writing in a slower pace.



## Appendix C

### Feedback of the students' performance after the action research given by the Special Educator

During the research, teaching sessions were done through SMART BOARD using concrete images related to the topics, videos related to the content taught, demonstrating the activities using the visuals and auditory inputs. The sessions also included kinesthetic-tactile sense by making the activities interactive for the students using SMART BOARD. Apart from the colorful text, video clips, animation and images from the online program called "Extra Marks.com", the researcher also used oral instructions which made it easier for students with learning disability to grasp key concepts.

**Child specific feedback was obtained from the special educator as SMART BOARD was placed in the special education classroom and she was also involved in the teaching sessions.**

#### **Student 1: Ritesh**

The student was very lazy in the class, would even go to sleep during the lesson. But during the interactive session using SMART BOARD, the student seemed very active and enthusiastic. His body language reflected more agility and a desire to learn. He seemed to be confident and comfortable in the class. The student was able to respond to the question asked and able to relate the environmental science concepts to his daily life.

#### **Student 2: Amrita**

The student was very excited to the big visuals and videos. It was challenging for the special educator to calm the student. However the student was able to do meaningful interpretation of the contents taught. Her confidence level had remarkably improved as it was seen that she was the first one to raise hands to answer every question. The child at time needed instructions to calm down.

#### **Student 3: Smruti**

The student was little hesitant at the start, but in latter session, she showed improvement. Initially she needed frequent pauses during the session to motivate her and make her involve in the session, but latter she was very interested and would ask more questions. The student was able to answer to the question when asked.

### **Student 4: Rajbeer**

The SMART BOARD teaching concept worked very well for Rajbeer. The student had trouble understanding many concepts previously. He also seemed reluctant to learn and was uneasy in the class. The visual displays and the videos helped him a lot. The student struggled in reading and the SMART BOARD had many images and visuals and it was easy for him to gain understanding and learn the new concepts. However, he was provided with extra time during the session as he was not able to follow with others. Sometimes, the student was held back after session and was taught one-on-one. The student was very happy and interested to learn more.

### **Student 5: Premananda**

The student was initially irritated as it was a new concept for him, but gradually he was involved and was motivated to learn. The classroom behavior issues were also less as his attention was diverted to the large visuals and videos. The student also became more composed during classes and attention was retained. The student was made to participate more in the interactive session and he liked it a lot. An increase in his attention and interest level was also noticed.

### **Student 6: Yash**

Initially, the student lacked interest and would always ask if he would go outside of the class, the student was very distracted and wanted to attend his regular class than the SMART BOARD session.

Gradually the student started getting interested and participated very actively. The student was highly motivated and his curiosity was reflected in his questions.

### **Student 7: Subadra**

The student's efforts were appreciated by everybody. In spite of being on medication, the student showed great interest and motivation to learn. The student was active and participated fully. She enjoyed the interactive session. Even the parent had sent a report that she was very happy and was able to explain what all was learnt by her in the School.

### **Student 8: Ayush**

Ayush was very happy during all the sessions. He lacked confidence due his disability, but he was very interested during the interactive session and was very happy to be a part of it. The child was very much motivated to learn and would ask the teacher not to stop and teach him all

day using SMART BOARD. A big positive shift was seen in his confidence level and he was more poised in the class. The student was able to respond to the questions asked.

### **Student 9: Prayanka**

Prayanka was very hesitant at the start but gradually was motivated. Initially, the student was shy, would hesitate to take part in any activities. However, he gained interest and was motivated to learn. The student was able to participate actively and able to answer the questions when asked.

### **Student 10: Aruba**

This was perfect teaching model for Aruba. Aruba has vision problem and at times find it difficult to see smaller objects. The bigger visuals and videos helped Aruba to see and learn many things. Due to this she seemed to be more confident, happy and felt included in the class. Her body language sent out signals of happy learning. Aruba needed pauses in between to understand the content. The researcher paused and explained Aruba as and when required. The student was able to respond positively to the teaching sessions.

## Parent Feed Back:

The research program was successful because of the parents' encouragement and support. Many parents had given verbal appreciation during parent teacher meetings. Few of them had given written feedback.

**Mrs. Sarangi** "I saw improvement in my son's behaviour. He shows interest in studies. He is very much motivated to go to school, earlier it was hard for me to wake him up from bed to go to school. Now is very much happy to go to school. Thanks for this program.

Dated 23.7.14

To  
Silpi Sahoo  
Teacher  
Sai International School.  
Bhubaneswar.

Dear Silpi Maam.

I am very happy that my son  
Ritesh pattanayak had finally  
gained interest in studies. He  
is now willing to share his  
thoughts with his younger sister.  
He is able to tell me, explain  
me what all he learned in  
the school. More of such  
activities are required for such  
kind of childrens.

Thanking you.

Smita

(Mother of Ritesh)

## Parent Consent Form

**Parental Permission for Participation of a Child in a Research Study**

Dear parents,

You are invited to participate in a research study conducted by Mrs. Shilpi Sahoo, Trustee, SAI International School, Bhubaneswar. The purpose of this research is to find out if the use of Smart Board impacts the learning skills of special education students.

Your child's participation will involve in the teaching session apart from the regular curriculum. The child will not be disturbed from his regular classes and only 45 minutes of his remedial classes will be used for this session. This is to bring to your notice that your child will be participating in teaching learning process and there are no known risks associated with this research.

The information shared between us would be kept confidential and would be used solely for the research purpose. We will do everything we can to protect your child's privacy. Your child's identity will not be revealed in any publication resulting from this study without your approval.

Participation in this research study is voluntary. You may refuse to allow your child to participate or withdraw your child from the study at any time. Your child will not be penalized in any way should you decide not to allow your child to participate or to withdraw your child from this study.

If you have any questions or concerns about this study or if any problems arise, or if you have any questions or concerns about your child's rights as a research participant please contact Mrs. Silpi Sahoo at Sai International School

**Consent**

**I have read this parental permission form and have been given the opportunity to ask questions. I give/ do not give my permission for my child to participate in this study.**

Participant's signature Shilpi Date: 4.4.14

Child's Name: Ritesh pattanayak

A copy of this parental permission form should be given to you.

