



UNIVERSIDAD HISPANOAMERICANA

School of English Language Teaching

**THESIS SUBMITTED TO OBTAIN THE LICENCIATURA DEGREE IN ENGLISH
LANGUAGE TEACHING**

**TEACHING SCIENCE USING AN INTERACTIVE BOOK WITH SECOND GRADE
AT GREENFIELD SCHOOL IN THE FIRST SEMESTER 2017**

**STUDENT
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2017**

TABLE OF CONTENTS

DECLARATION OF ORIGINALITY	V
LETTER FROM THESIS SUPERVISOR	VI
LETTER FROM THESIS ADVISOR	VII
LETTER FROM PHILOLOGIST	VIII
DEDICATION	IX
ACKNOWLEDGEMENTS.....	X
EPIGRAPH.....	XI
CHAPTER I.....	1
RESEARCH PROBLEM	1
TOPIC	2
1.1 Problem Statement.....	3
a. Background of the Problem.....	3
b. Description of the Problem	5
c. Justification	11
1.2 Problem Formulation	14
1.3 Objectives	15
1.3.1 General Objectives:	15
1.3.2 Specific Objectives.....	15
1.4.1 Scopes.....	16
CHAPTER II	17
TEORETHICAL FRAMEWORK.....	17
2.1 Background.....	18
2.1.1 Background of the topic.....	20
2.2. Theoretical-Conceptual Framework	22
2.2.1 English Education History	22
2.3 Types of Approaches.....	25
2.3.1 The Grammar Translation Approach.....	25
2.3.2. Audiolingual Approach	26
2.3.3 Humanistic- Approach.....	27
2.3.4. Total Physical Response	28

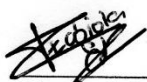
2.3.5 Suggestopedia	29
2.4 Approaches to implement with 2 nd grade at Greenfield School	30
2.4.1 Natural Approach.....	30
2.4.2 Communicative Approach.....	31
2.4.3. Direct Approach	32
2.5. Importance of the Approaches and a Well- Prepared Methodology	34
2.6 Aspects to consider when teaching	35
2.6.1 Classroom Management.....	35
2.6.2 Giving instructions instead of orders	36
2.6.3 Time Management.....	37
2.6.4 Reflective Model.....	37
2.6.5. Phonology Role.....	38
2.7. English Education in Costa Rica.....	39
2.8. Teacher’s Profile in Primary School	41
2.9. Teacher’s role in a classroom	42
2.10. Student’s role in a classroom	44
2.11. Accommodations in the English Class.....	45
2.12. Constructivism Approach in Science Teaching	46
2.13. The importance of teaching Science in Elementary School	48
2.14. Strategies and Techniques to Teach Science Using Interactive Notebooks	49
2.15. Science MEP Planning.....	50
2.16. Benefits of using the Interactive Science Book.....	53
2.17. Motivation in class	54
CHAPTER III	56
METHODOLOGICAL FRAMEWORK.....	56
3.1 Research Techniques.....	57
3.2. Research’s Paradigm	58
3.3. Research Design.....	58
3.3.1 Qualitative Research	58
3.3.2. Quantitative Research.....	59
3.3.3. Mixed Research	59
3.4. Type of Investigation.....	60
3.5. Participants and Sources of Information	60

3.6 Techniques and tools to collect data	61
CHAPTER IV.....	66
DATA ANALYSIS AND INTERPRETATION.....	66
4.1 Data Analysis and Interpretation	67
4.2 Book Evaluation Rubric Graphics	68
4.3. Table 1. Principal's interview	79
4.4. Table 2. Students Questionnaire (See Annex 2)	85
4.5. Table 3. Science Teachers Survey (See annex 6)	89
4.6. Table 4. Anecdotal Record (See annex 4).....	93
4.7 Conclusion of the anecdotal records	97
4.8 Personal Experience Evaluation (See annex 3).....	98
CHAPTER V.....	99
CONCLUSIONS AND RECOMMENDATIONS	99
5.1 Conclusions.....	100
5.2 Recommendations	102
CHAPTER VI.....	104
BIBLIOGRAPHY	104
Bibliography.....	105
ANNEXES	111

DECLARATION OF ORIGINALITY

DECLARACIÓN JURADA

Yo María Fabiola Guerrero Barquero, mayor de edad, portador de la cédula de identidad número 4-0216-0837 egresado de la carrera de Licenciatura Enseñanza del Inglés para I y II Ciclo de la Enseñanza General Básica de la Universidad Hispanoamericana, hago constar por medio de éste acto y debidamente apercebido y entendido de las penas y consecuencias con las que se castiga en el Código Penal el delito de perjurio, ante quienes se constituyen en el Tribunal Examinador de mi trabajo de tesis para optar por el título de Licenciatura Enseñanza del Inglés para I y II Ciclo de la Enseñanza General Básica, juro solemnemente que mi trabajo de investigación titulado: "TEACHING SCIENCE USING AN INTERACTIVE BOOK WITH SECOND GRADE AT GREENFIELD SCHOOL IN THE FIRST SEMESTER 2017", es una obra original que ha respetado todo lo preceptuado por las Leyes Penales, así como la Ley de Derecho de Autor y Derecho Conexos número 6683 del 14 de octubre de 1982 y sus reformas, publicada en la Gaceta número 226 del 25 de noviembre de 1982; incluyendo el numeral 70 de dicha ley que advierte; artículo 70. Es permitido citar a un autor, transcribiendo los pasajes pertinentes siempre que éstos no sean tantos y seguidos, que puedan considerarse como una producción simulada y sustancial, que redunde en perjuicio del autor de la obra original. Asimismo, quedo advertido que la Universidad se reserva el derecho de protocolizar este documento ante Notario Público. en fe de lo anterior, firmo en la ciudad de San José, a los 25 días del mes de noviembre del año dos mil diecisiete.



4-0216-0837

Firma del estudiante

Cédula

LETTER FROM THESIS SUPERVISOR

CARTA DEL TUTOR

Heredia, 22 de setiembre del 2017

M.Sc. Diego Torres Moreno
Facultad de Educación
Universidad Hispanoamericana

Estimado señor:

El estudiante María Fabiola Guerrero Barquero, cédula de identidad número 402160837, me ha presentado, para efectos de revisión y aprobación, el trabajo de investigación denominado **"TEACHING SCIENCE USING AN INTERACTIVE BOOK WITH SECOND GRADE AT GREENFIELD SCHOOL IN THE FIRST SEMESTER 2017"**, el cual ha elaborado para optar por el grado académico de Licenciatura.

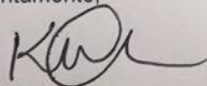
En mi calidad de tutor, he verificado que se han hecho las correcciones indicadas durante el proceso de tutoría y he evaluado los aspectos relativos a la elaboración del problema, objetivos, justificación; antecedentes, marco teórico, marco metodológico, tabulación, análisis de datos; conclusiones y recomendaciones.

De los resultados obtenidos por el postulante, se obtiene la siguiente calificación:

a)	ORIGINAL DEL TEMA	10%	10%
b)	CUMPLIMIENTO DE ENTREGA DE AVANCES	20%	20%
c)	COHERENCIA ENTRE LOS OBJETIVOS, LOS INSTRUMENTOS APLICADOS Y LOS RESULTADOS DE LA INVESTIGACION	30%	30%
d)	RELEVANCIA DE LAS CONCLUSIONES Y RECOMENDACIONES	20%	20%
e)	CALIDAD, DETALLE DEL MARCO TEORICO	20%	20%
	TOTAL		100

En virtud de la calificación obtenida, se avala el traslado al proceso de lectura.

Atentamente,



M.Ed. Karla Avalos Charpentier
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Carné: 60436

LETTER FROM THESIS ADVISOR

CARTA DE LECTOR

Heredia, Jueves 2 de Noviembre de 2017

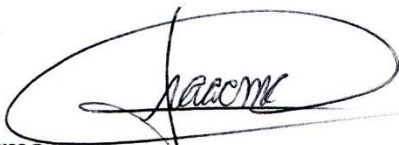
Universidad Hispanoamericana
Sede Heredia

La estudiante María Fabiola Guerrero Barquero, cédula de identidad #4-0216-0837 me ha presentado para efectos de revisión y aprobación, el trabajo de investigación denominado **“TEACHING SCIENCE USING AN INTERACTIVE BOOK WITH SECOND GRADE AT GREENFIELD SCHOOL IN THE FIRST SEMESTER 2017”**, el cual ha elaborado para obtener su grado de Licenciatura en la Enseñanza del Inglés.

He revisado y he hecho las observaciones relativas al contenido analizado, particularmente lo relativo a la coherencia entre el marco teórico y análisis de datos, la consistencia de los datos recopilados y la coherencia entre éstos y las conclusiones; asimismo, la aplicabilidad y originalidad de las recomendaciones, en términos de aporte de la investigación. He verificado que se han hecho las modificaciones correspondientes a las observaciones indicadas.

Por consiguiente, este trabajo cuenta con mi aval para ser presentado en la defensa pública.

Atte.



Firma

Nombre: Isaac Mora Chavarría

Cédula: 1-0922-0154

LETTER FROM PHILOLOGIST

Carta del filólogo

Heredia, 4 de diciembre, 2017

Señores

Departamento de Registro

Universidad Hispanoamericana

Estimados señores:

Por este medio hago constar que he revisado de manera filológica la tesis denominada «**TEACHING SCIENCE USING AN INTERACTIVE BOOK WITH SECOND GRADE AT GREENFIELD SCHOOL IN THE FIRST SEMESTER 2017**», propiedad de la estudiante **María Fabiola Guerrero Barquero**, cédula número 402160837, todas las sugerencias han sido debidamente acogidas, por lo que se recomendó seguir con la defensa de dicho proyecto de graduación.

Atentamente,

黃雅慧

M.A. Yahui Huang Chang

800990256

Carné Colegio Profesional No 66005

DEDICATION

I dedicate this thesis to God who gives me strength and wisdom in my life.

I also dedicate the thesis to my parents, Xinia Barquero Rodríguez and Alvaro Guerrero Mora because they have always stayed with me giving me support in the whole process. Without their help I could not have finished this major. Besides, this thesis is dedicated to my beautiful son Daniel Andrés, he is my entire life and I want to give him a good future; therefore, I gave my best effort to conclude the English Teaching major.

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First of all, I want to thank God because He helps me in this long process to finish my major giving me blessing all time.

Next, I am so thankful to my tutor Karla Ávalos because she has always helped me from the moment I met her, and she was an example for me.

Finally, I want to thank Greenfield School because it is an institution where I can feel like a part of a family with the principal, teachers, students, and the staff in general.

EPIGRAPH

“True teachers are those who use themselves as bridges over which they invite their students to cross; then, having facilitated their crossing, joyfully collapse, encouraging them to create their own.”

Nikos Kazantzakis

CHAPTER I
RESEARCH PROBLEM

TOPIC

“Teaching Science Using an Interactive Book with Second Grade at Greenfield School in the First Semester 2017”

1.1 Problem Statement

a. Background of the Problem

Education is a process of acquiring knowledge through interaction with other people, it helps to develop skills and competencies to face everyday life. Education starts at home from the family and is formed in the school; knowledge, values are instilled and the capacities of the students are enriched. Moreover, teachers guide students with different techniques and resources used in classrooms.

English Teaching has been implemented as a foreign language in many public and private schools. Nowadays, it is necessary for people to learn English at an early age. Therefore, English educators should foster students' enthusiasm for the language with innovative activities which students can practice all skills (grammar, reading, listening, and speaking,) thus, be able to finish schools with an excellent level of English. As Monge & González (2003) says,

English teaching is considered the second most spoken language in the world because of the high number of individuals who use it either as their mother tongue or as a second or foreign language. Due to this fact, it is said that English is the first means of communication between people all over the world. (p. 05).

According to that, Educators should be concerned about teaching English in an innovative way, so students can acquire the language easier. Nowadays, in many private and public schools in Costa Rica, almost all the subjects are taught in English; for example: math, social studies, science and English that is divided into some categories (grammar, spelling, reading, writing, listening and conversation). In some

schools they called these categories “language arts”. The teaching method used by many teachers in Costa Rica is very traditional. It was mostly based on the fact that the students had to transfer the information written on the board to their notebooks. By 2015, this teaching methodology was not working because students waste too much time copying the material from one place to another, having less time to practice or do different activities.

In addition, with this method, most of the students were not learning because when the teacher asked them something about the subject studied, they did not know the answer. Also, when the students took exams, most of them might have low grades because they just memorized things that are not meaningful for them. In the past, many teachers were told to work on new methods but what they did was just sending photocopies or working on the book and this was boring and not meaningful for students.

This problem led to great repercussions. Many parents complained that their children did poorly on exams or came home with messages from the teacher in which he or she wrote “incomplete work.” Furthermore, many parents realized that their children were not progressing and decided to take their children out of the school. It is discovered that in most of the cases the problem is the teaching method because it does not match with the learning style of many students.

Educators, especially English teachers, cannot be working based on a single type of learning methodology. So, diversity in classrooms activities must be addressed taking into account students learning styles such as kinesthetic, visual or aural. Thus, it is important to know these factors at the time of carrying out the

planning so that the teaching-learning processes throughout every class can be successful and avoid these learning problems.

In Armstrong (2016) words,

...the theory of multiple intelligences offers teachers an opportunity to develop innovative teaching strategies that are relatively new to the educational scene. MI theory suggests that no one set of teaching strategies will work best for all students at all times. (p. 72)

As a matter of fact, including different teaching techniques in a classroom is a must for teachers. It is necessary to study which multiple intelligence predominates in the students, so teachers can apply diverse activities that help them comprehend better the topic studied. As Armstrong points out, it does not mean that if the teacher plans one activity it will work for the whole class. Students will gather the information according to the multiple intelligence they have more developed. For that reason, if the teacher's planning has abundant activities it will fulfill the necessities of the students.

b. Description of the Problem

This research will be conducted at Greenfield School. This is a private school located in San Pablo de Heredia. It is a small school that consist of 90 students. The levels in this school are: maternal, interactive I, transition, first grade, second grade, third grade, fourth grade, fifth grade and sixth grade. The subjects are taught in English language, only Spanish and Social Studies are in Spanish. They also receive other courses as Robotics, Imagine Learning, Music, Mandarin, and Swimming.

At Greenfield school, where children are taught with traditional methods that impact their learning. Students are still listeners in classrooms, which cause lack of interest in the subjects. In addition, teachers do not consider that they are working with children and the way of learning of a child is very different from an adult. Therefore, it is essential for a teacher to know how children learn according to their age, and educators must consider whether they are in first or second cycle.

Another factor is to study what the authors of constructivism say about the process of teaching and learning in children, in this way educators will have a broader view on how to apply it in classrooms. Studies from Scholnik, M., Kol, S., & Abarbanel, J. (2016) indicate that “Constructivism is a theory of learning which posits that students learn by actively constructing their own knowledge (von Glasersfeld 1996; Fosnot 1996; Duffy and Cunningham 1996).” (p. 12).

As the authors state, constructivism helps students to learn by themselves, with their prior knowledge they start producing and learning new things. The student is actively involved in this process, for this reason, teachers have to change their minds and start working as facilitators for them. Constructivism can help students to analyze, investigate, and interpret data based on their prior knowledge. Besides, the teacher can formulate a problem and students are asked to formulate questions, give ideas, and interpret results. Teaching a class using the constructivist approach will be very useful for both learners and professor and it will be an experience that motivates the class because they can interact with other classmates while sharing their opinions. Constructivism approach serves to work individually, in pairs or groups. The teacher is in charge of a good environment in the class using this method.

On the other hand, Barak (2016) explains constructivism in a sociocultural way. He maintains that constructivism is social and it is necessary to include the participation of other people. Barak remarks that learning is easily acquired when different strategies are considered. In addition, if people interact with others, knowledge will be built because people can discuss, learn from their point of view and share their opinions; in this way, both collaborative learning and constructivism are applied. Barak states that Vygotsky in his theory says that a person constructs knowledge independently but if this person has assistance from others he or she will have a variety of opinions and will develop his or her mental functions.

As a matter of fact, constructivism focuses on constructing knowledge but according to Vygotsky it is necessary that students get involved with other people and have social interaction in order to achieve individual knowledge. In this way, students feel more confident about themselves. If students have support from other classmates they will be capable of argue, act and, participate with critical thinking.

Nowadays, science is one of the subjects taught in English. This is very good for students because they are more prepared, have more vocabulary, feel engaged with the topics and they are more interested about science and the world. Science is a subject in which students can resolve problems doing research and find solutions. Indeed, teach science in schools is important because it prepares students to think critically, give opinions, points of view, and interpret daily life cases. Children who receive science subject are well prepared to face the world, to express themselves, to discuss and debate about science topics and technology. Learners will be capable to analyze situations, resolve problems, do research, and incorporate innovative ideas in

the future. Nowadays, the global marketplace is progressing so preparing young people to think beyond will help them grow with strong thoughts and arguments that make them competitive and successful people.

Due to that, there is a need to look for an effective and innovative teaching method that will help the institution, educators and students. One of the problems science teachers are facing at Greenfield School is that the institution asks teachers to use science according to Ministerio de Educación, MEP's, planning that is in the target language but in English. This requires more work for the teacher because she or he must translate it and look for different material according to the topic MEP states in it. Another problem is that science books are based more on theory than practices and those practices do not catch the attention of students. This assertion proposes the elaboration of an Interactive Science Book, it will have practices and exercises where students learn by doing. The book will allow them to work in the notebook and with drop-down practices. For this reason, a science book covering the topics of the Ministerio de Educación (MEP) planning in English will be developed in order to give teachers and students the tools to study and practice the contents.

According to Macarelli (2010)

Teachers use interactive notebooks to increase student thinking and achievement. They provide a means of communicating, tracking, assessing, and reflecting the work students do. Interactive notebooks provide a window into the minds of students to reveal their true understanding and their misconceptions... (p. 02).

The science interactive book will help students to have a playful and meaningful learning. With the book students can construct their learning by doing things by themselves. Students will create hands-on projects, handicrafts, practices

and see science more interesting with a variety of activities where learning will be easier and forget about just memorization. The interactive book provides students multiple templates in which they can develop any topic. Also, with these templates children can use them on their notebooks to make them more interesting and fun.

In addition, students can create activities using their creativity making them very personal and attractive for them. To analyze this method, it is necessary to understand what an interactive notebook is. Macarelli (2010) remarks that, “An interactive notebook is a tool in which students make connections prior to new learning, to revise their thinking, and to deepen their understandings of the world around them.” (p. 2).

As the author mentions, interactive notebooks are useful tools for students in which they acquire knowledge in a different way. Before students learn something new they have to give opinions about what they already know and start constructing knowledge from their previous experiences. This can help them understand better the topics because they are encouraged to think before learn. Besides, interactive notebooks improve students’ abilities to organize their ideas and thoughts. This is something that scientist must do when they record data, so students are learning with scientific bases in which they have to explore, collect information, inquire and try to find solutions. The interactive science notebook will be a tool which students can feel engaged because they will complete the books using their creativity and writing notes about concepts, definitions that they understand, and the ones they do not understand. The teacher benefits from the notebook because it demonstrates the

improvement of the students in the subject and can guide them with new methods if they are lost in one topic.

