PONTIFICIA UNIVERSIDAD CATÓLICA DEL ECUADOR
FACULTAD DE COMUNICACIÓN, LINGÜÍSTICA Y LITERATURA
ESCUELA DE LINGÜÍSTICA
MAGISTER EN ENSEÑANZA EN INGLÉS

MASTER'S DEGREE IN TEACHING ENGLISH
THESIS

"ANALYSIS OF THE PRIMARY SCIENCE CURRICULUM IN A SCHOOL IN QUITO: IMPLEMENTATION AND ALTERNATIVES"

GABRIELA UNDA GARCÍA

QUITO, APRIL 2014

INDEX

ACKNOWLEDGEMENTS…….……...……vii
ABSTRACT …….……. viii
INTRODUCTION ……...….ix
JUSTIFICATION ……..……...……... x
BACKGROUND INFORMATION …….....xii
OBJECTIVES…….…… xv
PROBLEM DEFINITION ……..... xv

1 **CHAPTER ONE: THEORETICAL AND CONCEPTUAL FRAMEWORK** …..1

1.1 BASIS CONCEPTS - DEFINITIONS ……. 1

1.2 TEACHING MATERIALS……..…….3

1.2.1 THE ROLE OF TEACHING MATERIALS …… 5

1.2.2 TEXTBOOK ANALISIS ……..… 7

1.3 APPROACHES RELEVANT TO SCIENCE TEACHING IN A FOREIGN LANGUAGE ……...……..……. 9

1.3.1 LEARNER- CENTERED INSTRUCTION ……..……..…… 9

1.3.2 COOPERATIVE AND COLLABORATIVE LEARNING …….…..…….. 9

1.3.3 INTERACTIVE LEARNING ……...……...…….. 10

1.3.4 WHOLE LANGUAGE EDUCATION……..…...…….. 10

1.3.5 TASK- BASED INSTRUCTION……...…...….. 11

1.4 ALTERNATIVE METHODS TO CONTENT TEACHING ……. 11

1.4.1 CONTENT- BASED INSTRUCTION (CBI) ……...……. 12

1.4.2 THE SHELTERED MODEL ……...…….…. 12

1.4.3 THE ADJUNCT MODEL ……...…..……. 13

1.4.4 THE THEME BASED MODEL ……...……. 13

1.4.5 CONTENT AND LANGUAGE INTEGRATED LEARNING THEORY (CLIL) ……...…..... 13

1.4.6 COGNITIVE ACADEMIC LEARNING APPROACH (CALLA)…….14

1.5 SECOND LANGUAGE ACQUISITION (SLA)…..... 15

1.5.1 UNIVERSAL GRAMMAR …..... 15
1.5.2 INTERLANGUAGE …..... 16
1.6 CHILDREN'S COGNITIVE DEVELOPMENT …….. 16
1.6.1 JEAN PIAGET: STAGES OF DEVELOPMENT IN CHILDREN ……..… 16
1.6.2 LEV VYGOTSKY……..……. 18

2 **CHAPTER TWO: METHODOLOGY** …….……...….. 19
2.1 UNIVERSE AND SAMPLE ……...….. 19
2.2 METHODOLOGICAL DESIGN……...……. 20
2.3 RESEARCH TECHNIQUES AND PROCEDURES ……...……. 21

3 **CHAPTER THREE: RESULTS ANALYSIS**……...….…. 22
3.1 ANALYSIS OF THE QUESTIONNAIRES BY GRADE ……. 22
3.1.1 SECOND GRADE ……...…. 22
3.1.2 THIRD GRADE ……...…….. 23
3.1.3 FOURTH GRADE ……...……24
3.1.4 FIFTH GRADE …….……. 25
3.1.5 SIXTH GRADE ……..…….27
3.1.6 SEVENTH GRADE …….…….. 28
3.2 DESCRIPTION AND ANALYSIS OF THE STUDENT BOOK AND THE SUPPORTING MATERIAL FOUND IN THE TEACHER'S GUIDE……. 30
3.2.1 CONTENT DISCREPANCIES ……...……30
3.2.1.1 SCIENCE 1 - WORKSHEET 1 – SUPPORTING MATERIAL …….30
3.2.1.2 SCIENCE 2 - ASSESSMENT 1 – SUPPORTING MATERIAL …... 31
3.2.1.3 SCIENCE 3 - ASSESSMENT 1 – SUPPORTING MATERIAL…..... 33
3.2.1.4 SCIENCE 3 - ASSESSMENT 7 – SUPPORTING MATERIAL…..... 34
3.2.1.5 SCIENCE 4 - ASSESSMENT 5 – SUPPORTING MATERIAL…..... 35
3.2.1.6 SCIENCE 6 - ASSESSMENT 1 – SUPPORTING MATERIAL…..... 36

3.2.2 QUANTITY DISCREPANCIES
3.2.2.1 SCIENCE 3 - ASSESSMENT 8 – SUPPORTING MATERIAL..….. 38
3.2.2.2 SCIENCE 4 - ASSESSMENT 3 – SUPPORTING MATERIAL...…. 39
3.2.2.3 SCIENCE 5 - ASSESSMENT 4 – SUPPORT MATERIAL…...…… 39
3.2.2.4 SCIENCE 5 - ASSESSMENT 5 – SUPPORTING MATERIAL…… 40
3.2.2.5 SCIENCE 6 - ASSESSMENT 2 – SUPPORTING MATERIAL…… 41

3.2.3 CULTURAL DISCREPANCIES ……...….42
3.2.3.1 SCIENCE 1 - UNIT 2 – TEXTBOOK PG. 19 ...…….....43
3.2.3.2 SCIENCE 1 - ASSESSMENT 1 – SUPPORTING MATERIAL…..... 43
3.2.3.3 SCIENCE 3 - UNIT 4 – TEXTBOOK PG. 65…...…….…… 45

3.2.4 OTHER……...……. 46
3.2.4.1 SCIENCE 1 - ASSESSMENT 1 – SUPPORTING MATERIAL…..…46

3.3 ANALYSIS OF THE TEACHER'S QUESTIONNAIRE …….....….47
3.4 ANALYSIS OF THE STUDENT QUESTIONNAIRE…….....… 48

CONCLUSIONS ……..……. 49
RECOMMENDATIONS……...……. 50

ANNEX # 1: TEACHER'S QUESTIONNAIRE ……..…. 51
ANNEX # 2: GRAPHS AND TABLES -TEACHER'S QUESTIONNAIRE…… 52
ANNEX # 3: STUDENTS' QUESTIONNAIRE …….…….. 54
ANNEX # 4: GRAPHS AND TABLES - STUDENTS' QUESTIONNAIRE ……..… 55
ANNEX # 5: EXAMS RESULTS .....……...…… 56

SUPPORTING MATERIAL TAKEN FROM THE SCIENCE BOOKS COLLECTION BY RICHMOND …….……...…….. 58
CONTENT DISCREPANCIES
Figure 1: SCIENCE 1 - WORKSHEET 1 – SUPPORTING MATERIAL……...……. 59
Figure 2: SCIENCE 2 - ASSESSMENT 1 – SUPPORTING MATERIAL……...…… 60

Figure 3: SCIENCE 3 - ASSESSMENT 1 – SUPPORTING MATERIAL…….....……. 61
Figure 4: SCIENCE 3 - ASSESSMENT 7 – SUPPORTING MATERIAL……...…… 62
Figure 5: SCIENCE 4 - ASSESSMENT 5 – SUPPORTING MATERIAL……...…… 63
Figure 6: SCIENCE 6 - ASSESSMENT 1 – SUPPORTING MATERIAL……...…… 64

QUANTITY DISCREPANCIES
Figure 7: SCIENCE 3 - ASSESSMENT 8 – SUPPORTING MATERIAL……...…… 65
Figure 8: SCIENCE 4 - ASSESSMENT 3 – SUPPORTING MATERIAL……...….…66
Figure 9: SCIENCE 5 - ASSESSMENT 4 – SUPPORT MATERIAL……... 67
Figure 10: SCIENCE 5 - ASSESSMENT 5 – SUPPORTING MATERIAL ……...……. 68
Figure 11: SCIENCE 6 - ASSESSMENT 2 – SUPPORTING MATERIAL……...…….…. 69

CULTURAL DISCREPANCIES
Figure 12: SCIENCE 1 - WORKSHEET 2 – SUPPORTING MATERIAL……...…….….. 70

OTHER
Figure 13: SCIENCE 1 - ASSESSMENT 1 – SUPPORTING MATERIAL……...……..… 71

SUPPORTING MATERIAL TAILOR-MADE BY THE AUTHOR OF THIS THESIS
…….……...……...……... 72
Figure 14: WORKSHEET 1 – SECOND GRADE ……...…..……... 73
Figure 15: ASSESSMENT 1 – THIRD GRADE ……...……...…..74
Figure 16: ASSESSMENT 1 – FOURTH GRADE ……...……..... 75
Figure 17: ASSESSMENT 7 – FOURTH GRADE ……...…… 78
Figure 18: ASSESSMENT 5 – FIFTH GRADE……...…….. 80
Figure 19: ASSESSMENT 1 – SEVENTH GRADE …….……..… 82

QUANTITY DISCREPANCIES
Figure 20: ASSESSMENT 8 – FOURTH GRADE…….84
Figure 21: ASSESSMENT 3 – FIFTH GRADE ……...……. 87
Figure 22: ASSESSMENT 4 – SIXTH GRADE ……...…90
Figure 23: ASSESSMENT 5 – SIXTH GRADE……...……..92
Figure 24: ASSESSMENT 2 (A) – SEVENTH GRADE ……...…...… 94

Figure 25: ASSESSMENT 2 (B) – SEVENTH GRADE ……..……... 96

CULTURAL DISCREPANCIES

Figure 26: WORKSHEET 2 – SECOND GRADE……...…….. 98

OTHER

Figure 27: ASSESSMENT 1 – SECOND GRADE ……...…… 99

BIBLIOGRAPHY ……....…… 101

WEBBLIOGRAPHY ……...……..... 103

ACKNOWLEDGEMENTS

To my parents

ABSTRACT

The purpose of this thesis is to analyze and edit a science book so that it fits the reality of the students using it in the classroom. The analysis shows that teaching material does not always coincide with the objectives of specific students and cultures. The thesis also seeks to demonstrate to teachers that teaching materials should be used carefully because they may need to be adapted in order to work successfully. The science book will be considered as a case study because it is an example of how teaching material fails to match the needs of students and teachers. It is hoped that this thesis will provide an alternative to teachers using the same book in their science classes in Ecuador.

INTRODUCTION

Concerned with the changing world whose lingua franca is English, educators are continuously improving their teaching approaches and methods in order to effectively give tools to students learning this language. Because of this, teaching different subjects using English as a means of instruction has increased; alongside this, the need for specialized textbooks. Textbooks that will reinforce English knowledge, as well as teach the subject itself. However, even if there are textbooks on the market, they are not always appropriate to every group of students. In fact, teachers must analyze them and be able to make the necessary changes so as to fit their contents to the different realities of the learners.

This dissertation is divided into three chapters: the first one is the theoretical and conceptual framework which will describe basic definition used throughout this thesis; what teaching materials are, their types and roles in a language class. Also, there will be a description on how to analyze textbooks. It will also include a summary of different approaches and methods such as CBI (Content-Based Instruction), CALLA (Cognitive Academic Language Learning) and CLIL (Content and Language Integrated Learning) used nowadays in many schools to teach content subjects. These approaches support the idea of teaching a different subject other than English in this language so as to reinforce learning of the language. This chapter also illustrates the objectives and aims of these approaches. In this chapter, the theories of children's cognitive development will be included. Especially the ones form the psychologists Jean Piaget and Lev Vygotsky

The second chapter will include the methodology used to perform the research for this thesis. Surveys to teachers using the book to know the problems they have had when using it will be included. Moreover, there will be a description of what a case study is and it will include a description of this specific case study.

The third chapter will present the result analysis of the quizzes and worksheets included in the teacher's guide. It also examines these support material flaws, as well the lack of agreement with the level of the materials used with the level of English that the students of this school hold. Moreover, alternative quizzes and worksheets are presented, developed

specifically by the author, which have been tailor made to fit the reality of the girls that are studying science with this workbook.

Finally, conclusions and recommendations are incorporated.

JUSTIFICATION

In order to be able to correctly carry out this dissertation analysis, it is important to set forth some background information about the school.

The location of the school is in the northern part of the city of Quito. The school is an all-girls school and all teachers are female. Most of the teachers are academically well-prepared, and belong to a middle – high socio-economic level, which in a certain sense provides a better environment for the students, not only regarding the treatment the students receive from their teachers, but also regarding the quality of the English they are taught. Since all the girls' families have the possibility to send their daughters to universities abroad, it is precisely their English level that is one of the most appreciated qualities this school offers.

Knowing this, the school decided about 15 years ago to introduce other subjects other than LB "Lengua B" (English taught as a foreign language), ("Lengua A" of course being Spanish) to its curriculum. The first subject chosen was "Health", taught first in the two higher grades of primary school. Later on, in order to complement LB in middle and high school, Geography was introduced as the second subject taught in the English language, and later Science was added as a third subject. Both are still part of the middle and high-school curriculum, with two and three hours per week assigned to the subjects respectively.

Since this was a positive experience both in primary and in middle and high-school, the school board decided to introduce this subject Science in English for the primary section, also. However, this third subject was not introduced in middle and high-school, since the school adopted the International Baccalaureate program, leaving no time for such subjects.

Both Geography and Science are still part of the school curriculum for Basic[1] 8th, 9th and 10th grades. For diversified[2] 1st, 2nd and 3rd grades, it was impossible to continue including such support subjects to support the learning of English for the reasons previously mentioned, since high demands for the IB program did not allow time to do so.

For both subjects, Geography and Health, the school purchased hard-cover books that were rented to the students for the school year. At first, these two additional subjects were taught only in Basic 6th and 7th grades, but gradually they were introduced into Basic 5th and 4th grades respectively; this decision was taken because of the improved production of the language evidenced in the students.

About seven years ago, the school decided to discard the geography hard-cover books. This decision was taken most of all because the books were already obsolete, due mainly to the changes which had occurred in the former Soviet Union, and in general in Eastern Europe. A new collection of soft-back geography workbooks was adopted that included updated information, many visual aids and additional work materials that allowed the subject itself to become more meaningful for the students, thus helping enhance the internalization of the language even more.

Unfortunately, this series of soft-back workbooks was not updated too often, and about three years ago, a bit tired of waiting for the updated new editions of this geography series, and since the health hard-back books had also become obsolete, the school decided to eliminate both subjects taught in English from the curriculum of the primary section. It is important to mention that each of these subjects was assigned a schedule load of two hours per week.

Having had a positive experience, the school did not have the intention to abolish other subjects from being taught in English. On the contrary, until now it is trying very hard to include more, but limitations in having enough time and budget have only allowed to include Science to replace health and geography, with a schedule load of four weekly hours for this subject. During the first year, science was taught instead of health and geography; it was

[1] *Basic* is a term used for the lower grades at the school, from Basic 2nd until Basic 10th that would be from 1st grade (6 – 7 year old girls) until 3rd course (14 – 15 year old girls).
[2] *Diversified* is a term used for the last three grades in high-school 4th, 5th and 6th courses. (16- 18 year old girls)

included in the curriculum of 4th, 5th, 6th, and 7th grades. At the end of this first year, the school realized the importance of having the entire science program including 2nd and 3rd grades as well, since the 4th grade students, with no knowledge at all of the subject, had a hard time dealing with the new vocabulary, as well as with the contents.

During the first three months of the school year, the 4th graders were practically lost, and a lot of time was spent learning vocabulary rather than the subject itself; thus, the purpose of enhancing the language was not completely achieved since science class became a vocabulary-centered class. The teacher and author of this thesis had to develop additional material not only to cope with the lack of vocabulary knowledge, but also to deal with the different levels of the students. The teacher developed worksheets and quizzes or tests that fit the students' needs. This was a hard time for both teacher and students. By the fourth or fifth month in class, students had acquired enough knowledge of basic science vocabulary to have a greater knowledge of the subject, be more independent of the teacher, and thus be able to carry out activities on their own.

By the second year, science was incorporated in the primary school curriculum, 2nd and 3rd grades were also included. During this first year for 2nd and 3rd grades, the same problems with vocabulary and fluency the teachers had with 4th graders arose. As a result of this, the school decided the basic 1st grade teachers had to include basic science vocabulary in their program, so as to prepare the students for science classes with some background to start with. A vocabulary list of approximately 25 words was provided for them.

In spite of this, a much higher level of English is required in the lower primary grades in order for the students to start a new grade with a little more language proficiency.

BACKGROUND INFORMATION

Living in a globalized world, as we live in today, there are certain topics that people always take into consideration. One of these is the language our children learn at school. These languages are very important since they will give children more opportunities to have a better future and are tools that will open doors for them professionally. Thinking about this, most parents want their children to learn English, a language used worldwide. In fact, even

if different authors present diverse figures about the number of people who speak English, it is still among the first three places on the lists.

According to O'Neill, English is the third most common language spoken around the world with approximately 341,000,000 native speakers (2011). On the other hand, The Summer Institute for Linguistics (SIL), in a survey made in 1999 presented these findings: (numbers of native speakers) (Branding, 2011)

Chinese (937,132,000)
Spanish (332,000,000)
English (322,000,000)
Bengali (189,000,000)
Hindi/Urdu (182,000,000)
Arabic (174,950,000)
Portuguese (170,000,000)
Russian (170,000,000)
Japanese (125,000,000)
German (98,000,000)
French (79,572,000)

And yet, George Weber's lists the number of secondary (non-native) speakers as follows: (Weber, 2008)
French (190 million)
English (150 million)
Russian (125 million)
Portuguese (28 million)
Arabic (21 million)
Spanish (20 million)
Chinese (20 million)
German (9 million)
Japanese (8 million)

In fact, there are several advantages a person has when he/she knows English. First, an advantage in the field of Education. In fact, English is, nowadays, a mandatory requirement

in order to be able to apply for a scholarship. If anybody wants to pursue studies in any university around the world, knowing English is an international regulation to do so.

Moreover, English is the way to communicate with the world. With technology all around us in social networks, for example, we can connect with people far away from us, and what better way to do it than by using the lingua franca. Also, there is important information in English on the Internet that has not been translated to every language and that needs to be read in its original language. A person who does not know English cannot reach all the huge amount of information there is.

As mentioned before, globalization is a very important matter. As a matter of fact, it has made businesses from different countries get connected and make transactions with other companies and business people around the globe. Because of this, having a good level of the English language gives a huge plus to a person looking for a job. Additionally, this language will allow students to travel and be able to get to know other cultures and traditions.

Conscious of the importance of this language, it is taught in the majority of schools in Quito as a foreign language, to primary, middle and high school students. Furthermore, in some universities, English is part of the study curriculum, and even holds a status of "must be approved" subject. Similarly, in schools, learning this language has increased its importance day by day. In fact, teachers are now encouraged by the government to improve their language knowledge so as to impart it with students and have a better outcome.

Teaching English has been so widely spread around the city of Quito that this is a main factor that influences parents when choosing a school for their children. As years go by, certain schools have realized the importance of teaching English, as well as having a good number of hours a week taught in this language and evidencing a good level of English among their graduates. To accomplish this, most schools have adopted teaching several subjects in English; in this way, they are able to include in their curricula the subjects imposed by the Ministry of Education, and increase, at the same time, the number of hours their students are exposed to the English language. So, even if the primary goal is to teach students the contents of the subjects, such as health, geography, history, science, etc., a

secondary but key goal is to enhance and improve their communication skills and general level regarding the English language.

OBJECTIVES

a. GENERAL OBJECTIVE

The aim of this study is to adapt and accommodate the material and textbooks used in a Science program in a private school of Quito to fit the needs of the EFL learners in accordance to their environment.

b. SPECIFIC OBJECTIVES

The specific objectives are:

- Analyze the usefulness of the original material, according to the reality of the students of this particular primary school, and determine the need of developing tailor-made materials that fit the students' reality.
- Analyze the modifications that the Science teacher (author) has had to make, in order to adapt the original materials to the students' reality.
- Develop local tailor-made materials that could replace those of the original program, developed in another country, and that present several barriers for EFL learners.

PROBLEM DEFINITION

As previously mentioned, the implementation of teaching different subjects in English in several schools in Quito has been increasing as years go by, not only regarding the schools themselves, but the number of subjects taught in English. However, the way in which these schools manage to introduce these subjects into their curricula has been different. In fact, all books have certain discrepancies with the needs of the intended market because every reality is different.

Thinking of the importance of this type of improvement, the science books used in a primary girls school in Quito levels 2,3,4,5 will be analyzed. This case study will focus on the

primary science books. The grades in this school use the series of books "Science" by Richmond publishing (2003).

Since the language spoken in Ecuador is Spanish, students learning English here, learn it as EFL (English as a Foreign Language). However, because of the lack of appropriate books, schools have been forced to use books such as the one employed at this particular school. The use of this book has been a challenge because although it includes some activities more appropriate for ESL (English as a Second Language) students, it is basically not designed for them. As a matter of fact, it is not specified who it was written for, neither in the books themselves nor in the web sites found on the Internet.

Moreover, it seems that the authors of these books have confused the terms ESL (English as a Second Language) and EFL (English as a Foreign Language), since on one site, it says that this series of books fulfills the curricular objectives of both Spain and the United Kingdom. It is really difficult to understand how this will work since these two countries have different mother tongues and, as a result, they will have different needs. Consequently, Science being taught in England would be for native speakers (or ESL students if their mother tongue was not English) and if taught in Spain, it would be for EFL learners, and not ESL learners.

If we analyze the teacher's guide, in the margins we can find useful suggestions for the material found in the students' books. Included in these extra activities, we find extension activities suitable only for ESL students (such as expressing concepts and language skills), presenting scientific concepts, and cross-curricular activities. That is why teachers have been forced to adapt the book and its contents to the reality of the students of this particular school.

Although the level of English of the students in this school is B1 (according to the Common European Framework[3]) when they finish 7th grade, several problems have arisen because

[3] B1: Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.

the school has not been able to find in the market a science text specifically developed for foreign language learners. The first problem to be faced by both teachers and students is to be able to adapt the learning materials, which were not developed for that specific group level and may vary from year to year, to the actual group of students.

Moreover, the fact that most schools do not have a standard level of English among the students in any given grade also has to be taken into consideration. That is why teachers should deal with their students' interlanguage. Only when teachers work with the students' interlanguage will the students feel less frustration when learning English and Science through the same class. So, the teacher and the students have to battle daily with a text that has not been specifically tailored to suit their needs, as well as having within the same classroom, several English language proficiency levels among their students.

1 CHAPTER ONE: THEORETICAL AND CONCEPTUAL FRAMEWORK

1.1 BASIS CONCEPTS - DEFINITIONS

This chapter starts by defining several concepts used throughout this dissertation. Then, it describes what teaching materials are, their types and roles in the classroom. Then, it describes a brief history of different methodologies of content language teaching that have been developed and changed over the years. Moreover, some concepts that have been described in diverse ways by different authors will also be specified herein.

Throughout the years, several teaching methodologies have been described by several authors who have given different concepts to define these three words: ***approach, method and technique***.

In 1963, Edward Anthony (qtd in Brown 2001 p.14) defined the following terms as follows: "An ***approach*** was a set of assumptions dealing with the nature of language, learning and teaching." On the other hand, "a ***method*** was an overall plan for systematic presentation of language based upon a selected approach." Furthermore, "***techniques*** were the specific activities manifested in the classroom that were consistent with a method and therefore were in harmony with an approach as well."