**SAI International School**

www.saiinternationalschool.com

Campus: 5-A, Chandaka Industrial Estate, Infocity Road, Bhubaneswar, Odisha, India.

Corporate Office: Plot No. A/146, Sahid Nagar, Bhubaneswar-751 007.

Ph: + 91 674 -7100200, Cell: +91 9338336699

email:info@saiinternationalschool.com

Science Concepts Testing Scale for class III

Student name \_\_\_\_\_

Date of test \_\_\_\_\_

Evaluator Name \_\_\_\_\_

Time Taken \_\_\_\_\_

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labelled A–D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
<b>Part I : Plants</b>			
1.	The _____ anchors the plant to the soil	a. Roots b. Stem c. Leaves d. Flower	
2.	The _____ prepares food for all parts of the plant.	a. Roots b. Stem c. Leaves d. Flower	
3.	_____ is an insectivores plant.	a. Rose b. Shoe flower c. Pitcher flower d. Tulip	
4.	Water and mineral salt in a plant are absorbed by _____	a. Flower b. Fruits c. Leaves d. Roots	
5.	_____ gives us fruit.	a. Roots b. Flower c. Leaves d. Buds	
<b>Part II – Animal life</b>			
6.		a. Vulture	

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	The _____ taps the bark of the tree with its sharp pointed beak.	<ul style="list-style-type: none"> <li>b. Duck</li> <li>c. Crane</li> <li>d. Wood pecker</li> </ul>	
7.	_____ do not carry load for us.	<ul style="list-style-type: none"> <li>a. Camel</li> <li>b. Horses</li> <li>c. Oxen</li> <li>d. Kangaroos</li> </ul>	
8.	Rabbit lives in _____.	<ul style="list-style-type: none"> <li>a. Cave</li> <li>b. Den</li> <li>c. Burrow</li> <li>d. Stable</li> </ul>	
9.	_____ bird stitches leaves and dry grass with its beak to make a nest.	<ul style="list-style-type: none"> <li>a. Weaver bird</li> <li>b. Tailor bird</li> <li>c. Crow</li> <li>d. Parrot</li> </ul>	
10.	_____ carries their homes on their back.	<ul style="list-style-type: none"> <li>a. Owl</li> <li>b. Honey bee</li> <li>c. Snail</li> <li>d. kangaroo</li> </ul>	
Part III- Human body			
11.	We have _____ number of sense organs	<ul style="list-style-type: none"> <li>a. 1</li> <li>b. 4</li> <li>c. 5</li> <li>d. 3</li> </ul>	
12.	The smallest bone in your body is found in our _____	<ul style="list-style-type: none"> <li>a. Nose</li> <li>b. Ear</li> <li>c. Eye</li> <li>d. Tongue</li> </ul>	
13.	_____ is the largest organ of our body	<ul style="list-style-type: none"> <li>a. Stomach</li> <li>b. Legs</li> <li>c. Brain</li> <li>d. Skin</li> </ul>	

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14.	Braille allows _____ people to read.	a. Blind b. Dumb c. Deaf d. Sick	
15.	_____ protects our body from heat, cold, and germs.	a. Skin b. Brain c. Blood d. Eyes	
Part IV – Food			
16.	When we eat carrot and turnip, we eat _____ of the plant.	a. Roots b. Stem c. Leaves d. Flowers	
17.	Sugar cane and potato are the _____ of the plant.	a. Roots b. Stem c. Leaves d. Flower	
18.	_____ vessels are not used to cook over a fire.	a. Steel b. Iron c. Copper d. Plastic	
19.	_____ adds yellow colour to pickles and cooked food.	a. Turmeric b. Pepper c. Chilli d. Garlic	



**Questionnaire for Pre- Test of Class III**

Pre- test  
Science Concepts Testing Scale for class III

Student name Ritesh Kataria Date of test 11.4.2014

Evaluator Name Kalyani Singh Time Taken 32 minutes

8  
20

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labeled A–D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
Part I : Plants			
1.	The <u>roots</u> anchors the plant to the soil.	a. Roots b. Stem c. Leaves d. Flower	A ✓
2.	The <u>stem</u> prepares food for all parts of the plant.	a. Roots b. Stem c. Leaves d. Flower	b ✗
3.	<u>rose</u> is a insectivores plant .	a. Rose b. Shoe flower c. Pitcher flower d. Tulip	A ✗
4.	Water and mineral salt in a plant are absorbed by <u>roots</u>	a. Flower b. Fruits c. Leaves d. Roots	d ✓
5.	<u>flower</u> gives us fruit .	a. Roots b. Flower c. Leaves d. Buds	b ✓

Part II – Animal life			
6.	The <u>vulture</u> taps the bark of the tree with its sharp pointed beak.	a. Vulture b. Duck c. Crane d. Wood pecker	A X
7.	<u>Oxen</u> do not carry load for us.	a. Camel b. Horses c. Oxen d. Kangaroos	C X
8.	Rabbit leaves in <u>burrow</u> .	a. Cave b. Den c. Burrow d. Stable	C ✓
9.	<u>tailbird</u> bird stitches leaves and dry grass with its beak to make a nest.	a. Weaver bird b. Tailor bird ✓ c. Crow d. Parrot	B X
10.	<u>kangaroo</u> carries their homes on their back.	a. Owl b. Honey bee c. Snail d. kangaroo ✓	D X
Part III- Human body			
11.	We have <u>3</u> number of sense organs	a. 1 b. 4 c. 5 d. 3 ✓	D X
12.	The smallest bone in your body is found in our <u>eyes</u>	a. Nose b. Ear c. Eyes ✓ d. Tongue	C X
13.	<u>stomach</u> is the largest organ of our body	a. Stomach b. Legs c. Brain d. Skin	A X