Moreover, teachers need to think about the resources and instruments that are needed to work with students and the material for all the topics. Moreover, it is important to examine how interactive notebooks are involved in the development of student learning assessment, English language proficiency and strategies for working with classroom learning competencies. Therefore, it is important to find an interactive book that has all topics and materials asked by the school, but there is no an interactive book on sale. Thus, making interactive notebooks takes a lot of time but it is necessary to accomplish all the purposes of learning science in a rich way.

Also, it is necessary to consider the type of population we are working with, which are their learning styles, and the objectives to meet. Consequently, if these factors are not taken into account, more problems will arise during the course. Another problem the institution has, is the inconsistency of teachers in the school year, this is a damage to students because it is a very big change for them affecting their learning role. Subsequently, it is necessary to investigate the profile a Science English teacher must have in first cycle in order to have someone teaching the subject in a relevant way applying interactive activities.

c. Justification

Interactive notebooks are a current topic used in many educational centers as a great tool in teaching. According to Waldman, C., & Crippen, K. J. (2009) " The basic idea has its roots in a number of programs (TCI 2000; AVID 2007)" (p.51). These are academic support programs that arise at the University of Texas Pan American, Edinburg, by a team of professionals in education. The topic of interactive notebooks is studied in courses at Universidad Hispanoamericana for example in Didáctica and Recursos Audiovisuales. In these courses, students analyze the educational curriculum and new ways to teach the class.

Indeed, the topic of interactive notebooks is studied and applied in countries such as Mexico, United States, Colombia, and others. In Costa Rica MEP fosters interactive learning and it is up to the teacher to use the available resources to teach the lessons in that way. Learning science helps students from an early age to have critical thinking, to analyze and comprehend the development of a country and its components. Teaching science in English to kids will develop skills that help them face a competitive world where English is required.

Moreover, Araya Karla and Cordoba Gustavo (2008) established, "English language teaching-learning is conceived from a linguistic and sociolinguistic perspective that enables students to perform and accomplish certain functions. In this teaching-learning process, teachers are perceived as facilitators whose main tasks become very complex." (p.03).

On the other hand, teachers should be concerned about being mediators in the teaching process, students will be able to understand science with different strategies that motivate learning. Universidad Nacional has few information about interactive notebooks on its database, in Universidad Hispanoamericana there are no results and there are no physical books of the subject. In Greenfield School, a training course was given by the principal of the school and she encouraged the use of these notebooks, the trainer showed teachers videos of how teachers from foreign countries elaborate them and how these notebooks really help learning.

The research will be carried out at Greenfield School located in San Pablo de Heredia. There is no research about interactive books or notebooks, and it is necessary to investigate how to use them effectively for students to acquire knowledge in a creative and original way. Constructivist model will be analyzed to achieve the objectives according to the curricula. In this institution, there are children with learning disabilities, so applying interactive notebooks will facilitate their learning process; being significant and they will be motivated to create their own knowledge through these interactive book and notebook.

Then, with this research, students, professors, and the school in general will benefit from it because they will have access to the material and take ideas to implement the interactive notebooks in their classrooms using the science book. The book will include topics presented in MEP curriculum and different ideas to teach science in an entertaining way. This research contributes to the learning process of students at Greenfield School who will be exposed to use an ingenious learning style. The science interactive book is a tool that will encourage motivation, curiosity and

creativity in second graders. The institution will benefit from having access to the material, and teachers can take ideas and modify the topics for higher levels.

1.2 Problem Formulation

How can an interactive book help second grade students to learn science in a meaningful way at Greenfield School?

1.3 Objectives

1.3.1 General Objectives:

- 1) Analyze the function of the interactive book in Science teaching by encouraging meaningful learning for second grade students.

- 2) Propose the use of the interactive science book in science class in order to second grade students make their own interactive notebook to promote the construction of their own learning and develop critical thinking in science subject.

1.3.2 Specific Objectives

1. To create a science book that help in the construction of interactive notebooks.
2. Implement an interactive science book with students at Greenfield School, making different templates and designs that work with the subjects of the Science Curriculum to be applied in interactive notebooks.
3. To evaluate the effect of Science learning using an interactive book with primary school children.
4. To evaluate the methods used by the teachers at Greenfield School in Science teaching.

1.4 Scopes and Limitations

1.4.1 Scopes

It is planned to make a change at Greenfield School, working with different techniques that guide the learning development of second grade students in the science field. The idea is to create an interactive book that contains themes of science MEP planning, which is based on practices, crafts and exercises to build interactive notebooks. Teachers must seek the welfare of the students. If educators find out that some procedures are not working they must look for different alternatives in which students can achieve the objectives proposed at the beginning of the school year.

1.4.2 Limitations

Some of the limitations found are:

1. There is a few information in Costa Rica about interactive notebooks.
Therefore, it affects this investigation because it is necessary to search on internet pages and some of them are not reliable.
2. The Science MEP planning is in the target language (Spanish). It is a problem because teachers have to translate all the documents in English.

CHAPTER II
TEORETHICAL FRAMEWORK

2.1 Background

This chapter includes general information about the school where the research was conducted. It includes important aspects that helped in the development of the topic. The information below can be found in Greenfield School Academic Program 2008.

Greenfield School is a private institution, founded in 2004. It was created as a need to provide the community of San Pablo – Heredia with a high-quality education that could help children to develop the necessary skills to become active members of the society. Greenfield School has been authorized by the MEP to provide educative services in Preschool and Elementary levels. It is also accredited at Asociación de Centros Educativos Privados in Costa Rica.

The education provided is democratic and it is oriented by the principles, and objectives established by the Costa Rican Education in Ley Fundamental de Educación N° 2160 of September 25th, 1957. The school provides a good environment for students, teachers, and all of the staff in the institution, making a healthy workplace with values and commitment to work with responsibility and family spirit.

The institution is located 4 blocks South and 1 block East from the Central Park in San Pablo-Heredia. Its name was given due to the green shades provided by the coffee plantations of the area.

Aim

The school sets out to develop the talents of each individual pupil as fully as possible. Students are encouraged to set their own personal standards of excellence in all aspects of their lives - the academic, the practical, and in their social development. The staff members attempt to help learners achieve these standards and thereby foster a sense of pride in each of them.

Mission

Education is one of the most important experiences in human lives. Increasingly, it is an integral part of the lives not only of young people but also of adults as society comes to accept that education and training are a continuing and important part of the lives of all.

Greenfield School satisfies the needs both of the individual and of society by promoting the development of knowledge, skills and understanding. In Greenfield School, they seek to play a major part in this process by working in partnership with others to provide the highest quality of educational experience for all students during their involvement with the school.

Promise

Greenfield School promises to provide every student with an outstanding Bilingual Education, with a welcoming and respectful environment to develop the lifelong skills needed to be successful individuals, active community members, and responsible citizens.

Vision

Greenfield School wants to be an innovative bilingual institution that offers the country with a high-quality education. Their shared vision is to be a school that enables each student to achieve their potential within a learning environment that is safe, positive, respectful, inclusive, and welcoming.

Values

Their shared values are:

- Respect
- Honesty
- Responsibility
- Perseverance

2.1.1 Background of the topic

Interactive notebooks were originated by Teachers Curriculum Institute (TCI)

Jaladanki, V. S., & Bhattacharya, K. (2014) mention that,

TCI was established in 1989 by a small group of motivated social studies teachers with an idea to bring a positive change in social studies instruction (Endacott, 2007; Wist, 2006). TCI strongly emphasizes the idea that every learner is different and that all students benefit from multiple ways of learning (Teachers' Curriculum Institute, 2010). (p.5)

Teachers Curriculum Institute brings the innovative way to teach with interactive notebooks, they promote different strategies to teach in order to

make learning process entertaining and creative for students from all ages. Jaladanki, V. S., & Bhattacharya, K. (2014) states that “interactive student notebooks make note-taking an active and engaging process where students use their multiple intelligences to make their learning experience fun and exciting” (p.5).

According to this, students can have new experiences using these notebooks. They are useful tools to incorporate in English classes as in other subjects. By using interactive notebooks, students can be identified with their learning style because they adapt them to their creativity and needs.

Interactive notebooks are a new way to teach according to all multiple intelligences, they work with visual, kinesthetic, interpersonal, intrapersonal intelligence and others. Students are identified with their notebooks and learning becomes interesting and inspiring for them.

As Jaladanki, V. S., & Bhattacharya, K. (2014) state, interactive notebooks assist students in their learning. Besides, interactive notebooks are very practical when working with multiple intelligences. An interactive book or notebook helps visual students because they include images, pictures, drawings and visual elements that make students remember what they see. Also, interactive notebooks help students in other areas, for example, in intrapersonal intelligence when they have to compare knowledge with what they already know and the new information they get. Regarding this, students do a connection between prior knowledge and information acquired of their learning is constructing.

Indeed, interactive notebooks are very visual, students are in charge of designing their notebooks and the teacher works as a guide in this process. These notebooks help students be interested on the topics they are studying because they have to be critical thinkers and at the same time create their notebooks with their own ideas and imagination. As a matter of fact, teachers can use interactive notebooks to work multiple intelligences presented in their students. For this reason, if the Science teacher uses this tool to teach he or she should be creative enough and adequate it to the multiple intelligences in a classroom.

2.2. Theoretical-Conceptual Framework

2.2.1 English Education History

English has been one of the most important languages all around the world. It is used in different places to communicate, and nowadays is a universal language. According to the history of English (English Club 2016, p.1):

The history of the English language really started with the arrival of three Germanic tribes who invaded Britain during the 5th century AD. These tribes, the Angles, the Saxons and the Jutes, crossed the North Sea from what today is Denmark and northern Germany. At that time, the inhabitants of Britain spoke a Celtic language. But most of the Celtic speakers were pushed west and north by the invaders - mainly into what is now Wales,

Scotland and Ireland. The Angles came from "Englaland" [*sic*] and their language was called "Englisc" - from which the words "England" and "English" are derived.

Therefore, English has appeared since long time ago and now it is used for almost all the countries. English language is part of the school programs because it is required that people know the language and be able to communicate. For this reason, schools are preparing students for teaching the language, so they can be competitive in the future because many companies and enterprises are looking for well-prepared people and at least knowing a second language.

Teaching English to children is crucial in this time because they will have language skills and they can develop other skills. (Udemy Blog, 2016) states that English as a subject in schools is very helpful, when little kids learn this language they develop an early age communication skill and it would be easy for them to retain knowledge. Likewise, if a person learns in an older age, he or she will have a deeper understanding in complex literary pieces. Also, motivating students since they are kids with this language will help them have good grades at school in English subject as in any other subject taught in English language for example, Math, Social Studies and Science.

Consequently, if children learn English in an early age they will have lots of opportunities, they will develop different skills that will help them in their learning process. Children who are exposed to the language, succeed in school and in English subject matter, these kids are confident and can express themselves in an easy way.

Teachers need to implement very dynamic activities in order for students to gather the information, from many years, approaches appear and they help professors to plan the class and know how to teach the language.

According to Brow, (2001) methods appear in the 1880, the idea of the methods is that they help students accomplish the objectives in education, the educator chooses the appropriate method that best works with students when knowing their learning styles.

Methods came to help teachers follow some rules and solve different problems that children are facing in their classrooms, teachers implement a set of practices according to the method and fulfill the objectives that the method involves. Douglas Brown (2001) defines approach as “Theoretically well-informed positions and beliefs about the nature of language, the nature of language learning, and the applicability of both to pedagogical settings” (Teaching by Principles, Brown. p.16).

Professors implement an approach in their English classes according to what they think their students will understand best and the learning styles preferences of the class. Indeed, if professors do not choose a method in their classes, their students can be lost because professors must have a sequence and coherence with the rules, routines and techniques he or she develops in the class. For this reason, it is an excellent idea to know a little bit of all the approaches in order to choose the best that works with our pupils. There are different types of approaches, some of them are: The Grammar-Translation method, the Direct method, Audiolingual, Humanist Approach, Cognitive Approach, Total Physical Response, Natural

Approach, Communicative Approach, Reading Approach, Situational, Suggestopedia, Cognitive approach among others.

2.3 Types of Approaches

2.3.1 The Grammar Translation Approach

Zainuddin (2010) describes the Grammar-Translation Approach as:

The grammar-translation method (also known as the classical method) was based on the belief that different kinds of knowledge were located in separate sections of the brain...It was believed that studying different subjects was a good way of exercising the brain. (p.64).

As stated by Zainuddin (2010) the grammar- translation approach is related to the sides of the brain, because it separates different types of knowledge, so educators used to translate vocabulary in one language to the other in order that the brain separates the language knowledge in a specific area. Some educators thought it was a good method but students were not able to communicate.

This method was the first applied and it focuses only in the written part; it does not care about communication. It is the first method that appears, it was taught in the school as a subject but not as mean of communication. It emphasizes on structures, syntax, and, rules. The classes were taught in the native language. Some exercises were to fill in the blanks and to correct mistakes in sentences. The student learns grammar rules but he or she cannot put them in practice on a formal conversation.

2.3.2. Audiolingual Approach

Zainuddin (2011) explains how the audiolingual approach appears after the grammar-translation method,

The United States involvement in World War II brought a significant change in the teaching of languages in U.S. schools. It quickly became apparent that the grammar-translation method had not produced people who were able to speak the foreign languages they had studied. The U.S. government asked the universities to develop foreign language programs that produced students who could communicate effectively in those languages. (p.65).

According to Zainuddin (2011) the government of EEUU realized about the problems schools were having because people were not able to speak in the language. The government work to change that situation and universities apply the audio-lingual method. The audiolingual method will help scholars to get involved with the language, not only for grammar structures but for using the language to communicate.

The audiolingual approach emphasizes on oral activities such as listening, dialogues, role-plays or skits. The professor assesses pronunciation and student progress. Students need to avoid errors; the teacher asks students for repetitions and they learn in that way. This approach was very useful for students because they participate in different activities in which they construct knowledge. Using the audiolingual approach helps students to be conscious of what English Learning involves such as pronunciation, phonemic awareness, phonological awareness and the comprehension of the language as a whole.

2.3.3 Humanistic- Approach

The Humanistic Approach according to Celce-Murcia Marianne, (p.7). stated that:

It put emphasis on the social climate in the classroom and the development of positive relationships between the teacher and the learners and among the learners themselves. It argues that learning a language is a social and personal process and that this has to be taken into account in the methods and materials used. (p.7.)

The Humanist Approach as Celce Murcia mentions, is an approach that focuses on create a nice environment in the class, the teacher needs to ensure that the classroom promotes a context in which students feel satisfied, comfortable and at the same time that facilitates the learning process.

This approach focusses on learning by discovery, it teaches students independence, autonomy and responsibility. The professor works as facilitator and the student constructs their own learning. The professor considers student's affective necessities. Values are taught, like respect for other's opinions and peer support.

The Humanistic Approach takes into a count a series of characteristics that motivate the student in their learning process. The professor needs to maintain a positive classroom environment, in which all the students can participate, give their points of view without feeling ashamed of if they make mistakes. Because the aim of the Humanistic Approach is that the teacher and all of the students see themselves as a family and support each other academically and personally.

2.3.4. Total Physical Response

Brown, H. Douglas (2001) expresses that TPR was developed by James Asher (1974). He thinks that students learn best by interacting physically and mentally, students need to follow commands, and instructions in English. At the beginning the professor gives easy commands and then goes with more complex commands.

According to Zainuddin (2011) the Total Physical Response is a method that guides students who are in the stage of producing the language. Students that cannot express in a foreign language will be exposed in a series of activities that help them lose the fear of speak in public. Then, students will feel part of the group and start giving good results.

This approach works excellent with kids that are learning the language, because they will be immerse in the language subconsciously. The educator needs to perform activities in which the student involves physically and mentally in the learning of the language. It would be easier for them, to acquire the language in an early age, where the professor speaks just in the target language and they can understand the message by moving, walking, interacting with their peers, and mimicking.

Brown, H. Douglas. (2001) states that “Like every other method we have encountered, TPR had its limitations. It seemed to be especially effective in the beginning levels of language proficiency, but it lost its distinctiveness as learners advanced in their competence. “(p. 30).

As Brown (2011) mentions the methods have limitations; the TPR method is difficult to work with high-level students, because they already have knowledge in the language, it could be boring or unattractive for those students who speak very well. It is essential that the professor knows his or her student in order to apply the best strategies that connects with their learning preferences, age and English level.

2.3.5 Suggestopedia

According to Douglas Brown (2001) Suggestopedia is a method created by Georgi Lozanov in 1979 and it is based on relaxation. This author states that people can learn more than they think. It is just to believe in one another and achieve the goals propose in life, relax the body and mind. For this method, music takes a relevant place.

Suggestopedia is an approach based on relaxation, according to Lozanov to teach with this approach the teacher needs to develop a nice environment in the classroom, do exercises that help students feel without any tension and increase their interest in a very good condition. To apply the Suggestopedia approach professors play relaxing music in their classroom. With this method, the professor implements activities that requires art and music.

2.4 Approaches to implement with 2nd grade at Greenfield School

2.4.1 Natural Approach

This approach was developed for Krashen in 1982, 1997. Brown (2001) states that:

In the Natural Approach, learners presumably move through what Krashen and Terrell defined as three stages: (a) The preproduction stage is the development of listening comprehension skills. (b) The early production stage is usually marked with errors as the student struggles with the language. (p. 31)

This is an attractive approach because the emphasis lies on creating meaningful instruction. Since the beginning, this method involves communicative competence. With this method, professors need to promote classroom activities in which students can express ideas and opinions in the target language. The Natural Approach engages students with the language, they will acquire new knowledge in an effective way were the pupils are not forced to learn English subject. The role is acquiring the language by implementing activities that are comprehensible and meaningful for the students.

The teacher needs to be proficient using the language and provide comprehensible input at all times. The professor speaks in English all time and if the students answers in the target language is because they are understanding.

2.4.2 Communicative Approach

The purpose of the communicative approach is to use the language in context, to be able to communicate. Students are always engaging in activities where they need to speak in the target language. This approach involves listening, reading, and speaking. The professor's role is to facilitate communication.

According to Zainuddin, et al. (2011) the main goal of this approach is,

For the learner to become communicatively competent. The learner develops competency in using the language appropriately in given social context. Much emphasis is given to activities that allow the second language learner to negotiate meaning in activities that require oral communication in the second language. (p.10).

The Communicative Approach requires activities in which students involve and participate, in dialogues, role plays, and simulations. The teacher needs to provide a nice environment in which students can learn and feel confident participating. Students are required to use the target language as much as possible, students need to know when to use formal or informal communication. The professor must develop a safe environment in which the students express their previous knowledge and that classmates respect other's opinions.

This approach is very helpful for students, because they will lose that fear of talking in front of others, for everybody needs to participate. The communicative approach allows students to acquire the language and to have phonological awareness, they will have the ability to pronounce well, understand, and speak the language.

2.4.3. Direct Approach

Zainuddin, et al. (2011) explains the direct method in a very understanding way, the Direct Method overcame the translation method. The psychologist F. Frankle supports that the direct method contains writing and forms so in this way students will gain knowledge, putting in practice real settings.

The Direct Method helps students associate objects and concepts, students cannot speak in their native language. The teacher needs to speak the target language; grammar is learning inductively. The professor uses images, pictures, actions, realia to make meanings clear.