According to Brown (2001), some important terms are defined as:

Methodology: Pedagogical practices in general (including theoretical underpinnings and related research). Whatever considerations involved in "how to teach" are methodological.

Approach: "Theoretically well informed positions and beliefs about the nature of language, the nature of language learning, and the applicability of both to pedagogical settings.

Method: A generalized set of classroom specifications for accomplishing linguistic objectives. Methods tend to be concerned primarily with teacher and student roles and behaviors and secondarily with such features as linguistic and subject matter objectives, sequencing and materials. They are almost always thought of as being broadly applicable to

a variety of audiences in a variety of contexts.

Technique: Any of a variety of exercises, activities, or tasks used in the language classroom for realizing lesson objectives.

Curriculum/syllabus: Designs for carrying out a particular language program. Features include a primary concern with the specification of linguistics and subject-matter objectives, sequencing, and materials to meet the needs of a designated group of learners in a defined context.

A ***curriculum*** in a school context refers to the whole body of knowledge that children acquire in school. In fact, Keith says that:

"Curriculum is used in the British sense to include all the factors which contribute to the teaching and learning situation." (Keith, 1989)

According to Keith,

Syllabi or syllabuses[4], which prescribe the content to be covered by a given course, form only a small part of the total school program. ***Curriculum*** are all those activities in which children engage under the auspices of the school. This includes not only what pupils learn, but how they learn it, how teachers help them learn, using what supporting materials, styles and methods of assessment, and in what kind of facilities (Keith, 1989).

Other important definitions are the following:

Lingua Franca: A language common to speakers of diverse languages that can be used for communication and commerce. (Fromkin, Rodman, & Hyams, 2011)

Native Language (NL): This term refers to the first language learned by a child. It is also known as mother tongue or L1. (Gass & Selinker, 2008)

Target Language (TL): This one refers to the language that the person is learning. It is also known as L2. (Gass & Selinker, 2008)

[4] The term "***syllabuses"*** is now the most common term used.

Foreign Language Learning: This term refers to learning a language that is not their native one in a country where only the native language is spoken. For example, learning English in Ecuador where Spanish is spoken. (Gass & Selinker, 2008)

Second Language Learning: This term refers to learning a second language in the country where this second language is spoken. For instance, immigrants' kids who are learning English in the US. (Gass & Selinker, 2008)

Interlanguage*:* The language produced by a nonnative speaker of a language (i.e. a learner's output). It refers to the systematic knowledge underlying learners' production (Gass & Selinker, 2008).

The terms above will be used throughout this dissertation, based on these given definitions, which are believed to be the most adequate of all the ones that were found.

1.2 TEACHING MATERIALS

The Literature review of this dissertation will give the reader an overview of the different contributions there have been made throughout the last years in the topic of the use of Teaching Materials in the classroom.

Jane Crawford, in her work entitled *The Role of Materials in the Language Classroom: Finding the Balance*[5], discusses two different points of view regarding teaching materials. The first one mentions that they may deskill the teacher and diminish their professional capabilities; they may also interfere in the students' learning since they use artificial language that does not reflect the reality. On the other hand, she mentions that teaching materials may help teachers develop professionally and increase autonomous learning strategies in students.

[5] Crawford, J. (2002). The Role of Teaching Materials: Finding a balance. En J. C. Richards, *Methodology in Language Teaching: An Anthology of Current Practice* (págs. 80- 92). New York: Cambridge University Press.

There are many factors that may influence learning another language as described in the book *Materials and Methods in ELT*[6]. One of these factors, among others, is the materials used to teach. (McDonoough, Shaw, & Masuhara, 2003). According to the authors, we should take into consideration all the different aspects that make up the learning/teaching situation because making different decisions regarding setting, students, and materials may change everything.

Kenji Kitao and S. Kathleen Kitao in their paper *Selecting and Developing Teaching/Learning Materials*[7] argue two opposing views on the use of teaching materials such as textbooks. On the one hand, they mention that textbooks control learning and teaching. On the other, they emphasize that teaching materials only help teachers. This occurs depending on the teacher; that is to say, new teachers usually depend 100% on the materials. However, an experienced teacher may be able to develop his/her own materials.

Allwright, in his article *What do we want Teaching Materials for?*[8] talks about the limited role materials should play in a classroom. It also discusses the important role learners are supposed to play in a classroom. It is not only the teacher's job to teach, but it is also the learners' job to handle their part of the responsibility. He also mentions the change of *teaching materials* to *learning materials*, focusing on the view of cooperative language teaching and learning.

The role of materials is viewed in a different way by Karla Araya Araya, who describes it in her article *Teaching Materials: A Critical Position about the Role they play in the Language Classroom*[9]. Here, she discusses how materials used in the classroom may transmit discourse and ideologies in favor of certain social classes. She mentions that these

---

[6] McDonoough, J., Shaw, C., & Masuhara, H. (2003). *Materials and Methods in ELT*. Oxford: Wiley Blackwell.

[7] Kitao, K., & Kathleen, K. S. (4 de April de 1997). *The Internet TESL Journal*. Obtenido de Selecting and Developing Teaching /LearningMaterials: http://iteslj.org/Articles/Kitao-Materials.html

[8] Allwright, R. L. (1 de October de 1981). *ELT Journal*. Obtenido de What do we want teachng materials for?: http://203.72.145.166/ELT/files/36-1-2.pdf

[9] Araya Araya, K. (2007). Teaching Materials: A Critical Position about the Role they play in the Language Classroom. *Actualidades Investigativas en Educación*, 1-16.

materials could influence students into changing their point of views regarding social, political and economic issues.

Robert O'Neill in his article *Why use textbooks?*[10] argues the fact that even if there are differences among groups of students, there are more similarities. These characteristics they have in common make the use of books a good idea. He claims that textbooks are the starting point of the classroom on which teachers base the structure of their teaching. However, they should be used and considered as the tools they are. He mentions that teachers should be aware of textbook limitations and adapt the material to their own reality. Also, he mentions the importance of teacher improvisation.

1.2.1 THE ROLE OF TEACHING MATERIALS

Teachers should assess the materials they use. As a matter of fact, many times schools choose textbooks that teachers have to use in their classrooms without taking into account the teachers' opinions and experiences. Even if these books can be used in the classroom, most of the time, these textbooks do not fit the reality of their students, and teachers find the need to develop new materials that are more appropriate to their students' needs.

There are certain aspects that must be considered by every school when choosing textbooks, (McDonoough, Shaw, & Masuhara, 2003):

- The intended audience: Who are the books written for? We cannot use books designed for teens with adults and vice versa.
- The proficiency level: Are the levels of the books appropriate for our group of students?
- The context in which the materials are to be used: Where is the book being used?
- How the language is presented and organized: Is the book easy to follow?

Teaching materials are very important in language programs. According to Richards (2001), these materials can be divided into:

- Commercial Materials

[10] O' Neill, R. (2 de January de 1982). *ELT Journal.* Obtenido de Why use textbooks: http://textbookuse.pbworks.com/f/Why+use+textbooks.pdf

- Printed Materials, such as books, workbooks, worksheets or readers.
- Nonprinted materials, such as cassette or audio materials, videos or computer-based materials.
- Materials that comprise both printed and nonprinted sources, such as self-access materials and materials on the Internet.
- Materials not designed for instructional use such as magazines, newspapers, and TV materials.

Regarding the role of materials in language teaching, Cunningsworth (qtd in Richards p. 251, 2001) summarizes them as follows:

- a resource for presentation materials.
- a source of activities for learner practice and communicative interaction.
- a reference source for learners on grammar, vocabulary, pronunciation, and so on.
- a source of stimulation and ideas for classroom activities.
- a syllabus (where they reflect learning objectives that have already been determined).
- support for less experienced teachers.

In fact, commercial or created materials[11] are important in the classroom. They attract the students' attention, help the teacher save time, standardize the instruction, provide a syllabus for the program, and train teachers who are beginning their career (Richards, 2001). They may also have flaws that could impair appropriate learning. According to Richards (2001), this type of materials may contain unauthentic language, which is not a representative of real language use. Also, textbooks may distort content, since they could be biased; teachers could rely too much on them and they may not reflect the students' real needs.

Authentic materials[12] should be used in the classrooms because students should get used to listening and understanding real videos and movies (Richards, 2001). This could give the students the listening skills they need. For instance, the use of videos related to Science is a good way to improve the students' motivation and practice listening. In fact, each teacher should have the ability to manipulate the material in such a way so as to reach school

[11] The term, ***created materials***, refers to textbooks and other specially developed instructional resources (Richards, 2001).
[12] The term, ***authentic materials***, refers to the use in teaching of texts, photographs, video selections, and other teaching resources that were not specifically prepared for pedagogical purposes (Richards, 2001).

objectives, and fulfill the students' needs. However, the use of created materials should not be left aside, since these types of materials are good learning support, and give the teacher a reference source to work with.

Whether the material dominates the teacher or the teacher dominates the material is up to the type of teacher. Even if she has a textbook to follow, the educator should be creative enough to develop new, better material for the students; of course, this depends on her experience.

1.2.2 TEXTBOOK ANALISIS

According to Nicholls, little work has been done on this area and; consequently, there are not clear guidelines as to how analyze a text. He mentions some works done by UNESCO and others in order to produce procedures when evaluating textbooks. (Nicholls, 2011)

These procedures are described as followed:

- Defining a textbook sample: Pinkel considers the type and quantity of textbooks to be analyzed as an important matter (Pinkel qqt in Nicholls, 2011).

- Quantitative and qualitative analytical techniques: Pinkel mentions two major concerns regarding this type of research. These are… "How are textbooks used by teachers and received by students? And what is included and omitted in the text?" (Pinkel qqt in Nicholls, 2011).This author emphasizes the importance of the fact the qualitative and quantitative research methods are complementary.

He also provides a very general guideline for textbook analysis. He mentions that it cannot be more specific since every project is a different reality.

Textbook sector components:

- Educational system
- Guidelines/curriculum
- Adoption procedures

- Structures of publishing houses

Formal criteria:

- Bibliographic references
- Target group (school level, type of school)
- Dissemination

Types of texts/mode of presentation:

- Author's intentions (if specified)
- Descriptive author's text (narrative)
- Illustrations/photos/maps
- Tables/statistics
- Sources
- Exercises

Analysis of content:

- Factual accuracy/completeness/errors
- Up-to-date portrayal
- Topic selection/emphasis (balance)/representativeness
- Extent of differentiation
- Proportion of facts and views/interpretation

Perspective of presentation:

- Comparative/contrastive approach
- Problem-oriented
- Rationality/evocation of emotions

(taken from Pinkel qqt in Nicholls, 2011).

Out of these guidelines, only the ones that could be applied to the specific case dealt with in this study, have been taken into account.

1.3 APPROACHES RELEVANT TO SCIENCE TEACHING IN A FOREIGN LANGUAGE

Throughout history, there have been numerous theories regarding teaching English as a second or foreign language. Nowadays, newer language methods have been developed. These methods and approaches are mentioned here because they are all used when teaching. A brief summary of some of the most important ones is provided below:

1.3.1 LEARNER- CENTERED INSTRUCTION

This type of instruction includes:

- Techniques that focus on or account for learners' needs, styles, and goals.
- Techniques that give control to the student such as group work.
- Techniques that give room for students' creativity and innovation.
- Techniques that enhance students' sense of competence and self-worth.

According to this type of instruction, giving certain powers of decision to the students will provide them with a sense of ownership regarding learning and will lead to their intrinsic motivation. In the words of Brown, "The most powerful rewards are those that are intrinsically motivated within the learner. Because the behavior stems from needs, wants, or desires within oneself, the behavior itself is self-rewarding; therefore, no externally administered reward is necessary" (Brown, 2001).

1.3.2 COOPERATIVE AND COLLABORATIVE LEARNING

Brown (2001) explains that this type of learning is based on teamwork. It is cooperative and not competitive. Students work in pairs or groups to achieve mutual goals and objectives, which would not happen if they were working individually. This kind of learning promotes intrinsic motivation and self-esteem. Also, since the students are working in groups, the level of anxiety lowers, and they get the opportunity of learning from more capable people such as advanced peers, or teachers.

As a matter of fact, according to Oxford (qtd in Brown, 2001), there are advantages in this type of learning in factors as " promoting intrinsic motivation, heightening self-esteem, creating caring and altruistic relationships, and lowering anxiety and prejudice."

1.3.3 INTERACTIVE LEARNING

Having interaction within language classes has been a very effective tool in improving both oral and listening skills. In fact, this communication has created the opportunity for genuine interaction in the classroom.

In these interactive classes, students will:

- Do a great amount of group work.
- Have the opportunity of receiving authentic language context.
- Producing language for a meaningful conversation.
- Performing classroom tasks that will reflect real world activities.
- Practice through spontaneous conversations.
- Writing for real audiences.

Interactive learning is based on Stephen Krashen's input hypothesis, that states that humans acquire language by receiving comprehensible input and moving on to the next level of learning, along the natural order (Krashen, 1985).

1.3.4 WHOLE LANGUAGE EDUCATION

The main purpose of this type of education was to evidence language as a whole, and not as fragmented in phonemes, graphemes, morphemes and words. It also wants to emphasize the "wholeness" of language as the interconnection between listening and speaking production; and the importance of developing written and oral code.

Nowadays, according to Brown, the use of the term has changed to describe: (Brown, 2001)

- Cooperative learning.
- Participatory learning.
- Student-centered learning.
- Focus on the community of learners.
- Focus on the social nature of language.
- Use of authentic language.
- Meaning-centered language.
- Holistic assessment techniques.
- Integration of the four skills.

Edelsky (qtd in Brown p.49, 2001), mentioned that *whole language* is an educational way of life, and that this term should not be used carelessly by teachers and material developers. There are two main interconnected concepts in whole language: 1. The wholeness of language implies that during language acquisition, children perceive "wholes" and not "parts" of the new language. Therefore, the inclusion of the four skills in second language learning is important. 2. Language is used to construct meaning and reality, teaching language enables learners to understand a system of social practices that both constrain and liberate.

1.3.5 TASK- BASED INSTRUCTION

To describe this type of instruction, it is useful to define the word *task* first. According to Peter Skehan (1998), a task is an activity in which

- Meaning is primary.
- There is some communication problem to solve.
- There is some sort of relationship to comparable real-world activities.
- Task completion has some priority; and
- The assessment of the task is in terms of the outcome.

Tasks usually contain several techniques. For example, a problem-solving task may include grammatical explanation, teacher-initiated questions and a turn-taking procedure.

This type of task-based instruction is not a new methodology. It is a type of instruction that puts the task at the center of teaching and learning; which focuses on tasks as a way to enhance learning.

1.4 ALTERNATIVE METHODS TO CONTENT TEACHING

There are other theories which support the idea of teaching English through different subjects, such as mathematics, social studies, and science. These theories and approaches support the idea that language is best acquired if it is used as a means of instruction. These approaches have been applied throughout the world, and there have been a variety of discussions about the effectiveness of teaching a language through content.

Some of these important theories and approaches are discussed below and are Content Based Instruction (CBI); the Content and Language Integrated Learning Theory (CLIL), and the Cognitive Academic Language Learning Approach (CALLA). They are some of the most important methods and approaches that support the idea that teaching English through different subjects could help students learn the language in a better and more effective way.

1.4.1 CONTENT- BASED INSTRUCTION (CBI)

Several authors have given different concepts to what Content-Based Instruction is.

Here are some examples:

"Content-Based Instruction is the integration of content learning with language teaching aims. More specifically, it refers to the concurrent study of language and subject matter, with the form and sequence of language presentation dictated by content material" (Brinton et al., 1989)

According to Short (1989), content-based language instruction is defined as:

"An approach that integrates second language instruction with subject matter instruction. Each lesson in a content-based class has content (e.g., math, science, social studies) and language objectives (e.g., grammar, functions). Students learn language through the context of specific subject matter rather than through isolated language features."

This type of instruction focuses on the idea that language should not be taught in an isolated way, but rather within a meaningful context, which will not only intrinsically motivate the learners, but also will empower them. CBI gives students the challenge of learning the subject matter through the language.

According to Davies (2003), CBI is a teaching method that emphasizes learning about *something* rather than learning about *language*. He also describes three different types of Content Based Instruction models as follows:

1.4.2 THE SHELTERED MODEL

This type of CBI usually occurs at universities in English L1 contexts. Its goal is to help ESL (English as a Second Language) students study the same content as regular students. These learners are given special assistance to better understand classes. Sometimes, two

teachers may work together: a content specialist and an ESL teacher to have the students understand content and important English words. This type of teaching has been used, for example, at the Bilingual University of Ottawa.

1.4.3 THE ADJUNCT MODEL

This model is usually used by ESL teachers. Its main objective is to prepare students for "mainstream"[13] classes. They emphasize the acquisition of specific target vocabulary and some necessary skills, so as to get a better understanding of the regular classes.

1.4.4 THE THEME BASED MODEL

This model, on the other hand, is found in EFL (English as a Foreign Language) contexts. This type of CBI can be taught by an EFL teacher only or by a team including a content specialist. The teachers can create a course designed according to their students' diverse interests.

1.4.5 CONTENT AND LANGUAGE INTEGRATED LEARNING THEORY (CLIL)

Another theory, which supports the idea of teaching a subject through a foreign language, is one that is called ***CLIL*** (Content and Language Integrated Learning). According to the European Commission on Multilingualism (2008), ***CLIL*** is being and has been used for the past ten years all over Europe.

The subjects taught using *CLIL* are in the areas of the humanities and social sciences, (i.e. history, geography, science and social studies). David Marsh (2007) says that ***CLIL*** involves an educational context in which the medium of teaching is not in the students' mother tongue.

According to Marsh, there are several benefits in using this approach. The most important ones are that:

[13] ***Mainstreaming:*** "In some submersion programs, students first receive instruction in ESL before being placed into content areas. Once teachers and tests conclude that students are proficient enough to be placed into ongoing content classes, they are mainstreamed into the regular curriculum. We need to remember that this instruction should be content-centered so that pupils will not be at a disadvantage once they are placed in an ongoing class (Brown, 2001).

- It improves language competence and oral communication skills.
- It provides opportunities to study content through different perspectives.
- It allows learners more contact with the target language.
- Language is seen in real-life situations.
- Students become academically proficient in English after 5-7 years.
- Learners develop fluency in English by using English to communicate for a variety of purposes.
- It introduces the wider cultural context.
- It prepares for future studies and / or working life.
- It increases learner motivation.
- It develops multilingual interests and attitudes.

Moreover, it does not require extra teaching hours; it complements other subjects rather than competing with them. It is accompanied by normal foreign language instruction. These benefits have made this method well used around Europe and several different countries in America.

1.4.6 COGNITIVE ACADEMIC LEARNING APPROACH (CALLA)

The next approach to be discussed is the ***CALLA*** approach. There are studies such as the one made by Noorchaya Yahya at Florida Atlantic University, and by Joseph M. Furner at the University of Florida, in which they want to prove the benefits of using the ***CALLA*** approach to improve the use of the English language and, at the same time, to teach other subjects to non-native speakers of English. (Uhl, 1994)

CALLA (Cognitive Academic Language Learning Approach), developed by Anna Uhl Chamot and J. Michael O'Malley (1994), is based on several theories that sustain this idea. This theory focuses on combining subject instruction with the development of language skills and learning strategies. One of the major objectives of this theory is for students to learn content knowledge and language skills to achieve a successful academic future.

When teaching Science, teachers follow these approaches so as to impart not only the content, but also the language. Mentioning them is important, because when we adapt the books to the reality of the students, we have to take them into account. Usually, books

already come with ideas on how to develop language and content. However, it is very important for teachers to be aware of this, so that they can adapt those ideas to the students.

1.5 SECOND LANGUAGE ACQUISITION (SLA)

According to Gass & Selinker, Second Language acquisition deals with the different processes people go through in order to learn a language that is not their native one. This study includes the process to create a new language the student has been exposed to; what is learned and what is not, why learners reach different levels of proficiency. These authors also mention that SLA deals with the hypotheses language learners produce concerning the rules of the second language (2008).

Gass & Selinker emphasized that SLA and pedagogy are two separate fields that sometimes get confused. However, even if they are in fact two fields, they do have an important relation and having knowledge about SLA is basic for a teacher involved in helping students acquired a second language. Understanding how students learn the language is beneficial for teaching since many misunderstandings could be avoided.

There are several theories regarding SLA. Inside those theories, there are hypotheses that describe various aspects of this field. According to Gass & Selinker, the different theories focus on diverse areas such as linguistics, psychology and sociolinguistics. Even if each emphasis is different, they do share one common area of interest: "how is it that learners acquire, when they do, the complexities of a second language?" (Gass & Selinker, 2008).

1.5.1 UNIVERSAL GRAMMAR

This area of research has been important for several researchers in this field. It deals with the supposition that there is an innate universal language in each one of us. In fact, Chomsky stated "The theory of a particular language is its grammar. The theory of languages and the expressions they generate is Universal Grammar (UG)" (qqt in Gass & Selinker, 2008, p. 160).

Gass & Selinker discuss that since language learning involves a set of abstractions, there should be something innate that helps children learn a language other than just the input

they receive from the environment (2008). Thus Chomsky defines UG as "the system of principles, conditions, and rules that are elements or properties of all human languages (qqt in Gass & Selinker, 2008 p. 163).

1.5.2 INTERLANGUAGE

The term interlaguage refers to the sort of "language" created by the learner of a second or foreign language while being in the process of learning it (Frith, 1978). According to Selinker, interanguage is not a translation from the native language nor is it the target language as if produced by a native speaker. It is a new separated system created by the learner. (Gass & Selinker, 2008)

Frith mentions that this system could also be called "transitional competence" which is a name that makes its meaning really clear since the learner is still acquiring the TL and will improve when he/she learns more.

However, this learning is several times restricted by the phenomenon called fossilization. This term, according to Selinker, refers to the interlanguage which in spite of instruction, remains the same (Selinker qqt in Frith, 1978).

1.6 CHILDREN'S COGNITIVE DEVELOPMENT

1.6.1 JEAN PIAGET: STAGES OF DEVELOPMENT IN CHILDREN

In order to understand how children think, it is necessary to include a description of the stages of children's development. The theories of two important psychologists will be describe below. The first one is the theory introduced by psychologist Jean Piaget who described the different stages of cognitive development from birth to adolescence.

The following is a chart that summarizes Piaget's theory; however, only the stages relevant to this study will be further explained.

Stage	Age range
Sensorimotor	Birth to about 24 months Substages: Reflexes: 0–2 months Primary circular reactions: 2–4 months Secondary circular reactions: 4–6 months Coordination of secondary schemes: 6–12 months Tertiary circular reactions: 12–18 months Transition to symbolic thinking: 18–24 months
Preoperational	About 24 months to about 6 years
Concrete operations	About 6 years to about 12 years
Formal operations	About 12 years to about 18 years and beyond

- a: Ages are approximate; substantial variation in individual children is assumed.

Table taken from (Feldman , 2004)

Since this study focuses on the primary section of the school, the concrete operational stage will be described. This stage, as we can see in the chart, deals with children from about 6 to about 12 years old. That is to say children from 2nd grade to 7th. According to Piaget, in this stage kids learn to manage concrete objects rather than oral hypotheses. They are able to classify and order. Also, they acquire the idea of number, space, time and the basics of logic, math, geometry and physics (Piaget, 1964).

These stages describe children's development. However, Piaget mentions that there are four factors that influence the fact that a child moves from one stage to the next. These factors are: maturation, experience, social transmission and equilibration (self-regulation). (Piaget, 1964)

- Maturation: The maturation of the nervous system is just one part of these factors. Piaget mentions that this factor is only one of the four and that it depends on the society the child comes from.