14.	Braille allows <u>dumb</u> people to read.	<ul style="list-style-type: none"> <li>a. Blind</li> <li>b. Dumb</li> <li>c. Deaf</li> <li>d. Sick</li> </ul>	b	X
15.	<u>skin</u> protects our body from heat, cold, and germs.	<ul style="list-style-type: none"> <li>a. Skin</li> <li>b. Brain</li> <li>c. Blood</li> <li>d. Eyes</li> </ul>	A	✓
Part IV – Food				
16.	When we eat carrot and turnip, we eat <u>roots</u> of the plant.	<ul style="list-style-type: none"> <li>a. Roots</li> <li>b. Stem</li> <li>c. Leaves</li> <li>d. Flowers</li> </ul>	A	✓
17.	Sugar cane and potato are the <u>roots</u> of the plant.	<ul style="list-style-type: none"> <li>a. Roots</li> <li>b. Stem</li> <li>c. Leaves</li> <li>d. Flower</li> </ul>	A	X
18.	<u>Steel</u> vessels are not used to cook over a fire.	<ul style="list-style-type: none"> <li>a. Steel</li> <li>b. Iron</li> <li>c. Copper</li> <li>d. Plastic</li> </ul>	A	X
19.	<u>saunai</u> adds yellow color to pickles and cooked food.	<ul style="list-style-type: none"> <li>a. Turmeric</li> <li>b. Pepper</li> <li>c. Chili</li> <li>d. Garlic</li> </ul>	A	✓
20.	Milk , butter , and cheese are <u>dairy products</u>	<ul style="list-style-type: none"> <li>a. Dairy products</li> <li>b. Cereals</li> <li>c. Pulses</li> <li>d. Nuts</li> </ul>	A	✓

Questionnaire for Post- Test of Class III

Post-test  
Science Concepts Testing Scale for class III

Student name Dr. Kishan Khatun Date of test 4.8.2014

Evaluator Name Kalyani Singh Time Taken 20 minutes

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labeled A–D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
Part I : Plants			
1.	The <u>root</u> anchors the plant to the soil.	a. Roots b. Stem c. Leaves d. Flower	a ✓
2.	The <u>leaves</u> prepares food for all parts of the plant.	a. Roots b. Stem c. Leaves d. Flower	c ✓
3.	<u>Pink</u> is a insectivores plant .	a. Rose b. Shoe flower c. Pitcher flower d. Tulip	c ✓
4.	Water and mineral salt in a plant are absorbed by <u>roots</u> .	a. Flower b. Fruits c. Leaves d. Roots	d ✓
5.	<u>flower</u> gives us fruit .	a. Roots b. Flower c. Leaves d. Buds	b ✓

14/20

Part II – Animal life			
6.	The <u>Crane</u> taps the bark of the tree with its sharp pointed beak.	a. Vulture b. Duck c. Crane d. Wood pecker	c X
7.	<u>Kelpon</u> do not carry load for us.	a. Camel b. Horses c. Oxen d. Kangaroos	d ✓
8.	Rabbit leaves in <u>tail hole bird beehive</u>	a. Cave b. Den c. Burrow d. Stable	c ✓
9.	<u>Tailor bird</u> bird stitches leaves and dry grass with its beak to make a nest.	a. Weaver bird b. Tailor bird c. Crow d. Parrot	b X
10.	<u>Snail</u> carries their homes on their back.	a. Owl b. Honey bee c. Snail d. kangaroo	c ✓
Part III- Human body			
11.	We have <u>5</u> number of sense organs	a. 1 b. 4 c. 5 d. 3	c 5 ✓
12.	The smallest bone in your body is found in our <u>C</u>	a. Nose b. Car c. Eyes d. Tongue	c X
13.	<u>a</u> is the largest organ of our body	a. Stomach b. Legs c. Brain d. Skin	a X

14.	Braille allows <u>blind</u> people to read.	<input checked="" type="checkbox"/> a. Blind <input type="checkbox"/> b. Dumb <input type="checkbox"/> c. Deaf <input type="checkbox"/> d. Sick	a	✓
15.	<u>Skin</u> protects our body from heat, cold, and germs.	<input checked="" type="checkbox"/> a. Skin <input type="checkbox"/> b. Brain <input type="checkbox"/> c. Blood <input type="checkbox"/> d. Eyes	a	✓
Part IV – Food				
16.	When we eat carrot and turnip, we eat <u>root</u> of the plant.	<input checked="" type="checkbox"/> a. Roots <input type="checkbox"/> b. Stem <input type="checkbox"/> c. Leaves <input type="checkbox"/> d. Flowers	a	✓
17.	Sugar cane and potato are the <u>stem</u> of the plant.	<input type="checkbox"/> a. Roots <input type="checkbox"/> b. Stem <input type="checkbox"/> c. Leaves <input checked="" type="checkbox"/> d. Flower	d	✗
18.	<u>Steel</u> vessels are not used to cook over a fire.	<input checked="" type="checkbox"/> a. Steel <input type="checkbox"/> b. Iron <input type="checkbox"/> c. Copper <input type="checkbox"/> d. Plastic	a	✗
19.	<u>Mustard</u> adds yellow color to pickles and cooked food.	<input checked="" type="checkbox"/> a. Turmeric <input type="checkbox"/> b. Pepper <input type="checkbox"/> c. Chili <input type="checkbox"/> d. Garlic	a	✓
20.	Milk , butter , and cheese are <u>dairy products</u>	<input type="checkbox"/> a. Dairy products <input type="checkbox"/> b. Cereals <input type="checkbox"/> c. Pulses <input type="checkbox"/> d. Nuts	a	✓

## Science Concepts Testing Scale for class IV

Student name \_\_\_\_\_

Date of test \_\_\_\_\_

Evaluator Name \_\_\_\_\_

Time Taken \_\_\_\_\_

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labelled A–D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
<b>Part I : Plants</b>			
1.	The end products of photosynthesis are _____	e. Carbon dioxide f. sunlight g. glucose h. minerals	
2.	The green substance in plants is called _____	e. Chlorophyll f. cactus g. tuber h. bud	
3.	Confers grow in _____	e. Deserts f. mountains g. rivers h. swampy areas	
4.	We get rubber from the _____ of the rubber plant.	e. Stem f. sap g. leaves h. roots	
5.	We use _____ to make natural hair dye.	e. Marigold f. vanilla g. henna h. neem	