According to Brown, H. Douglas (2001) the Direct Approach:

Enjoyed considerable popularity at the beginning of the twentieth century. It was most widely accepted in private language school where students were highly motivated and where native-speaking teachers could be employed. One of the best known of its popularizers was Charles Berlitz .(Brown, H. 2011 p. 22).

The Direct approach was accepted in private schools, with small groups, and native speakers. It did not take place in public institutions, but nowadays it is practiced in both public and private schools. The direct approach does not focus on teaching grammar and rules but it teaches in context. Students learn grammar inductively because they are exposed to the language.

Some of the principles of the direct method by Richards and Rodgers (1986:9-10) are:

- √ *Only everyday vocabulary and sentences were taught;*
- √ *Oral communication skills were built up in a carefully graded progression organized around question-and answer exchanges between teachers and students in small, intensive classes;*
- √ *New teaching points were thought through modeling and practice;*
- √ *Both speech and listening comprehension were taught;*
- √ *Correct pronunciation and grammar were emphasized; (Brown, H. Douglas. Teaching by Principles. p. 21).*

This Approach has many advantages for students, one of this point is that they learn to speak inductively, so they are not aware of structural analysis, students are just producing the language by exposure. This is very important because they are fulfilling the expectation that is to speak the language. With the Direct Method students acquire the language. They speak fluently, because the aim is to put into practice the language rather than study theory.

Students will understand English with the Direct Method because they will develop oral proficiency in the language. When students learn to associate word and meaning, they will understand the language and it is not necessary the translation from one language to the other.

2.5. Importance of the Approaches and a Well- Prepared

Methodology

It is crucial that all educators chose an approach to implement in their classes, otherwise educators are lost. Some educators develop their classes by using different characteristics of different approaches. This can be unhelpful because the professor will have a lot of activities; however, some educators do not follow a sequence and their students can be negatively affected. The best a professor can do is to select one approach that fulfills the student's needs and follow a sequence in which students can really understand the topics with a well-defined method rather than having lots of material unnecessary and that do not have any purpose.

It is important to clarify that all teachers need to work with one specific approach and to establish a good methodology in the class in order to reach the goals with the students. Elena Taralunga (2006) define that

The task of methodology is to enhance the process of teaching English by empowering and facilitating teachers to work proficiently. Teaching involves a continuous analysis of one's own work, the experiences of other teachers and the search for new means to improve teaching. (p.169).

As cited, the educator's job is to promote an excellent methodology in their classes. It is very important that professors analyze their own work, to be aware if the pupils are understanding the subject, if the methods and strategies work for them, if educators promote a good environment in the classroom, how do they perceive the class? Is teacher's planning working? These questions are necessary to analyze

ourselves as teachers and to facilitate student's learning because sometimes the problem is on how the professor is teaching the classes with an appropriate method.

2.6 Aspects to consider when teaching

There are other relevant aspects that educators need to consider when teaching, professors need to take in account other important facts such as:

2.6.1 Classroom Management

Classroom management refers to the establishment of a nice environment in the class, where the professor cares about the students, the materials, the subject, the interaction with peers, the interest of the students and promotes a meaningful learning.

Sieberer-Nagler, K. (2016) declares that for some teachers it is very difficult to deal with students with misbehavior. Some students have no limits in their homes and come to school with bad attitudes and disinterest in classes. To have an efficient classroom management it is necessary that the educator implement the rules at the beginning of the course and have an excellent communication with learners. It is relevant that teachers know why some students act with disrespect in classrooms, sometimes those kids are just asking for attention.

Being a teacher and work with students with an inappropriate behavior is a very big challenge professors face nowadays. For this reason, it is vital that teachers

implement rules and routines that work with the students. It is also necessary that the professor know his or her students in order to let them know that the teacher cares about them not only as students but as people as well.

If educators do not have an effective plan it would be very difficult that students get involved in a meaningful learning experience. That is why it is very important to have a planning that fits the student's needs and they have to be according to their learning styles.

Student's disciplinary problems have a big impact on their learning process, children can feel frustrated or listlessly to learn. Professors need to go beyond as it could be that these children with bad attitudes are facing problems at their homes and they are reflecting that with this inappropriate behavior just to call the attention of the professor or their classmates.

2.6.2 Giving instructions instead of orders

Some students are not getting the message professors want to transmit because teachers cannot express themselves properly. It is a common problem nowadays, teachers are giving orders instead of instructions, so the students feel uncomfortable in the class. Maybe the kid does not understand what the teacher is explaining, so the student does not ask and then teachers might start to desperate because the student is not working in class.

When educators give an instruction, it is necessary that the teacher repeat the instruction more than twice in different circumstances. It is essential when a teacher gives an instruction to consider the appropriate vocabulary according to their level. Consequently, if the educator shouts and do not repeat the instruction when a student asks, obviously the student will not know what to do.

2.6.3 Time Management

Teachers should care about the time management, when to start and when to finish with one activity to another to have an order. Sometimes it is very difficult to follow a schedule because all students learn in different ways and some need more time than others, but educators could create an approximate time for each activity.

Educators should pay attention to how the class develops and if the students take time to do extended practices or is it just the teacher speaking. It has to be a combination, teacher-student-time. The main idea is that everybody can participate, and students develop their knowledge by participating as much as possible.

2.6.4 Reflective Model

Teachers must reflect on their own work because could be that teachers are having problems in the class because the planning is not well structured. Educators should ask themselves if the lesson motivates their students. Sometimes professors think it is because of the books or materials they need to use, but an important part of the lesson is how you teach the classes.

Teachers could prefer a specific approach but if it does not work with the students, the teacher has to change the way he or she teaches the lesson. Also, it must be coherent with the topic given and the activities, reflecting on student's age, level in the target language, what they need to know, and focus on the objectives to reach them.

2.6.5. Phonology Role

Freeman, D. (2011) states that sounds are essential when people are learning or acquiring a language, to identify words involve recoding symbols into oral language. To be able of communicate people need to have phonic and phonological awareness. According to Freeman, D. (2011) "Phonology also plays a different role in various methods of teaching a foreign language or second language. In the grammar-translation method, for example, phonology plays a minimal role because the focus is on translating the written language." (p.95).

Phonology is essential in written language and second language development. Students need to recognize the sounds in order to write the correct phoneme and produce and understand text with a clear message. Phonology is part of the approaches in which the goal is to communicate, so educators need to study linguistics and promote phonology awareness in their students according to the approach selected to help students acquire the language.

To have phonemic awareness is to be conscious of the sounds and recode them in written form. Students need to have phonemic awareness to communicate in written form unless people cannot understand if they misspelled words and it can be frowned upon.

Another important term is phonological awareness, the capacity to understand greater communication or dialogues, but phonemic awareness is to manipulate the phonemes.

2.7. English Education in Costa Rica

Learning English is a necessity nowadays. English is a language spoken around the world. As a result, Costa Rica implements English teaching since Primary School because it is in this early age where people understand and gather information easily. Children feel identified with vocabulary, pronunciation and activities that the teacher develops in class. They are exposed to it in English classes and they start to acquire the language in a natural way.

Araya (2012) emphasizes that, due to economic impact in Costa Rica, people realized of the importance of English culture in our country. Besides, this language is official in the year of 1901, this information was published in a national file at that moment. English takes advantage in XX century.

Costa Rica was presenting a great advance in its economy. The government decided to implement English in many educational institutions because the country

required competitive people to work in the labor field. Thus, with the implementation of English, Costa Rica has had significant achievements in industry and trade. Besides, MEP includes five lessons at least in the curriculum program in order for students to be well prepared and able to communicate easily in a foreign language. Many companies nowadays are advanced in technology and requires people with knowledge of at least two different languages. Hence, including the English subject in elementary school is necessary for all pupils.

Araya (2012) states that in the year of 1950 Costa Rica was in development. The president José Figueres Ferrer in his government did many changes in the state improving education, health and home. Figueres Ferrer was president in the period of 1970 and 1974. During 1972 new English programs emerged and they enhanced in communication and oral expression.

According to Ministerio de Educación Pública (2012)

Costa Rican children will be exposed to a world different from their own. They will be able to appreciate the moral, spiritual and aesthetic values of a new culture, and at the same time appreciate Costa Rican idiosyncrasies, values, traditions, and customs. (p.20).

Children in Costa Rica can experience the importance of communication in another language, discovering other cultures and traditions they have. Children do not set aside its roots of Costa Rica. Teaching English in Costa Rica will help them compare other places and appreciate the value of each. Besides, learning English since they are kids will help them communicate and express their opinions in the target language, also develop skills when they have to face a job.

2.8. Teacher's Profile in Primary School

Teacher's profile is crucial because a professional educator needs to have many characteristics when teaching children and especially in a second language. Teaching science in English requires patience, since some kids can feel frustrated at the beginning as a result of something new and they are not familiar with some concepts. Consequently, to have an innovative method to teach science will be helpful for teachers. Educators must be creative and love their job, in this way students will be motivated and enthusiastic in classes. Teachers must comprehend students taking into account their needs, interest, and background, so science can be enjoyable and meaningful for them.

Indeed, teachers have to have compromise and vocation in this profession because they will face different situations while teaching children. Also, it is relevant that teachers promote a good environment in class, where everybody participates and respect others' opinions. Teachers must speak in the target language in the class, so students do not feel confused speaking both languages. Moreover, educators must be creative when they teach, have abounding of material, tools, and ideas to teach English language. It is essential that teachers have good attitudes, be pending of current information and technology to use in class.

Farid, N., Khan, N., Shah, K., & Shams, F. (2016) examined, that students spent much of their time at school. Therefore, it is necessary that learners feel comfortable in the institution. School needs to provide them a good environment in which students can share experiences, feel motivated, enjoy classes, give opinions

and participate without feeling embarrassed. If learners have a favorable climate, they will have high academic results and students will have positive attitudes while acquiring knowledge. Accordingly, having a good environment is essential to promote students with high self-esteem in order to they feel emotionally safe and can achieve the goals in a school year.

Hence, to be a teacher demands a lot of aspects such as: attitudes, aptitudes, knowledge, essence and virtue. Thus, this career claims for people who are engaged with their jobs and vocation. Also, teachers require a bunch of competencies to work with pupils, so professors need to be careful with the information transmitted to the infants.

2.9. Teacher's role in a classroom

Teaches have different roles in a classroom. They are guides for students in their learning process and students almost always feel identified with professors for diverse aspects. Teachers can have a good or bad impact in students' lives. For this reason, each professor is in charge of leaving a positive or negative mark in his or her students. In that case, teachers need to comprehend students' attitudes, take time to resolve inquiries together when they do not understand a topic, listen to them when they need an advice and in this way make a good connection teacher-student. If teachers are worried for students' needs learners will see a friend in a class, instead of an instructor in students' learning.

In one study made by (Broughton, 2011) he states that Vigotsky (1978) said that if people work together helping each other is easier to reach the goals instead of doing them by themselves. If teachers support students to be in a classroom where collective work prevails, students will success in their learning and personal development. Besides, teachers are guides for students. One role teachers have is to help their pupils to resolve problems and have coherent answers. Teachers should promote different strategies that assist students to gain knowledge.

Another role teachers have is to follow a curriculum and MEP planning for each level. Educators must perform different activities to teach their students and promote their knowledge. Indeed, teachers need to plan their lessons according to the topics and periods in the year. If a teacher does not plan his lessons, it would be very difficult to keep order in the class whereas the teacher will improvise with each topic and it will seem as if the teacher is irresponsible. A well-prepared teacher with materials, activities, and everything planned is an excellent teacher.

Similarly, teachers should promote a good environment in which values are presented. Teachers are the models for students because they spend the majority of the day in the school. Students imitate teachers' attitudes, so if a teacher shows a positive behavior; is kind, humble, respectful, and collaborative, it is almost sure students will behave the same.

Also, teachers should work with an approach in their classrooms because they will conduct students in a significant learning process, but it not only depends on implementing one specific approach, there are other elements to take in consideration. Some of them are: Classroom Management, be aware if teachers are

giving instructions or orders, think about how educators transmit the message, time management, reflective model and the phonology role in a classroom. All these concepts are necessary to understand better teacher's role and be aware of how are teachers preparing the lessons and how students learn in a better way.

Particularly, a science teacher should have responsibilities with their students. Science teachers need to ensure that students understand the concepts by doing different activities in which students feel motivated. Teachers should foster intellectual interest on the topic, take into account multiple intelligences in a classroom and promote a good environment where students feel happy. According to Evans, R., Luft, J., & Czerniak, C. (Eds.). (2014). "The implications for science teachers are important. When science teachers adopt methods of inquiry instruction there are more opportunities for increased student success and self-efficacy building feedback." p.38-39

In addition, it is good to have team work, but teachers also need to further independence when working. In this way, students will have self-reliance, share his or her opinions and have own beliefs of a topic. If teachers give feedback constantly to the students, they can correct themselves and construct knowledge by their own.

2.10. Student's role in a classroom

Students are a crucial part in education. Learners also have duties and responsibilities in a classroom. They have to work neat, have interest in learning, have positive attitudes and participate in all the activities planned by the teacher, as well as to behave and concentrate in classes. It is necessary that students fulfill their

responsibilities, so they will reach the goals and will achieve academic success.

Some other duties students have are:

- Be in class on time
- Bring all materials such as: notebooks, books, pencil case, ruler, and glue.
Everything they need for each subject.
- Participate with enthusiasm. Have desire of learning.
- Respect other opinions
- Be in silent when the teacher is explaining. Not interrupt.
- Raise a hand when she or he wants to talk.
- Respect the schedule of the class.
- Come to class five days a week.
- Comply with homework, extra class work, and assignments.

2.11. Accommodations in the English Class

National Joint Commission on Learning Disabilities, 1994 states in Illinois
Community College Board (2014),

A learning disability is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. (p.7).

In a classroom, teachers will work with different kind of students, with particular characteristics, opinions, learning styles and some of them may present learning disabilities. When a child has a learning disability it interferes with the process of

comprehending the subjects or to adapt to the group. The teacher needs to manage this situation in class and include these students in the educational process.

Furthermore, for students with learning disabilities it is crucial to apply accommodations according to the disability the student presents. Accommodations provide opportunities for students to feel part of the group independently of the disorder the child has. Accommodations work as a support for them in which they can incorporate normally to the educational environment.

There are three types of accommodations according to MEP (2005)

Access Accommodation: This accommodation refers to the adaptation of physical conditions, space, furniture and other facilities in order to the student feel comfortable in the classroom. The information is given to the student in different ways so he or she can understand better.

Non significant accommodation: They refer to a curricular element, these accommodations do not modify the curricular programs, and they just make some adaptation for the students.

Significant accommodation: They made important changes in the curricular program, objectives and contents are different. Teachers must work with diverse strategies and techniques in order to fulfill the educational needs of the students.

2.12. Constructivism Approach in Science Teaching

Constructivism approach refers to the active learning of students in a classroom. They construct their own understanding from prior knowledge and

experiences. Furthermore, students are the ones in charge of taking responsibility in their learning. Also, working with constructivism approach in a science class is very useful for learners because students have to make an effort to learn by having inquiries, doing research about what they want to learn, and formulate and solving problems.

Woolfolk (2010) defines constructivism as a

Model that emphasizes the learner's active role in building understanding and giving meaning to information. The constructivism perspectives are fundamental in research of Piaget, Vygotsky, psychologist Gestalt, Bartlett, Brunner y Rogoff and the phylosophy of John Dewey and the work of Jean Lave in antropology. (p.310).

The theory of constructivism states that learners acquire knowledge by doing instead of receiving it from professors. In classroom, students learn from experiences. They interact with other students and use techniques that represent real life, so they understand and experiment with different activities and construct meaningful knowledge.

Furthermore, if professors teach their classes using constructivist approach students will have the opportunity to participate in simple and complex activities with their peers. Students need to solve problems, give suggestions and present the results. Seeing that, students are required to learn in different situations in which they put in practice their skills that assist them to develop their creativity and deep knowledge in the topics studied in classroom.

The study of Mohd Yussof, Rasid Jamian, Roslan, Hamzah, & Kamarul Kabilan. (2012) examined that,

Teachers are thus challenged to create conducive environment for students to think and explore, concurrently offer their guiding role (as facilitators, mentors and scaffolding provider) to support students' active roles in meaning making and constructing new knowledge (Murphy, 2002).

Similarly, students that work with constructivism approach participate actively to gain knowledge, sharing opinions and thoughts with the group. Indeed, students have to interpret data and construct arguments and the professor is a facilitator who helps students reflect and analyze their ideas.

2.13. The importance of teaching Science in Elementary School

Teaching science in elementary school is important because children develop different skills that help them face the world. Also, with Science subject and the topics presented they will have critical thinking because they are encouraged to solve problems, investigate, do observations, students can reflect, analyze and participate actively in lessons.

It is essential to teach science to students since they are kids, and do not wait until they are in high school to start with subjects like biology because it will be difficult for some students to gather the information immediately and they can be confused if they are not familiar with some concepts. If science is taught since elementary school

students will be prepared to face a competitive world in which they require to solve problems, investigate and understand the world in general.

Bujosa & Levy (2016) mentioned, "Evidence indicates that students who start science in secondary school, with limited early exposure to science, rarely make learning gains equal to students who had a solid science foundation in elementary school." Nelson & Landell (2007) (p. 984). Regarding to this, if institutions do not implement teaching science in their programs the students will face strong problems when they start high school because they do not have the competencies to do research, have inquiries, make, resolve conflicts or explore. Conversely, if students are well prepared in science they can be more interested in the subject and will comprehend the topics easily.

2.14. Strategies and Techniques to Teach Science Using Interactive Notebooks

Interactive Notebooks are tools used in class in order to make students learn better in an entertaining and fascinating way. With interactive notebooks, students can gather the information easily, and it is better for them to study because they will remember what they made and experienced in class.

Interactive Notebooks are defined by Kerr, S., Schmeichel, M., & Janis, S. (2015) as

These notebooks also serve as a formative assessment tool that support student learning and informs teachers' understanding of that learning beyond the classroom. With interactive notebooks, teachers

can maintain pedagogical consistency among varying classes, and students have options for individualized knowledge construction and personal creativity. (p. 97).

Students are going to use their own notebooks with teacher`s help, but they are the ones in charge of construct their own learning. Interactive notebooks in Science teaching will be an interesting tool because they are going to provide students a different way to acquire knowledge and at the same time be motivated while learning. Moreover, interactive notebooks support teachers to assess students` understanding, the professor will guide students in this process while they are constructing knowledge. Also, interactive notebooks help to have a good communication between parents and teachers because parents realize what their children are doing at school and if they comprehend or not the topics.

2.15. Science MEP Planning

The idea of this research is to make an interactive Science book that incorporate all the topics in MEP Science Plan for second grade students. Many Science teachers are asked to work with science books that do not have all the topics that the MEP requires, or the books have different topics that are not in this planning. As a result, it is complicated for teachers to find the correct book to work on.

Teachers are forced to find information in different science books, worksheets or activities on internet and in different sources. This is a disadvantage that teachers

around the country present because the teacher needs to take time to search the appropriate material for the grade and with the data according to the level.

Below is shown Science MEP planning for second grade students that will help making the interactive science book.

SCIENCE 2ND GRADE PLANNING

Unit 1. Living Things in healthy environments, as a result of the interaction of biologic, sociocultural aspects.