- Experience: According to Piaget, there are two types of experiences: physical and logical mathematical experience. The physical one involves acting upon the objects and drawing

conclusions about them. On the other hand, in the logical mathematical, “the knowledge is not drawn from the objects, but it is drawn by the actions effected upon he objects.” (Piaget, 1964). And again experience depends on each child and his or hers society.

- Social transmission: This factor is also called linguistic transmission or educational transmission. Children can receive information through education; however, the fact that they really comprehend the material depends on whether the child is able to assimilate it or not.

- Equilibration (self-regulation): This factor equilibrates the other three. Also, the subject tends to find an equilibrium by reacting when faced to an external influence. (Piaget, 1964)

1.6.2 LEV VYGOTSKY

This Russian psychologist also talked about cognitive development in children. His major ideas were: social interaction, zone of proximal development and the more knowledgeable other (MKO). Regarding social interaction, Vigotsky believed that society played a very important role in learning. Children develop because they have social interactions that help them do so. According to him, this occurs because they have a More Knowledgeable Other to help them reach their Zone of Proximal Development. This MKO could be a teacher, a parent, a peer or even a technological device such as a computer. And his theory of the zone proximal development is what they want to learn. Students can handle new, more difficult information if they have a MKO who can provide them with scaffolding (McLeod, 2007).

These theories are essential to the present study because not only children develop in a certain way, but they also differ from each other depending on the culture, experience and maturity. Moreover, reaching the ZPD is possible if the information presented to them is appropriate to their age and cognitive development. If the information is way out of reach of the children, even if they have a MKO to help them, they won’t be able to acquire it.

2 CHAPTER TWO: METHODOLOGY

2.1 UNIVERSE AND SAMPLE

As mentioned before, this school located in Quito, Ecuador believes in the importance of teaching English to the students. This is reflected in the importance the school gives to having not only English, but Science taught in English to the students. The school has always been working on the improvement of English Teaching. Hence the usefulness of this study.

The Science program adopted by the school is: Science– by Richmond Publishing – books 1 to 6, for primary school. However, if we pay attention to the books' contents and to the additional supporting materials they include, we can realize that only some activities are appropriate for non-native speakers of English. This is one of the reasons why teachers have to adapt the content to the reality of the students.

Another reason why teachers have to modify the worksheets and tests included in the books is the fact that the grading system is also different, depending on the country. In fact, since the book was printed in Mexico, this culture has a strong influence on the series of books, and the authors decided to use the grading system of that country. According to the World Education Services - International Grade Conversions, Mexico's grading system goes from 1 to 10 as follows:

International Grade Conversions

Mexico	US	Equivalent
9-10	90-100	muy bien (MB) (very good)
8	80-89	bien (B) (good)
6-7	60-79	suficiente (S) (average sufficient)
0-5	0-59	reprobado (R) (fail)

World Education Services

According to the grading system above, the authors decided to grade every test over 10 points, without realizing the fact that other countries, like Ecuador, may have different systems. Because of this, having a unit test that only has a few questions and grading it over 20 would be very negative for the students. Thus, there was a need to extend the unit tests to an appropriate length, not only to add more points, but also to include all the important topics studied in each unit. Some examples will be included in the discrepancies section of the analysis.

2.2 METHODOLOGICAL DESIGN

The research methodology used in this project is an instrumental case study based on the elementary section of this school, grades 2nd to 7th. Each grade has 2 parallels, each one with about 25 students. According to Stake, the instrumental case study is used to achieve understanding of a general question through a specific case (Stake, 1995).

This research has been based on the primary Science books (by Richmond). The decisions made by the author of this dissertation, who has had to adjust numerous activities, have been based on the purpose of fitting the supporting material to the reality of her students.

The guidelines given by UNESCO were taken into account when the textbook was analyzed, as were the theories mentioned before. In order to make the modifications, the author of this thesis considered not only the stages of development of children, but also how they can vary depending on maturation, experience, social transmission and equilibration (Piaget, 1964). Moreover, Vigotsky's theory of the MKO and the ZPD were also considered.

The method used in this dissertation is a descriptive – analytic one. The data was compiled through a qualitative approach (case study).

As the first step, a questionnaire of the Science teachers of this section of the school was carried out in order to evidence what they think about the supporting material contained within the teacher's guide of the original program, and which modifications they made to it in order to adapt it to their reality (see annex # 1).

According to the questionnaire filled out by the science teachers (including the author of this thesis) of this institution, they have to modify worksheets and tests so that they customize them to their students' needs and reality, according to each grade level.

Moreover, they affirm that they try to use the material included in the books because parents and authorities expect them to do so, and not because they are really useful or appropriate for the students.

2.3 RESEARCH TECHNIQUES AND PROCEDURES

In order to collect the necessary information, the following has been done:

- A survey of the Science teachers (including the author) of the primary school of this institution has been carried out in order to determine how many of them alter the supporting material for it to be suitable to the children.

- The different material was used with the students as pre-test and then modified according to their needs.

In order to have a better understanding of the most important issues encountered in the Science book, the different worksheets that were examined and developed by the author of this thesis were divided into three main categories: content, quantity, and cultural discrepancies. A fourth category called "other" was added in order to include examples that did not fit the three main ones (See annex # 2).

Every graph and table included in this paper comes from the data obtained from this investigation. If any of them reflect findings or results obtained or evidenced in any other investigation of the sort, it will be specified, but independent of them.

Since it has been evidenced that each grade has its own difficulties and advantages, the author considers it best to carry out an analysis grade by grade, as follows. The analysis will start from the lowest grade (2nd) to the highest one (7th):

3 CHAPTER THREE: RESULTS ANALYSIS

3.1 ANALYSIS OF THE QUESTIONNAIRES BY GRADE

3.1.1 SECOND GRADE

Starting to study Science in English in second grade has been quite recent, as mentioned in the first part of this analysis. The students begin their science studies with basic notions about human beings and their surroundings. This book "Science 1", addressed to very young children (6, 7 year old girls), focuses on the differences among people, and about learning to respect that diversity.

In addition, unit 2 covers notions of health such as eating properly, types of food, and food sources (animal or plant). Unit 3 deals with healthy habits such as brushing our teeth and going to the doctor and the dentist regularly. Unit 4 describes water and its properties and uses. Unit 5 studies the sun and the sky, including the effects of the sun and the phases of the moon. Unit 6 introduces the notions of light and color, especially opaque, and transparent objects and the formation of shadows. Unit 7 is concerned with living things and their habitats, and the factors that may determine the species found in specific habitats. Unit 8 develops the anatomy of some animals and their classification by their physical characteristics.

As seen before, it is in this grade that the girls start having the science background they need to continue their studies successfully. Moreover, in this grade, the students also learn to like the subject through different, fun and interesting activities they perform with the teacher. As usual, the teacher finds information and extra activities to complement the themes treated in the book. In addition to this, the need for the analysis of which worksheets and tests are suitable for the children also arises.

Another problem also occurs at the beginning of basic second; the girls still do not know how to read and write. That is why it is essential to modify the information given in the book in order to cope with the problems that have arisen in all the books of the series. Furthermore, in this specific grade, there are also several cultural differences that have to be dealt with the students during class. Such differences will be described in the cultural examples below (see section 3.4).

An issue to be taken into account is the fact that the teacher needs to work step by step with the girls, since a great number of them lack spatiality, which makes it difficult for them to find their way on a sheet of paper or a page in the book. Notions of right, left, top, and bottom are still being learnt, and the complexity of teaching Science in a foreign language increases.

Having analyzed these problems, the second grade teachers decided to photograph the entire book in order to work with the students at the same time, with the help of a data projector. This helps the girls better visualize the activities, the teacher gains time, and the students' learning improves.

3.1.2 THIRD GRADE

At the beginning of the school year, girls from this grade are not yet prepared to write in English, nor have they had enough exposure to reading in the English language; thus, this causes the start to be somewhat difficult, since as said before, these books are not appropriately designed for foreign language learners. The contents have to be complemented by the teacher, who luckily has additional aids in order to help her present the themes to the students in a more audio-visual way, with the object of allowing students to internalize new vocabulary and concepts through the help of activities planned specifically for them that will assure this.

This first difficult stage takes about two months. During the third month, the students have already had enough exposure through their LB classes to be able to further understand vocabulary. In fact, they are not only able to read, write and express themselves in a basic way through the English language, but they are also capable of a more extensive understanding of the language. It is then, that they really begin to use the book as it is intended. They are able to read and comprehend the short instructions at the beginning of each activity, both in the workbook and in the worksheets and tests. Moreover, they are able to understand oral instructions and are able to enjoy more both the reading information and the hands-on activities; thus, internalization of the knowledge of science is smoother for them.

As months go by, it is really exciting to evidence the way in which the students' progress, there is less effort on behalf of the teacher to struggle for students to understand,

concentrating more on developing the contents, rather than setting all her energy on the acquisition of knowledge. By the end of the school year, students are much more proficient in handling the workbook, on following instructions, and are ready for the next step within these series of workbooks.

The teacher finds that workbooks 1 and 2 of this series present more difficulty at their beginnings because of the barrier of the language. This occurs since these books have not been designed appropriately for foreign language users, and even if they are basic in content, they assume an English level more appropriate to first language learners. As an example of this, the first three worksheets contained within the workbook's supporting material are not used since they contain activities regarding writing and reading that the students, at this stage of learning, are not able to carry out in the English language.

In addition, some instructions are not as clear for students as they should be, creating a bit of confusion. This is given not only in the worksheets, but also in the workbook, and thus the students need an extra explanation from the teacher. The program also uses a lot of "matching" activities, which help the young children, since it uses pictures and few words.

3.1.3 FOURTH GRADE

The initial grades are usually the ones that have more problems in general, since they are beginning to learn English and, at the same time, they learn Science in the foreign language. For most girls in this school, this subject is not easy. However, as time goes by, they manage to get the grasp of it and they turn into successful Science learners.

It is in this grade that the students are challenged by the teacher, since they start having pieces of homework that they did not have until now. Also, they start having longer quizzes than they used to. For this reason, they have to study at home and their responsibility starts to grow. Also, it is at this level that the teacher starts to add additional information with the help of the program power point and an "in focus" to project the presentation to the girls. It is in this way that the teacher reviews the different topics presented in the book.

Moreover, the teacher uses this tool to present new photographs, videos and games that could be played with the entire class. In addition to this, the school has given each grade an hour a week to go to the computer lab to practice activities related to Science. It is because

of this that the teachers have looked for interesting interactive games that the girls can use to practice and increase their Science knowledge.

Usually, fourth grade is not easy, also because the themes presented in the book are not experiment-oriented. The units are focused on topics that do not let the girls get into real hands-on activities, mainly because in this grade they study body organs and systems.

Specifically, the topics included in this book are the following: Unit one, “Food,” deals with different types of food and nutrition of living things. Unit two, “Digestion,” studies the digestive system and the processes involved. Unit three, “Respiration, Circulation and Excretion,” is about the functions and the organs that are part of these three systems. Unit four, “The Earth and Soil,” examines the properties and uses of minerals and the soil. Unit five, “The Earth and Water,” revises the states of water and the water cycle. Unit six, “Earth and the Sun,” studies the solar system, the earth’s movements and the seasons. Unit seven, “Animals,” they learn about animal classification and nutrition. Unit eight, “Plants,” examines the parts of a plant and plant classification, as well as, their nutrition and respiration. Finally, unit nine, “Ecosystems,” considers the parts of ecosystems and some basic knowledge about food chains.

As mentioned before, the three last units about animals, plants and ecosystems are repeated in all the books of this collection. However, the degree of complexity and quantity of information increases according to the grade the students are in. At this level, there is also the necessity of creating new worksheets and quizzes because of the lack of appropriate worksheets and quizzes provided in the books. The specific examples will be analyzed in the following section (Section 4.3).

3.1.4 FIFTH GRADE

Regarding fifth grade, the teachers considered this one as a transition grade, because once students have reached sixth grade, they are able to read and understand the information of the book practically alone, as mentioned before. However, in this grade, the students are not yet able to fully understand the information in the book all by themselves. They still need the teacher to explain what they have read. They are dependent on the teacher’s explanation in order to really comprehend.

Due to this fact, the teacher has seen the necessity to create new worksheets more suitable for the level of the students. Or, if there is no need to create an entirely new one, there is the necessity to add more information to the existing ones or to modify them so that they fit the students' needs, since, as was mentioned before, the supporting material provided in the book is not completely suitable for the students of this school.

The themes of the book of this level are appropriate to carry out experiments with the students. So the girls perform hands-on activities throughout the units. The book contains 9 units as follows: Unit one, "Living things interact in different ways", deals with animal and plant behavior. Unit two, "Movement", studies the locomotor system. Unit three, "The Senses", is about the functions and parts of the five senses. Unit four, "Materials, Heat", examines the types and properties of materials, as well as heat and temperature.

Unit five, "Light and Sound", revises the properties of light and sound, as well as opaque, transparent and translucent objects. Unit six, "Electricity", studies the ways to obtain electricity and electrical conductors and insulators. Unit seven, "Animals", expands the information about animal classification they learnt the previous year. Unit eight, "Plants and Algae", examines plant classification, and what they need to be alive. Finally, unit nine, "Ecosystems", considers relationships between living things and food chains.

Most units in the books allow the students to use their multiple intelligences and have experiences that will help them learn the contents in a better way. That is the way the teacher has been working with the fifth grade students. Working with multiple intelligences and developing new worksheets and quizzes more appropriate to their specific requirements has been a challenge to the teacher.

Furthermore, since the school has given the Science department the opportunity of having one hour a week in the computer lab, the teacher takes the students there to reinforce their knowledge. Given that the Internet is a very useful tool for the modern teacher, the teacher has researched several sites[14] that could be useful for the students. This new tool has been

[14] Some examples are:
BBC: http://www.bbc.co.uk/schools/scienceclips/ages/9_10/science_9_10.shtml
How the body works: http://kidshealth.org/kid/htbw/
National Geographic: http://kids.nationalgeographic.com/Animals/
British Counsil: http://www.britishcouncil.org/kids-games-quiz-solar-system.htm
Discovery Kids: http://kids.discovery.com/fansites/savingaspecies/penguins/quiz/quiz.html

very effective, because the students learn and like it very much.

Even if the students at this level still rely on the teacher, it is in this grade that they get the tools to be efficient independent learners when they get to sixth grade. Even though the vocabulary problems still prevail, by the middle of the year, they are able to understand in a better way the readings presented in the book.

3.1.5 SIXTH GRADE

For this grade, workbook 5 is used. It contains the same kind of structure and supporting materials as workbook 6 used for seventh grade. However, according to the questionnaire, while workbook 6 is oriented rather to a more theoretical approach and provides great opportunity for written production, workbook 5 is oriented to experiments through which students can internalize knowledge in a more hands-on way.

Workbook 5 starts with three units dedicated to the human body, mainly focused on human reproduction and the changes that occur during the transition from childhood to adolescence, and from adolescence to adulthood and then to old age. This unit has a special treatment in the school and is complemented with a small unit in Spanish that covers the anthropological aspect, since the workbook only covers the biological part.

Once this part is over, part 2 gives way to three units concerning earth science that allow the teacher to carry out many experiments regarding matter, energy, conversions, etc. that students enjoy very much. Experiments are not included within the workbook, but the subjects dealt with in this part allow such experiments to be carried out. Experiments are complementary to the subject and through experience, the teacher is aware that in most cases, hands-on tasks are better to enhance and internalize knowledge than plain theory.

The last three units deal with animal and plant reproduction, harmonizing with the first part of the workbook, allowing the students to understand that reproduction is part of all living things and occurs in very similar ways. The workbook ends with a unit dedicated to ecology, as most of the workbooks in the series do.

Complementary materials are again to be developed by the teacher, since the level of English

of the students is above that of the book. So, regarding worksheets, they are done with ease, except for some new vocabulary that has to be explained. When written production of a certain length is necessary, as happens with seventh graders, they have a lot in mind, but find the vocabulary they have in English insufficient to produce as they would like to. Thus, the teacher again recommends the need of dictionaries, both for meaning and for translation of certain words, so as not to pass from being a facilitator, to becoming a "walking dictionary".

Again unit assessments are used as part of the worksheets supporting material, but not taken as assessment material per se. The teacher prefers to develop tailor-made unit assessments, structuring them based on several things. First, the teacher uses the review, which is a page at the end of each unit that sums up its contents, and is called "Test Your Knowledge." Second, the "Question Boxes" found at the beginning of each unit. Third, the activities included in the unit, and some questions taken from the assessments (the assessments sometimes contain themes not covered in the unit at all).

3.1.6 SEVENTH GRADE

According to the teachers' opinions provided through a questionnaire, seventh grade students are proficient enough in the English language to manage the contents of the program. They have few problems with the vocabulary, and new vocabulary is handled with ease, although sometimes they need a dictionary to translate or comprehend some new words that are not necessarily vocabulary words. This is so, because the program is not precisely made for foreign language learners; thus, the words considered "vocabulary" words within the unit, are related directly to the contents of the lesson, and the words the students have trouble with are rather words within the text to which they have not had previous exposure.

Another issue pointed out was that students do not have problems with words they do not understand if they are true cognates, but they do present comprehension problems if these are false cognates. Additionally, students tend to use "made-up-words" to express an idea they are thinking of in Spanish and do not have the proper vocabulary to express in English. Thus, they tend to make up a word that is similar to the word they are looking for in Spanish, but give it an English like pronunciation; for example: "inundation", instead of "flood".

Generally, the lesson and unit activities are carried out by the students with no aid from the teacher. Nevertheless, the teacher pointed out that it is essential for students to have both an English-English and an English-Spanish dictionary as part of their supporting materials, since most of the aid students ask from their teacher is the translation of words from their mother tongue (Spanish) to English, and because of the problems they face with words and that were mentioned in the previous paragraph.

The level of these students allows them to produce written pieces of a good length on their own. However, due to their lack of vocabulary in the English language during the written production exercises, the teacher becomes a "walking dictionary". To avoid this, this grade's teacher deeply believes that it would be truly productive for students to have to look up the word in an English-Spanish dictionary, instead of translating it for them, since this would help students internalize the word faster than having the word translated for them with no effort on their part.

On the other hand, the English-English dictionary will assure that they use words correctly concerning meaning and to look up synonyms and avoid word repetition, something that often happens due to their limited vocabulary. It would be a way to further enrich their vocabulary not only for the subject itself, but for others of the sort. Unfortunately, this request has not been accepted since it is the opinion of most of the English teachers that it would lead students to largely depend on the dictionaries for written production, and do not believe it would contribute positively to the enrichment of their vocabulary.

The supporting material for this book, number 6, is not a problem for the level of the students. It is used most of all to complement the lesson's contents, but does not represent a challenge for them to handle. Regarding the assessment materials, the teacher finds them truly unfit for the level of Basic 7th graders. They are made up of very basic and easy to do activities with very little reasoning implied in the process, and do not fully assess the lesson's contents. Some of them do not even reflect the lesson content per se, and have additional content, which have not been dealt with within the lesson or unit, so in most cases they are just used as additional worksheets. The examples and appropriate analysis of the latter will be included below.

The teacher always develops tailor-made materials that truly evaluate the internalization of

the lesson's contents, further adapting them to the reality of each group, since there is no homogeneity among students regarding their English level. This is given most of all, because unlike many other schools, this one does not divide the class in levels, but rather integrates the whole group into one group in which the teacher has students with very good, good, to poor and very poor levels of English. This fact makes it even harder for teachers to manage the issue of lack of vocabulary during written production, especially for presentations and projects.

The contents of this workbook do not give much room for experiments to be carried out. That is why written production for projects is fundamental, especially for the yearly "Open House" activity in which students' written productions, turned into visual presentations are presented in public. If students do not have a good command of the English language required for this level, then their presentation will not have the expected success. Consequently, the primary goal of this subject, which is to achieve both communicative proficiency and internalization of the program's contents, will not be achieved.

3.2 DESCRIPTION AND ANALYSIS OF THE STUDENT BOOK AND THE SUPPORTING MATERIAL FOUND IN THE TEACHER'S GUIDE

Some examples of what has been mentioned about adapting supporting materials can be observed and are analyzed on the following pages.

3.2.1 CONTENT DISCREPANCIES

3.2.1.1 SCIENCE 1 - WORKSHEET 1 – SUPPORTING MATERIAL

This example was taken from the book "Science 1" designed for second graders. "Worksheet 1" (See Figure 1) is the first worksheet designed to reinforce the girls' knowledge about the first part of unit one. This is an example of content discrepancies, because this worksheet does not reflect this unit's content.

Unit 1 starts by describing people and their differences. It emphasizes that everybody is different regarding eye color, skin color, hair color and type of hair. It also mentions that

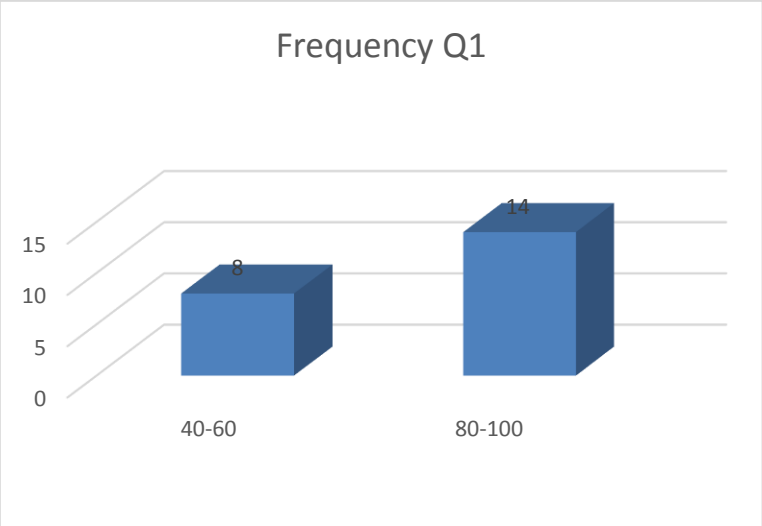
everybody grows up and changes throughout life. Also, it describes what people can do according to his or her age, so as to say that they have different abilities. However, as shown in the example, worksheet 1 emphasizes the parts of the body and the child's age, height, and weight.

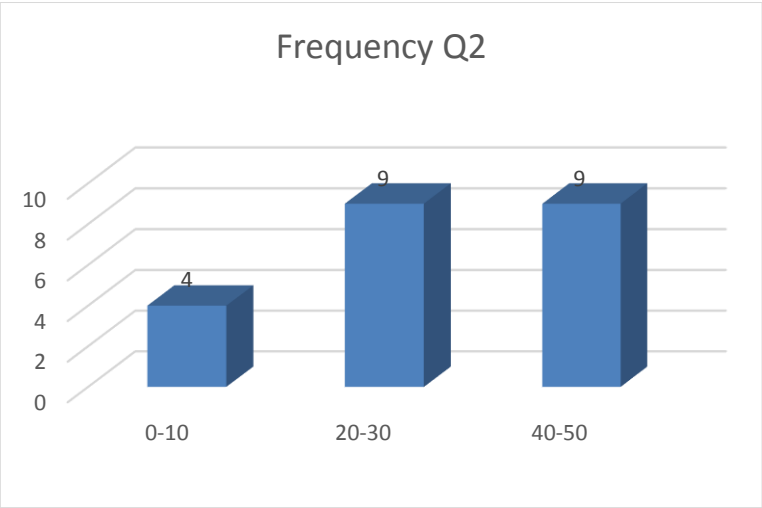
This is clearly a discrepancy in content, since in no part of the unit were body parts studied. According to the needs of the unit, the only parts mentioned and emphasized were eyes, hair and skin. So, having a worksheet, which is intended to reinforce what has been learnt in the unit, which has nothing to do with what has been studied, makes no point at all. Once again, it lacks content validity.