Part II – Animal life			
6.	Animals that give birth to babies are called _____.	e. Invertebrates f. vertebrates g. mammals h. amphibians	
7.	_____ look like butterflies	e. Bees f. dragon flies g. moths h. silver fish	
8.	The young one of the frog is called _____	e. Fledgling f. tadpole g. caterpillar h. nestling	
9.	_____ are called the ship of the desert.	e. Cheetah f. tiger g. whale h. camel	
10.	Animals that can survive both on land and water are called _____.	e. Reptiles f. mammals g. amphibian h. herbivores	
Part III- Human body			
11.	An adult has _____ no of the teeth.	e. 20 f. 44 g. 32 h. 36	
12.	_____ teeth are also known as temporary teeth.	e. Permanent f. milk g. canines h. incisors	
13.	The process of taking food in the mouth is called	e. Ingestion	



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	_____	f. digestion g. circulation h. excretion	
14.	The _____ controls all the organs and the body parts.	e. Brain f. heart g. lungs h. Kidneys	
15.	We have _____ kidneys.	e. 1 f. 2 g. 3 h. 4	
Part IV – Food			
16.	Carbohydrates provide us with _____	e. Energy f. immunity g. growth h. minerals	
17.	Eggs , pulses, and ground nuts are examples of _____	e. Proteins f. carbohydrates g. fats h. vitamins	
18.	_____ is food plan that gives us all the nutrients in correct amount.	e. Food groups f. balanced diet g. junk food h. d. food pyramid	
19.	Glucose and cane sugar are examples of _____	e. Proteins f. vitamins g. carbohydrate h. fats	
20.	Vitamins and minerals are obtained from _____	a. Mutton b. eggs c. fruits and vegetables d. cereals and grains	

Questionnaire for Pre- Test of Class IV

Science Concepts Testing Scale for class IV

Pre-test

Student name YASH MOHPATRA

Date of test 11/4/2014

Evaluator Name Natini Roy Choudhury

Time Taken 28 minutes

$\frac{8}{20}$

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labeled A-D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
Part I : Plants			
1.	The end products of photosynthesis are _____	<input checked="" type="checkbox"/> a. Carbon dioxide <input type="checkbox"/> b. sunlight <input type="checkbox"/> c. glucose <input type="checkbox"/> d. minerals	A
2.	The green substance in plants is called _____	<input type="checkbox"/> a. Chlorophyll <input checked="" type="checkbox"/> b. cactus <input type="checkbox"/> c. tuber <input type="checkbox"/> d. bud	b
3.	Conifers grow in _____	<input type="checkbox"/> a. Deserts <input checked="" type="checkbox"/> b. mountains <input type="checkbox"/> c. rivers <input type="checkbox"/> d. swampy areas	b
4.	We get rubber from the _____ of the rubber plant.	<input type="checkbox"/> a. Stem <input checked="" type="checkbox"/> b. sap <input type="checkbox"/> c. leaves <input type="checkbox"/> d. roots	b
5.	We use _____ to make natural hair dye.	<input type="checkbox"/> a. Marigold <input type="checkbox"/> b. vanilla <input type="checkbox"/> c. henna <input checked="" type="checkbox"/> d. neem	d

Part II – Animal life			
6.	Animals that give birth to babies are called _____.	a. Invertebrates b. vertebrates <input checked="" type="checkbox"/> c. mammals d. amphibians	c
7.	_____ look like butterflies	<input checked="" type="checkbox"/> a. Bees b. dragon flies c. moths d. silver fish	A
8.	The young one of the frog is called _____	<input checked="" type="checkbox"/> a. Fledgling b. tadpole c. caterpillar d. nestling	A
9.	_____ are called the ship of the desert.	a. Cheetah b. tiger c. whale <input checked="" type="checkbox"/> d. camel	d
10.	Animals that can survive both on land and water are called _____.	<input checked="" type="checkbox"/> a. Reptiles b. mammals c. amphibian d. herbivores	aA
Part III- Human body			
11.	An adult has _____ no of the teeth.	a. 20 b. 44 c. 32 <input checked="" type="checkbox"/> d. 36	d
12.	_____ teeth is also known as temporary teeth.	<input checked="" type="checkbox"/> a. Permanent b. milk c. canines d. incisors	a
13.	The process of taking food in the mouth is called _____	a. Ingestion <input checked="" type="checkbox"/> b. digestion c. circulation d. excretion	b

14.	The _____ controls all the organs and the body parts.	<input checked="" type="checkbox"/> a. Brain <input type="checkbox"/> b. heart <input type="checkbox"/> c. lungs <input type="checkbox"/> d. Kidneys	a	✓
15.	We have _____ kidneys.	<input type="checkbox"/> a. 1 <input checked="" type="checkbox"/> b. 2 <input type="checkbox"/> c. 3 <input type="checkbox"/> d. 4	b	✓
Part IV – Food				
16.	Carbohydrates provide us with _____	<input type="checkbox"/> a. Energy <input checked="" type="checkbox"/> b. immunity <input type="checkbox"/> c. growth <input type="checkbox"/> d. minerals	b	✓
17.	Eggs , pulses, and ground nuts are examples of _____	<input type="checkbox"/> a. Proteins <input type="checkbox"/> b. carbohydrates <input checked="" type="checkbox"/> c. fats <input type="checkbox"/> d. vitamins	c	✓
18.	_____ is food plan that gives us all the nutrients in correct amount.	<input type="checkbox"/> a. Food groups <input checked="" type="checkbox"/> b. balanced diet <input type="checkbox"/> c. junk food <input type="checkbox"/> d. food pyramid	b	✓
19.	Glucose and cane sugar are examples of _____	<input checked="" type="checkbox"/> a. Proteins <input type="checkbox"/> b. vitamins <input type="checkbox"/> c. carbohydrate <input type="checkbox"/> d. fats	a	✓
20.	Vitamins and minerals are obtained from _____	<input type="checkbox"/> a. Mutton <input type="checkbox"/> b. eggs <input checked="" type="checkbox"/> c. fruits and vegetables <input type="checkbox"/> d. cereals and grains	c	✓