- 1.1 Human Life Cycle (child, kid, young and adult)
- 1.2 Healthy Relationship in the school, family and community.
- 1.3 Health Risks at Home and School
- 1.4 Describe solutions to avoid accidents
- 1.5 The Skin: Characteristics and organs
- 1.6 Culture and race
- 1.7 Hygiene Habits
- 1.8 Nutrition
- 1.9 Healthy and Unhealthy Food
- 1.10 Food Groups
- 1.11 Plants and Animals
 - 1.11.1 Parts of a Plant
 - 1.11.2 Needs of a Plant
 - 1.11.3 Life Cycle of a butterfly
 - 1.11.4 Life Cycle of a Frog

1.11.5 Animal Habitats

1.12 Pollution

Unit 2. Energy and Matter

2.1 Energy and Electricity

2.1.1 Types of Energy

2.1.2 Forms of Energy

2.2 Matter

2.2.1 Properties of Matter

2.2.2 States of Matter

2.3 Machines

2.3.1 Simple Machines

2.3.2 Compound Machines

2.4 Force and Motion

Unit 3. The Solar System and the Universe

3.1 Weather Conditions

3.2 Seasons of the year

3.3 The Sun

3.4. The Solar System

3.5 The Moon

Graphic Organizers

Templates

2.16. Benefits of using the Interactive Science Book

The Interactive Science book can be used in many different ways in class. It allows students to learn while they create. The book has many activities in which students use their imagination to make their interactive notebooks and take ownership of their learning.

Furthermore, the Interactive Science Book will help students comprehend science topics in an entertaining way. Students will put in practice their originality by applying the activities in their notebooks and at the same time they can write notes, paste post it with extra information, decorate with images or drawings, add meaning to concepts with their own words, communicate their ideas, and more.

Additionally, using the book helps them connect ideas and personalize their notebook in which they can understand the topics and have knowledge. In addition, students will enjoy science classes because the activities included in the book encourage learners to participate with other classmates by doing short speech, share their conclusions with the teacher and peers, and investigate to find important information. Students can play games to comprehend any topic and at the same time gain knowledge.

2.17. Motivation in class

Being a teacher is not an easy task, teachers have to have compromise in their job, to guide students, make them understand and comprehend the topics of diverse subjects and educated them with values with their classmates and teachers.

(Woolfolk, 2010) defines motivation as a feeling of happiness that satisfies a need and changes the behavior of people. It is necessary that the teacher motivate their students in different ways. If a teacher creates a nice environment in the class where students can feel comfortable, they will enjoy the lesson better. An inspire student is capable of achieving academic success, he will demonstrate positive behaviors, have good grades and start being responsible with his assignments. All students need to feel excited in class, so teachers will have positive results with these learners. A motivated student will pay attention in class, participate, will have a good attitude and will work hard in extra class work and exams.

On the other hand, if a student uncomfortable that student will not have interest in classes, he will be bored and distracted the whole lesson. For instance, if the educator just spends time shouting to their pupils, telling them how bad they work or recalling them how much they disturbed their classmates, they will probably not change those attitudes. However, many learners misbehave because they could have difficult situations at home or they are facing strong problems and the professor should pay more attention to those students and make them feel part of the class by motivating them.

How teachers can motivate their students:

- 1) Giving them incentives.
- 2) Telling them how well they work.
- 3) Assigning them different roles in a classroom.
- 4) Choosing one student per day to be the teacher's assistant.
- 5) Giving them a sticker or write positive messages in their notebooks when they finish an assignment.
- 6) Creating a nice environment with respect and tolerance between teacher and students.
- 7)

According to (Woolfolk, 2010) there are two types of motivation:

Extrinsic Motivation: This type of motivation refers when a person receives something in return by other people. For example: a gift when a kid has a good behavior, makes parents feel proud when children get high grades. In the extrinsic motivation the person cares for the things she or he will receive or to make someone else feel glad.

Intrinsic Motivation: This motivation involves self-satisfaction, people do things because they feel gratified by doing them. Intrinsic motivation is associated with personal development and improvement in certain areas. For example: When an athlete is motivated to win in a competition because all the effort they made before when practicing or because they enjoy and have fun participating in some sports.

CHAPTER III
METHODOLOGICAL FRAMEWORK

3.1 Research Techniques

This research has a theoretical part where it explains the fundamentals of the English language, the importance of teaching science, teaching methods, the definition of interactive notebooks, the need of an interactive science book with topics of MEP planning. Besides, this research is also applied because the teacher will implement in the field work the interactive book with second graders.

This is a longitudinal study because the researcher needs to analyze if the interactive science book works or not, this book will be implemented in class and the researcher will do different observations to the same group of people. Also, this research is micro social because it is going to be developed with a small population at Greenfield School. There are eleven students in second grade and all of them are part of the investigation.

This research involves general aspects of teaching and is focused in teaching science using an interactive book. The research has a mega social, macro social and micro social part. It is mega social in the study of teaching of Science in English language in Costa Rica for elementary school. Then, the research is macro social because the teacher needs to interact with children between 7 and 8 years old and take into account how many participants will be involved in the research. It is micro social when the teacher implements the interactive science book with second grade students.

3.2. Research's Paradigm

A paradigm is the way in which a professional works, the characteristics that need to be taken into account, responsibilities and duties. An educator should have an approach to teach, the curriculum, a planning, the objectives at the beginning of the course, analyze problems and be able to give solutions and a series of disciplines to carry on.

According to Barrantes (2014), a paradigm is a set of policy, rules, ideas, opinions in which they have something similar and permit analyze the world. A paradigm study people actions and it is part of the way a professional behaves or thinks. Everyone is influenced by a paradigm, in one way or another paradigms are part of the society.

3.3. Research Design

3.3.1 Qualitative Research

Hernández (2014) points out that a qualitative research studies the actions of the participants. Moreover, this research is characterized by having inquiries and investigates the information the researcher wants to obtain in a deeply way to have conclusions at the end of the process. Additionally, the researcher collects data considering the perspectives or opinions of the participants as their experiences. The instruments require open questions, some of the instruments used in this research are: interaction with a group of people, group discussions, open interview, survey, observations, among others. In the other hand, this type of research is naturalistic

because it studies humans in their environment or context in which have their daily activities.

3.3.2. Quantitative Research

Hernandez (2014) states that a quantitative research is sequential and continuous. It has hypothesis and a plan to prove the results. In fact, a statistical method is used. This research has exact data because all the information gathered is measured and represented by numbers. The researcher needs to have critical decisions before collecting data. Indeed, this research should be realistic. The objective of this research is to demonstrate theory.

3.3.3. Mixed Research

It is the combination of a qualitative and quantitative research. It takes the most important aspects of both studies. It asks the problem formulation by using quantitative and qualitative procedure of collecting information and analyze data. Furthermore, it is guided for a purpose.

Hernández (2014) states that a mixed research uses different methods to collect information like numbers, texts and symbols. People should use a mixed research when the investigation needs more resources, people and time. Besides, if the problem formulation is complex it is intended to use mixed approach.

3.4. Type of Investigation

This is a qualitative research because it seeks to discover if students are more interested in science using the interactive book. This research will describe the educational process of the student and comprehend how students learn science applying this innovative method. The research will be carried out in the field and students will work with the book at Greenfield School.

Qualitative research as Barrantes (2014) remarks, is a research that considerate human actions and social life. It focuses in discovering knowledge. The information is taken in the field, in this case the school. This type of research comprehends participants' perspectives, it is necessary to share with the people in the moment of gathering information.

3.5. Participants and Sources of Information

3.5.1 Participants

The participants specifically in this research correspond to one group of second grade at Greenfield School. The group participating in this research is the 2-1 with eleven students, four girls and seven boys. These children are between seven, eight and nine years old and have been in the institution for at least 2 years. The participants will develop the activities in the Science class, having four lessons of Science a week.

3.5.2 Sources of information

For this research, the educator uses information from first and second sources. That means, that it will use information that the teacher can look for and other information of different authors. Some important data the educator is going to use are:

1. Exercising Autonomous Learning Approaches through Interactive Notebooks
2. *English Programs MEP for Second cycle*
3. Science Teacher Education in the Twenty-First Century
4. Integrating Interactive Notebooks
5. Teacher knowledge in English language teaching: an analysis of its socio-historical construction in the western central region of Costa Rica
6. *¿Cómo evaluar aprendizajes en el aula?*
7. Psicología Educativa

3.6 Techniques and tools to collect data

Technique	Tool
Observation	Descriptive Scales
Interview	Checklist
Survey	Questionnaires
Participative	Workshop

This is a qualitative investigation and to collect data the following techniques are going to be used: observation, interview, surveys, questionnaire and participative

strategies. To do the field work the teacher is going to observe the students of second grade and use a descriptive scale where the teacher can gather some features about the learning styles of each student.

The researcher is going to create an interview to a principal of the school and ask her some relevant aspects about strategies and techniques to teach Science and the opinion of interactive notebooks.

The researcher will make a questionnaire for students and ask how they feel using the science book, if they learned better using them among other questions. Finally, the educator will organize the class in groups where they will participate with other students and identify with focus groups how they work with interactive notebooks.

3.6.1 Data Collection Techniques

Some instruments a researcher can use in a qualitative research are the following:

- 1. Anecdotal Record:** Lynn K and Sally Nathenson (1992) explained that an anecdotal record is an instrument that is used when the professor wants to observe the process a student develops in a class. This instrument helps the educator to make decisions of how the students work with a specific method and at the same time the anecdotal record guides the teacher to make improvements in the activities done.

2. **Questionnaire:** According to Hernández Sampieri (2014) a questionnaire is the most useful instrument for researchers. It is a group of questions in which people can give different opinions of different topics. It is used in different fields. A questionnaire can have open, close or mix questions.

Open questions: These questions give the opportunity to have variety of alternatives. A person can response with different options and choose between one or more answers. People that answer a questionnaire with open question can give opinions and explained deeply their answers.

Close questions: In these questions, the options of the answers are limited. The answers could be “yes”, “no” “always”, “rarely”, “never” among others. In these type of questions, the participant could answer with more than one option.

3. **Interview:** In an interview one person apply a series of questions to another person and write down the answers. It is important that in the moment of doing the interview the interviewer chose a correct place without distractors. The questions in an interview should not be difficult to understand for the person interviewed, the questions should be simple. Particularly, interviews are individual but also can be applied to a group of people.

4. **Observation:** Hernández Sampieri (2014) defines the observation as a reliable instrument that is characterized as a series of observable situations and behaviors. For teachers, this instrument can determine the effort and interest of the students in the subject or any strategy that the teacher wants to

know how students develop and if it is useful or not. Many researches use this instrument to collect data.

3.6.2 Instruments applied in this research

- 1. Anecdotal Record:** The researcher observed the group while they were working with the Interactive Science book and write their conclusions. This instrument has the following parts: name of the observer, date, time, topic, book page, observations and signature. Seven observations of seven different topics of the book were applied.
- 2. Science Teachers Survey:** Four teachers answer the survey. This survey has seven open questions in which they have to explain how they teach science classes, if they feel motivated with the textbooks they are using now and their opinion of the interactive science book for second graders.
- 3. Personal Experience Evaluation:** This instrument helps students share their opinions and explain how they feel using the interactive science book. This instrument allows students to express their likes and study preferences. Students can mention if the book was useful for them and if they lea have learned something new with this new tool.
- 4. Questionnaire:** This questionnaire is for second graders at Greenfield School who are the ones that will use and work with the book. It consists of five sentences about their reaction of the book.

5. Interview: This interview was applied to the principal of the school. It consisted of ten open questions with the purpose of having an opinion of a professional in the education area.

6. Book evaluation rubric: This instrument is for second grader students. It has 10 close questions where they have to answer with “yes”, “no” or “sometimes”. This instrument helps the researcher to know and have conclusions of student’s criteria from the book.

CHAPTER IV
DATA ANALYSIS AND INTERPRETATION

4.1 Data Analysis and Interpretation

This chapter includes the description of the information collected by using the instruments (anecdotal record, questionnaire, survey, self-experience evaluation). See Annexes 1 to 6. Besides, with this information it is intended to analyze statistically the results of different people's opinions that used and examined the interactive science book.

Indeed, the information presented in this chapter helps the researcher determine if the objectives of the investigation were reached, and if the science interactive book was useful or not for the improvement of the learners in the science field.

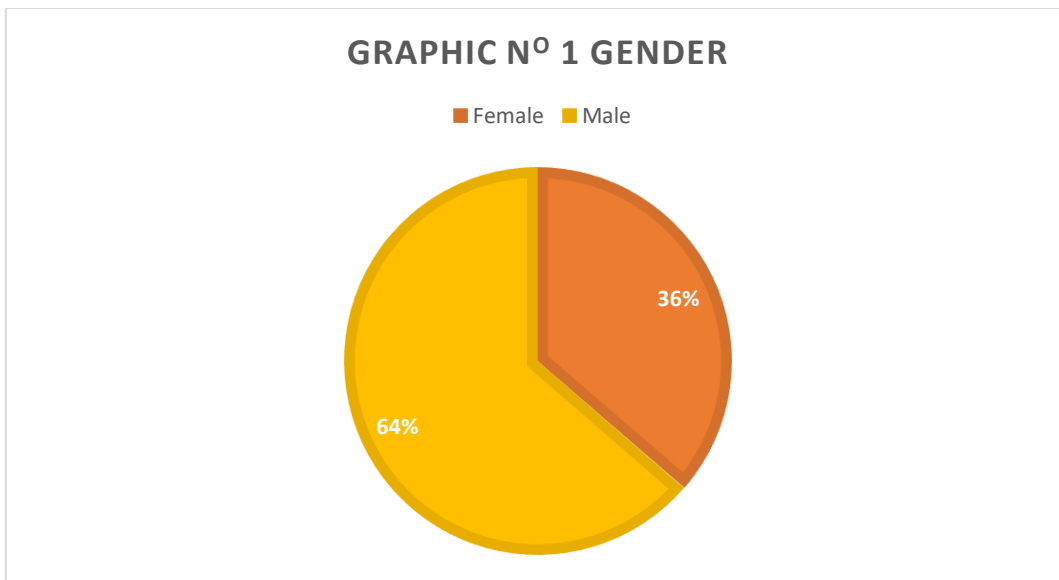
Second grade students answered a questionnaire with open questions, filled the self-experience evaluation, and completed the book evaluation rubric. Additionally, Science teachers responded to a survey, the principal of the school was interviewed, and the researcher wrote anecdotal records in which she was writing comments of the activities and observations done to second graders with diverse topics of the interactive Science notebook in the Science class.

4.2 Book Evaluation Rubric Graphics

The following graphics show students' answers to the Book evaluation rubric instrument (Annex 1).

1. Gender

Table N° 2	
Gender	Quantity
Female	4
Male	8
Total	11

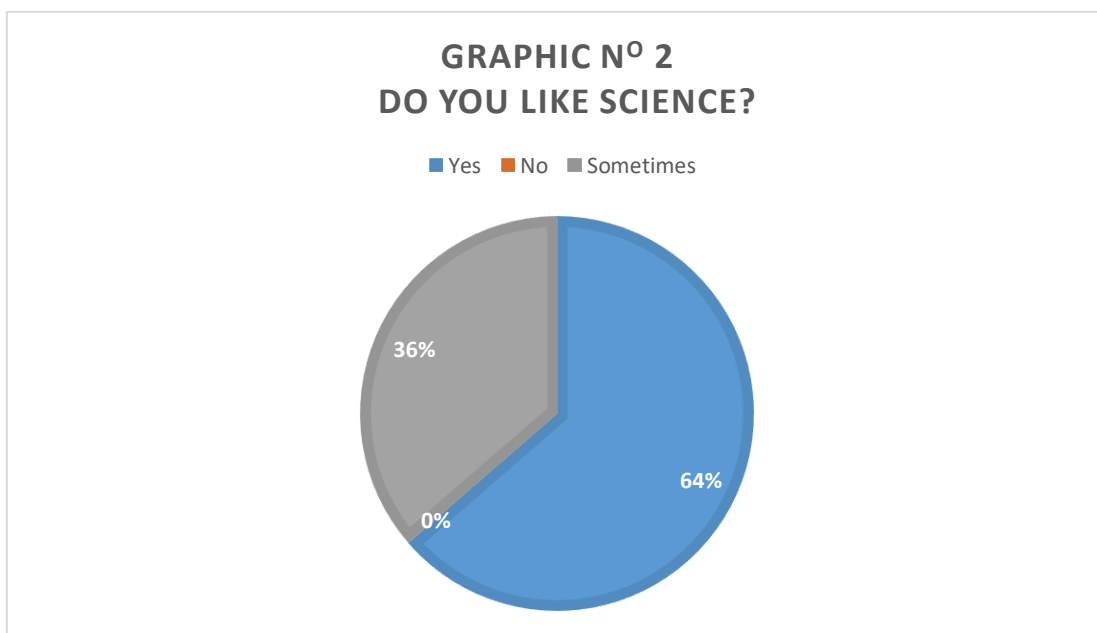


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Book Evaluation Rubric.

Graphic N° 1 represents the students that answered the evaluation rubric. Of the total of eleven students in second grade, 36% are females and 64% are males.

2. Do you like science?

Like Science Classes	Quantity
Yes	7
No	0
Sometimes	4

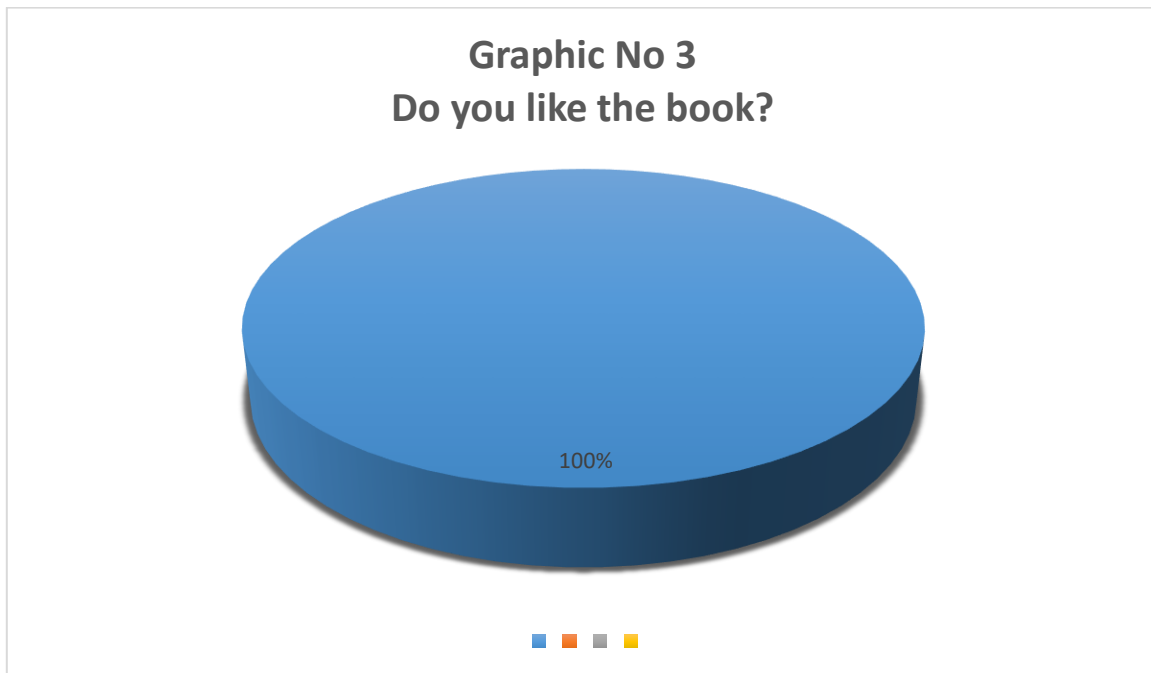


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 1. Book Evaluation Rubric.