Because of these reasons, the teacher decided to develop two worksheets in order to replace worksheet 1. The first one was built up to reinforce how people grow up. The two worksheets are the ones shown in figures 2 and 14.

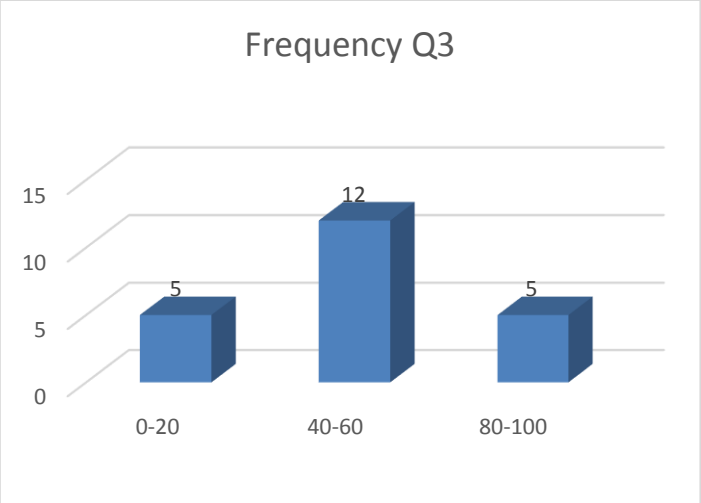
3.2.1.2 SCIENCE 2 - ASSESSMENT 1 – SUPPORTING MATERIAL

The length of this quiz (See Figure 2) is appropriate since the students are third graders. The information included is right. However, some extra information should be included and two of the activities are too complex for the girls to understand. This could happen maybe because they did not have the appropriate training for this type of activities.





This quiz was given to the students and because the result was such a disaster, the teacher decided to use it as a worksheet instead. If we analyze activity number 2 “match the three columns”, the girls have to match the first column and then the second one. Sadly, the students didn’t get to practice on worksheets or activities in the book on how to manage this kind of activity. That is reflected by the fact the entire class got under 50% (see chart above). So, when it was applied, it caused confusion for them and that is the reason why the teacher decided to exchange it with activity number 6, where the girls have to complete using the given words.



Another activity that caused problems was number 3 (see Figure above). The students had problems unscrambling the words of the parts of the eye. As we can see, only 5 students got

from 80 to 100% in this question, and most of the class got from 40 to 60 %. In order to replace it, the teacher designed activity number 3 which the students had more familiarity with since they have a similar activity in the book. For these reasons, the teacher decided to replace the assessment given in the book with the new one displayed in figure 15.

3.2.1.3 SCIENCE 3 - ASSESSMENT 1 – SUPPORTING MATERIAL

The assessment shown in figure 3 is that of unit 1 taken from the book Science 3, designed for fourth graders. Even if the contents of this assessment are indeed included in the topics of the unit, it was used only as a worksheet, and not as a unit test, since it works better as reinforcement of one part rather than as assessment of the whole unit.

In fact, unit 1 has a variety of themes that could be used to design a better test.

- Lesson 1 deals with living things and inanimate objects, and the similarities and differences between plants and animals.
- Lesson 2 focuses on how living things get nourishment.
- Lesson 3 describes the types of foods, where they come from and the food groups.
- Lesson 4 illustrates how a healthy and balanced diet should be. The last part "Health Education", is dedicated to the rules for creating a diet and an analysis of each girl's own diet.

Moreover, the design of the worksheet is a little confusing for the students, and having it as a test would be negative for them. This occurs because during the unit the terms used were *"animal food product"* and *"plant food product"*, and not the ones in this assessment *"vegetable origin"* and *"animal origin."* Maybe for native speakers of the English language, this could not cause a problem, but because of the fact that the girls are still learning English at the same time that they are learning Science, changing the terms like this causes the girls to get confused and not able to do the test correctly. Because of all these reasons, this test is considered part of the discrepancies group, and a quiz was made to replace it as unit 1 test (See Figure 16).

3.2.1.4 SCIENCE 3 - ASSESSMENT 7 – SUPPORTING MATERIAL

The material presented in figure 4 belongs to Science book 3, developed for fourth graders. It is the test of unit 7 Animals. This example has been classified as a content discrepancy, even if the theme used for the assessment is indeed included in the unit, since the material presented is not enough so as to develop a whole test just about vertebrates and their groups and characteristics. In fact, as we can see in the following picture, only one part of lesson 1 of this unit deals briefly with vertebrates. The rest expands different related issues. Consequently, the teacher decided that the information was too poor to design a complete unit test about it.

As we can see,

- Lesson 1, "vertebrates" deals with animal classification (vertebrates and invertebrates), the different groups of vertebrates (fish, mammals, reptiles, birds and amphibians), and the fact that vertebrates have a skeleton inside their bodies.

- Lesson 2 describes the differences among the main groups of invertebrates there are (worms, mollusks and insects). It also presents the parts of the body of an insect.

- In lesson 3, we learn about animal nutrition (herbivores, carnivores, omnivores), how animals get food, which organs are responsible for digestion, and they discuss the

circulatory system of animals.

- Lesson 4 illustrates how animals breathe, the respiratory system of animals and the different organs they have in order to breathe (lungs, tracheae, and gills). At the end of the unit, there is a lesson called “Report” about the different diets animals may have.

Having so much information throughout the unit, it is really unadvisable to use one little part of the unit to develop an entire unit test. Again, it lacks content validity; this time because it is not representative of the unit contents. See Figure 17 to find the test option created by the author.

3.2.1.5 SCIENCE 4 - ASSESSMENT 5 – SUPPORTING MATERIAL

This assessment of unit 5 (Light and Sound) (see figure 5) is included in the content discrepancy group because, once more, it does not reflect the contents of the unit. On the contrary, this assessment shows two experiments that are done with the students throughout the unit. In fact, this assessment, according to the teacher, is best used as a worksheet to be solved when doing the experiments: the first one about the phenomenon called light reflection, and the second one about sound vibration.

The contents included in unit five are the following:

- Lesson 1 “light” deals with concept of light, how light propagates, light and shade, and color formation.

- Lesson 2 “Objects and Light” mentions opaque, transparent and translucent objects; and natural and man-made luminous and nonluminous objects.

- Lesson 3 “Sound” includes information about what produces sound, the different types of sounds and how musical instruments produce sounds in diverse ways.

- Lesson 4 “Sound Propagation” deals with how sound propagates, echo, sound conductor and insulators; and sound conduction.

The last part "Health Education," includes notions of noise pollution, the relationship between noise and health, how to reduce noise in cities, and how to prevent sound from reaching the ears.

Having all these topics included in the unit, the author realized the importance of developing a new test for this unit, which would assess the girls in a better way than the original one included in the book. See figure 18 for the test developed by the author.

3.2.1.6 SCIENCE 6 - ASSESSMENT 1 – SUPPORTING MATERIAL

As can be seen in the example given in figure 6, the test included in the program's support materials as the assessment for unit 1 does not reflect the unit's contents. Rather it deals with related issues but that were not included as such in the unit; thus, this "assessment" does not really test what was learned, i.e. it lacks content validity, and should rather be considered as a worksheet that further deepens the unit's general information about human ancestors.

Unit 1, is divided in three lessons:

- Lesson 1 "Human Beings," that deals with general concepts such as: vital functions; what they are and which parts of the body carries them out; and distinctive characteristics of human beings in comparison with other living things.

- Lesson 2 "Human Diversity," that deals with physical differences among human beings; racial groups; and cultural differences such as religion, language, life-styles, and customs.

- Lesson 3 "Our Ancestors," that deals with anatomical and cultural characteristics of our ancestors.

Analyzing the contents of the three lessons, one would think that there is enough material to construct a better "assessment" paper, including information related to the topics listed above; but rather, the program divides the "assessment 1" paper into two sections, the first of which is a comparative analysis of three different human skulls belonging to different

periods of human development, and asks students to state the differences they find. It is new material for the students since they have had no previous information about the physical differences humans have had through their evolution. Thus, either the book assumes teachers will cover this issue and develop a class on their own so students have enough knowledge to be able to carry out this task, or they assume that students already know about it, since it (evolution) is not included in this program at all.

The second part of "assessment 1" is also an analysis for students to carry out about the physical and intellectual skills that prehistoric men and modern men needed or need to have in order to survive, making this part a little easier, since this is somewhat discussed in Lesson 3, but not broadly enough for students to be able to produce accurate answers, again making the assumption that the teacher should teach these issues and develop extra material.

Besides the three lessons, the unit also includes additional lessons, which are not called lessons as such, but provide related information or complementing one way or another the information contained in the lessons.

These deal with:

a. Inside the Human Body. This unit provides general information about modern observation techniques for observing the inside the body, such as: scintigraphy, magnetic resonance imaging, x-rays, endoscopy and ultrasound scans.

b. Primates, which gives information about the characteristics of primates mainly focused on the differences between monkeys, apes and humans.

So, as previously mentioned, in the unit there is a wide variety of information that can be used to structure and develop not only one but several tests to evaluate students' internalization of knowledge. Consequently, the example provided below "Quiz Unit 1" (figure 19) developed by the author, is not just merely a very poor two-analysis question test, but an assessment of the whole unit.

3.2.2 QUANTITY DISCREPANCIES

3.2.2.1 SCIENCE 3 - ASSESSMENT 8 – SUPPORTING MATERIAL

The assessment presented (figure 7) is the unit 8 test that was taken from the Science 3 book designed for Basic 4 students. This one has been catalogued in the "quantity" part, since the teacher considers it a good, but incomplete test. According to the contents of the unit, there is much more information that could be used to develop a complete and even more challenging assessment for the students. Moreover, the school grades exams over 20. So, having a quiz that has 4 questions will definitely be harmful for the students, because it will mean that each wrongly answered question will be worth 5 points. Consequently, making one mistake will greatly affect the grade of the students and will discourage them.

Unit 8 is divided into three lessons:

- Lesson 1 deals with plants, part of the flowering plant, part of a flower and about seeds and the different types of fruit that exist.

- Lesson 2 deals with types of plants and their classification by their appearance: trees, bushes and grasses. It also mentions how to distinguish trees from bushes and from grass.

- Lesson 3 explains plant nutrition and respiration. It explains how water and nutrients travel through the plant and also how plants breathe.

Additionally, the book includes an environmental education part, which discusses forests and types of forests: what a forest is, and some information about the Mangrove Forest, plus a "Discover" part about Tropical Rain Forests. As we can see, there is a lot of information discussed during the unit, and presenting the students with such a poor test will be a waste of information. That is why in this case, the teacher used the assessment from the book in addition to an extra piece of material, specially prepared for the group of students.

In figure 20, we can see the quiz developed by the author in order to test the students' knowledge about the unit.

3.2.2.2 SCIENCE 4 - ASSESSMENT 3 – SUPPORTING MATERIAL

The assessment in figure 8 is that of unit 3 taken from Science 4 developed for fifth graders. This unit deals with the five senses. Unlike the rest of the unit in the book, this unit is a little longer than the rest. In fact, it is divided into 4 lessons.

- Lesson 1 describes what senses do, what the five senses are, and it starts with the sense of touch and what skin is like and how it functions.

- Lesson 2 illustrates what the sense of sight is, what eyes are like and how they function.

- Lesson 3 is about the sense of hearing, what ears are like, and how this sense works.

- In lesson 4, we study the last two senses: taste and smell, what they are like, their respective sense organs, and how these two senses work.

Besides these, there is a lesson on Health Education, which deals with eyes and how to take care of them. It explains the most common eyesight problems and a part called "Discover" about the world of the blind.

As shown before, there is really a lot of useful material that can be employed to develop a much better test. One that could really assess the students' knowledge about the five senses, and not only a test on the names of the parts of the sense organs.

In figure 21, we can see the teacher tailor-made material appropriate for the reality of the students and that will assess their knowledge in a better way.

3.2.2.3 SCIENCE 5 - ASSESSMENT 4 – SUPPORT MATERIAL

Assessment 4 (see figure 9) is taken from Science book 5, designed for sixth graders. It is included in the quantity group because according to all the content found in the unit, the teacher can easily develop a better quiz to test the students. For that reason, the teacher decided to use it as a worksheet and not as the assessment of the unit.

There are several different topics included in this unit that could be used in order to put together a more challenging test for the students. As a matter of fact, unit 4 "Matter" includes

4 lessons and a “techniques” part.

- Lesson 1 deals with matter and its properties: mass, volume and density.

- Lesson 2 describes the states of matter: solid, liquid and gaseous; and the characteristics of matter in each of these states.

- Lesson 3 “Changes in Matter” illustrates what kinds of changes matter can experience, such as the chemical and physical changes.

- Lesson 4 “Changes of State” defines changes of state, how they happen and what kinds of changes there are. Finally, the “techniques” part deals with how to calculate the density of objects.

See (figure 22) for unit 4 assessment that was designed by the author for sixth graders.

3.2.2.4 SCIENCE 5 - ASSESSMENT 5 – SUPPORTING MATERIAL

This assessment for unit 5 taken from the book Science 5 (see figure 10) has been categorized in the quantity group because even if the topics are indeed in accordance with the unit contents, it is so short and simple that the teacher saw the necessity of changing it into a more appropriate one. In fact, having a test made up of six questions could be harmful for the students, and even more, because the teachers have to grade it over 20 points.

In fact, the wide variety of topics expanded along the lessons included in the unit called “Energy” gives more material to the teacher to develop a good assessment.

- Lesson 1 deals with the concept of energy, what changes it produces in objects, and the kinds of energy there are.

- Lesson 2 discusses the renewable and nonrenewable sources of energy such as wind, water, fuels and the sun.

- Lesson 3 states that the different types of energy (electrical, light or solar, kinetic and chemical) can be converted into another one; and the definition of movement. The last two parts are called “Society” and “Investigate”, and they portray the uses of energy and of oil

in society.

As it can be seen in figure 23, the new test designed by the author contains more questions, which allows the students more opportunities to make mistakes without affecting the grade too much. This new quiz covers much more than the original one, that only concentrates on renewable and nonrenewable energy.

3.2.2.5 SCIENCE 6 - ASSESSMENT 2 – SUPPORTING MATERIAL

This unit is the longest unit in the workbook; thus, the teacher takes two months to get through it. It contains a lot of information that students have to memorize, since it is about the four main systems in the human body, the relationships and coordination among them. The unit's name is Nutrition, but this title does not truly reflect the content of the unit, rather a small part that is not even treated in depth. What is treated in depth, are the four systems themselves, the relationships and coordination among them; the unit also emphasizes the need to memorize the parts of such systems, which are presented in a visual form as labeled diagrams.

The students are asked to draw, label and color these diagrams from the workbook:
a) The digestive system,
b) The respiratory and excretory systems; and,
c) The circulatory system, which is subdivided into "Circulation I" and "Circulation II", so students are able to understand the difference between general circulation and pulmonary circulation.

Since this unit is long, and there is a great deal of information, the teacher helps the students by dividing the unit in half, and taking two unit tests instead of just one.

The Unit Assessment contained in the support material of the program does not reflect at all the content of the unit (see figure 11). It has been structured in 10 multiple-choice questions that do not manage to cover all the knowledge contained in the unit. Since the students will keep studying Science in middle school, and Biology in high school, it is important to allow

students enough time to internalize this knowledge. To better prepare the students, the Assessment given in the book is used as a worksheet.

The author then develops two tests, the “Unit 2A Test”(see figure 24), which covers the four systems, the organs that are part of them, their function within the system and their function in coordination with another system, as well as the relationships that the systems hold with each other or not.

Then she develops “Unit 2B Test” (see figure 25), which covers all the information about blood, its components, the function of each component, and their importance. In addition to this general information about blood, knowledge about blood tests as a means doctors have to analyze any irregularity and thus be able to diagnose diseases or illnesses, is included. Another important aspect about blood that is also dealt with within this unit is the importance of knowing about blood types. Within classroom activities, the teacher carries out blood type tests on students and teaches them to perform such blood type tests; such information is also part of the unit 2B test. Finally, information about organ transplants is also included.

3.2.3 CULTURAL DISCREPANCIES

The following examples contain types of cultural differences between the country in which the book was made and Ecuador, where the series of books are being used.

3.2.3.1 SCIENCE 1 - WORKSHEET 2 – SUPPORTING MATERIAL

The first cultural example considered is Worksheet 2 (see figure 12), taken from the book Science 1. According to the author´s point of view, this worksheet was better not to be used with the students due to the different family situations nowadays. It is of common knowledge that every day the structure of a “traditional” family has been changing. And this is true in every school in Ecuador in different levels. Thinking of this, and the complexity of this socio-cultural situation, the teachers of this grade decided not to use this worksheet.

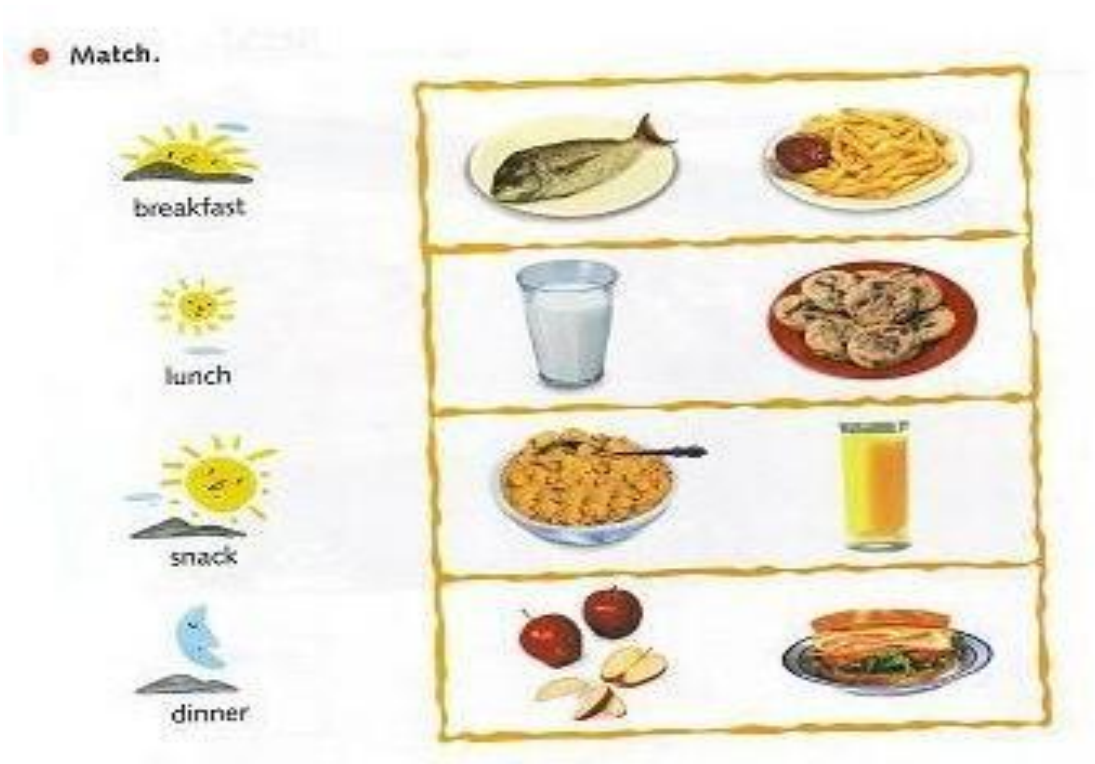
Moreover, as we can see in the first part of the worksheet, the girls have to choose which

group shown in the pictures is a family, a decision that could create many doubts in girls who are not part of a so-called “normal” family, whose families are formed just by the girl and her mother, or by the girl, her mother and grandparents.

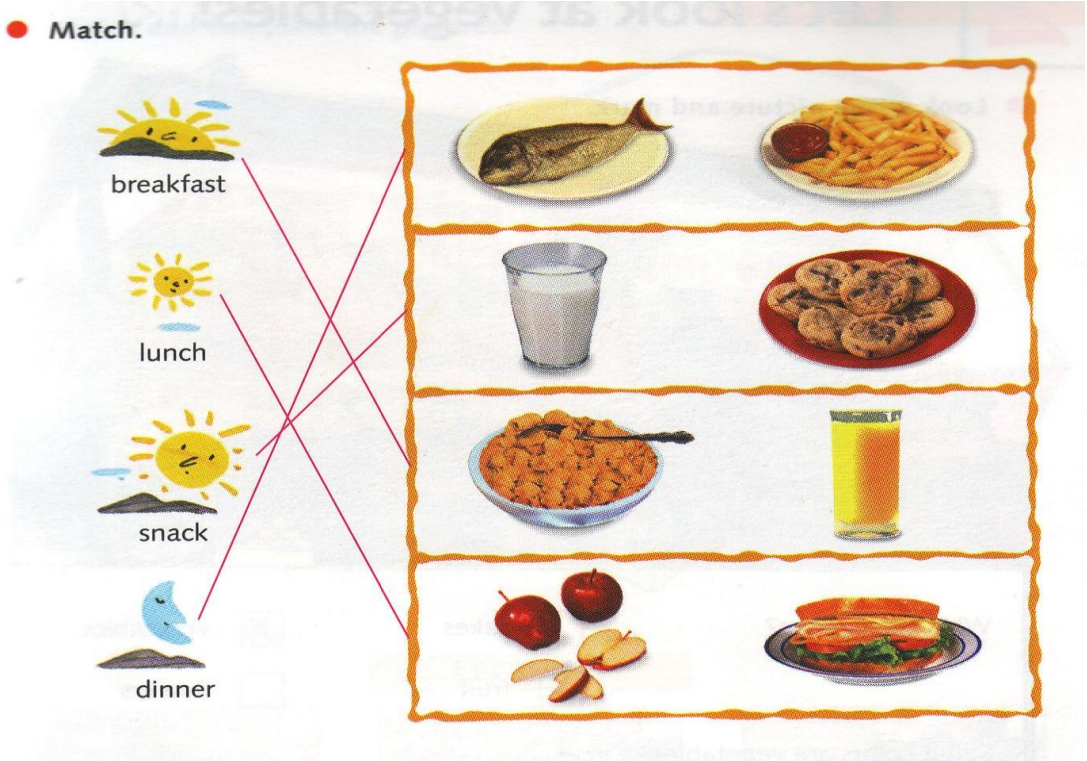
In fact, the number of “new types” of families that may have only one parent is increasing and, in many cases, the extended family (that is to say grandparents or aunts and uncles) is a child’s family. The decision not to use this worksheet was due to the diverse types of families of the girls in each of the classes at the school. So, the teacher considers that employing this worksheet may make many students feel uncomfortable and could cause many questions and misunderstandings. As a result, she employs the worksheet seen in figure 26 that asks the students to draw their own families without giving them specific parameters.