Questionnaire for Post- Test of Class IV

Science Concepts Testing Scale for class IV

Post-test

Student name YASH MOH PATRA

Date of test 11/8/2014

Evaluator Name Nalini Roy Choudhury

Time Taken 15 minutes

$\frac{11}{20}$

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labeled A-D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
Part I : Plants			
1.	The end products of photosynthesis are _____	a. Carbon dioxide b. sunlight c. <input checked="" type="checkbox"/> glucose d. minerals	c
2.	The green substance in plants is called _____	a. <input checked="" type="checkbox"/> Chlorophyll b. cactus c. tuber d. bud	a
3.	Confers grow in _____	a. Deserts b. <input checked="" type="checkbox"/> mountains c. rivers d. swampy areas	b
4.	We get rubber from the _____ of the rubber plant.	a. Stem b. <input checked="" type="checkbox"/> sap c. leaves d. roots	b
5.	We use _____ to make natural hair dye.	a. Marigold b. vanilla c. <input checked="" type="checkbox"/> henna d. neem	d

Part II – Animal life			
6.	Animals that give birth to babies are called _____.	a. Invertebrates b. vertebrates c. mammals ✓ d. amphibians	c
7.	_____ look like butterflies	a. Bees b. dragon flies c. moths ✓ d. silver fish	c
8.	The young one of the frog is called _____	a. Fledgling ✓ b. tadpole ✓ c. caterpillar d. nestling	a
9.	_____ are called the ship of the desert.	a. Cheetah b. tiger c. whale d. camel ✓	c
10.	Animals that can survive both on land and water are called _____.	a. Reptiles b. mammals c. amphibian ✓ d. herbivores ✓	d
Part III- Human body			
11.	An adult has _____ no of the teeth.	a. 20 b. 44 c. 32 ✓ d. 36	d
12.	_____ teeth is also known as temporary teeth.	a. Permanent b. milk ✓ c. canines d. incisors	b
13.	The process of taking food in the mouth is called _____	a. Ingestion ✓ b. digestion ✓ c. circulation d. excretion	a

14.	The _____ controls all the organs and the body parts.	<ul style="list-style-type: none"> <li>a. Brain</li> <li>b. heart ✓</li> <li>c. lungs</li> <li>d. Kidneys</li> </ul>	b ✓
15.	We have _____ kidneys.	<ul style="list-style-type: none"> <li>a. 1</li> <li>b. 2 ✓</li> <li>c. 3</li> <li>d. 4</li> </ul>	b ✓
Part IV – Food			
16.	Carbohydrates provide us with _____	<ul style="list-style-type: none"> <li>a. Energy</li> <li>b. immunity</li> <li>c. growth ✓</li> <li>d. minerals</li> </ul>	c ✓
17.	Eggs , pulses, and ground nuts are examples of _____	<ul style="list-style-type: none"> <li>a. Proteins ✓</li> <li>b. carbohydrates</li> <li>c. fats</li> <li>d. vitamins</li> </ul>	a ✓
18.	_____ is food plan that gives us all the nutrients in correct amount.	<ul style="list-style-type: none"> <li>a. Food groups</li> <li>b. balanced diet ✓</li> <li>c. junk food</li> <li>d. food pyramid</li> </ul>	b ✓
19.	Glucose and cane sugar are examples of _____	<ul style="list-style-type: none"> <li>a. Proteins</li> <li>b. vitamins ✓</li> <li>c. carbohydrate</li> <li>d. fats</li> </ul>	b ✓
20.	Vitamins and minerals are obtained from _____	<ul style="list-style-type: none"> <li>a. Mutton</li> <li>b. eggs ✓</li> <li>c. fruits and vegetables</li> <li>d. cereals and grains</li> </ul>	b ✓

## Science Concepts Testing Scale for class V

Student name \_\_\_\_\_

Date of test \_\_\_\_\_

Evaluator Name \_\_\_\_\_

Time Taken \_\_\_\_\_

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labelled A–D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
Part I : Plants			
1.	The seed coat is also known as _____.	<ul style="list-style-type: none"> <li>i. Cotyledon</li> <li>j. Xylem</li> <li>k. Embryo</li> <li>l. Embryo</li> </ul>	
2.	The shoot develops from the _____.	<ul style="list-style-type: none"> <li>i. Cotyledon</li> <li>j. Plumule</li> <li>k. Radical</li> <li>l. Testa</li> </ul>	
3.	_____ is the process in which a seed starts growing under favourable conditions.	<ul style="list-style-type: none"> <li>a. Germination</li> <li>b. Seed dispersal</li> <li>c. Vegetative Propagation</li> <li>d. Sapling</li> </ul>	
4.	_____ help in the Reproduction in plants.	<ul style="list-style-type: none"> <li>i. Seeds</li> <li>j. Roots</li> <li>k. Stem</li> <li>l. Leaves</li> </ul>	
5.	_____ should be sprayed to keep the plants free from all types of pests.	<ul style="list-style-type: none"> <li>i. Fertilizer</li> <li>j. Pesticide</li> <li>k. Manure</li> <li>l. water</li> </ul>	
Part II – Animal life			



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6.	Herding is seen in _____.	<ul style="list-style-type: none"> <li>a. cows</li> <li>b. dogs</li> <li>c. lions</li> <li>d. snakes</li> </ul>	
7.	Very deep winter sleep is called _____.	<ul style="list-style-type: none"> <li>i. vacation</li> <li>j. hibernation</li> <li>k. echolocation</li> <li>l. herding</li> </ul>	
8.	_____ is the cultivating or managing of bees to get honey and wax.	<ul style="list-style-type: none"> <li>i. Apiculture</li> <li>j. Sericulture</li> <li>k. Agriculture</li> <li>l. Vermiculture</li> </ul>	
9.	_____ is the place to keep wild animals in the natural habitats and protect them from hunters.	<ul style="list-style-type: none"> <li>i. Zoos</li> <li>j. Wild life sanctuaries</li> <li>k. Shelters</li> <li>l. Museums</li> </ul>	
10.	Fishes breathe with the help of _____.	<ul style="list-style-type: none"> <li>i. Skin</li> <li>j. Nose</li> <li>k. Gills</li> <li>l. Lungs</li> </ul>	
<b>Part III- Human body</b>			
11.	_____ support the body and gives its shape.	<ul style="list-style-type: none"> <li>i. Bone</li> <li>j. Muscles</li> <li>k. Skeleton</li> <li>l. Brain</li> </ul>	
12.	The _____ is the largest and most developed part of the human brain.	<ul style="list-style-type: none"> <li>i. Cerebrum</li> <li>j. Brain stem</li> <li>k. Cerebellum</li> <li>l. Spinal cord</li> </ul>	