Graphic N° 2 shows that 64% of second graders like science classes and 36% sometimes like it. According to this, educators can realize that some students need guidance in their science learning process. In this way students can distinguish the importance of the subject and the teacher can promote new strategies where students enjoy the classes.

3. Do you like the book?

Table N° 4	
Like the book	Quantity
Yes	11
No	0
Sometimes	0

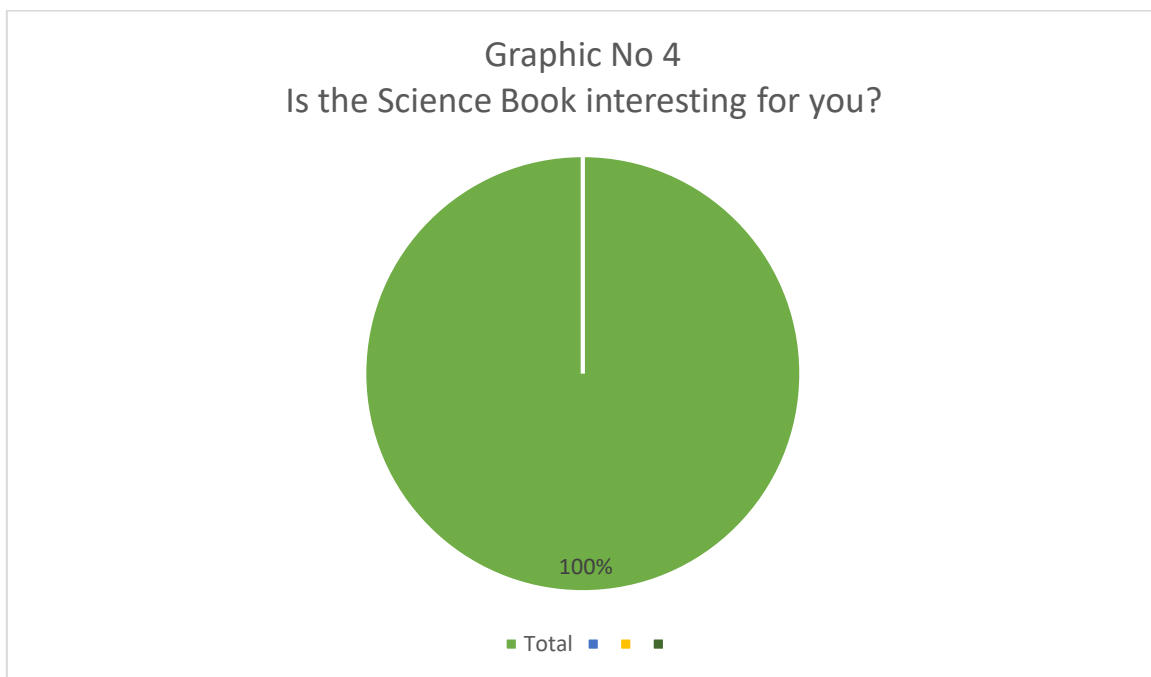


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 2. Book Evaluation Rubric.

Graphic N° 3 shows that 100% of the students liked the book. It demonstrated that they felt really motivated while doing the activities from the book. Second grade students think that the book allows them to be creative because they can work with one activity in different ways. They can write notes, color pictures their way to make the notebook more personal.

4. Is the Science Book interesting for you?

Table N° 5	
Interesting	Quantity
Yes	11
No	0
Sometimes	0

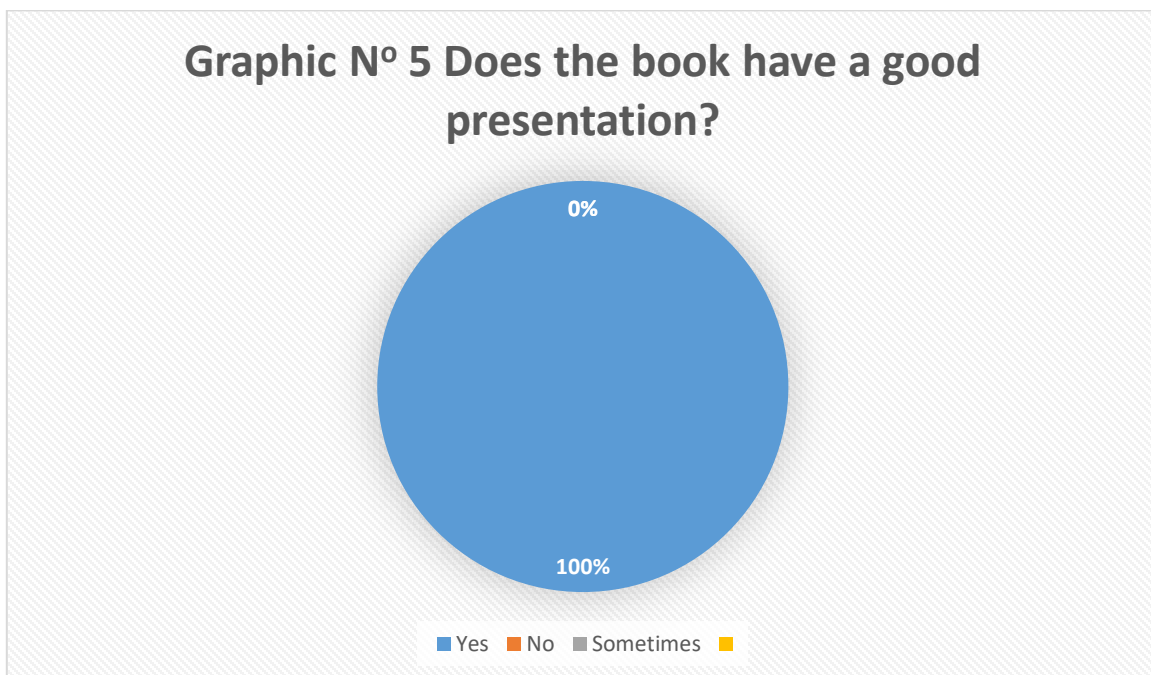


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 3. Book Evaluation Rubric.

Graphic N° 4 defines the interest of the students in the book. 100% of students answered that the book is interesting for them. In this way, teachers can use this tool with second grade students because it caught their attention.

5. Does the book have a good presentation?

Table N° 6	
Good Presentation	Quantity
Yes	11
No	0
Sometimes	0

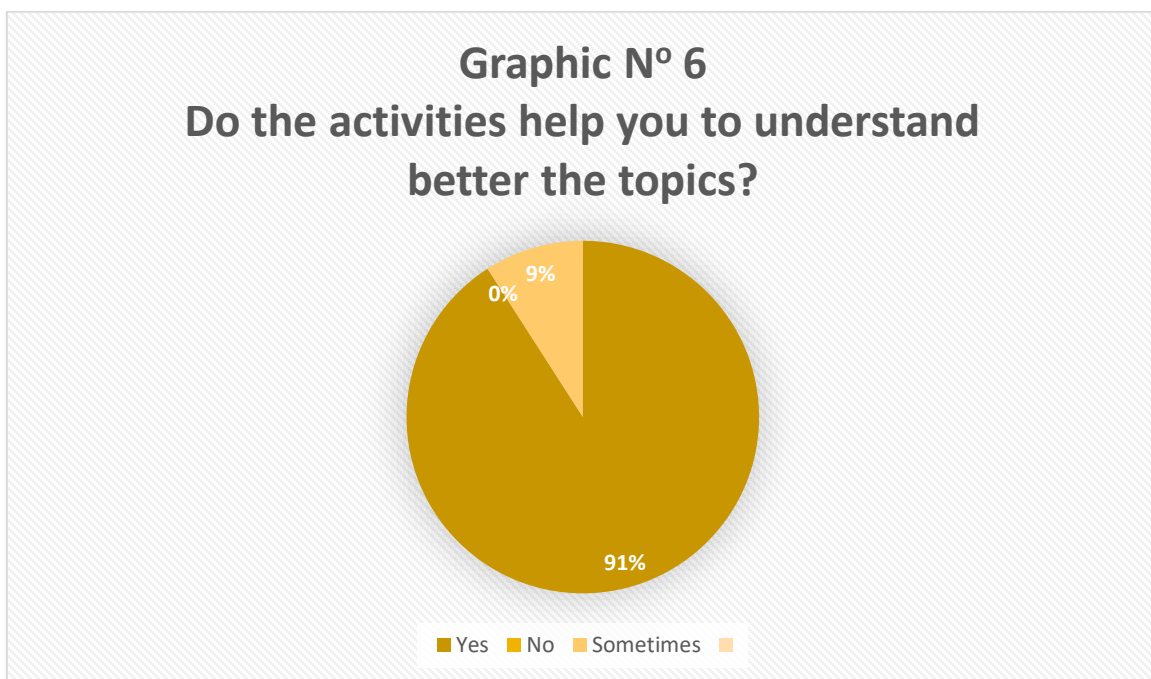


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 4. Book Evaluation Rubric.

Graphic N° 5 shows that 100% of the students had the same opinion with the presentation of the book. They like the cover page as well as the format of the book. Students expressed that the type of paper is better than the pages of the book they are already using. Indeed, students expressed that it is easy to learn when the presentation of the topics are interesting for them.

6. Do the activities help you to understand better the topics?

Table N° 7	
Understanding	Quantity
Yes	10
No	0
Sometimes	1

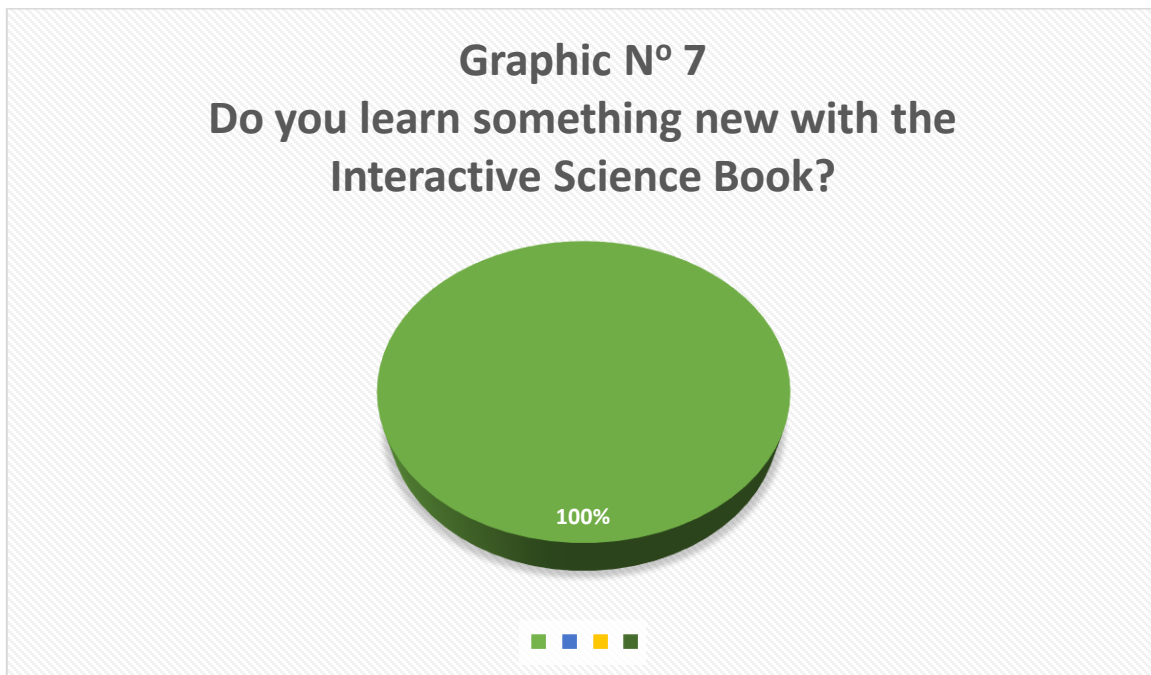


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 5. Book Evaluation Rubric.

Graphic N° 6 demonstrates that 91% of the activities presented in the science interactive book helped students understand better the topics. Also, 9% mentioned that sometimes students understand better the topics because they need the teacher explanation and other resources besides the book.

7. Do you learn something new with the Interactive Science Book?

Table N° 8	
Learning	Quantity
Yes	11
No	0
Sometimes	0

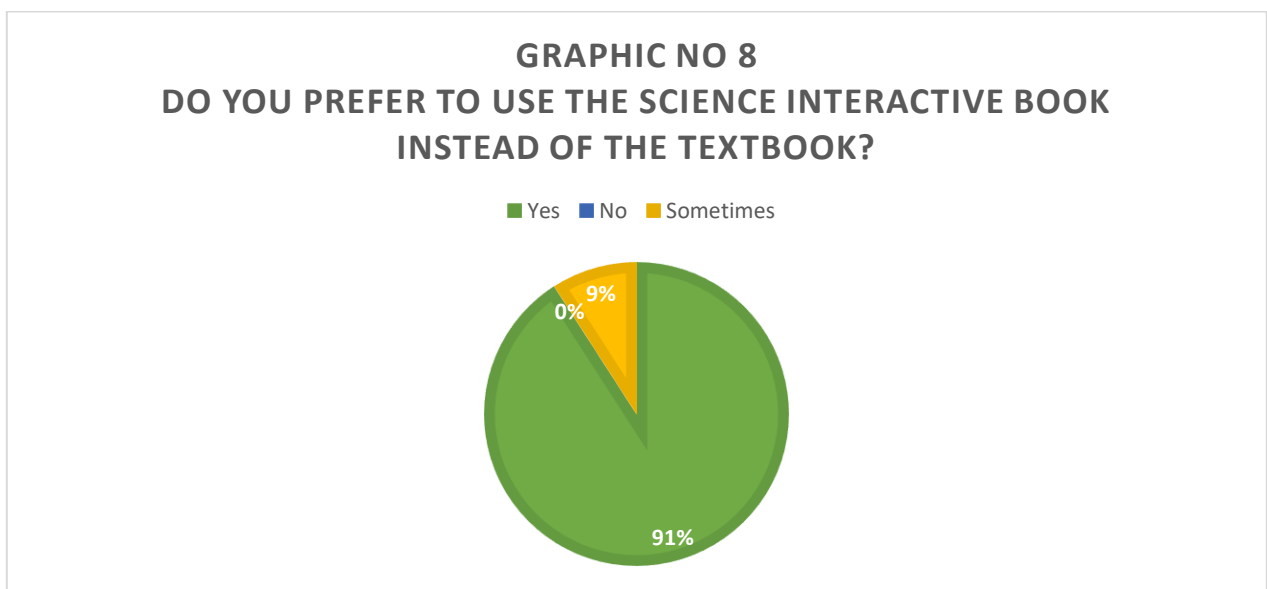


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 6. Book Evaluation Rubric.

Graphic N° 7 can define that 100% of students learn something new with the book. This is very good because the idea of the science interactive book is that they learn and with these results the researcher realized that the book is working very well in science classes.

8. Do you prefer to use the Science Interactive Notebook instead of the textbook?

Table N° 9	
Preference	Quantity
Yes	10
No	0
Sometimes	1

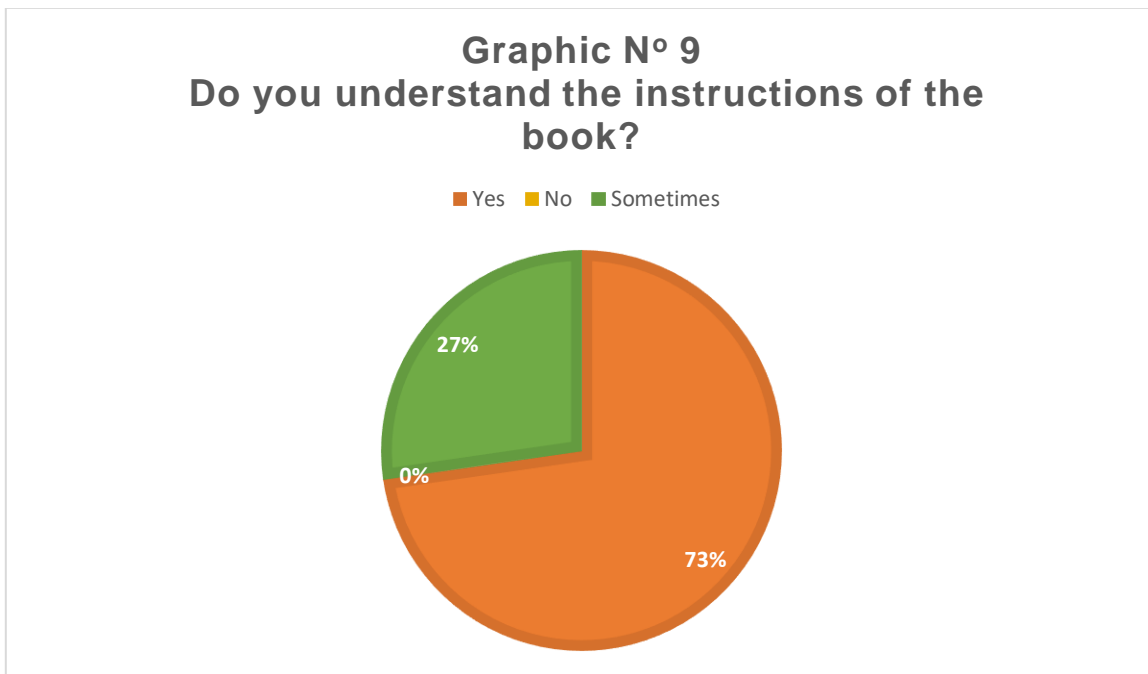


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 7. Book Evaluation Rubric

In Graphic N° 8, 91% say that most students preferred the science interactive book made by the researcher rather than the one they are asked to use at the beginning of the course. Indeed, 9% of the students answered that sometimes they prefer to use the science interactive book because they like both books.