3.2.3.2 SCIENCE 1 - UNIT 2 – TEXTBOOK PG. 19

The second cultural example comes directly from the book and not from a worksheet or one of the tests. It has been taken from unit 2 “Healthy Food”, Lesson 1 “What do you eat and drink?” (see figure below)



ANSWER ACCORDING TO THE TEACHER'S GUIDE



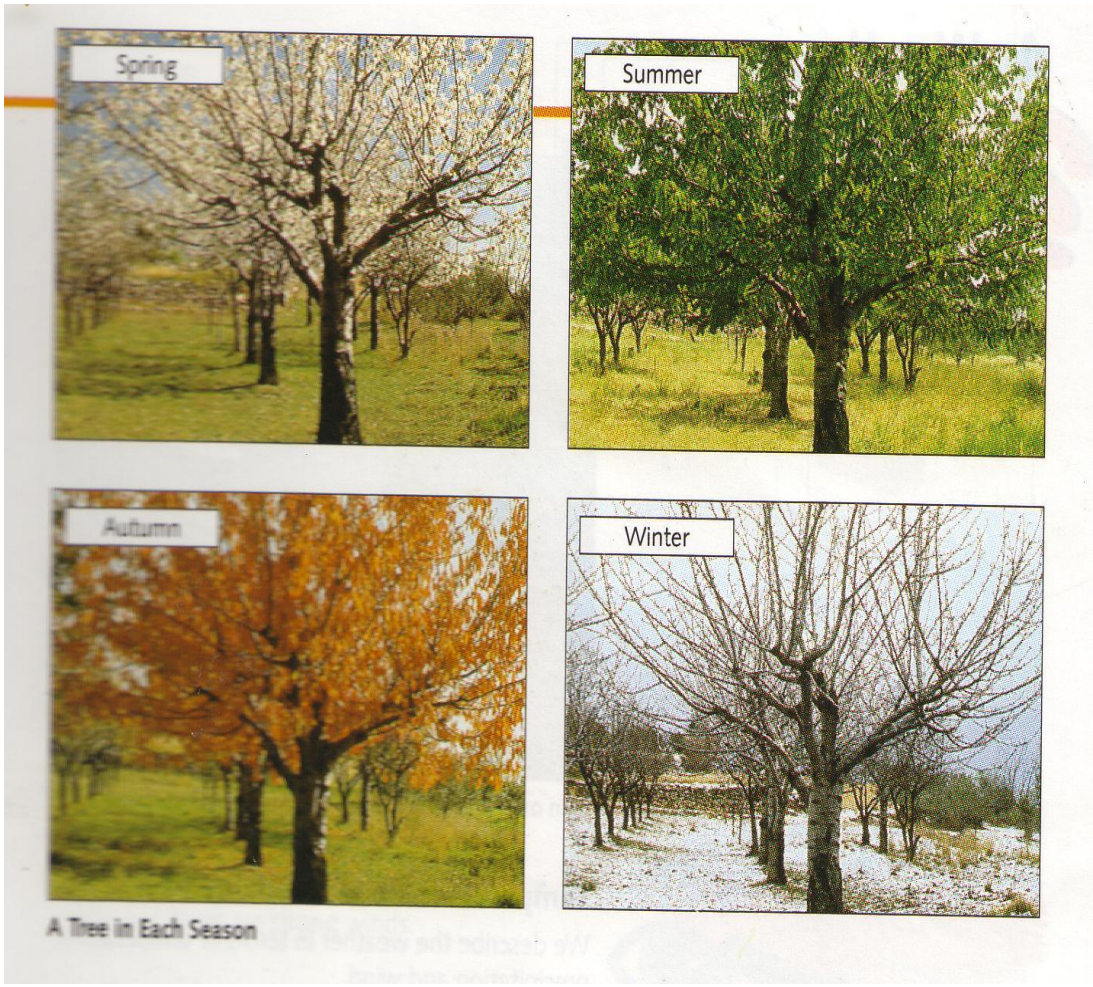
This lesson describes the different foods that people eat and drink and it deals with the main meals people eat. This causes a cultural misunderstanding, since meals vary from country to country.

In fact, the confusion starts with the fact that here in Ecuador we call the meal students get at school at recess around 10h30 in the morning, "lunch." Regrettably, this term is misused in Ecuador, since in English the word "lunch" is used to describe the meal eaten after school around 14h00 or 14h30 (of course depending on the time the students leave their school). And we do not use the word "snack", which is the correct name of this meal in the English language.

Moreover, what people eat at the four meals: breakfast, snack, lunch and dinner is different according to the country. So, when doing the activity shown above, the girls had different ideas on what to match. For example, in the United States, the most abundant meal would be dinner; hence having fish with French fries would be the ideal meal to choose. However, the girls chose the glass of milk with cookies since here in Ecuador that would be a better solution for them.

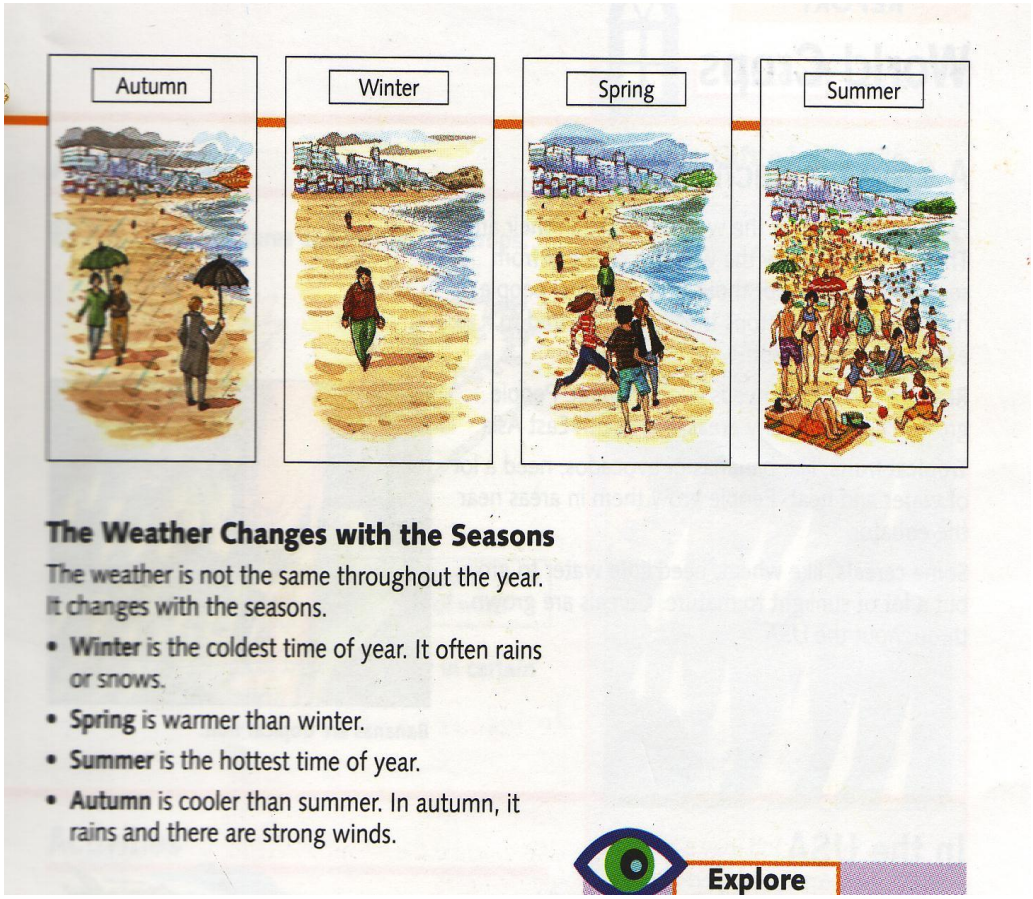
Also, in the States, they usually have a very light lunch such as a sandwich and fruit, but here for lunch we could have fish with French fries. And the sandwich with fruit could be what the girls have during recess at the school, the “snack” for Ecuadorians. Knowing about these cultural differences, the teacher decided not to follow the book, but to let the students choose what they thought was right. Of course, this was taken as an opportunity to create awareness in the students about the differences we can find in the diverse cultures around the world.

3.2.3.3 SCIENCE 3 - UNIT 4 – TEXTBOOK PG. 65



Another cultural difference arises when discussing the four seasons, especially in a country like Ecuador where the four seasons do not occur. In countries where there are the four seasons, it is easier to understand the differences not only weather-wise, but also regarding the special and varied clothes people use, depending on the season.

The difficulties start with the different landscapes, how plants and weather change depending on the season. For instance, if we look at the pictures presented above, we could realize how most trees in the United States vary from season to season, a phenomenon we do not have the opportunity to appreciate, because Ecuador is in the middle of the world.



Another important matter to be discussed is the fact that people have to adapt themselves to the weather, and their clothes vary accordingly. This is in another detail we have to take into account when teaching, and it is not an easy one to understand for people belonging to a country without the four seasons. So, talking in class about different types of coats and jackets seems very confusing to the students, due to their lack of familiarity with this topic.

3.2.4 OTHER

3.2.4.1 SCIENCE 1 - ASSESSMENT 1 – SUPPORTING MATERIAL

Figure 13 (see annexes) is “assessment 1”, the quiz designed to test the girls’ knowledge

about unit one of Science book 1. As mentioned before, this series of books has not been designed for foreign language learners, so the authors of this assessment have not considered the fact that second graders in Ecuador are learning how to read and write in their mother tongue, Spanish. So, expecting the girls to be able to do so in the foreign language, is not very realistic.

The same thing happens in the third part, which attempts to get the girls to read complex sentences for their stage and choose the abilities that they are able to do at their age. However, the second part of the assessment presented by the book is a good element to be included in the new quiz designed by the author. This happens because, in this second part, the students only have to write numbers from 1 to 5.

For all these reasons, the author designed a new unit one quiz more appropriate to the reality of the students (see figure 27). This new quiz was designed to give more importance to oral comprehension rather than a written one. That is to say, even if what the students need to draw is written under the faces, the teacher reads it out loud, one by one. In this way, the girls are able to express what they have learnt during the unit. However, as mentioned above, it was decided to include one of the three parts of the test given in the book.

3.3 ANALYSIS OF THE TEACHER'S QUESTIONNAIRE

In fact, according to the questionnaires filled out by the teachers, the activities included in the books for ESL are "Language Skills" and "Expressing Concepts," and they are not very useful because the time Science teachers have is very short (four class hours a week) and they cannot spend it reviewing grammar points. If they did so, they could not finish all the units of the workbook. This, of course, has to be finished, since the authorities and parents at the schools do not always understand that some activities are not helpful and are not worth doing.

The questionnaire also reflects that the worksheets and quizzes included in the series of workbooks are the ones used more often, of course, with the corresponding alterations we have thoroughly discussed. Consequently, according to the teachers, the different worksheets and tests developed by the author have been a great help in order to reach their learning objectives. The "Focus on Science" section gives the teacher ideas about

experiments that could be done with the students. This part was given a number three (it is used sometimes) according to the questionnaire (see appendix # 1).

On the other hand, “the cross-curricular connection” was given a number two (rarely used - see graphic # 2). This part tries to connect the topic being studied with knowledge from different subjects. For instance, in Science 3 book, designed for fourth graders, unit 4 “Rocks and Minerals,” the cross-curricular connection deals with information about a diamond called “Hope Diamond”, which is supposedly cursed. This activity most of the times cannot be done because, once more, of the lack of time.

3.4 ANALYSIS OF THE STUDENT QUESTIONNAIRE

The author decided to develop a questionnaire addressed to the students so that they could express their thoughts and feelings about the two different tests: the first one provided by the book, and the second one developed by the author. This questionnaire (# 2) was done in Spanish because it is the girls’ native language and, in this way, they would be able to understand it completely and convey their thoughts in a better way. In fact, when analyzing questionnaire # 2, completed by the students, we realize many important things. First, when asked which exam was longer, most of the students said that Exam 1 (the assessment from the book – see figure 8) was shorter than Exam 2 (the test developed by the teacher - see figure 10). If we count the number of pages, exam 2 is in fact longer; however, 30% (see chart # 3) of the students said it was exam 1. This could have occurred because it took them longer to complete the assessment taken from the book.

On the next question, 93 % of students affirmed that exam 1 was more difficult than exam 2 (see chart # 4). They mentioned that this exam expected them to know everything by heart and that the test did not give them any aids. Consequently, they deduced that exam 2 prepared by the author was the best one, not so complicated, and which covered all of the unit’s contents. In fact, we can observe this by looking at the results both tests gave (see chart 5). As seen in table # 4, the grade average is 17.60 on test # 2 (prepared by the author). In contrast, the poor performance of the students on test # 1 (taken from the book) can be seen, where the average is 13.19.

CONCLUSIONS

- Studying content in a different language such as English increases the students' knowledge. Consequently, they will have academic success when traveling abroad to study at university level. This is important because the school where this study was carried out is a private school, whose majority of students will travel abroad to study.

- Teachers and authorities should realize the importance of teaching a foreign language, not only through a regular English language class, but also through another subject, as a valuable tool that helps improve students' knowledge and true internalization of the language.

- Saying that the textbook should only be reference material is too idealistic. When we work at a school, we have to be conscious that parents are always concerned about process and the amount of money they have to spend on their children's school materials. We cannot ask parents to buy a textbook and not use it. Moreover, most English Departments demand that teachers finish the whole program, no matter what.

- There should be a balance between the textbook and the materials developed by the teacher. Teachers should be aware of the positive qualities that textbooks possess, such as standardized instruction, extra resources such as CD ROMs and posters. However, they should also be aware of their negative qualities, such as the lack of authentic language and the fact that they may deskill teachers because they may rely too much on textbooks and will not develop new and different materials for the students.

- The students' performance improved when using the exam designed by the author. This was shown by different results in class average.

- Teachers and students felt more confident when using the materials tailor-made by the author, as stated in the questionnaires.

- As can be seen in the analysis, the majority of discrepancies belong to the content discrepancies group. This could happen because, as mentioned before, the series of books are not well-designed for EFL learners. They only include certain specific activities for

them, which are not likely to be used by the teacher, because they are focused on grammar points.

RECOMMENDATIONS

- Teachers should not take the books for granted. They should analyze if their contents are really suitable for the reality of their own students.

- Even if an English teacher's guide always has worksheets and tests, the teachers should also develop their own original material more appropriate to the students. The limit is their imagination!

- In order to plan the activities to be developed in a class, teachers should take into account students' different types of intelligence. Verbal-Linguistic intelligence is not the only intelligence to be taken into consideration. That is why the teacher should find a way to balance his/her teaching and include activities for all the intelligence types and learning styles.

- There should be a balanced view on the use of textbooks. Teachers should not be against them. They are very useful, and if instructors know how to use them, they are great tools when teaching. However, teachers should have the ability to evaluate them and change anything that is not appropriate for the reality of the students.

ANNEX # 1

TEACHER'S QUESTIONNAIRE

Please answer the following questions:

1. Do you teach Science at your school? _____
2. Which grades do you teach? _____
3. Which book do you use? _____
4. Do you think the support materials included in the book are suitable for your students? Why?

_____

_____

_____

_____

5. Write numbers from 1 to 4 according to its usefulness to you.

4 - They are very useful. I use them all the time.

3 - I use them sometimes.

2 - I rarely use them

1 - They are not at all useful. I never use them.

_____ Worksheets

_____ Language Skills (ESL activity)

_____ Quizzes

_____ Expressing Concepts (ESL activity)

_____ Focus on Science

_____ Cross-Curricular Connection

6. Have you ever prepared your own worksheets or quizzes? How often? Explain.

_____

_____

_____

7. How many units does your book have? _____
8. How many of these units have you had to modify in any way? _____

☺ Thank you for your help! ☺

ANNEX # 2

GRAPHS AND TABLES

TEACHER'S QUESTIONNAIRE

Table # 1

Types of Discrepancies

Type	Number
Content Discrepancies	6
Quantity Discrepancies	5
Cultural Discrepancies	3
Other	1

Chart # 1

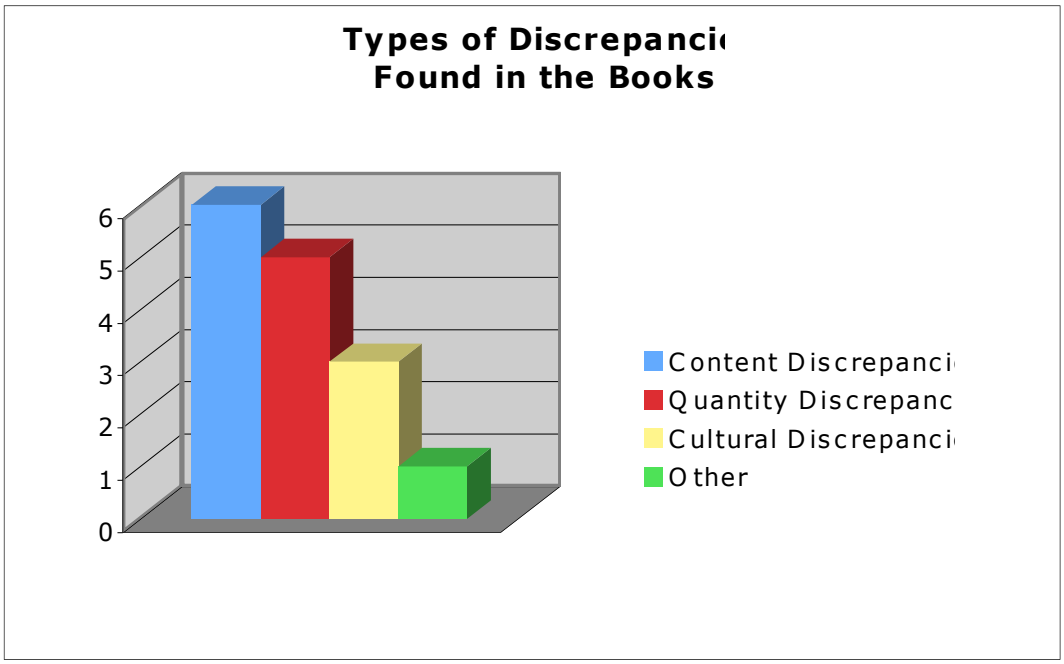
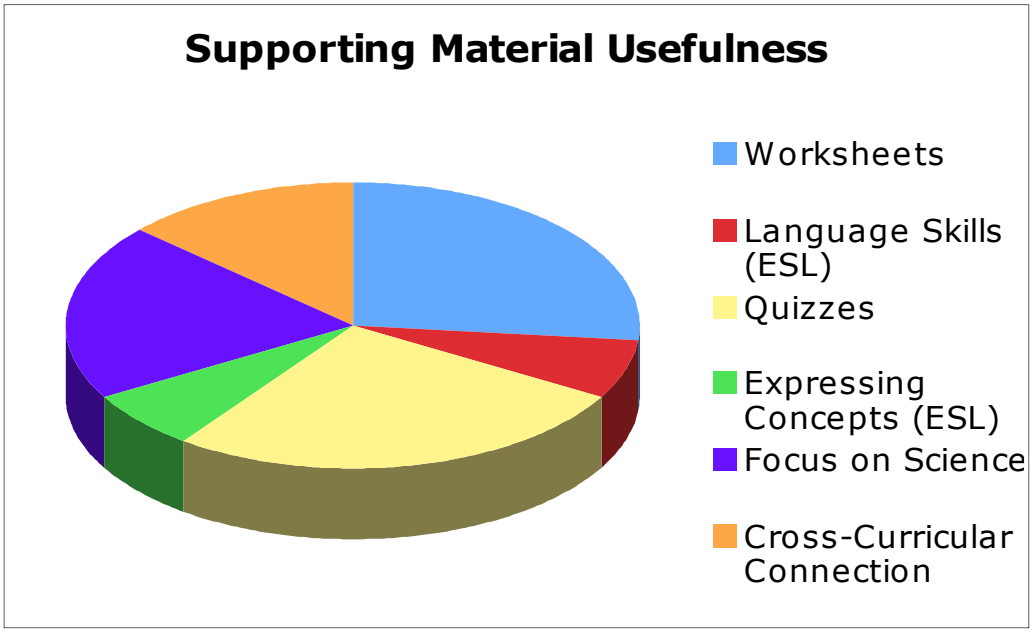


Table # 2

Supporting Material Usefulness

Supporting Material	Usefulness
Worksheets	4
Language Skills (ESL)	1
Quizzes	4
Expressing Concepts (ESL)	1
Focus on Science	3
Cross-Curricular Connection	2

Chart # 2



ANNEX # 3

STUDENTS' QUESTIONNAIRE

ENCUESTA

Por favor llene la siguiente encuesta

I. Conteste las siguientes preguntas:

¿En qué grado está usted? _____

¿Tomó usted dos exámenes de la unidad de "Animals" de Science?

sí _____ no _____

II. Coloque una X en el cuadro correspondiente:

	Examen # 1 **(Classifying Animals)**	**Examen # 2** **(Quiz Unit 7)**
Estuvo más largo		
Estuvo más difícil		
Estuvo más completo (cubrió más temas de la unidad)		

¿Cuál examen le pareció mejor para comprobar sus conocimientos acerca de animales? ¿Por qué?