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13.	The place where two bones meet is called _____.	<ul style="list-style-type: none"> <li>i. Joint</li> <li>j. Muscle</li> <li>k. Skelton</li> <li>l. Tender</li> </ul>	
14.	_____ is the group of fibres that carry message between brain and rest of the body.	<ul style="list-style-type: none"> <li>i. Nerves</li> <li>j. Bone</li> <li>k. Blood vessel</li> <li>l. Blood</li> </ul>	
15.	Our bones are made out of _____.	<ul style="list-style-type: none"> <li>i. Calcium</li> <li>j. Lime</li> <li>k. Blood</li> <li>l. White blood cells</li> </ul>	
Part IV – Food			
16.	Vitamins A, B, E & K are called _____ vitamins.	<ul style="list-style-type: none"> <li>i. Fat soluble</li> <li>j. Water soluble</li> <li>k. Blood soluble</li> <li>l. Insoluble</li> </ul>	
17.	_____ are needed for the growth and repair of the body.	<ul style="list-style-type: none"> <li>i. Protein</li> <li>j. Fat</li> <li>k. Vitamins</li> <li>l. Minerals</li> </ul>	
18.	Saturated fats are considered _____.	<ul style="list-style-type: none"> <li>i. Healthy</li> <li>j. Unhealthy</li> <li>k. Important</li> <li>l. Dangerous</li> </ul>	
19.	_____ is the waxy substance produced by the liver.	<ul style="list-style-type: none"> <li>i. Cholesterol</li> <li>j. Candle</li> <li>k. Oil</li> <li>l. Paraffin wax</li> </ul>	
20.	Deficiency of vitamin A causes	<ul style="list-style-type: none"> <li>e. Beriberi</li> <li>f. Anaemia</li> <li>g. Night blindness</li> <li>h. Goitre</li> </ul>	

Questionnaire for Pre- Test of Class V

Science Concepts Testing Scale for class V

Student name Prayanka

Date of test 4.4.14

Evaluator Name Sunita Mohapatra

Time Taken 32 minutes

Pre-test

Part  
4  
20

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labeled A-D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
Part I : Plants			
1.	The seed coat is also known as _____.	a. Cotyledon b. Xylem c. Embryo d. Embryo	b
2.	The shoot develops from the _____.	a. Cotyledon b. Plumule c. Radical d. Testa	a
3.	_____ is the process in which a seed starts growing under favorable conditions.	a. Germination b. Seed dispersal c. Vegetative Propagation d. Sapling	a
4.	_____ help in the Reproduction in plants.	a. Seeds b. Roots c. Stem d. Leaves	c
5.	_____ should be sprayed to keep the plants free from all types of pests.	a. Fertilizer b. Pesticide c. Manure d. water	b

Part II – Animal life			
6.	Herding is seen in _____.	a. cows b. dogs c. lions d. snakes	b
7.	Very deep winter sleep is called _____.	a. vacation b. hibernation c. echolocation d. herding	c
8.	_____ is the cultivating or managing of bees to get honey and wax.	a. Apiculture b. Sericulture c. Agriculture d. Vermiculture	a
9.	_____ is the place to keep wild animals in the natural habitats and protect them from hunters.	a. Zoos b. Wild life sanctuaries c. Shelters d. Museums	b
10.	Fishes breathe with the help of _____.	a. Skin b. Nose c. Gills d. Lungs	c
Part III- Human body			
11.	_____ support the body and gives its shape.	a. Bone b. Muscles c. Skeleton d. Brain	a
12.	The _____ is the largest and most developed part of the human brain.	a. Cerebrum b. Brain stem c. Cerebellum d. Spinal cord	b

13.	The place where two bones meet is called _____.	<ul style="list-style-type: none"> <li>a. Joint</li> <li>b. Muscle</li> <li>c. Skelton</li> <li>d. Tender</li> </ul>	a ✓
14.	_____ is the group of fibers that carry message between brain and rest of the body.	<ul style="list-style-type: none"> <li>a. Nerves</li> <li>b. Bone</li> <li>c. Blood vessel</li> <li>d. Blood</li> </ul>	c ✓
15.	Our bones are made out of _____.	<ul style="list-style-type: none"> <li>a. Calcium</li> <li>b. Lime</li> <li>c. Blood</li> <li>d. White blood cells</li> </ul>	d ✓
Part IV – Food			
16.	Vitamins A,B,E & K are called _____ vitamins.	<ul style="list-style-type: none"> <li>a. Fat soluble</li> <li>b. Water soluble</li> <li>c. Blood soluble</li> <li>d. Insoluble</li> </ul>	d ✓
17.	_____ are needed for the growth and repair of the body.	<ul style="list-style-type: none"> <li>a. Protein</li> <li>b. Fat</li> <li>c. Vitamins</li> <li>d. Minerals</li> </ul>	a ✓
18.	Saturated fats are considered _____.	<ul style="list-style-type: none"> <li>a. Healthy</li> <li>b. Unhealthy</li> <li>c. Important</li> <li>d. Dangerous</li> </ul>	b ✓
19.	_____ is the waxy substance produced by the liver.	<ul style="list-style-type: none"> <li>a. Cholesterol</li> <li>b. Candle</li> <li>c. Oil</li> <li>d. Paraffin wax</li> </ul>	a ✓
20.	Deficiency of vitamin A causes	<ul style="list-style-type: none"> <li>a. Beriberi</li> <li>b. Anemia</li> <li>c. Night blindness</li> <li>d. Goiter</li> </ul>	b ✓

Questionnaire for Post- Test of Class V

Science Concepts Testing Scale for class V

Post-test post

Student name Prayanka Date of test \* 11/8/14

Evaluator Name Sunita Mohapatra Time Taken 18 minutes

16  
20

DIRECTIONS: There are 5 questions in each Part of this test. There are four parts: part-I, part-II, part-III, and part-IV. Each question is followed by three or four choices, labeled A-D. Read each question carefully. Decide which choice is the best answer. On the right side column, write your answer by just putting the correct alphabet (A-D) denoting your answer. Complete all the questions and submit the test.