9. Do you understand the instructions of the book?

Instructions	Quantity
Yes	8
No	0
Sometimes	3

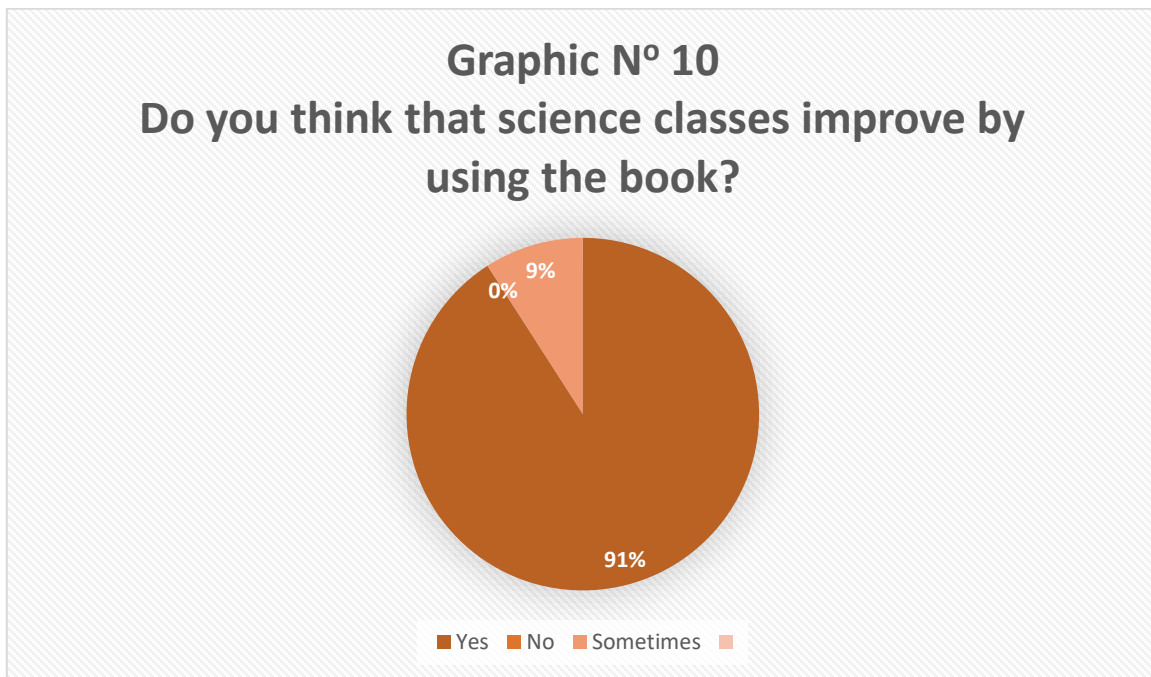


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 8. Book Evaluation Rubric.

Graphic N° 9 shows that 73% of the students understand the instructions of the book and 27% sometimes understand them. In this case, it is necessary that the teacher explains the instructions aloud and then ask students to repeat the instructions themselves in order to be sure if they really understand what they have to do.

10. Do you think that science classes improve by using the book?

Improvement	Quantity
Yes	10
No	0
Sometimes	1

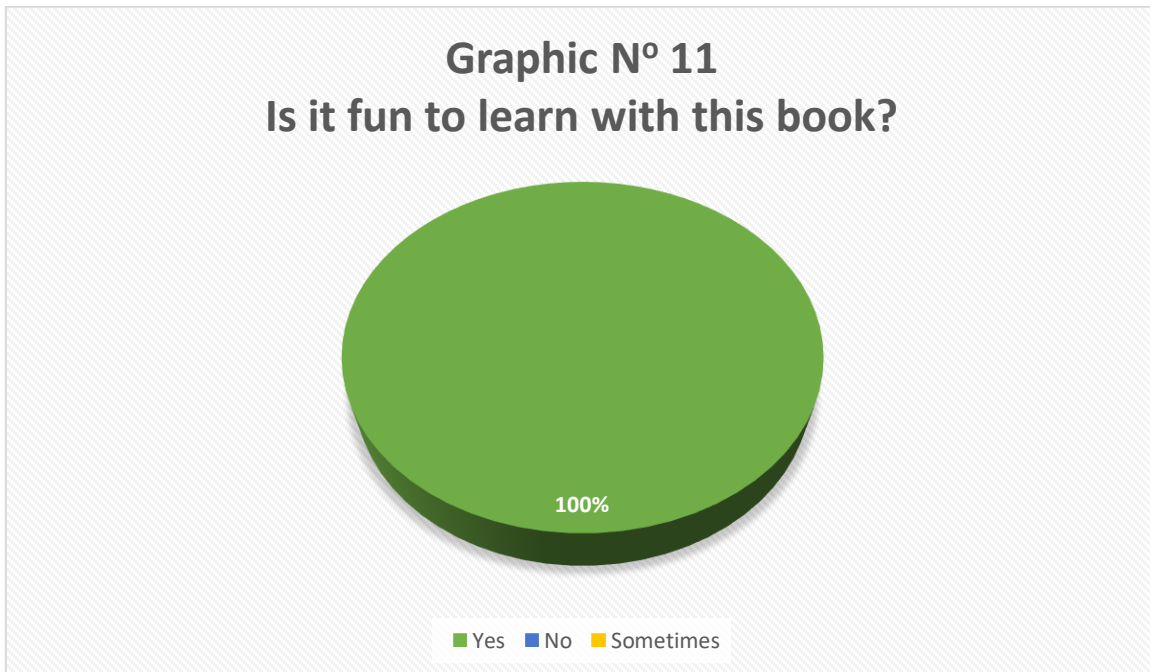


Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 9. Book Evaluation Rubric.

Graphic N° 10 represents that 91% of the students express that science classes will improve by using the book. On the other hand, 9% of the students mentioned that sometimes the classes will improve with the book, they declared that it is important to use the book but also other resources to understand the topics.

11. Is it fun to learn with this book?

Table N° 12	
Fun	Quantity
Yes	11
No	0
Sometimes	0



Source: Guerrero Barquero María Fabiola. Universidad Hispanoamericana, 2017. Question N° 10. Book Evaluation Rubric.

Graphic N° 11 demonstrates that 100% of the students agree that learn with the book is fun. This is very good because if they like the book and feel satisfied with using it, they will learn and improve their understanding in the subject easily.

4.3. Table 1. Principal's interview

The following tables represent the principal's answers in the interview applied by the researcher. (See annex 5).

QUESTIONS	ANSWER	INTERPRETATION
<p>1. Do you think the Interactive Science Book fulfills with the MEP topics for second grade students?</p>	<p>Yes, it includes all the topics that the students should acquire during the school year in an interactive way.</p>	<p>The principal of the school is satisfied with the topics of the interactive science book. She says that the book has all the topics presented in MEP planning for second graders and she is very gratified with the book.</p>
<p>2. Are the directions for each activity clear?</p>	<p>Yes, but it is important to tell students what they are supposed to do in each exercise.</p>	<p>She answers that the instructions for each activity are well described but students also need the accompaniment of the teacher for students to understand better what they have to do.</p>

<p>3. Are the contents of the book according to the learner's level?</p>	<p>I think so, however the teacher should always guide students while using interactive notebooks.</p>	<p>The principal states that the contents of the Interactive Science book are appropriate for their level and age. Indeed, as she says, it is important that the teacher guide them in their process of constructing their own notebook with the Interactive Book. The book is a tool but the teacher always needs to work as a mediator in a class.</p>
<p>4. Would you like to use the Interactive Science Book instead of the textbook?</p>	<p>Yes, because it is a way in which students will review each topic using other senses, like touch or using crafts as a way of remembering each experience using more concrete material.</p>	<p>She mentions that the Interactive Science Book is a better tool than the textbook students are using now. Also, she remarks that students will learn more by doing things by themselves</p>

		<p>rather than just read pages with full text that sometimes they do not understand. For this reason, she concludes that they will gain knowledge with this important tool in science classes.</p>
<p>5. What do you think of this new method of teaching?</p>	<p>I really like it because it is a hand-on resource.</p>	<p>The principal affirms that she likes the new method of teaching. In this way, teachers should use the same method with all the groups because is an entertaining way in which they are going to learn and doing the books according to MEP planning and their level will work in a very good way.</p>

<p>6. Is the book complete? Or would you add something else?</p>	<p>As a resource, it is very good.</p>	<p>The principal expresses that the book can work as a resource, but it is not only the tool teachers should use. In the interview, she mentions that teachers should use different strategies in the class and that is completely true. Besides using the book, teachers must prepare extra activities, games, videos, using technology in the class and other resources.</p>
<p>7. Do you think second grade students will reach the objectives requested by MEP by using the book?</p>	<p>I think it will help them, but it is important to recall that teachers should use other strategies like experiments, videos and so on.</p>	<p>She explains that the book will help them but as she answers in question number 6, it is important that professors use other techniques to teach in science classes.</p>

<p>8. Would you recommend to teach your classes using a book like this? Why?</p>	<p>Yes, because it is more interactive and offer students new opportunities for learning.</p>	<p>The principal answers positive to the question of using the book in classes. In this way, teachers from all subjects should do the same for their students because a book like this will help them build knowledge and change the way they are learning for one more entertained and enriching for them.</p>
<p>9. Do you believe that students construct their own learning using this book as a guide to create their interactive notebook?</p>	<p>It is a good resource for kids to build notebooks in a fun way. It will depend on each student and their interest in each topic.</p>	<p>She declares that the Interactive Science book will help students in their learning, she is right when she expresses that knowledge depend on each student because teachers give the tools and help them in the process of learning but if</p>

		they do not have the disposition of learning it would be very difficult to have good results using any technique.
10. Is the book design attractive for kids?	Yes, it is.	The principal states that the book is attractive for everyone. She really likes the book and answers that it has a good presentation for little kids.

This instrument was designed for the principal of the school. The idea is to have criteria from a professional in education area. Her opinion is very important because in this way the researcher can improve with her comments. Principal's opinion can help a lot in this research because as she is an expert in education, she can give feedback and express her point of view of the Science Interactive Book, if it can be used or not in classes. Besides, with her answers the researcher can correct mistakes and know what the principal expects from English and science teachers at Greenfield School.

4.4. Table 2. Students Questionnaire (See Annex 2)

The following questionnaire represents the answers of second graders about their perspective of the Science Interactive Book. There are eleven students but just nine students answered the questionnaire because the other two were absent the day it was applied.

Questions	Answers	Interpretation
1. Do you like science classes?	1. Yes, because I like experiments. 2. Yes, because we can learn new things. 3. Yes, because it is beautiful. 4. Yes, because I like the teacher. 5. Yes, I like science. 6. Yes, because I like the teacher. 7. So so, because Science has more	In question number one, eight of the students answered that they like science classes and one student answered that somehow, she likes the classes, because Science has much information they have to learn. It is important to remark that most students like science classes, so the educator has to take advantage of this and do different

	<p>information than the other classes.</p> <p>8. I like Science classes because of my teacher.</p> <p>9. Yes!! I love teacher's activities and she is a good teacher.</p>	<p>activities in which students can learn and enjoy at the same time.</p>
<p>2. What do you think about the Interactive Science Book?</p>	<p>1. It is beautiful.</p> <p>2. I love it.</p> <p>3. It is beautiful, and I like it.</p> <p>4. It is beautiful.</p> <p>5. It is beautiful.</p> <p>6. It is nice.</p> <p>7. It is nice.</p> <p>8. I like it.</p> <p>9. It is my favorite book.</p>	<p>100 % of the students say that they like the book. Everyone replies that the book is beautiful and nice. The students show a positive attitude while working with the book.</p>
<p>3. Which is your perspective before and after using the</p>	<p>1. Now, the classes are better.</p> <p>2. It will be so good.</p>	<p>Second graders express that science classes are better now. The book has</p>

<p>Interactive Science Book?</p>	<p>3. The Science classes are better now.</p> <p>4. It is better.</p> <p>5. The book is perfect.</p> <p>6. It is more interesting now.</p> <p>7. My brain is more intelligent.</p> <p>8. I like the new book.</p> <p>9. I like to have two books because I can find different topics.</p>	<p>been an interesting tool for kids. They like the book and work very good with it.</p>
<p>4. What things would you add or subtract from the book?</p>	<p>1. Nothing</p> <p>2. I will add animal pages.</p> <p>3. N/A</p> <p>4. Nothing</p> <p>5. The title</p> <p>6. It's ok.</p>	<p>In these questions, the researcher finds different answers from the participants. Some of them say that will not add anything, others more pages and information,</p>

	<p>7. More information, less pages.</p> <p>8. More pages.</p> <p>9. I will add more books for all students.</p>	<p>one student says that the title. This is important to take all their comments into account, so the researcher can make improvements on the Science Book.</p>
<p>5. Do you enjoy Science classes with the book? Why?</p>	<p>1. Yes, because it is beautiful.</p> <p>2. Yes, I do.</p> <p>3. N/A</p> <p>4. Yes, because I learn a lot.</p> <p>5. Yes, they are beautiful.</p> <p>6. I enjoy the new book because I like it.</p> <p>7. Yes, there are beautiful classes.</p> <p>8. Yes, I enjoy them with the new book.</p>	<p>100 % of the students prefer science classes using the Interactive Science Book. In this way, science teachers should consider using science interactive books in their classes, so the pupils will learn in a different way and studying the topics asked by MEP.</p>

	9. Yes, because is better than the other book.	
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The student questionnaire represents what students think about the Science Interactive Book. The book was designed for second graders, so they have the experience to work with some activities of it and create their interactive notebooks. They comment positive things about the book and have fun while doing the activities. Indeed, having students' opinions the researcher can do improvements on the book and know how to work efficiently in each activity. Also, the researcher will know which information is required and how to evaluate these topics.

4.5. Table 3. Science Teachers Survey (See annex 6)

QUESTIONS	ANSWERS	INTERPRETATION
1. How do you teach your Science classes?	<p>1. I try to incorporate different methods (interactive notebook, TIC'S use, videos, explaining on the board).</p> <p>2. I teach Science with a book but</p>	<p>Science teachers at Greenfield School teach their classes in different ways. At the beginning of the course the principal of the school asked professors to use interactive notebooks so it is a new method that</p>

	<p>also with material found in internet.</p> <p>3. With a textbook, interactive notebook, manipulatives, and some experiments.</p>	<p>every teacher is using now. It is necessary that educators use different strategies in class so students can understand better the topics.</p>
<p>2. Which learning method do you use in your Science class?</p>	<p>1. Visual and audiolingual. Kinesthetic sometimes.</p> <p>2. I like students to build their own knowledge.</p> <p>3. Interactive</p>	<p>Teachers should use different methods in their classes. A teacher that is well prepared will have more opportunities of gaining students' attention.</p>
<p>3. Do you take into account multiple intelligences of your students when planning? In which way?</p>	<p>1. Yes, by integrating different activities taking those intelligences (their intelligences' development) in count.</p>	<p>Every teacher answers that they take multiple intelligences into account when planning. This is essential because as teachers they have to respect the way of</p>

	<p>2. Yes, I try to plan according to the needs of each student.</p> <p>3. Yes, they have the chance to see, feel, listen and use their senses from time to time.</p>	<p>learning of each student and prepare different activities and material according to their needs.</p>
<p>4. Do you use a textbook in your class? Does it fulfill with MEP topics for the level?</p>	<p>1. Yes and no.</p> <p>2. Yes, I use a book. No, it does not fulfill the MEP topics.</p> <p>3. Yes, we have a book, however it doesn't cover the MEP topics since it's from other country.</p>	<p>The educators state that the book they are using does not fulfill with the MEP topics. For this reason, they have to take time looking for material in other books, magazines, internet and it takes a lot of time for them searching for the correspond material for each lesson.</p>
<p>5. Did you have to take your time to</p>	<p>1. Yes, for a lot of topics.</p>	<p>All the teachers answer that they have to look in</p>

<p>look for extra information on other science books, web pages or other sources because the data is not in the book but is part of MEP planning?</p>	<ol style="list-style-type: none"> 2. Yes, many of the MEP topics I had to look them up on the internet. 3. All the time. 	<p>other sources extra material to cover MEP planning. It is important that educators consider creating a book for each level with the topics they are going to teach along the school year.</p>
<p>6. Do you think having an interactive science book with all the topics requested by MEP for the level you teach would be useful and necessary?</p>	<ol style="list-style-type: none"> 1. Yes, and very helpful. 2. It would be very helpful for me, so I would save time planning. 3. Absolutely. 	<p>Professors agree that a book like this will be very helpful for them because it is appropriate for little kids and it contains the topics they really need to study.</p>
<p>7. What is your opinion about the Interactive Science Book for second graders?</p>	<ol style="list-style-type: none"> 1. It is very complete and a good tool. 2. Very easy to use, it makes the 	<p>Science teachers like the book and mention that is a great tool they can use in their classes. They have positive opinions</p>

	<p>students think and construct.</p> <p>3. It is very useful to have material that allow students to do different activities: cutting, pasting, filling...</p>	<p>about the book in general.</p>
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The Science teachers survey helps the researcher realize how teachers at Greenfield School teach science classes and in this way, make a proposal for all of them using an Interactive Science Book. Teachers have the opportunity to see the book and they have good opinions of it. All teachers agree that it is necessary a tool like this with MEP topics because it would be easier to give classes having the tool that they will need along the scholar year.

4.6. Table 4. Anecdotal Record (See annex 4)

The following tables are about the observations made with the instrument Anecdotal Record. The researcher did six observations to second graders in different days with diverse activities from the book and below it is explained how students work with them.

Table 1.

Topic: Animal Habitats
Book page: 29
Time: 8:00 am to 9:20 am
Observations: Students color each animal habitat, cut and paste them in their Science notebooks. Students should write four animals that live in each habitat. The students feel motivated while doing the activities of Animal Habitats. They feel more identified with the environments when they saw the drawings and have to color them as they prefer. Students learned the topic and at the end of the activity they mentioned which animals live in each habitat.

Table 2.

Topic: States of Matter
Book page: 38
Time: 9:40 to 11:00 am
Observations: Students have to draw the molecules inside each container of solid, liquid and gases. Then, students have to complete a chart explaining how particles move, how do they arrange, describe the shape and give examples of each state of matter.

Students really enjoy doing activity from page 38. Students have fun drawing the molecules and they understand better how particles move in solids, liquids and gases.

Students complete the chart and glue it in the notebook. They confirmed that was easier to learn the information using the chart than read a text.

Table 3.

Topic: Energy and Matter
Book page: 33
Time: 9:40-11:00 am
Observations: Students cut and paste the definition of energy and electricity on their notebook. They decorate the definition as they prefer and manage the concepts very well. The teacher and students discuss about energy and appliances that require electricity. Students learn while doing the activity.

Table 4.

Topic: Types of energy (Potential and kinetic)
Book page: 34
Time: 9:40-11:00 am
Observations: Students work on page 34 with types of energy. They could differentiate potential and kinetic energy. Also, with this activity some kids make a booklet. Students write two examples of each type of energy potential and kinetic. They expressed that doing those activities is a creative way in which they can remember both concepts.

Table 5.

Topic: Simple Machines
Book page: 40
Time: 8:00 am to 9:40 am
Observations: Students work on page 40 studying simple machines, each student have to name one simple machine and wrote examples in the lines. They enjoy the activity and learn in an entertaining way.

Table 6.

Topic: Compound Machines
Book page: 41-42
Time: 9:40am to 11:00 am
Observations: Students comprehend the concept of compound machines. They really enjoy looking for pictures of compound machines and write their functions. They explained what they found in front of the class. On page 42, students play with a game "Puzzle" they were very happy to share, play everyone together and learn doing those kinds of activities.

4.7 Conclusion of the anecdotal records

As a conclusion, students of second grade love all the activities from the Science Interactive Book. Students participated and built knowledge doing all the exercises. They expressed that the Interactive Book is better than the textbook they have to use. Indeed, students mentioned that learning with the book was fun and easy for them to remember the concepts because they can interact with their classmates, share opinions and make their notebooks more personal. Also, they

mentioned that when they had to study for the exams it was easy for them as they remember what they created along in the course.

The Interactive Science book has a good impact on students. They like the activities and wanted to continue using it for the rest of the year. Students with multiple intelligences use the book and it helped learners to get involved in the class doing different activities the book presents. Also, the educator implements strategies using the book that help each child consider his or her learning preferences.