_____

_____

_____

☺ Muchas gracias ☺

ANNEX # 4

GRAPHS AND TABLES

STUDENTS' QUESTIONNAIRE

Table # 3

	Exam 1	Exam 2
It was longer	14	32
It was more difficult	43	3
It was more complete	0	46
It was the best one	0	46

Chart # 3

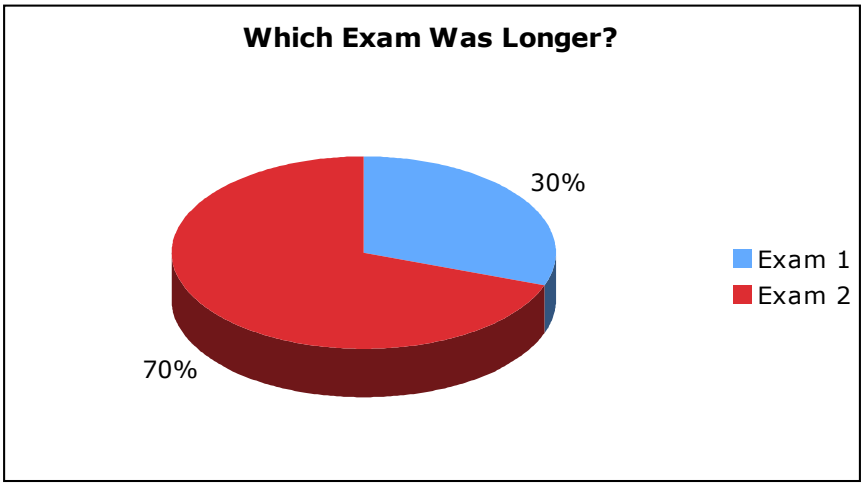
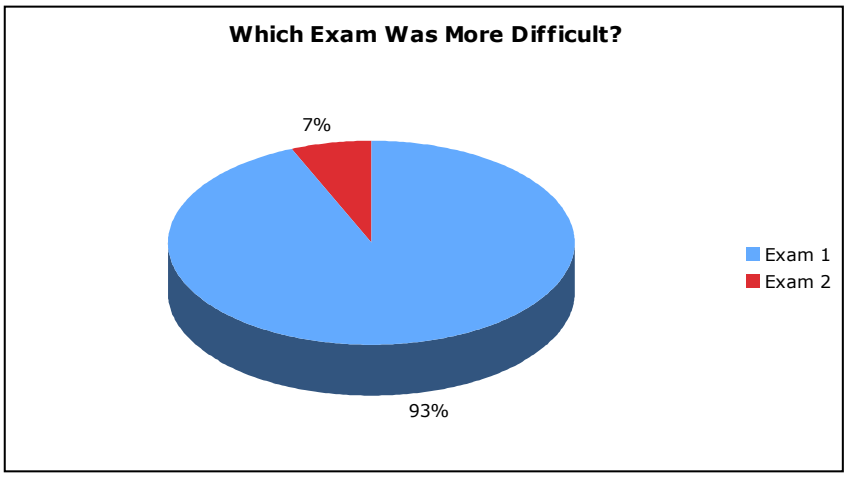


Chart # 4



ANNEX # 5

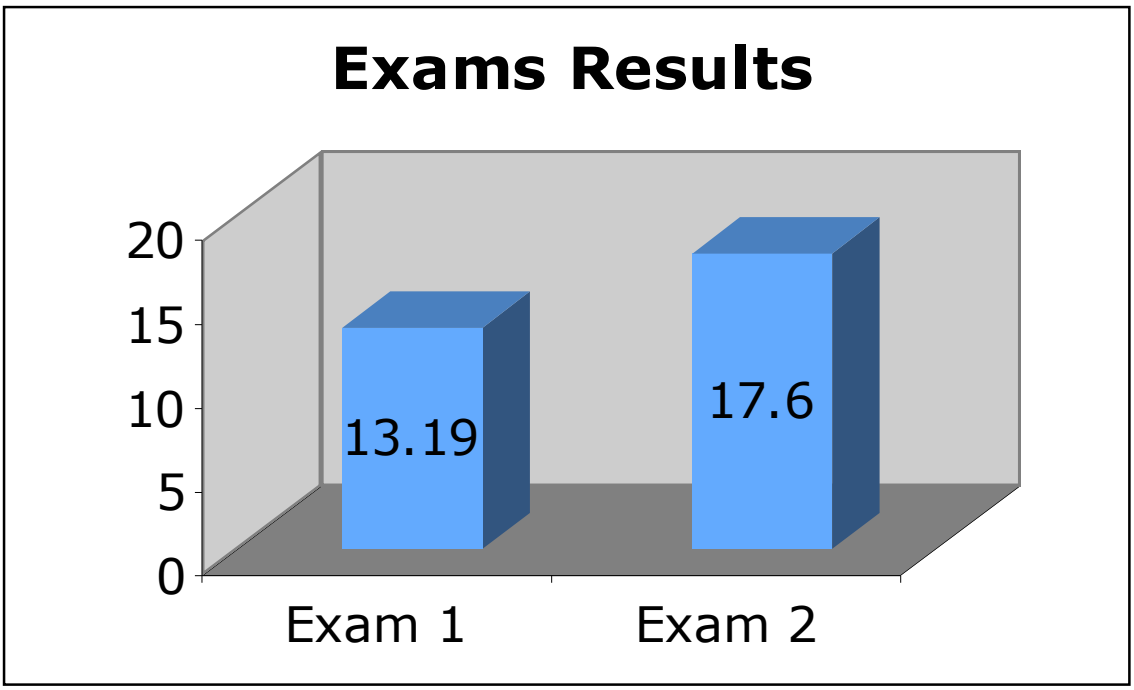
EXAMS RESULTS

Table # 4

	Test Provided by the book (Test 1)	Test tailor-made by the author (Test 2)
S1	11.3	20
S 2	10.7	11
S 3	12.7	12
S 4	16.7	19
S 5	18.7	20
S 6	14.7	16
S 7	17.3	19.3
S 8	2.7	19.3
S 9	10.7	17
S 10	15.3	20
S 11	16.7	20
S 12	16	19.3
S 13	10.7	20
S 14	11.3	11
S 15	17.3	20
S 16	13.3	19.3
S 17	14	20
S 18	17.3	18
S 19	8.7	18
S 20	8.3	14
S 21	16.7	20
S 22	16	18
S 23	16.7	18.7
S 24	0.6	6
S 25	12.3	15
S 26	11.3	20
S 27	17.3	20
S 28	14.7	20
S 29	9.3	20
S 30	12	18

S 31	14	18
S 32	14	17
S 33	6	15
S 34	10.7	20
S 35	16.4	15
S 36	11.3	14
S 37	15.3	14
S 38	8	17.4
S 39	17.3	19.3
S 40	13.3	19.3
S 41	13.3	18.5
S 42	17.1	19
S 43	9.3	19
S 44	19.3	20
S 45	12.7	15
S 46	17.3	20
	13.18695652	**17.59565217**

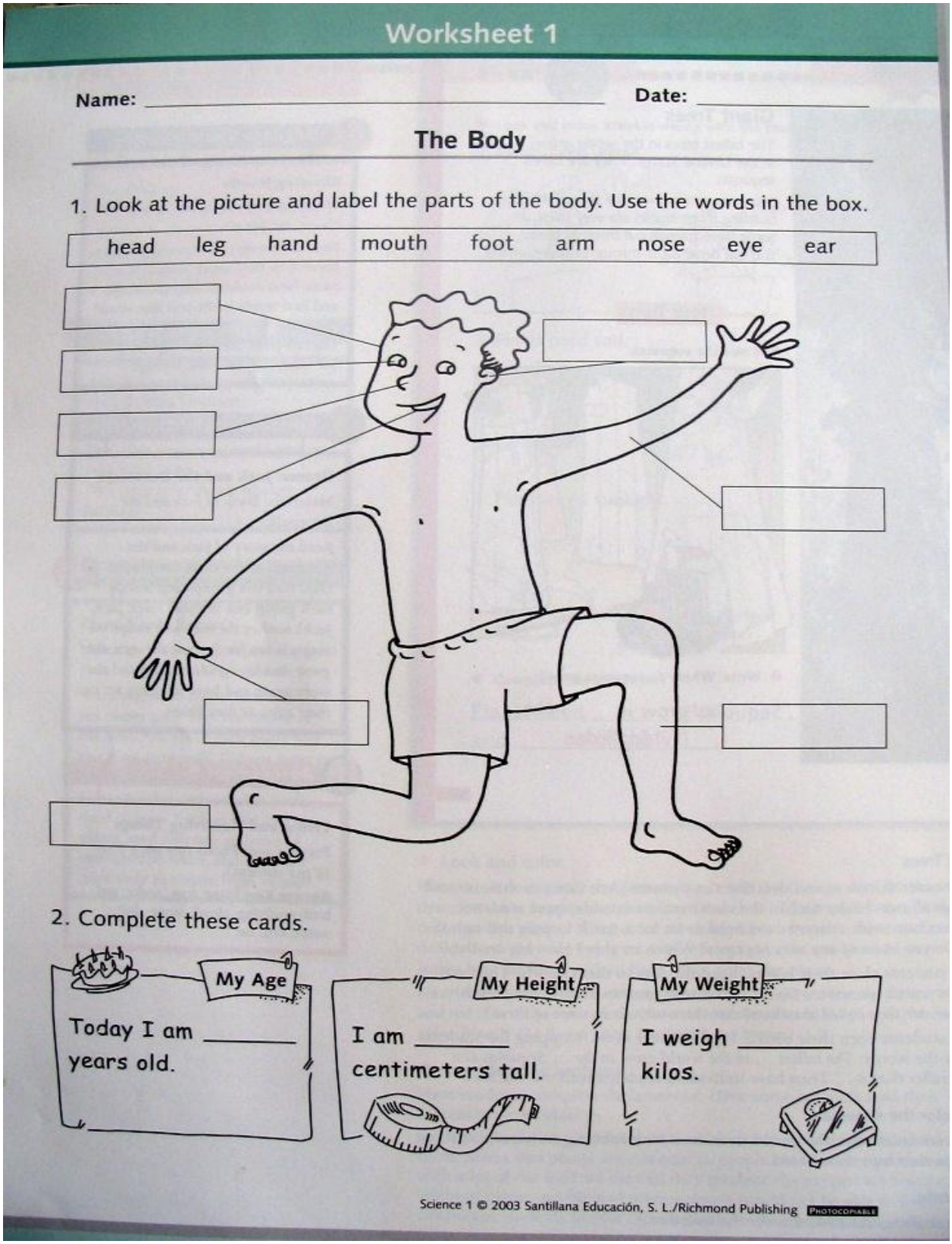
Chart # 5



Supporting Material taken from the Science books Collection by Richmond

CONTENT DISCREPANCIES

Figure 1: SCIENCE 1 - WORKSHEET 1 – SUPPORTING MATERIAL



Worksheet 1

Name: _____ Date: _____

The Body

1. Look at the picture and label the parts of the body. Use the words in the box.

head leg hand mouth foot arm nose eye ear

2. Complete these cards.

My Age

Today I am _____ years old.

My Height

I am _____ centimeters tall.

My Weight

I weigh _____ kilos.

Science 1 © 2003 Santillana Educación, S. L./Richmond Publishing PHOTOCOPIABLE

Figure 2: SCIENCE 2 - ASSESSMENT 1 – SUPPORTING MATERIAL

Assessment 1

Name: _____ **Date:** _____

Your Body

1. Complete the sentences. (2.5 points)

hair	skin	teeth	eyelashes	dentist

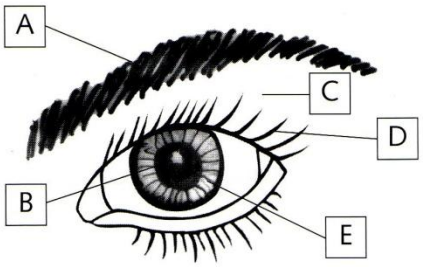
1. You can feel if something is cold or hot with your _____.
2. _____ grows on your head and on some parts of your body.
3. You use your _____ to cut, tear and chew food.
4. Your _____ protect your eyes.
5. You should visit the _____ to keep your teeth healthy.

2. Match the three columns. (5 points)

Parts of the Body	Senses	Things We Perceive
1. Our eyes	touch	colors
2. Our nose	sight	chocolate
3. Our skin	smell	soft cotton
4. Our ears	taste	music
5. Our tongue	hearing	perfume

3. Unscramble the words and match the letter to the word. (2.5 points)

	Name	Letter
1. riis	_____	☐
2. puilp	_____	☐
3. eyroweb	_____	☐
4. yelied	_____	☐
5. elasheyes	_____	☐



Science 2 © 2003 Santillana Educación, S. L./Richmond Publishing PHOTOCOPIABLE

Answer key on page 2

Figure 3: SCIENCE 3 - ASSESSMENT 1 – SUPPORTING MATERIAL

Assessment 1

Name: _____ Date: _____

Animal or plant food product?

Complete the charts with the foods in box. (10 points)

egg pasta cheese butter lettuce beef green bean yogurt
ham bread banana milk fish roast chicken apple
sponge cake almond chickpea rice peanut

Vegetable Origin			
Group 1	Group 2	Group 3	Group 4

Animal Origin			
Group 1	Group 2	Group 3	Group 4

PHOTOCOPIABLE Science 3 © 2003 Santillana Educación, S. L./Richmond Publishing

Figure 4: SCIENCE 3 - ASSESSMENT 7 – SUPPORTING MATERIAL

Assessment 7

Name: _____ Date: _____

Classifying Animals

Complete this classification table of vertebrates. Write at least two more examples from each animal group. (10 points)

	_____	_____	horse
	_____	_____	eagle
Vertebrates →	Amphibians	Lay eggs. Have no skin covering.	salamander
	_____	_____	tuna
	_____	_____	turtle

PHOTOCOPIABLE Science 3 © 2003 Santillana Educación, S. L./Richmond Publishing

Figure 5: SCIENCE 4 - ASSESSMENT 5 – SUPPORTING MATERIAL

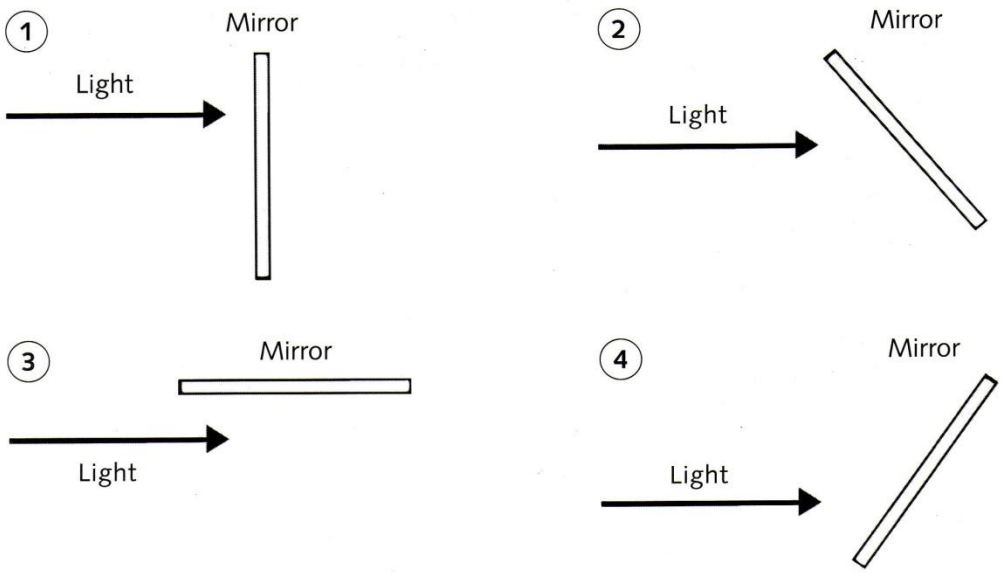
Assessment 5

Name: _____ Date: _____

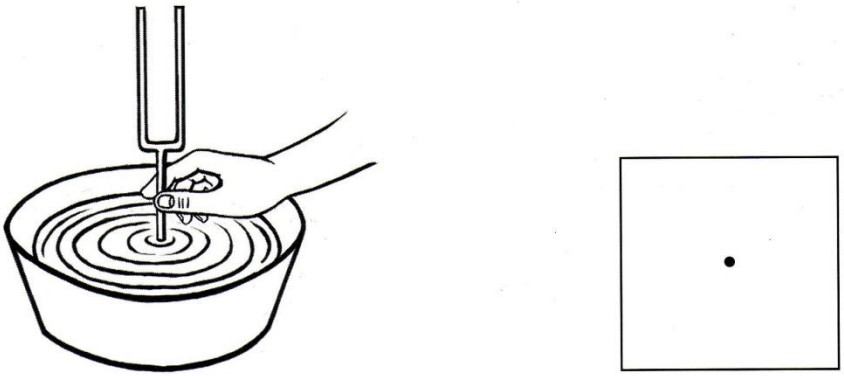
Light Rays and Sound Waves

1. Light rays. Light propagates in straight lines. When light rays hit a mirror, some rays bounce off.

   Look at the angle of the mirror in each diagram. Draw the direction in which the light will be reflected. (8 points)



2. Sound Waves. Sound propagates in all directions. We can see what sound vibrations look like. Look at the ripples produced when a tuning fork is knocked and held upright in water. Draw the direction and shape of the ripples as they leave the tuning fork. (2 points)



PHOTOCOPIABLE Science 4 © 2003 Santillana Educación, S. L./Richmond Publishing

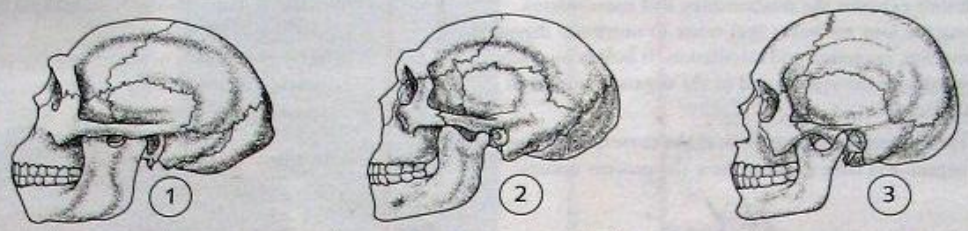
Figure 6: SCIENCE 6 - ASSESSMENT 1 – SUPPORTING MATERIAL

Assessment 1

Name: _____ **Date:** _____

Human Beings

1. Compare the three different human skulls and answer the question. (4 points)



1	2	3
Homo erectus Archaic human species 1.5 million years ago	*Homo sapiens neanderthalensis* Neanderthal (extinct human subspecies) 50,000 years ago	*Homo sapiens sapiens* Modern human Today

What differences can you see?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

2. Read the text and complete the table. (6 points)

Over time, human beings have evolved to survive in a changing world.
What physical and intellectual skills did prehistoric man need to survive?
What skills does modern man need today?

Prehistoric Man	Modern Man

PHOTOCOPIABLE Science 6 © 2003 Santillana Educación, S. L./Richmond Publishing

QUANTITY DISCREPANCIES

Figure 7: SCIENCE 3 - ASSESSMENT 8 – SUPPORTING MATERIAL

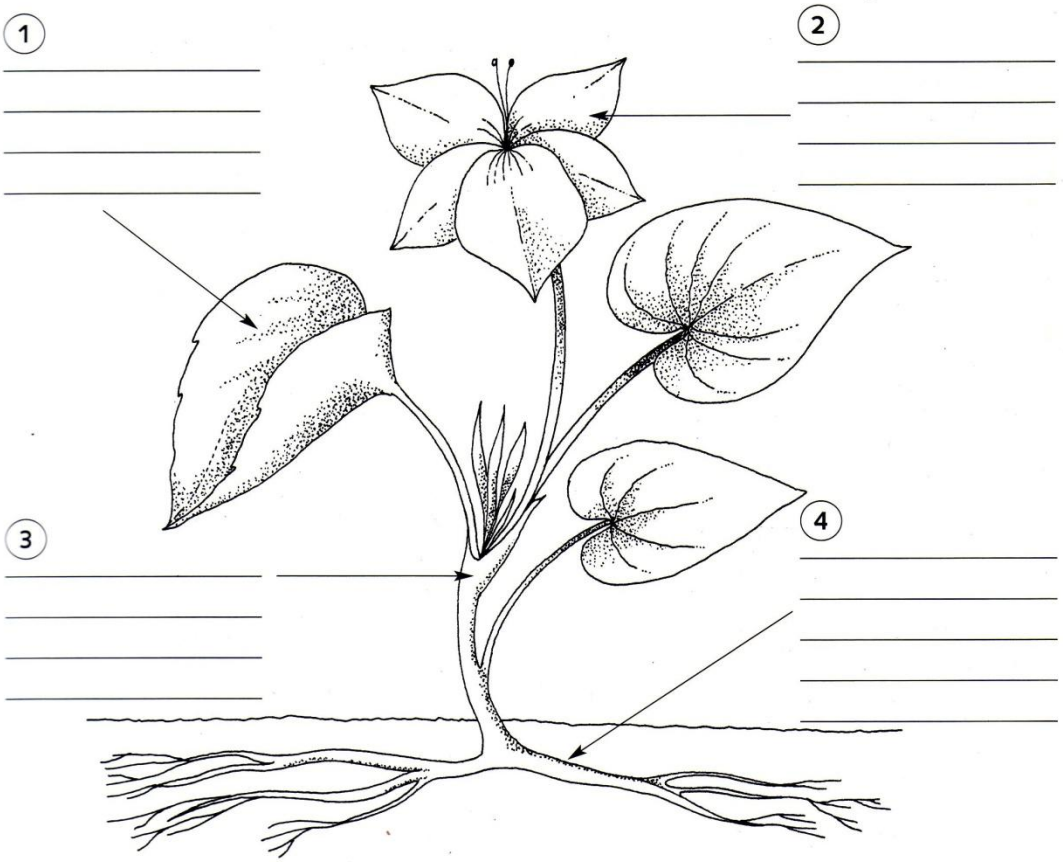
Assessment 8

Name: _____ **Date:** _____

The Parts of a Plant

Label the parts of the plant with their names and functions. (2, 8 points)

Parts of Plant	Functions
Leaf	It anchors the plant and absorbs water and nutrients from the soil.
Root	It supports the leaves and transports raw sap.
Stem	It is responsible for plant reproduction.
Flower	It uses sunlight to turn raw sap into refined sap.



PHOTOCOPIABLE Science 3 © 2003 Santillana Educación, S. L./Richmond Publishing

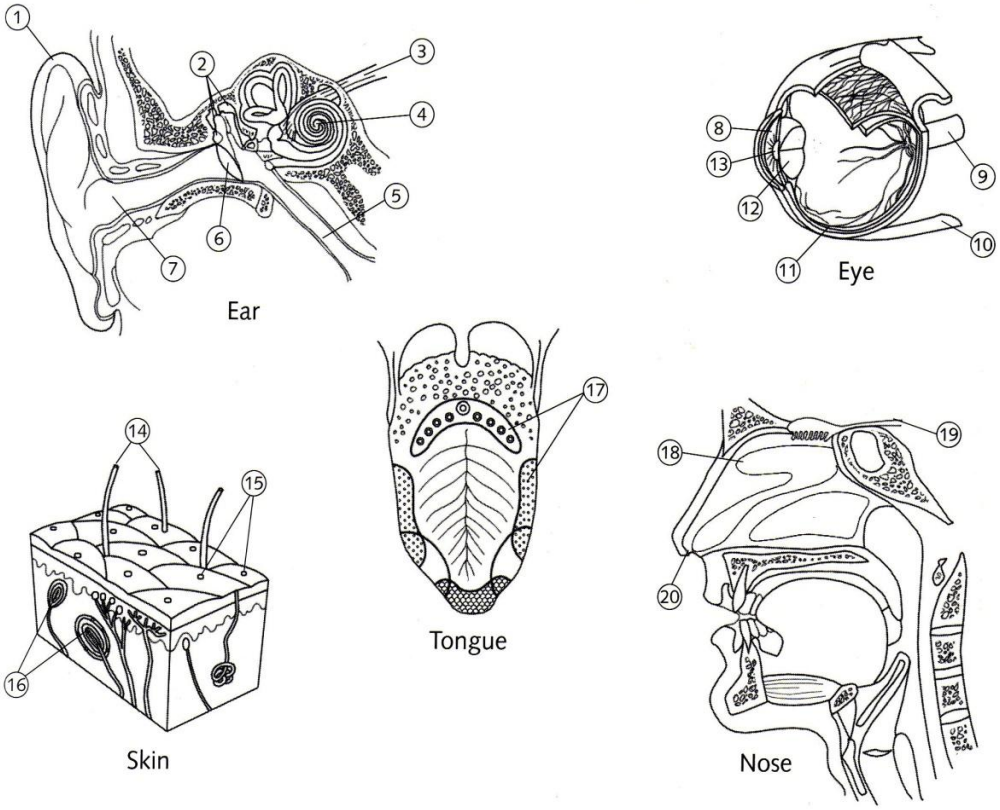
Figure 8: SCIENCE 4 - ASSESSMENT 3 – SUPPORTING MATERIAL

Assessment 3

Name: _____ **Date:** _____

The Senses

Match each number with a part of a sense organ. (10 points)



a. External ear canal ____
b. Iris ____
c. Eardrum ____
d. Olfactory region ____
e. Pores ____
f. Lens ____
g. Taste buds ____
h. Nostrils ____
i. Hairs ____
j. Cochlea ____
k. Optic nerve ____
l. Olfactory nerve ____
m. Pupil ____
n. Eustachian tube ____
o. Retina ____
p. Nerve endings ____
q. Ossicles ____
r. Eye muscle ____
s. Auditory nerve ____
t. Earflap ____

PHOTOCOPIABLE Science 4 © 2003 Santillana Educación, S. L./Richmond Publishing

Figure 9: SCIENCE 5 - ASSESSMENT 4 – SUPPORT MATERIAL

Assessment 4

Name: _____ Date: _____

Changes in Matter

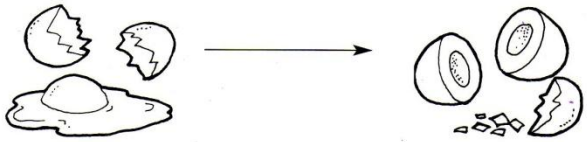
1. Are the changes below reversible or nonreversible? Are they chemical or physical changes? Circle. (8 points)

1.

Ice + Heat = Water

reversible/nonreversible
physical change/chemical change

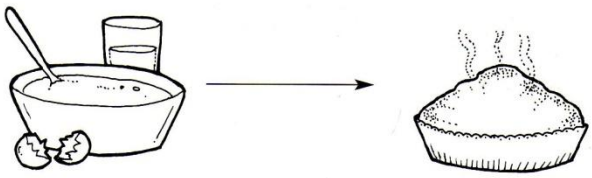
2.