Sl	Question	Options	Answer
Part I : Plants			
1.	The seed coat is also known as _____.	a. Cotyledon b. Xylem c. Embryo d. Embryo	c
2.	The shoot develops from the _____.	a. Cotyledon b. Plumule c. Radical d. Testa	c
3.	_____ is the process in which a seed starts growing under favorable conditions.	a. Germination b. Seed dispersal c. Vegetative Propagation d. Sapling	a
4.	_____ help in the Reproduction in plants.	a. Seeds b. Roots c. Stem d. Leaves	a
5.	_____ should be sprayed to keep the plants free from all types of pests.	a. Fertilizer b. Pesticide c. Manure d. water	b

Part II – Animal life			
6.	Herding is seen in _____.	a. cows b. dogs c. lions d. snakes	a ✓
7.	Very deep winter sleep is called _____.	a. vacation b. hibernation c. echolocation d. herding	b ✓
8.	_____ is the cultivating or managing of bees to get honey and wax.	a. Apiculture b. Sericulture c. Agriculture d. Vermiculture	b ✓
9.	_____ is the place to keep wild animals in the natural habitats and protect them from hunters.	a. Zoos b. Wild life sanctuaries c. Shelters d. Museums	b ✓
10.	Fishes breathe with the help of _____.	a. Skin b. Nose c. Gills d. Lungs	c ✓
Part III- Human body			
11.	_____ support the body and gives its shape.	a. Bone b. Muscles c. Skeleton d. Brain	c ✓
12.	The _____ is the largest and most developed part of the human brain.	a. Cerebrum b. Brain stem c. Cerebellum d. Spinal cord	a ✓

13.	The place where two bones meet is called _____.	<ul style="list-style-type: none"> <li>a. Joint</li> <li>b. Muscle</li> <li>c. Skelton</li> <li>d. Tender</li> </ul>	a
14.	_____ is the group of fibers that carry message between brain and rest of the body.	<ul style="list-style-type: none"> <li>a. Nerves</li> <li>b. Bone</li> <li>c. Blood vessel</li> <li>d. Blood</li> </ul>	a ✓
15.	Our bones are made out of _____.	<ul style="list-style-type: none"> <li>a. Calcium</li> <li>b. Lime</li> <li>c. Blood</li> <li>d. White blood cells</li> </ul>	a ✓
Part IV – Food			
16.	Vitamins A,B,E & K are called _____ vitamins.	<ul style="list-style-type: none"> <li>a. Fat soluble</li> <li>b. Water soluble</li> <li>c. Blood soluble</li> <li>d. Insoluble</li> </ul>	b ✓
17.	_____ are needed for the growth and repair of the body.	<ul style="list-style-type: none"> <li>a. Protein</li> <li>b. Fat</li> <li>c. Vitamins</li> <li>d. Minerals</li> </ul>	a ✓
18.	Saturated fats are considered _____.	<ul style="list-style-type: none"> <li>a. Healthy</li> <li>b. Unhealthy</li> <li>c. Important</li> <li>d. Dangerous</li> </ul>	b ✓
19.	_____ is the waxy substance produced by the liver.	<ul style="list-style-type: none"> <li>a. Cholesterol</li> <li>b. Candle</li> <li>c. Oil</li> <li>d. Paraffin wax</li> </ul>	a ✓
20.	Deficiency of vitamin A causes	<ul style="list-style-type: none"> <li>a. Beriberi</li> <li>b. Anemia</li> <li>c. Night blindness</li> <li>d. Goiter</li> </ul>	a ✓



## Appendix F.4

## Teachers' Questionnaire

Student Name:

Class:

Teacher Name:

The statements below are the parameters to judge the level of motivation and interest in the students. Using a ranking scale from 0 -- 4. Please tick the appropriate box for each statement.	
Topic	Rank 0 to 4 (lower rank starting from 0 indicate no response and the highest up to 4 indicate immediate response)
Motivational Level:	
1. Rank from 0 –4, how attentive the child is during the classroom teaching.	
2. Rank the response time of the child to answer the question asked. Immediately -4, little delay-3, needs more time – 2, needs prompt – 1, no response – 0	
3. Rank from 0 – 4 the homework completion on the daily basis.	
4. Rank the interaction level of the student with fellow students on educational topics. Initiate interaction – 4, interacts when initiated -3, not much interactive -2, needs prompts to interact – 1, no interaction -0.	
Interest level:	
5. Rank the response time of the child to answer the question asked. Immediately -4, little delay-3, needs more time – 2, needs prompt – 1, no response – 0	
6. Rank from 0 – 4, the reading level of the student on the topics covered. Fluent -4, little hesitant – 3, struggling – 2, needs prompts – 1, no reading - 0	
7. Rank from 0 – 4 the class work completion on the daily basis.	
8. Rank from 0-4 the level at which the student asks questions to know more about the topics covered.	

This questionnaire collects information concerning the motivation and interest level of the children with disabilities in your class. Therefore, I urge you to complete this questionnaire as accurately as possible. The information you provide is being collected for research purposes only and will be kept strictly confidential.

Thank you very much for your help!

(Teacher's Signature)

Parent questionnaire

Student's Name:

Class:

Below are some statements about how you as parents/guardians evaluate various aspects of the co-operation with the school. Using a rating scale totally agree – 1 to totally disagree – 5 , please tick the appropriate box for each statement to show how satisfied or dissatisfied you are with the statement.

Topic	Totally agree 1	Somewhat agree 2	Neutral 3	Somewhat disagree 4	Totally disagree 5
1. Communication between home and school.					
2. The teachers stimulate my/our child to learn and to work hard					
3. My/our child receives the help with school work that he or she needs from the teachers					
4. I/we are very satisfied with the access my/our child has to computer equipment/PCs at the school					
5. I/we are satisfied with the access to teaching materials (books etc.) that my/our child has at the school					
6. The interest that teachers show for my/our points of view about my/our child's learning and development.					
7. My /our child is able to cope up with the teaching style of the class room teachers					
8. My /our child receives some extra help to understand some abstract concepts					
9. I/we have knowledge of smart board technology used for teaching.					
10. The use of latest technology is always helpful for my/our child.					

Thank you so much for your valuable information. Your information will be treated as confidential. No information will be used against anybody.