4.8 Personal Experience Evaluation (See annex 3)

The personal experience evaluation instrument was a tool to collect data in which students wrote down what they think about the Science Interactive Book. All of the students that completed the instrument considered that the book is interesting, beautiful and amazing. They indicated that the book helped them a lot and learned the topics when they had to create their personal notebooks.

Second graders learned using the book and the topics of the MEP were include in the book and in each class. Students participate in the activities and the kids that do not like science mentioned that using the book improve Science classes and it is a way in which they can remember things while doing.

To summarize, the book fascinates students and the objectives were reached by using the book. The classes were taught with the constructivism method and other approaches were included. Science classes improved because students feel motivated and liked the classes more than before.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

1. This research was done seeing the necessity at Greenfield School to have a method of teaching that caught students' attention and to acquire knowledge in an entertaining way. At the beginning teachers had problems looking for the correct information so, it takes time for them since they must plan according to MEP planning and those are in Spanish language, so they had to translate the planning and look in different sources the information they require according to the level of each student.

One of the subjects taught in English is Science. This subject is complex for some students because they have to remember lots of concepts and some students dislike the subject.

2. A necessity in Science field was seen, so the researcher conducts this investigation implementing an Interactive Science Book for second graders. It includes the topics the MEP is asking public and private institutions to teach. This book age appropriate.
3. The professor in Science classes will use the Interactive Science Book as a tool and adding other strategies that develop students' knowledge in Science field.
4. Students work with the book and they really enjoyed working on it. They expressed that the activities were very nice, and they can put in practice prior knowledge and make the activities with their creativity.

5. Science teachers and the principal at Greenfield School were impressed with the book. They provided good comments about the Interactive Book and teachers mention that a tool like it would be very useful for all grades.

In conclusion, students, teachers, and the principal of the school were interested on the Interactive Science Book. They gave positive opinions about the book. Students learned a lot with the pages they could work in class, they loved the activities, they designed their Science notebooks as they wished and had fun cutting and making hand-crafts.

On the other hand, teachers expressed that the book is a great tool to work with kids. Besides, the book presents MEP topics, so this is very helpful for educators since they save time looking for activities in other sources. In the same way, the principal of the school mentions that the book has a good presentation and it will work very well with second graders as it is appropriate for them and the topics are presented in a way that caught students' attention.

In summary, to create the book was an excellent idea in which students, teacher, the staff and the institution in general will benefit having this necessary resource.

5.2 Recommendations

This research was very helpful because it shows how the Interactive Science Book worked well with second graders. For this reason, some main recommendations for teachers, institution and MEP are the following:

- ✓ Teachers: It is important that teachers use an approach to teach in their classes, and in this way, prepare different activities that work well with multiple intelligences teachers can find in classes. Indeed, educators should worry to have the proper material to teach their classes according to students' level. Also, all the teachers should use interactive notebooks in their classes because it is demonstrated that students really learn and understand the topics when they built their knowledge.
- ✓ Institution: A recommendation for the institution will be to implement Science Interactive Books for each level from first graders to sixth graders. In this way, if the institution already has the books for each level with MEP planning, teachers would save time looking for information, the objectives that MEP states will be cover by using the books and other resources as well.
- ✓ MEP: A recommendation for MEP is to have programs in English too, because if private institutions must use their programs, it is important that they take into account that most of the private institutions are bilingual so it would facilitate that teachers look for extra information in different sources and at the same

time translate all the topics, objectives and mediation strategies. Another recommendation for MEP, is that they should offer training for teachers in new advances of teaching, for example interactive notebooks, technology and so on, as well give training in the foreign language in this case English because most educators are asked to teach subjects like math, science and social studies in English language and sometimes teachers need that help from professionals in the field.

CHAPTER VI
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ANNEXES

INSTRUMENTS

6.1. Annex 1. Student's Questionnaire 1 (Book Evaluation Rubric)

Book Evaluation Rubric			
Student Name: _____			
	YES	NO	SOMETIMES
1. Do you like science?			
2. Do you like the book?			
3. Is the Science Interactive Book interesting for you?			
4. Does the book have a good presentation?			
5. Do the activities help you to understand better the topics?			
6. Do you learn something new with the Interactive Science Book?			
7. Do you prefer to use the Science Interactive Notebook instead of the textbook?			
8. Do you understand the instructions of the book?			
9. Do you think science classes improve by using the book?			
10. Is it fun to learn with this book?			

6.2 Annex 2. Student's Questionnaire

STUDENTS QUESTIONNAIRE

Gender: male

female

How old are you? _____

1. Do you like science classes? Yes or No? Explain Why.

2. What do you think about the Interactive Science Book?

3. Which is your perspective before and after using the Interactive Science Book?

4. What things do you add or subtract from the book?

5. Do you enjoy science classes with the book? Why?

6.5 Annex 5. Principal's Interview

INTERVIEW



Principal's name:

1. Do you think the Interactive Science Book fulfills with the MEP topics for second grade students?

2. Are the directions for each activity clear?

3. Are the contents of the book according to the learner's level?

4. Would you like to use the Interactive Science Book instead of the textbook?

5. What do you think about this new method of teaching?

6. Is the book complete? Or do you add something else?

7. Do you think second grade student will reach the objectives requested by MEP by using the book?

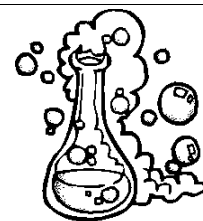
8. Would you recommend teach your classes using a book like this? Why?

9. Do you believe that students construct their own learning using this book as a guide to create their interactive notebooks?

10. Is the book design attractive for kids?

6.6 Annex 6. Teacher's Survey

SCIENCE TEACHERS SURVEY



1. How do you teach your science classes?

2. Which learning method do you use in your science class?

3. Do you take into account multiple intelligences of your students when planning? In which way?

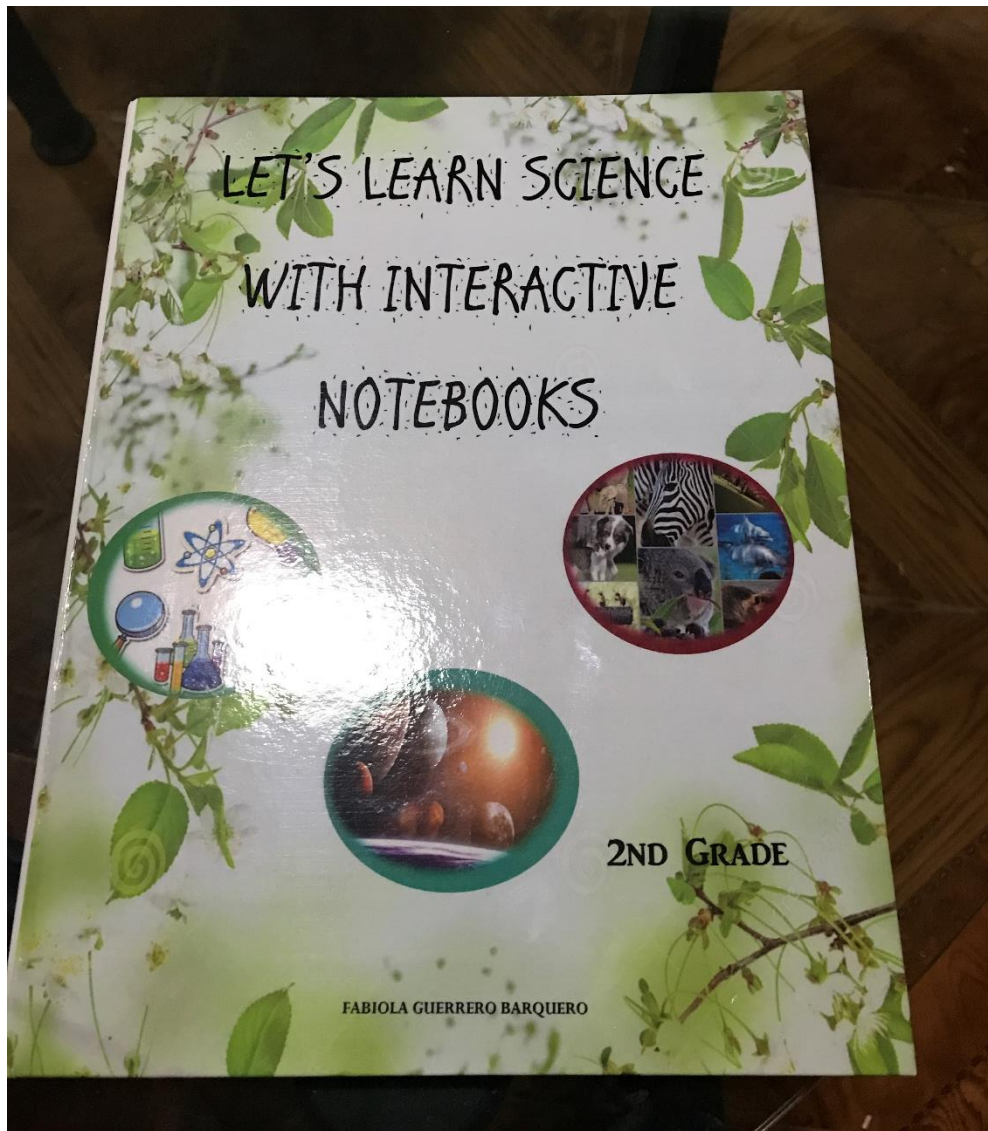
4. Do you use a textbook in your class? Does it fulfill with MEP topics for the level?

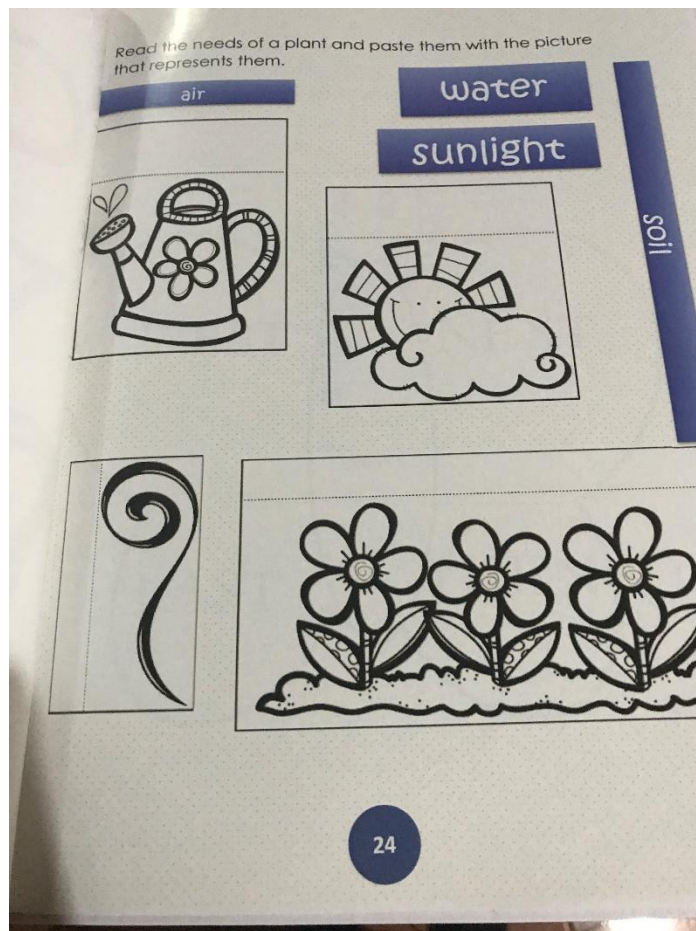
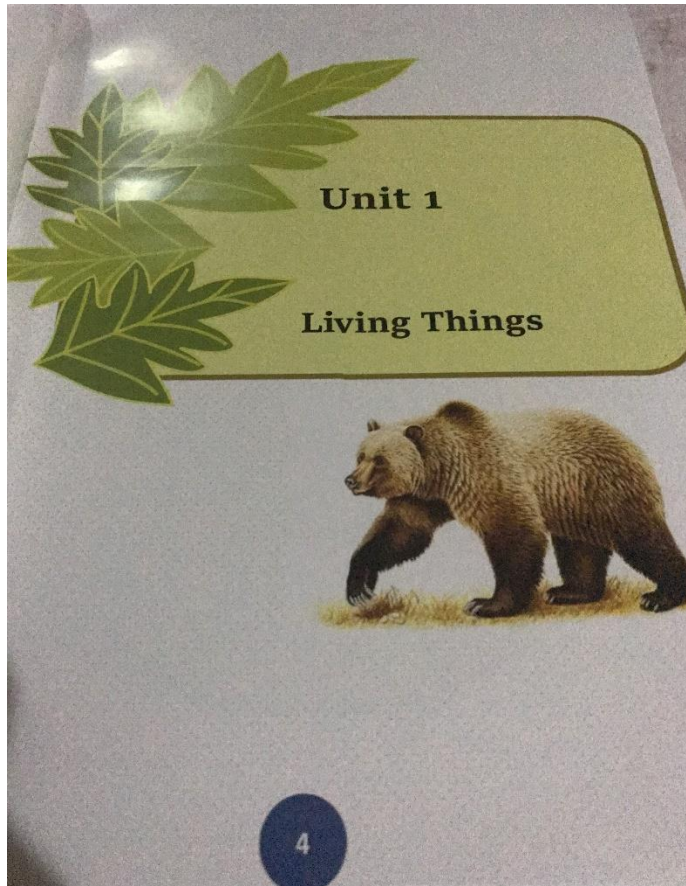
5. Did you have to take your time to look for extra information on other science books, web pages or another sources because the data is not in the book but is part of MEP planning?

6. Do you think having an interactive science book with all the topics requested by MEP for the level you teach would be useful and necessary?

7. What is your opinion about the Interactive Science Book for second graders?

6.7. Annex 7. Science Interactive Book







3.2 Seasons of the Year

Color the seasons of the year and glue them in card boards to make flashcards. Make drawings in a paper of your favorite season and make a short speech about it.


SPRING




SUMMER



Winter




AUTUMN



49

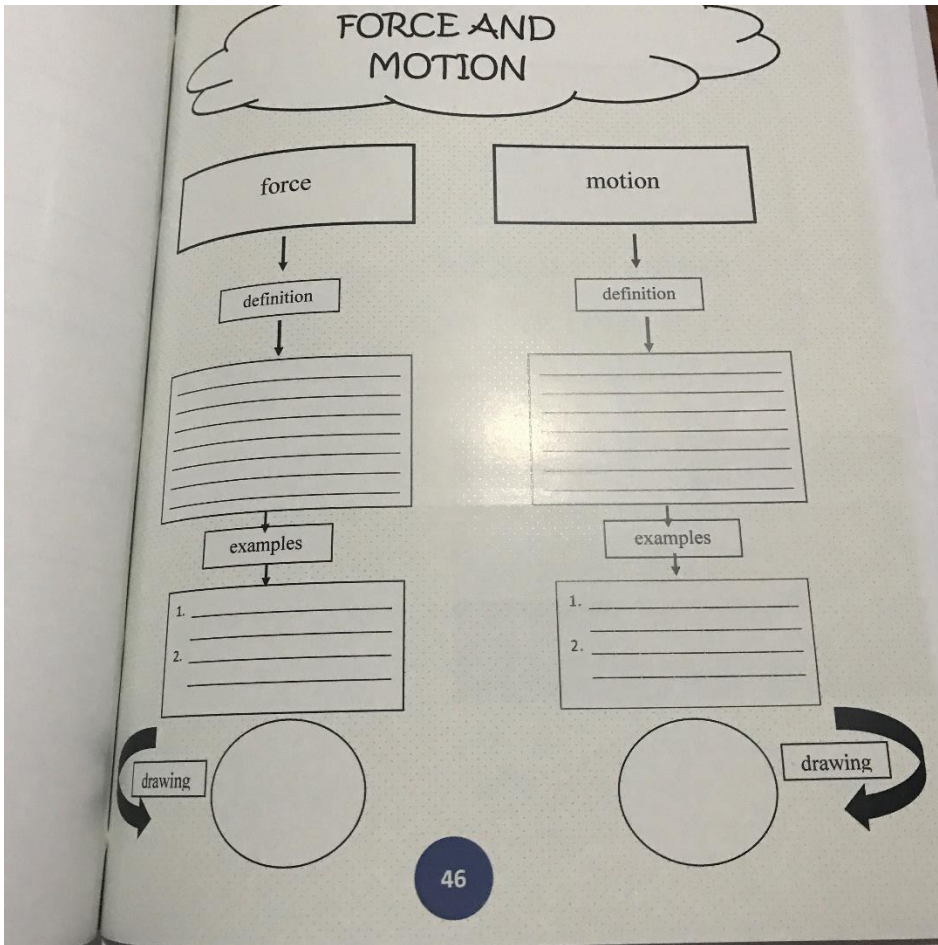
2.3.1 Simple Machines

Simple Machines

List two examples of each type of simple machine 

Pulley	1. _____ 2. _____
Wedge	1. _____ 2. _____
Wheel and Axle	1. _____ 2. _____
Inclined Plane	1. _____ 2. _____
Lever	1. _____ 2. _____


40



1. What time of day are these words?


sunset

sunrise



The Sun is coming up.

It is _____.



The Sun is going down.

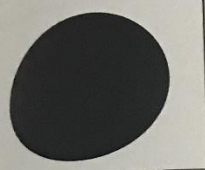

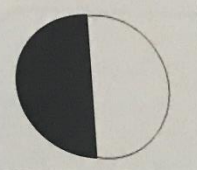

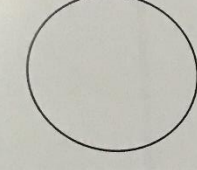
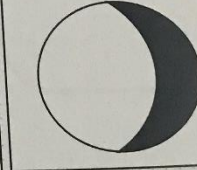
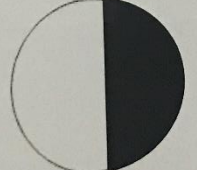
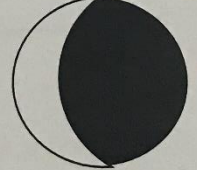
It is _____.

2. Complete the sentence

The Sun gives us _____ and _____.

52

moon phase cards

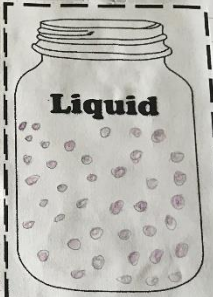
New Moon 	Waxing Crescent 	First Quarter 
Waxing Gibbous 	Full Moon 	Waning Gibbous 
Last Quarter 	Waning Crescent 	

6.8. Annex 8. Activities from the science interactive book applied in science classes




Sunday, June 23, 2017

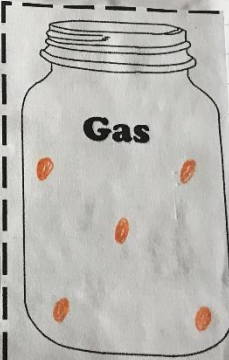
Characteristic	Solid	Liquid	Gas
How particles move?	Ordered arrangement. Molecules in contact.	semi disorder. Molecules in contact.	complete disorder. Molecules in not contact.
How particles are arranged?	particles are not separated	move up & around each other.	move quickly in all direction.
Has definite shape	Definite	Indefinite	Indefinite
Examples	wood	coffee	gas pump



Liquid



Solid



Gas

good! ♥

Monday, June 25th, 2017.