Raw egg + Heat = Hard boiled egg

reversible/nonreversible
physical change/chemical change

3.



Cake mixture + Heat = Cake

reversible/nonreversible
physical change/chemical change

4.

Plastic ruler + Heat = Bent ruler

reversible/nonreversible
physical change/chemical change

2. Match the changes in state with the definitions. (2 points)

1. Fusion ____
2. Freezing ____
3. Evaporation ____
4. Condensation ____

a. The change from a gas to a liquid.
b. The change from a solid to a liquid.
c. The change from a liquid to a solid.
d. The change from a liquid to a gas.

PHOTOCOPIABLE Science 5 © 2003 Santillana Educación, S. L./Richmond Publishing

Figure 10: SCIENCE 5 - ASSESSMENT 5 – SUPPORTING MATERIAL

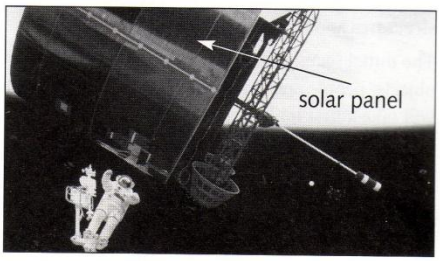
Assessment 5

Name: _____ Date: _____

Sources of Energy

1. **Write the sources of energy and classify them as renewable or nonrenewable. (8 points)**

1. _____



2. _____

3. _____

4. _____

2. **Answer the questions and give examples. (2 points)**
   1. What does *nonrenewable energy* mean? _____
   2. What does *renewable energy* mean? _____

PHOTOCOPIABLE Science 5 © 2003 Santillana Educación, S. L./Richmond Publishing

Figure 11: SCIENCE 6 - ASSESSMENT 2 – SUPPORTING MATERIAL

Assessment 2

Name: _____ Date: _____

Respiration

Circle the correct option. (10 points)

1. When we breathe in, we inhale air that is rich in …

   a. carbon dioxide. b. oxygen. c. natural gas.

2. The oxygen passes from the air to our blood in our …

   a. bronchioles. b. alveoli. c. trachea.

3. Oxygen is transported throughout our bodies to our …

   a. skin. b. cells. c. nerves.

4. In the cells, oxygen and food substances are used to make …

   a. energy. b. antibiotics. c. urine.

5. The process of conversion can be summarized using the following word equation:

   a. oxygen + food substances = carbon dioxide + water + energy.
   b. carbon dioxide + food substances = oxygen + energy.
   c. oxygen + water = nutritional substances.

6. Waste substances are then absorbed back into the …

   a. lungs. b. tissues. c. blood.

7. The blood reaches the alveoli where …

   a. carbon dioxide passes from the blood to the air in our lungs.
   b. the energy is used to make new cells.
   c. carbon dioxide is inhaled.

8. The blood passes through our kidneys where …

   a. feces are made.
   b. blood is filtered and urine is formed.
   c. blood cells are replaced by new ones.

9. Before it is eliminated, urine accumulates in the …

   a. bladder. b. lungs. c. intestines.

10. Urine leaves the body through the …

    a. anus b. sweat glands. c. urethra.

PHOTOCOPIABLE Science 6 © 2003 Santillana Educación, S. L./Richmond Publishing

Figure 12: SCIENCE 1 - WORKSHEET 2 – SUPPORTING MATERIAL

Worksheet 2

Name: _____ Date: _____

My Family

1. Which of these groups is a family? Draw a circle around each group.

red = a family blue = not a family

2. Draw your family. Who are you? Mark yourself with a cross: X

PHOTOCOPIABLE Science 1 © 2003 Santillana Educación, S. L./Richmond Publishing

Answer key on page 19.

OTHER

Figure 13: SCIENCE 1 - ASSESSMENT 1 – SUPPORTING MATERIAL

Assessment 1

Name: _____ **Date:** _____

People

1. Draw your picture and complete the card. (5 points)

Name: _____

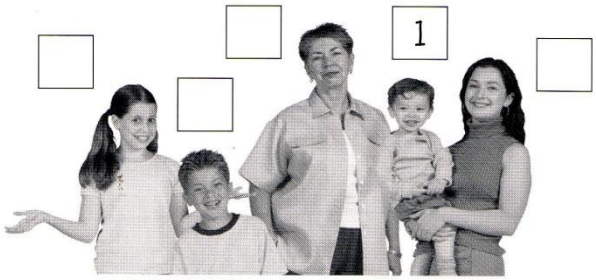
Age: _____

Hair color: _____

Hair type: _____

Eye color: _____

2. Number from young to old. (5 points)



3. What can you do? Mark your abilities.

Last year		This year	
read stories	☐	ride a bicycle	☐
write my name	☐	learn poems	☐
count to a hundred	☐	write a letter	☐
work in a group	☐	draw a circle	☐
add numbers	☐	work alone	☐
play games	☐	subtract numbers	☐

Science 1 © 2003 Santillana Educación, S. L./Richmond Publishing PHOTOCOPIABLE

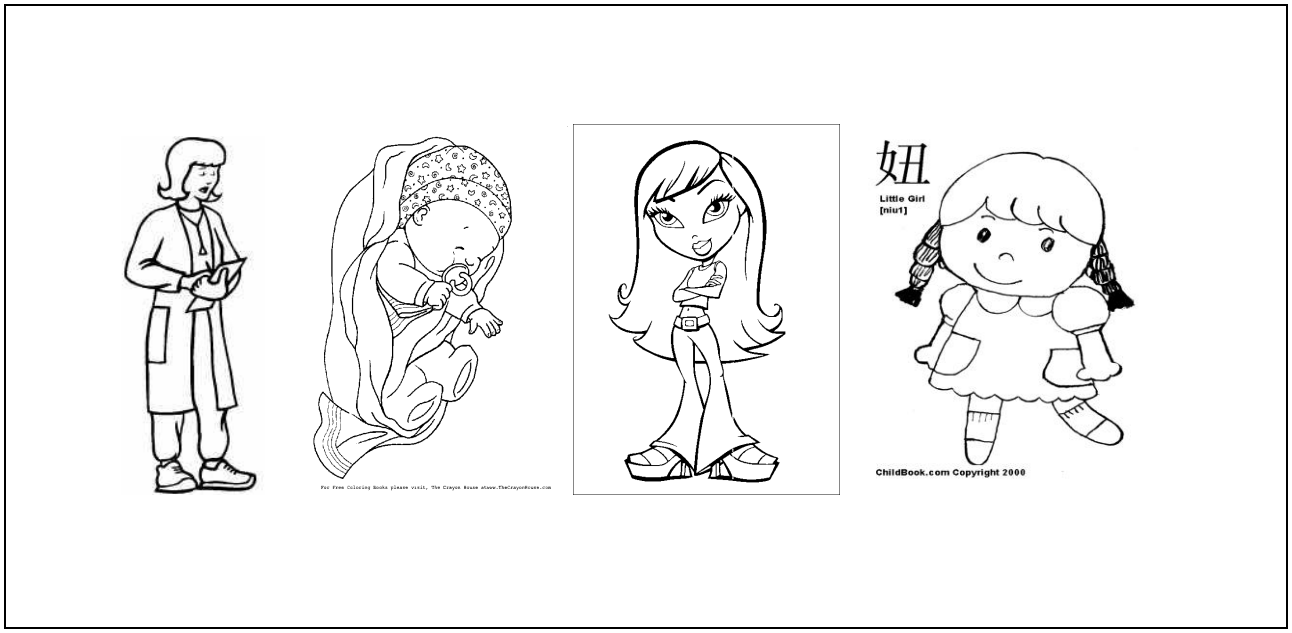
Answer key on page 21.

Supporting Material

tailor-made by the author

of this thesis

Figure 14: WORKSHEET 1 – SECOND GRADE



Name: _____ **2___**

Growing up!!

Number from young to old and glue the correct picture:

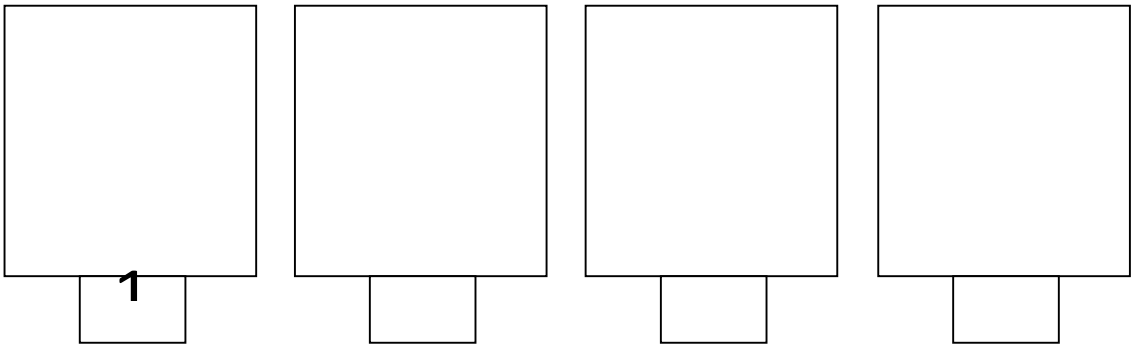


Figure 15: ASSESSMENT 1 – THIRD GRADE

QUIZ - UNIT 1

NAME: _____ Basic 3_____

I. Answer the following questions:

1. Where is your sense of touch? _____

2. Where is your sense of sight? _____

II. Complete each word. These are the parts of your eyes…

Eyeb_____ Eyeli___

Eyela_____ P_____ I_____

III. Complete the sentences.

1. _____ covers your body
2. _____ covers your skin on some parts of your body.
3. Light enters your eye through the _____
4. Your eyelashes and eyelids protect your _____
5. There are _____ teeth in a complete set.
6. Teeth are small _____.
7. You use your teeth to _____, _____ and _____ food
8. A _____ is a tooth problem.
9. You should visit the _____ to keep your teeth healthy.

IV. Complete the missing words in the columns with the words bellow:

touch – chocolate – smell – soft cotton – taste – music – hearing - perfume

Parts of the Body	Sense	Things we Perceive
Our eyes	*sight*	*colors*
Our nose		
Our skin		
Our ears		
Our tongue		

Figure 16: ASSESSMENT 1 – FOURTH GRADE

Name: _____ Date: _____ 4th ___

QUIZ - Unit 1

Food

I. <u>Write</u> the name, draw and <u>color</u>:

- Two dairy products:

- Two kinds of meat:

II. Classify the words in the box into *<u>living things</u>* or *<u>inanimate objects</u>*:

window - giraffe – book – beaver – lion - classroom – palm tree -

Living Things		**Inanimate Objects**
Animals	***Plants***	

III. Animal or plant food product? Write a P if it's a plant food product and an A if it's an animal food product.

- almond _____
- banana _____
- yogurt _____
- lettuce _____
- eggs _____
- milk _____
- beef _____
- roast chicken _____
- cheese _____
- apple _____

IV. Write "animals" or "plants" according to the sentence.

- They make their own food _____
- They move from place to place. _____
- They do not move from place to place. _____
- They eat animals and plants _____

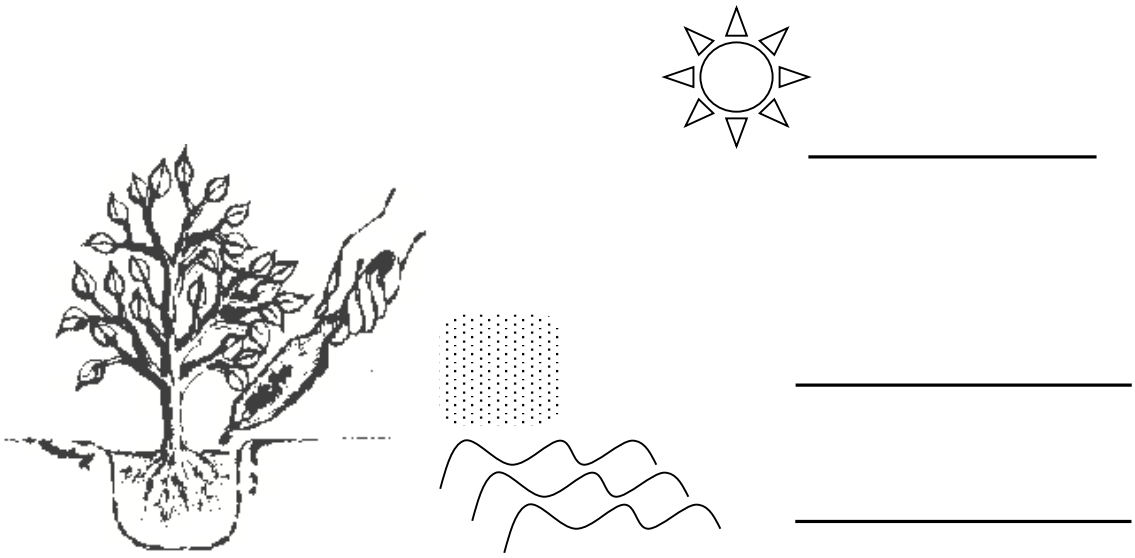
V. Complete the chart with the words in the box.

- pasta - beans – banana - steak– lettuce – milk- pear -
- yogurt - fish - cheese - eggs – candy - apple – bread -

FOOD GROUPS			
GROUP 1	**GROUP 2**	**GROUP 3**	**GROUP 4**

V. What do plants need to make their own food? Color and write the words in the correct place.

minerals - water - sunlight



BONUS QUESTION

Are people animals or plants? Why? _____

_____

☺ GOOD LUCK! ☺

Figure 17: ASSESSMENT 7 – FOURTH GRADE

Name: _____ Date: _____ 4 ___

QUIZ - Unit 7 – Animals

I. Answer the following questions.

1. Which is the most important characteristic of invertebrates? _____
_____

2. Which is the most important characteristic of vertebrates_____
_____

3. Aquatic animals breathe underwater. They have organs called _____
4. Birds' bodies are covered with _____
5. Reptiles' bodies are covered with _____
6. Mammals' bodies are covered with _____
7. Amphibians' bodies are covered with _____
8. The body of a fish is covered with _____

II. Complete the following sentences using the words in the box:

- herbivores - soft - vertebrate - omnivores - plants -
- meat - womb - invertebrate - carnivores - eggs -

9. Mammals are born from their mother's _____.
10. Invertebrates hatch from _____
11. A worm's body is long and _____
12. _____ eat plants.
13. _____ eat meat.
14. _____ eat both _____ and _____.
15. A snail is an _____. It doesn't have an internal skeleton.
16. A lion is a _____. It has an internal skeleton.

III. Complete the chart using the word from the box.

- earthworm - snake – frog – snail - trout - whale – amphibians - insects - mollusks - birds - reptiles -

VERTEBRATES				
Mammals		**Fish**		
				eagle
INVERTEBRATES				
Worms				
				butterfly

IV. Which <u>vertebrate</u> groups do these animals belong to? Color them.

LION

SPARROW

CROCODILE

SHARK

_____ _____ _____ _____

V. Match the respiratory organs with the animals (write the letter on the line)

A. gills B. tracheae C. lungs

17. tuna _____
18. ants _____
19. dolphin _____
20. ladybug _____
21. horse _____
22. beet _____
23. whales _____
24. cows _____

☺ GOOD LUCK! ☺

Figure 18: ASSESSMENT 5 – FIFTH GRADE

Name: _____ Date: _____ 5___

QUIZ - Unit 5

Light and Sound

I. Answer the following questions:

1. What is Light? _____

_____

2. Can we see in the dark? Why? _____

_____

3. To get brown, what colors do you mix? _____
4. What types of musical instruments are there? _____

_____

5. What produces sound? _____
6. Which one is a better sound conductor, water or air? _____
7. Why is noise a kind of pollution? _____

_____

8. How can noise harm our health? What illnesses could it produce? Name two.

_____

9. Give two sources of noise in a city. _____

II. Give 4 examples of luminous and 4 examples of nonluminous objects.

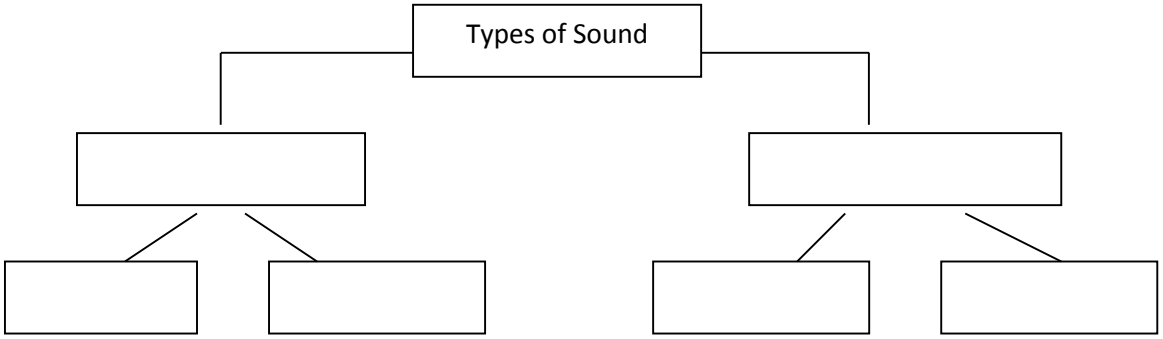
Luminous	**Nonluminous**
(natural) _____	_____
(natural) _____	_____
(artificial) _____	_____
(artificial) _____	_____

III. Complete the following sentences using the words in the box.

red / translucent / lines / metals / shadow / opaque / yellow / directions / echo / cork / yellow / speed / blue / transparent

10. Light Propagates in straight _____, in all _____ and at very high _____.
11. The _____ of an object always forms on the side opposite to the side receiving light.
12. An _____ forms when sound hits an obstacle and bounces off it.
13. We mix _____ and _____ to get green.
14. We mix _____ and _____ to get orange.
15. _____ objects do not let light pass through them.
16. We can see clearly through _____ objects.
17. _____ let some light pass through them.
18. There are materials that conduct sound well, like _____.
19. There are materials that do not conduct sound well, like _____.

IV. Complete the diagram



☺Good Luck! ☺

Figure 19: ASSESSMENT 1 – SEVENTH GRADE

QUIZ - UNIT 1

NAME: _____DATE: _____ 7th __

I. Answer the following questions:

1. What organs are involved in respiration? _____

   _____

2. What is behavior? _____

   _____

3. What system is involved in blood circulation? _____

4. What is nutrition? _____

   _____

5. What systems are involved in behavior?_____

   _____

6. What organs are involved in digestion? _____

   _____

7. What systems are involved in respiration? _____

   _____

8. What systems are involved in nutrition? _____

   _____

9. What is the difference between sedentary and nomadic ways of life?

   _____

10. Why were our first ancestors nomadic? _____

_____

_____

11. Why did our ancestors change their way of life? _____

_____

12. What kinds of tools were used by our ancestors? _____

_____

13. How did our ancestors make their tools? _____

_____

II. Complete the following sentences:

14. People are living things because _____

_____

15. People are animals because _____

_____

16. People are mammals because _____

_____

17. People are different from other living things because _____

_____

18. People are different from other animals because _____

_____

19. People change during their life. For example, _____

_____

20. People have changed throughout history. For example, _____

QUANTITY DISCREPANCIES

Figure 20: ASSESSMENT 8 – FOURTH GRADE

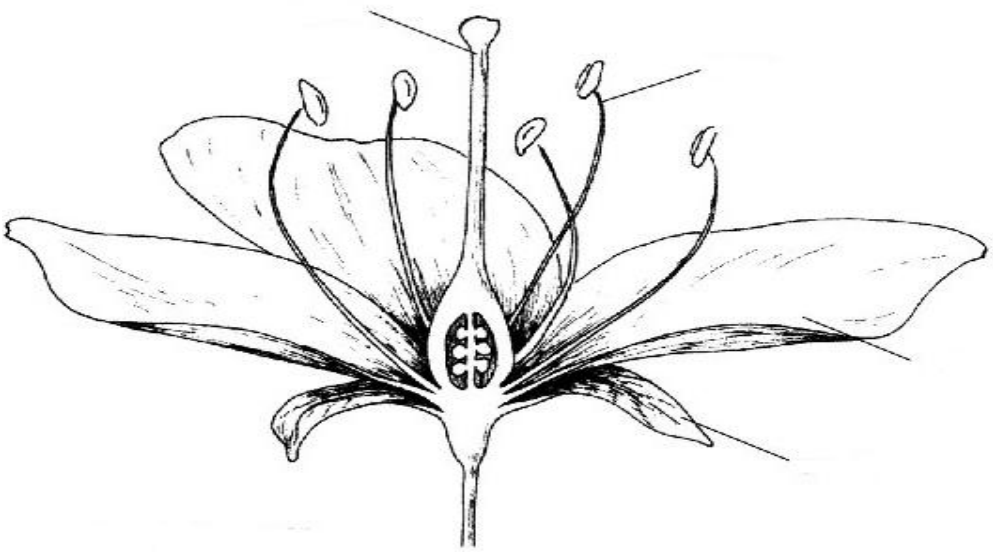
Name: _____ Date: _____4__

SCIENCE QUIZ

UNIT 8 – PLANTS

I. Color the <u>flower</u> and label its parts:

stamens - petals - pistil - sepals



II. Complete the chart with the fruit below:

- watermelon - hazelnut - walnut - lemon - orange - almond -

Fleshy fruits	Nuts

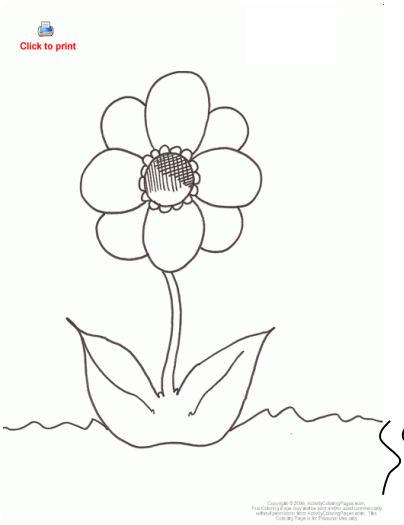
III. Complete the sentences. Use the words form the box:

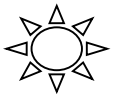
- raw sap	- bushes	- grass	- trees -
- plant	- sunlight	- refined	- stem -

1. _____ is a mixture of water and nutrients that the plant absorbs from the soil.
2. _____ have a trunk and branches growing at ground level.
3. _____ does not have a trunk.
4. The raw sap goes up the _____ of the plant.
5. Leaves need _____ to turn raw sap into refined sap.
6. The _____ sap travels to all parts of the _____.
7. _____ have a trunk and high branches.