Parent' Signature

Weekly schedule

The sessions were planned using inbuilt software “www.extramarks.com”. The software has class wise curriculum designed to fit in the needs of CBSE syllabus. The software enables us to show videos, do activity of drag and drop, fill in the blanks, true and false, match with the correct answer. It was very interesting session as students were enjoying doing the activity .They were able to develop their fine and gross motor skills. They learnt about the concept with an ease.

Timing            Class III: 9:45 – 10: 30  
                          Class IV: 11:00 – 11:45  
                          Class V:  2:00 – 2:45

Weeks	Topic covered	Start date	End date
Week 1	Plants for class III / IV / V	16 <sup>th</sup> June	20 <sup>th</sup> June
Week 2	Food for class III /IV /V	23th June	27 <sup>th</sup> June
Week 3	Animals for class III /IV /V	30 <sup>th</sup> June	4 <sup>th</sup> July
Week 4	Human body for class III /IV/V	7 <sup>th</sup> July	11 <sup>th</sup> July
Week 5	Revision of Topics – Plants,Food,Animals Mid assessment on 18 <sup>th</sup> July	14 <sup>th</sup> July	18 <sup>th</sup> July
Week 6	Session with non responsive students Revision of Topics – Plants and Food Review on 25 <sup>th</sup> July	21 <sup>st</sup> July	25 <sup>th</sup> July
Week 7	Session with non responsive students Revision of Topics – animals and Human body Review on 1 <sup>st</sup> Aug	28 <sup>th</sup> July	1 <sup>st</sup> Aug
Week 8	Post test on 4 <sup>th</sup> Aug		

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
					Brief intro about 30 sessions	
15	16 SESSION 1	17 SESSION 2	18 SESSION 3	19 SESSION 4	20 SESSION 5	21
	III- Parts of plant (video followed with explanation) IV- Use of plants Photosynthesis V- Germination	Review video with explanation Activity like drag and drop on the SMARTBOARD	Showing more videos and doing activities like True and False on the SMARTBOARD	Interactive sessions with Drag & Drop, Fill in the blanks and Match the column	Tailor made quiz in the regular class with regular students	
22	23 SESSION 6	24 SESSION 7	25 SESSION 8	26 SESSION 9	27 SESSION 10	28
	III- Animal Habitat IV- Life cycle of Animals V- Animal life	Showing videos on the SMARTBOARD and explaining the concepts	Involving the students to use the SMARTBOARD by doing activities like True or False	Interactive session with the drag and drop session on Animals	A generic class test to see the level of understanding of he students	
29	30 SESSION 11					
	III- Types of Food IV- Balance Diet V- Vitamins & Minerals					

**JULY 2014**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 SESSION 12	2 SESSION 13	3 SESSION 14	4 SESSION 15	5
		Introducing concepts on food to the students through SMART BOARD	Enhancing the concepts learnt by re viewing the video and doing activities	Fun interactive session with SMARTBOARD doing activities like drag and drop, match the columns, odd one out	Open discussion in the class about concepts learnt and revision of lessons	
6	7 SESSION 16	8 SESSION 17	9 SESSION 18	10 SESSION 19	11 SESSION 20	12
	III- Sensory organs IV- Digestive system V- Nervous System	Videos shown relative of the grades. Concepts introduced through videos & pictures shown on SMARTBOARD	Interactive sessions with special educator to see the motivation level	Making the students do activity on SMARTBOARD like true and false, MCQ's	Interactive quiz was planned using the SMARTBOARD	
13	14 SESSION 21	15 SESSION 22	16 SESSION 23	17 SESSION 24	18 SESSION 25	19
	Revision of Food module	Revision of Plants module	Revision of Animal life module	Revision of Human Body module	Mid assessment	
20	21 SESSION 26	22 SESSION 27	23 SESSION 28	24 SESSION 29	25 SESSION 30	26
	Extra sessions were taken on Food module for 2 days to improve the students particularly who showed poor performance in mid assessment	More videos were shown , interactive sessions were held	Extra sessions on Plants were taken for 2 days to enhance learning	Session continued	Tailor made test was done for food and plants	
27	28	29	30	31		
	Extra sessions were taken on Animal life for 2 days to improve the students learning	Interactive sessions were held	Additional session on Human Body	More videos were shown , interactive sessions were held		

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
					Tailor made assessment was done for animal life and	
3	4	5	6	7	8	9
	Final Post Test to assess the improvement in the					
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

## Appendix H.1

### Activity 1 – Additional activities to assess progress of SEN students after the Action Research done

#### Story Telling Competition

The action research was completed successfully and after completing my session with the students, I was curious to test my conclusion in other subjects. I discussed the effectiveness of SMART BOARD with an English subject teacher. To test the effectiveness of SMART BOARD in a story telling competition, two random students (who had no knowledge about the story “lion and mouse”) were selected from third grade. One student was given 4 flashcards depicting the story “lion and mouse” and was asked to narrate the story using those flash cards. Another student was made to watch images of the same story on the SMART BOARD and was asked to narrate the same story. It was found that the student who saw the images on the SMART BOARD had better picture of the story in her mind and was able to narrate the story in exact sequence. The student was able to recall all the images and complete the story. The student with flash cards was not able to recall in a sequential order and was not able to complete the story.

The same activity was repeated with 2 students of class IV and the story was “The clever rabbit”. It was again found that the student who saw the images of the story on the SMART BOARD was able to perform better than the student with flash cards.

## Activity 2

### Science quiz competition

In order to generalize the learning of the students of fourth grade, the students were asked to participate in a “four grade science quiz” after the successful completion of the research. The students were divided into four teams. Each team had four students. The students who were the part of the research were teamed together and were in the team (4). The quiz had verbal round, pictorial round, and video round. In verbal round, the students were asked questions verbally and they had to answer verbally. In pictorial round, the students were shown some pictures related to environmental science, the students were to identify and name the picture. In the video round, the students were asked to observe the video and answer the questions related to the video.

It was found that the students of team (4) had secured second position. In spite of the students having learning disability, the students were able to answer many questions and were able to secure second position in the competition. It was very encouraging for these students to participate in the general education science quiz and not just participate but also win a position.