Energy: Can cause change or do work.

Electricity: is a kind of energy.

Thursday, August 10th, 2017

Simple Machines


List two examples of each type of simple machine

Pulley	1. Skimmer 2. Varn
Wedge	1. Fork 2. Knife
Wheel and Axle	1. Wheel 2. Bicycle
Inclined Plane	1. Ramp 2. Parking ramp
Lever	1. Scissors 2. Tongs

Thursday, August 10th 2017

Simple Machines

List two examples of each type of simple machine




Pulley	1. <u>crane</u> 2. <u>elevator</u>
Wedge	1. <u>teeth</u> 2. <u>knife</u>
Wheel and Axle	1. <u>toy wagon</u> 2. <u>bicycle</u>
Inclined Plane	1. <u>slide</u> 2. <u>parking ramp</u>
Lever	1. <u>shovel</u> 2. <u>tongs</u>

My blog
Very Good

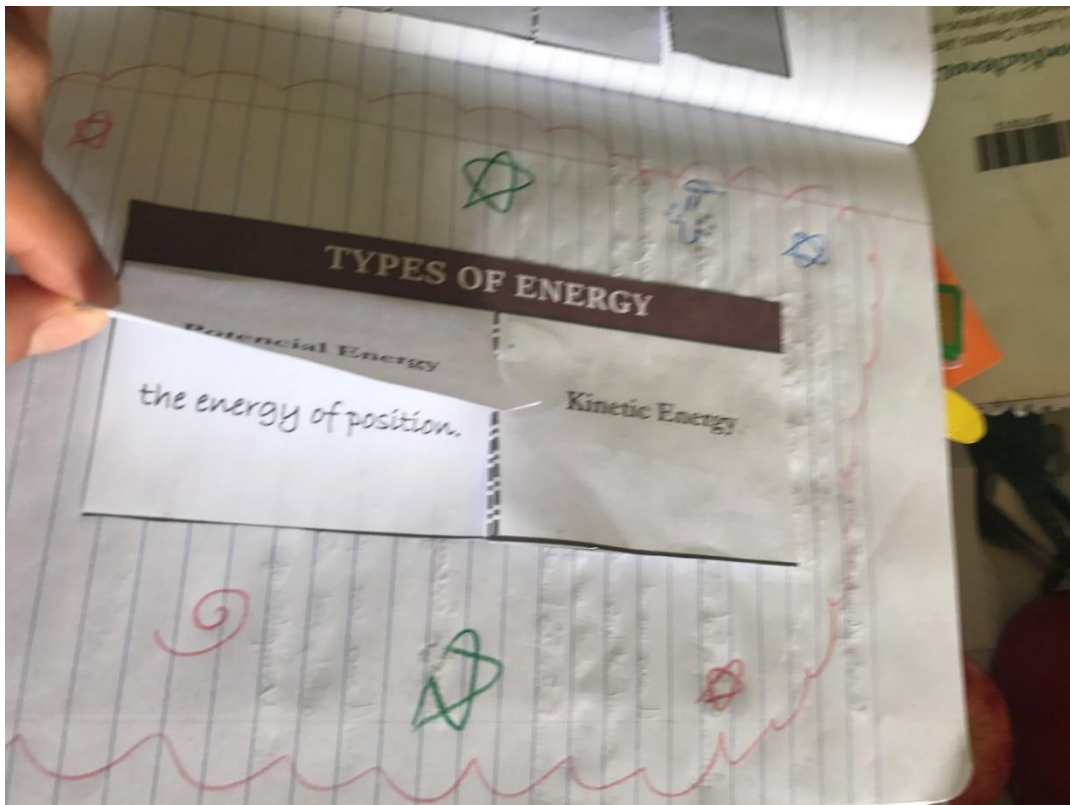
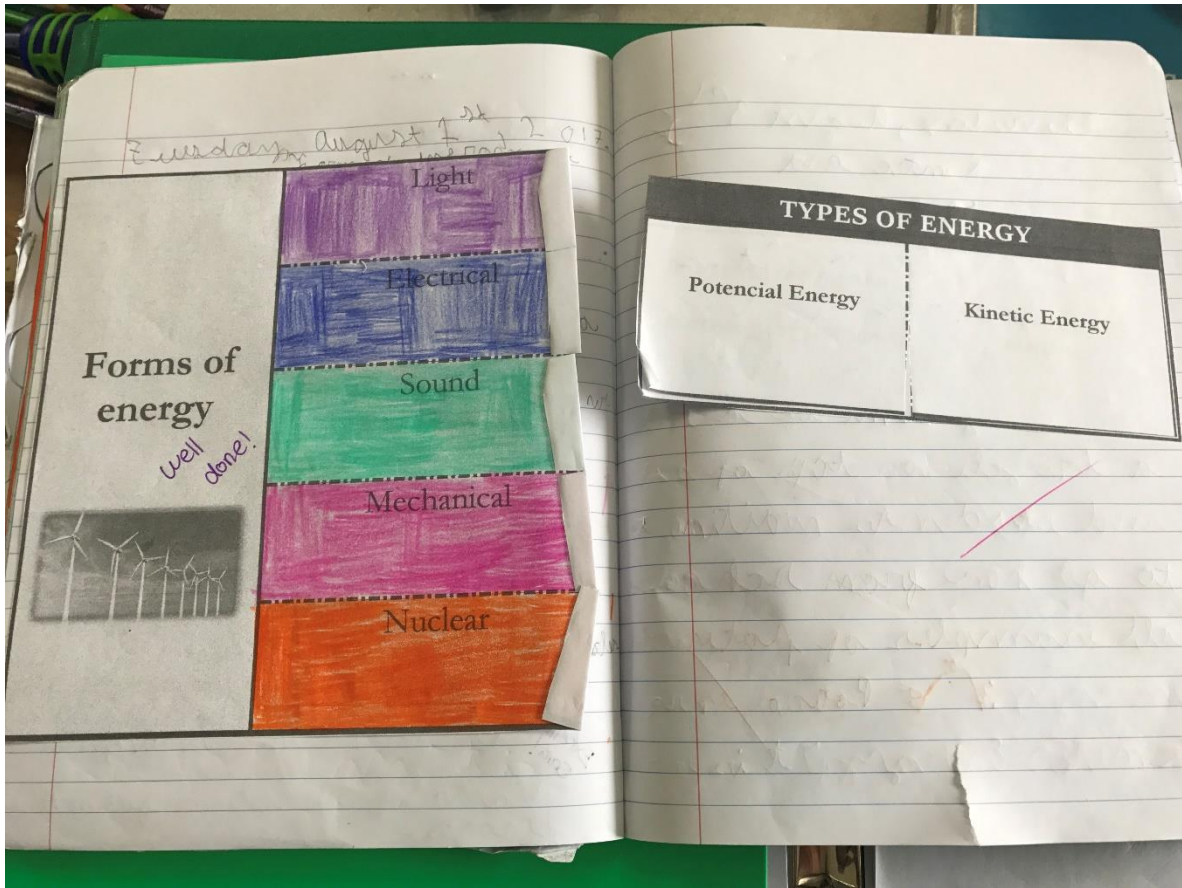
Thursday, August 10th 2017

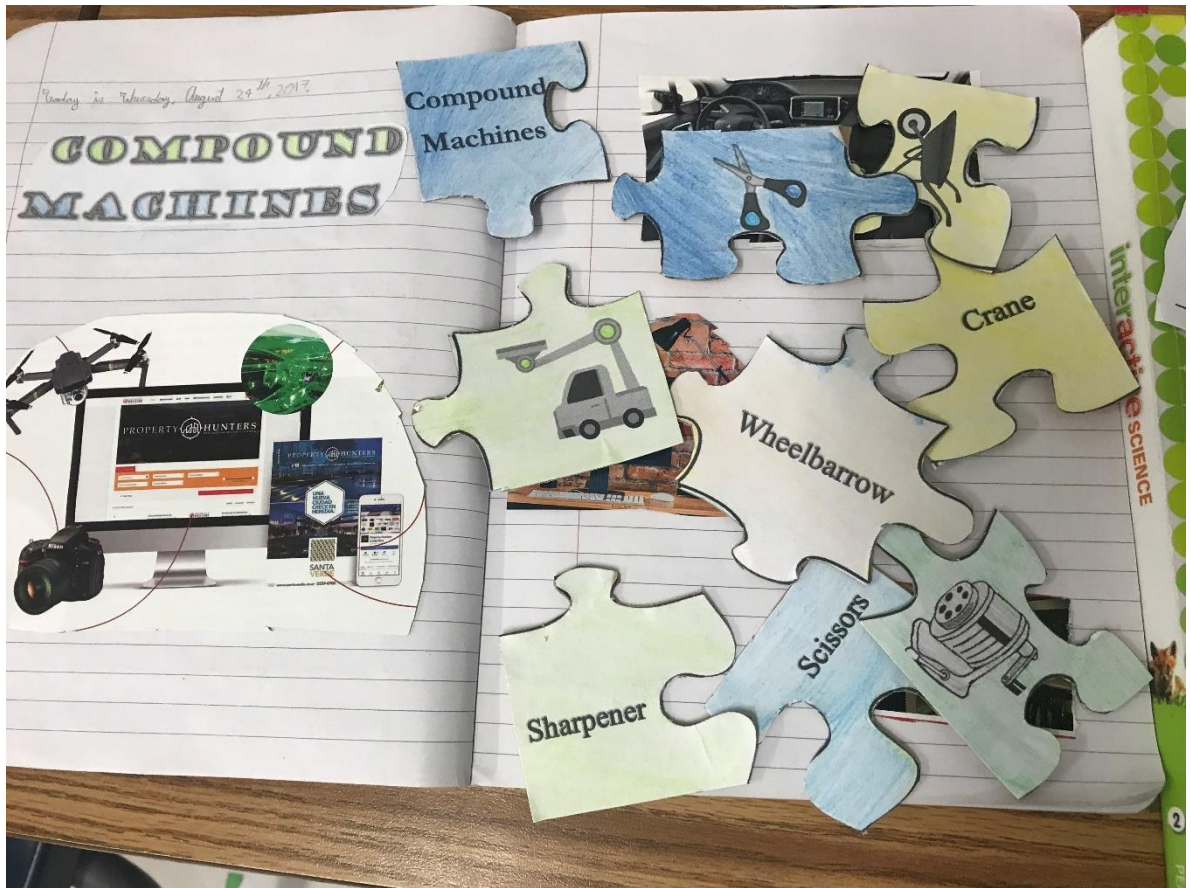
Types of Energy

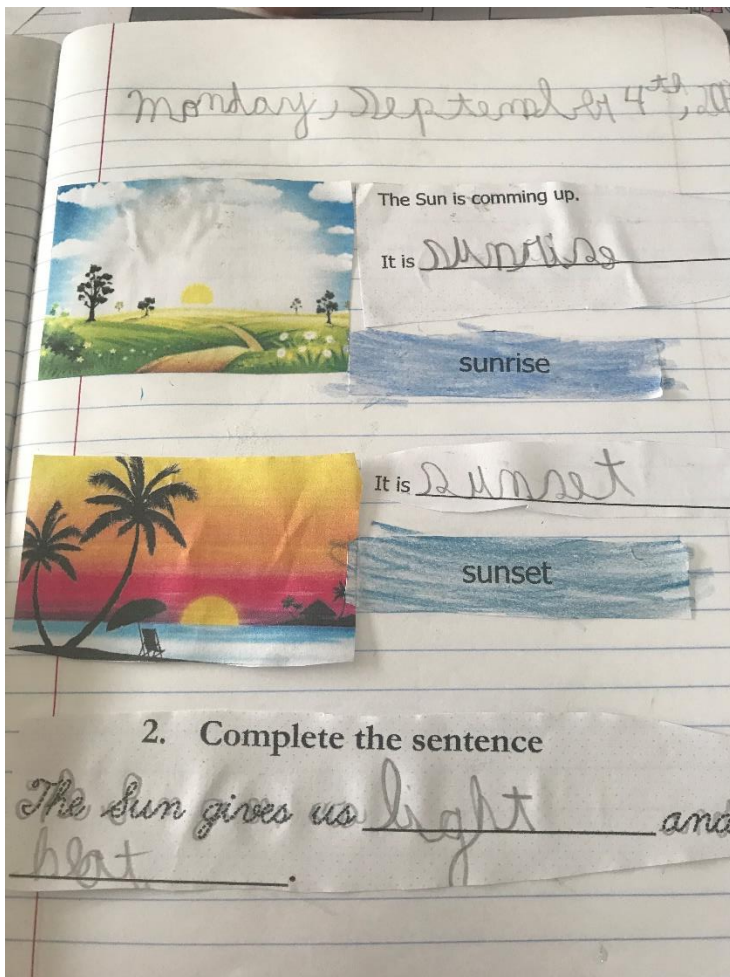
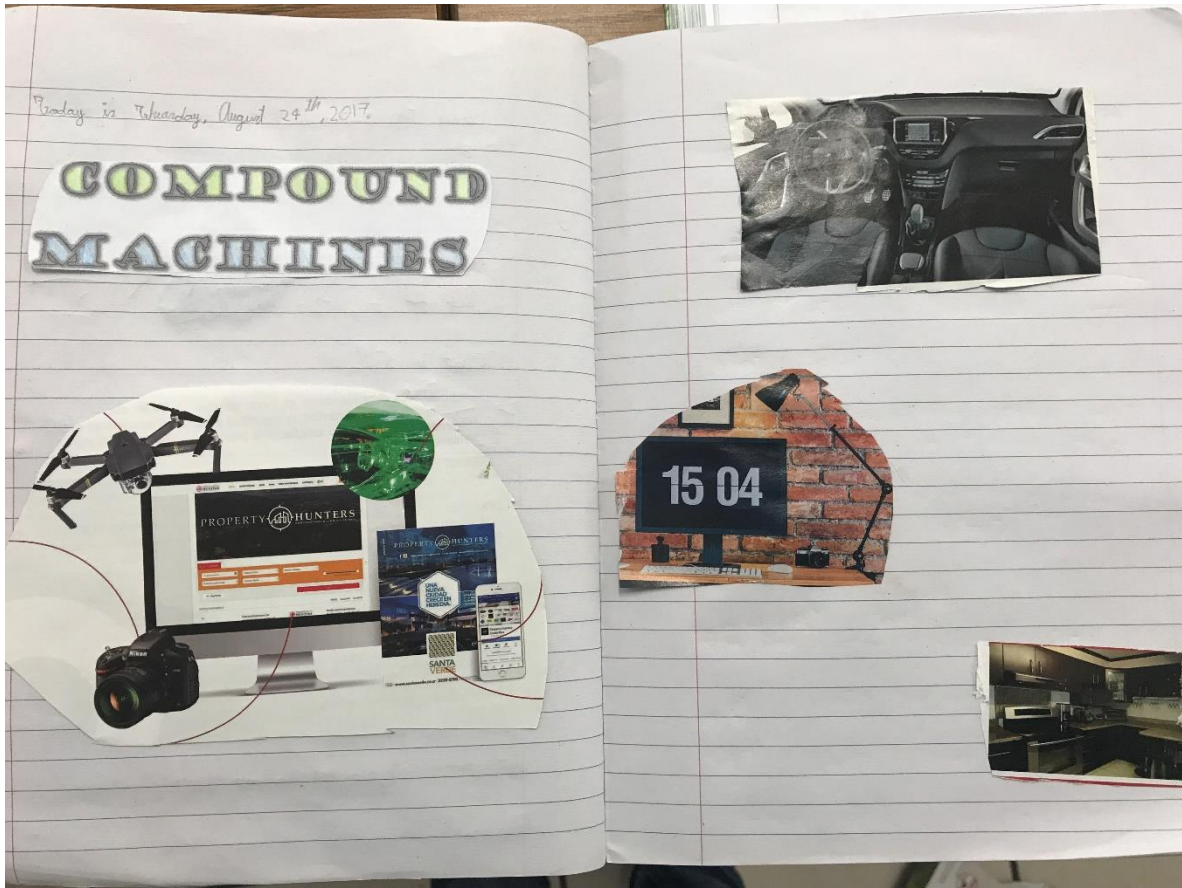
Forms of energy	Light
	Electrical
	Sound
	Mechanical
	Nuclear



TYPES OF ENERGY	Kinetic Energy
	Potential Energy










Thursday, May 18th, 2017.

Habitats

1. Ocean 


2. Desert 


3. Rain Forest 

4. Desert 

5. Wet land



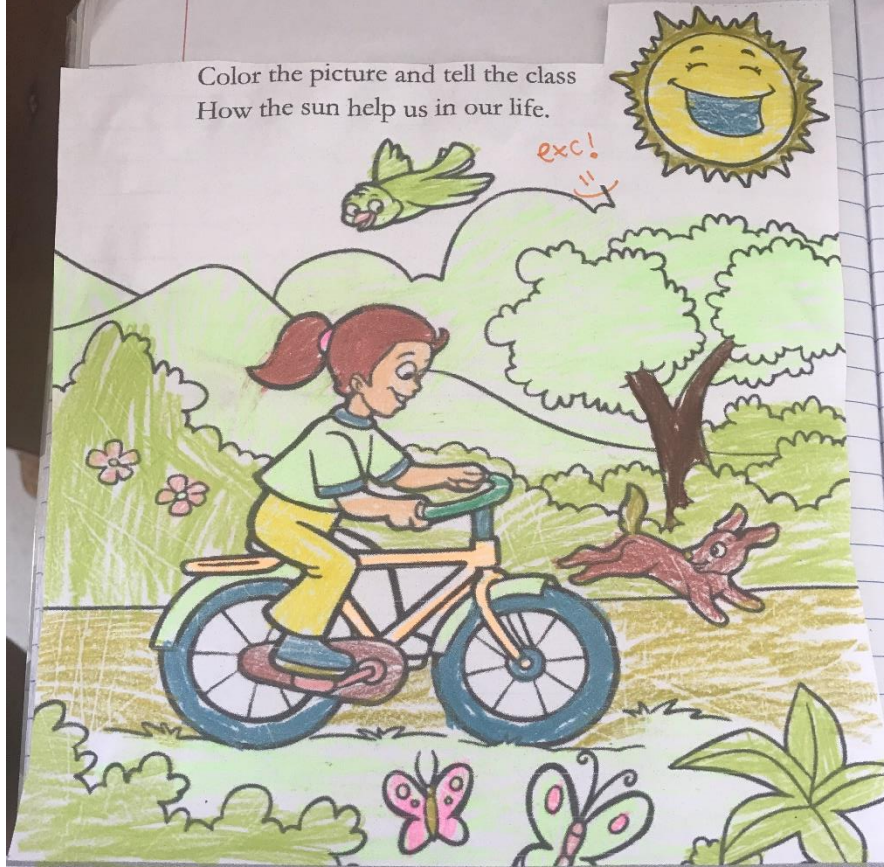
6. farm 

7. jungle 

good!
😊

Match the Animal to its Habitat

Color the picture and tell the class
How the sun help us in our life.



We live on Earth planet. The Sun is a very big Star. It gives light and heat to the Earth. All living things need the Sun.

6.9 Annex 9. Institution where the book was applied.