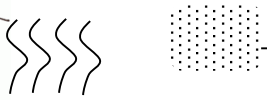
IV. <u>Label</u> and <u>color</u> the following:

To make its own food a plant needs…





_____

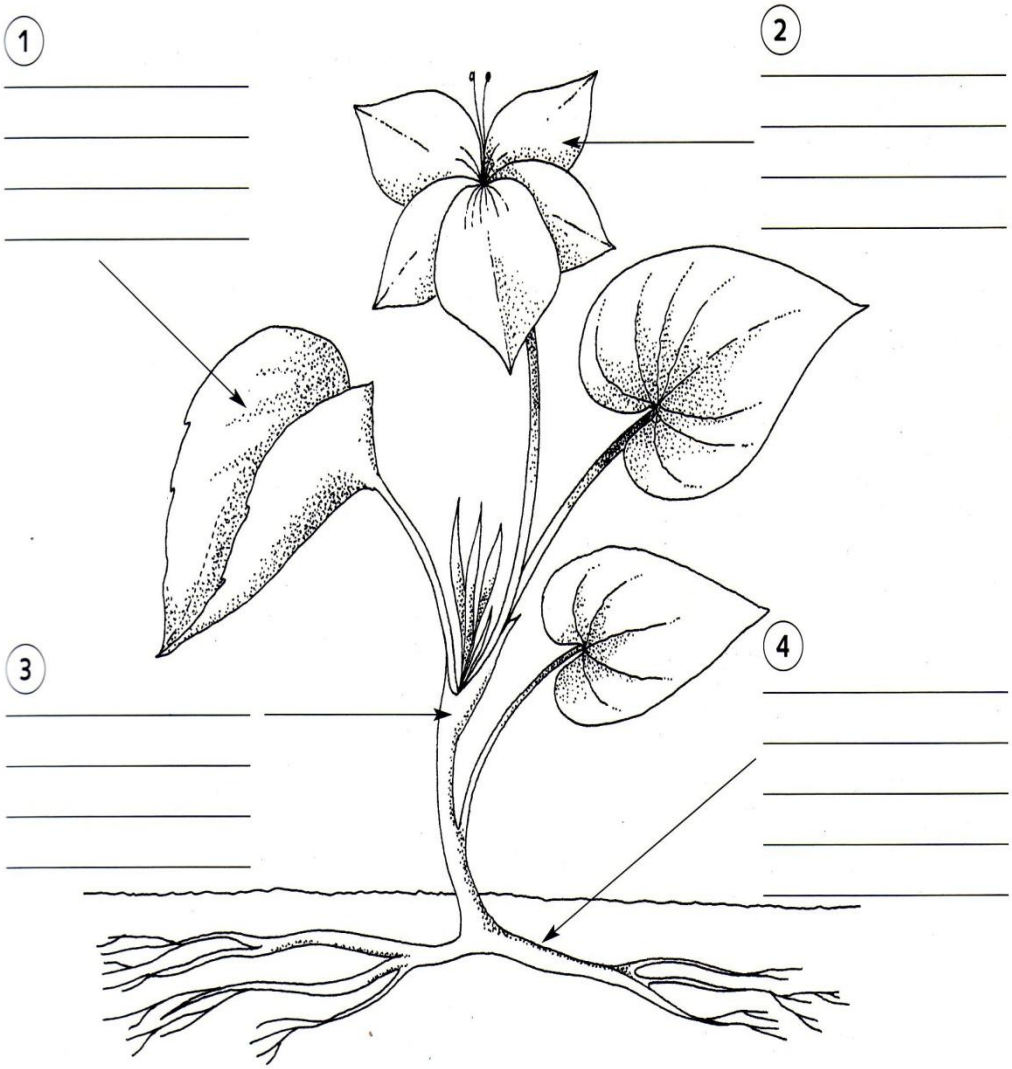


_____

_____

V. Label the parts of the plant and write down their functions:

Parts of Plant	Functions
Leaf	It anchors the plant and absorbs water and nutrients from the soil.
Root	It supports the leaves and transports raw sap.
Stem	It is responsible for plant reproduction.
Flower	It uses sunlight to turn raw sap into refined sap.



☺ GOOD LUCK! ☺

Figure 21: ASSESSMENT 3 – FIFTH GRADE

Name: _____Date: _____ 5___

SCIENCE QUIZ – UNIT 3

THE SENSES

I. Answer the following questions:

1. Which are the five senses? _____

_____

3 The ear is divided into three parts. What are the names of these parts?

_____

4. What are the names of the parts that protect the eye? (4) _____

_____

5. Write down four (2) flavors. _____
6. Write one (1) example of odor. _____

II. Write the appropriate letter on the line:

a. olfactory nerve _____ hearing

b. taste nerve _____ smell

c. auditory nerve _____ touch

d. tactile nerve _____ taste

e. optic nerve _____ sight

III. Write the appropriate letter on the line:

a. eyes _____ hearing

b. nose _____ sight

c. skin _____ taste

d. ears _____ touch

e. tongue _____ smell

IV. Complete the following sentences:

- Eustachian tube - iris - retina - nostrils - ossicles - pores - sounds –
- odors - blood - pupil - surface - flavors - eardrum - nerve - ear canal –- hairs - internal - light - taste buds - tip – olfactory region – bitter -

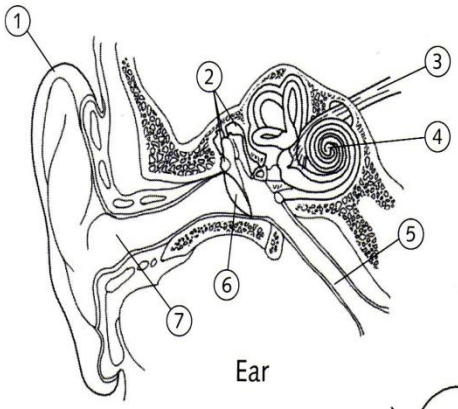
7. The _____vibrates when the sounds arrive.
8. Hearing enables us to perceive _____.
9. The _____ carries sounds to the inside of the ear.
10. The _____ is the tube that connects the middle ear with the throat.
11. The skin has two layers:

On its _____ layer, it has _____ and _____.

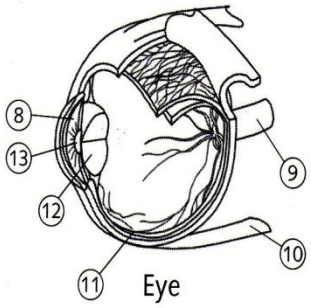
On its _____ layer is has _____ vessels and _____ endings.

12. The _____ is the colored part of the eye.
13. We need_____ in order to see.
14. Light enters the eye through the _____.
15. Taste enables us to detect _____.
16. There are _____ on the surface of the tongue.
17. The sense of smell enables us to detect _____.
18. We taste sweet things on the _____ of the tongue.
19. The nose is divided into different parts. The _____ are the holes where the air enters. The _____ recognizes odors.

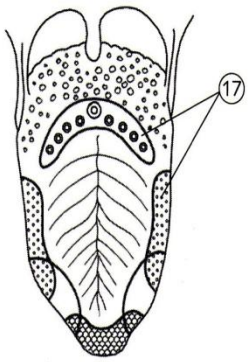
V. Match each number with a part of a sense organ:



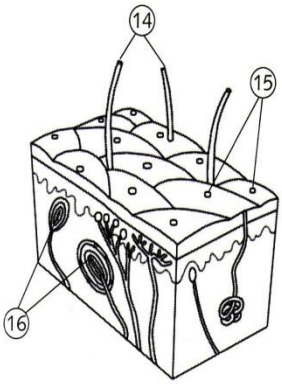
Ear



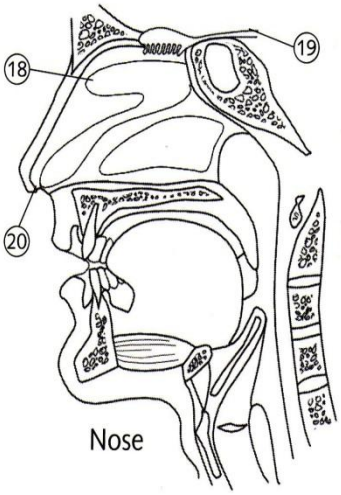
Eye



Tongue



Skin



Nose

a. External ear canal ____
b. Iris ____
c. Eardrum ____
d. Olfactory region ____
e. Pores ____
f. Lens ____
g. Taste buds ____
h. Nostrils ____
i. Hairs ____
j. Cochlea ____
k. Optic nerve ____
l. Olfactory nerve ____
m. Pupil ____
n. Eustachian tube ____
o. Retina ____
p. Nerve endings ____
q. Ossicles ____
r. Eye muscle ____
s. Auditory nerve ____
t. Earflap ____

BONUS QUESTION

This is produced in our ears. Its function is to protect them. What is it?

_____

☺ GOOD LUCK!! ☺

Figure 22: ASSESSMENT 4 – SIXTH GRADE

QUIZ - UNIT 4

NAME: _____ 6 ____

I. Complete the following paragraph with the correct words or information.

Matter can exist in three states: _____, _____ and _____. Solids are fixed and have a specific _____ and a constant _____. Liquids and gases are _____ and adapt to the shape of the space they are in. Gases compress easily.

Matter can experience _____ changes and _____ changes. Changes of state caused by _____ or _____ are physical changes.

II. Answer the following questions. Explain your answers.

11. What is matter? _____

_____

12. What properties does matter have? _____

_____

13. In what states can matter exist? _____

_____

14. What kind of changes can matter experience? _____

_____

15. What is a change of state? _____

_____

16. How do changes of state happen? _____

_____

17. What kinds of changes of state can happen? _____

_____

III. Calculate the Density of the following objects:

18. Mass: 15 g

Volume: 5 cm^3

Density = _____

19. Mass: 56 g

Volume: 7 cm^3

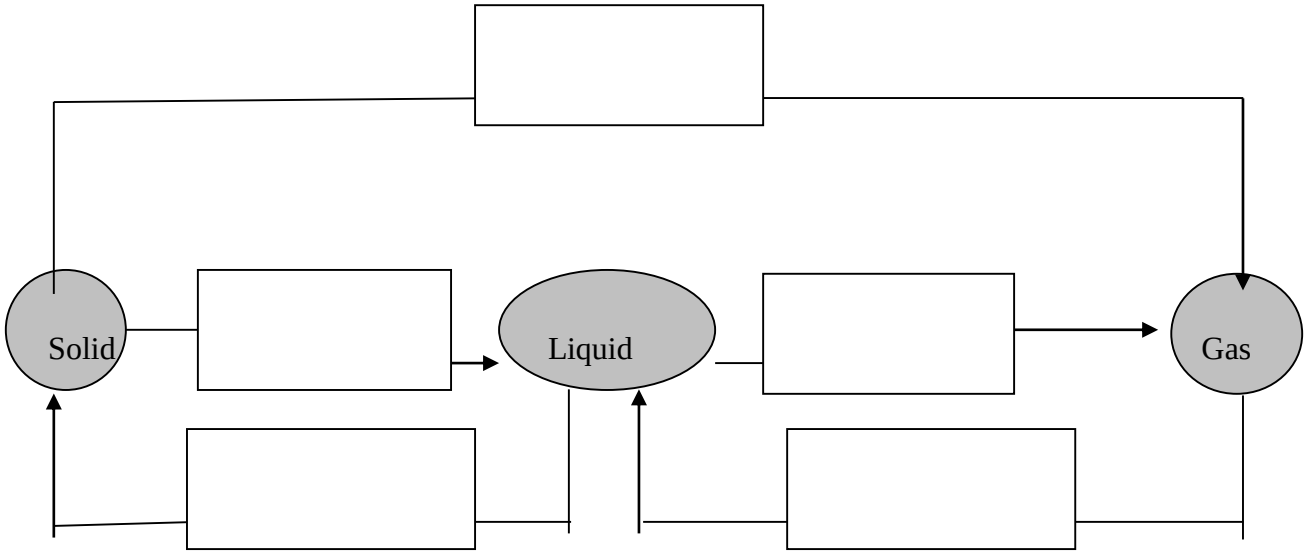
Density = _____

20. Mass: 6 g

Volume: 3 cm^3

Density = _____

IV. Complete the following diagram:



☺ Good Luck! ☺

Figure 23: ASSESSMENT 5 – SIXTH GRADE

QUIZ - UNIT 5

NAME: _____ DATE:_____ 6____

I. Complete with the correct form of energy produced or used in each case.

Battery	*Electric current* ●⟶	*Light Bulb*		*Gasoline*	*Combustion* ●⟶	*Moving Car*
Bow	*When bowstring* ●⟶ *is released*	*Arrow*		*Bicycle*	*When you pedal* ●⟶	*Dynamo*

II. There are three ways in which heat energy travels: conduction, convection and radiation. Write the type of heat transfer in each case.

Type of Heat Transfer	Definition
	Heat passes between touching objects
	Heat travels through fluid substances
	Heat travels as electromagnetic waves

III. Complete the sentences:

12. Energy is necessary for _____.

13. People and machines need _____ to carry out different activities.

14. Objects change when they receive or give off _____.

15. _____ energy depends on movement.

16. Batteries and fuels have _____ energy

IV. Answer the following questions:

17. Name four different forms of energy:

_____

_____

18. Name at least two sources of energy, and if they are renewable or nonrenewable

a.)_____

b.) _____

19. Write one way of heating water and the form of energy used.

_____

_____

20. Can one form of energy be converted into another? Give an example.

_____

_____

_____

Good Luck!

Figure 24: ASSESSMENT 2 (A) – SEVENTH GRADE

QUIZ UNIT 2 A

Name: _____ 7 _____

I. Answer the following questions:

1. Why are the following statements true?

a. Digestion begins in the mouth.

_____

_____

b. The small and large intestines have different functions.

_____

_____

2. Where are circulation and excretion connected? _____

3. What is an artery? _____

_____

4. What is a vein? _____

_____

5. What is an alveoli? _____

_____

_____

6. Can we live without kidneys? Explain.

_____

_____

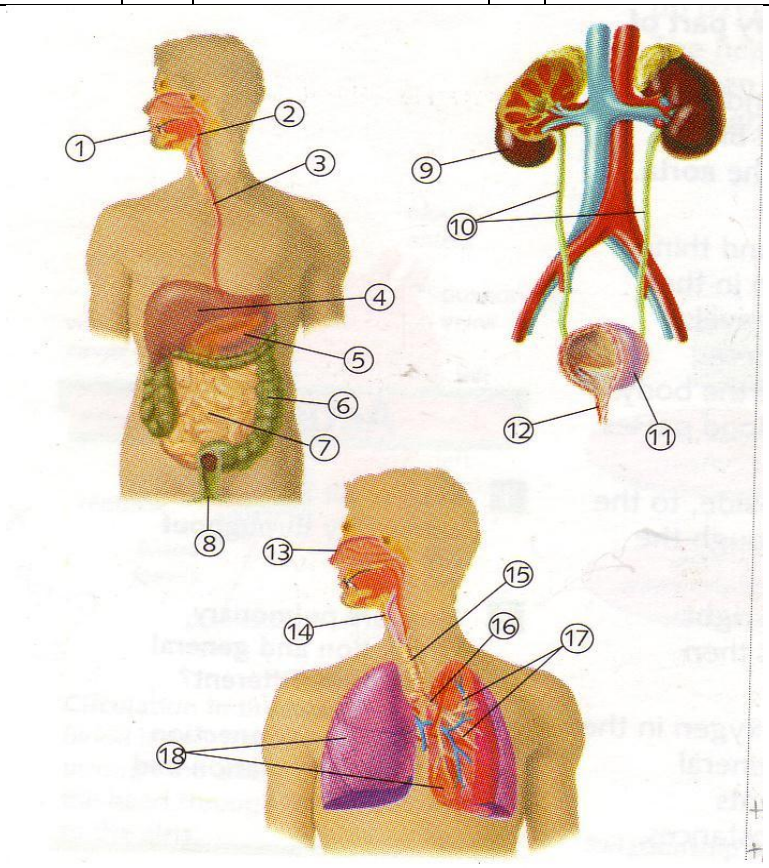
7. Classify the following in the chart:

- intestine - bronchi - arteries - bladder
- trachea - liver - kidneys - capillaries

Systems and Organs that take part in Vital Functions			
Digestive	**Respiratory**	**Excretory**	**Circulatory**

8. Match each body part with its number:

	Kidney		Bronchioles		Bladder
	Large intestine		Esophagus		Trachea
	Nose		Ureters		Urethra
	Anus		Liver		Small intestine
	Pharynx		Mouth		Stomach
	Larynx		Bronchus		Lungs



☺ Good Luck! ☺

Figure 25: ASSESSMENT 2 (B) – SEVENTH GRADE

QUIZ UNIT 2 B

Name: _____ 7 ____

1. Mark T for True or F for False on the line provided.

___ Plasma is the liquid part of the blood. It is mainly water.

___ White blood cells are smaller than red blood cells. They are all round.

___ Red blood cells look like flat disks. These cells do not have a nucleus.

___ Platelets are not complete cells. They are small pieces of cytoplasm.

___ Organ transplants save lives, replacing a sick organ with a healthy one.

___ One problem with organ transplants is that there are more patients waiting for a transplant than there are organ donors.

___ The oxygen passes from the air to our blood in our bronchioles.

___ The process of conversion can be summarized using the following word equation: carbon dioxide + food = oxygen + energy

___ The blood reaches the alveoli where the energy is used to make new cells.

___ The blood passes through our kidneys where blood is filtered and urine is formed.

___ Urine leaves the body through the sweat glands.

___ The blood passes through our kidneys where blood is filtered and urine is formed.

2. Explain the difference between arteries and veins. _____

_____

_____

_____

3. Using the items below, explain each blood type as if you were carrying out blood type tests. (As we did in class).

O+			
O-			
A+			
A-			
B+			
B-			
AB+			
AB-			

☺ Good Luck! ☺

CULTURAL DISCREPANCIES

Figure 26: WORKSHEET 2 – SECOND GRADE

Name: _____ 2 ____

MY FAMILY

Draw and color your family. Write their names next to them.

OTHER

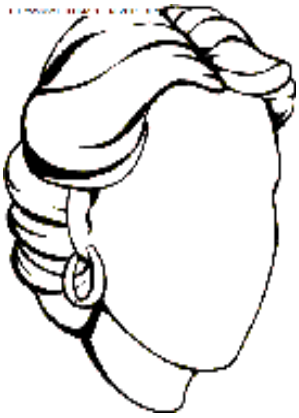
Figure 26: ASSESSMENT 1 – SECOND GRADE

Name: _____ 2 ____

SCIENCE QUIZ

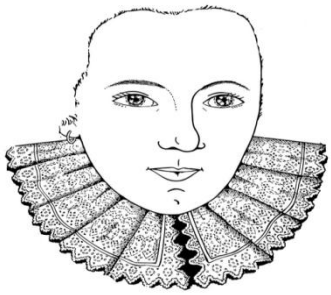
UNIT 1 - PEOPLE

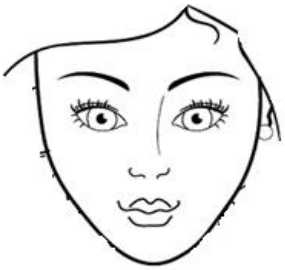
VI. Draw and color



brown eyes blue eyes green eyes

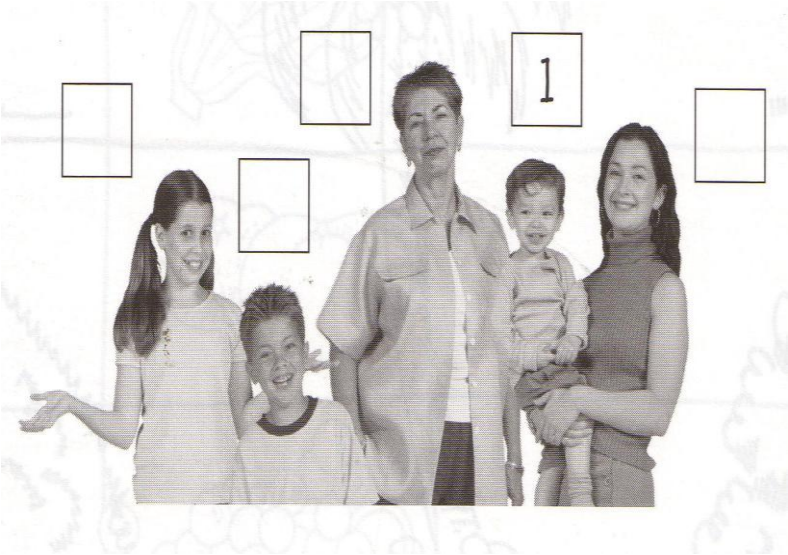
VII. Draw and color



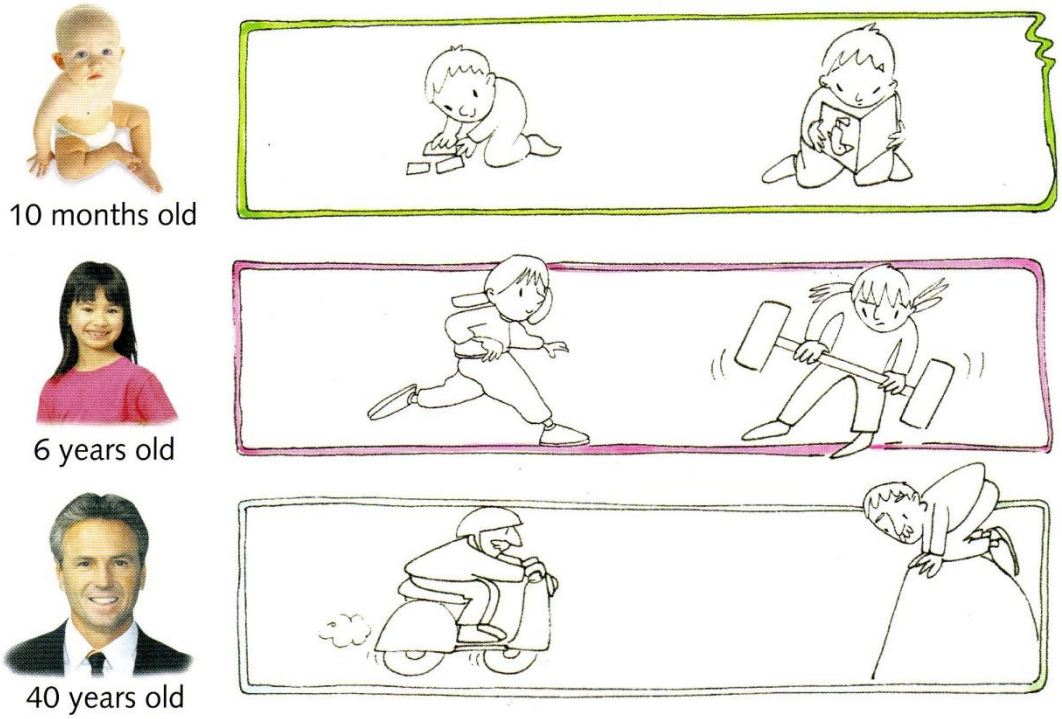


curly hair straight hair long hair

VIII. Number from young to old.



IX. Look at each person. What can they do? Color the pictures.



BIBLIOGRAPHY

Allwright, R. L. (1 de October de 1981). *ELT Journal.* Obtenido de What do we want teachng materials for?: http://203.72.145.166/ELT/files/36-1-2.pdf

Amstrong, Thomas. *Multiple Intelligences in the Classroom*. Virginia. Association for Supervision and Curriculum Development. *2nd Edition*. 1994.

Araya Araya, K. (2007). Teaching Materials: A Critical Position about the Role they play in the Language Classroom. *Actualidades Investigativas en Educación*, 1-16.

Brinton, D. M., Snow, M. A., & Welsche, M. B. (1989). *Content-based Second Language Instruction.* Rowley MA: Newbury House.

Brown, H. D. (2001). *Teaching by Principles. An Interactive Approach to Language Pedagogy* (2nd ed.). New York: Addison Wesley Longman Inc.

Crawford, J. (2002). The Role of Teaching Materials: Finding a balance. En J. C. Richards, *Methodology in Language Teaching: An Anthology of Current Practice* (págs. 80- 92). New York: Cambridge University Press.

Davies, S. (February de 2003). *Content Based Instruction in EFL Contexts.* Recuperado el November de 2009, de The Internet TESL Journal, Vol. IX, No. 2,: http://iteslj.org/Articles/Davies-CBI.html

Feldman , D. H. (December de 2004). *Piaget's stages: the unfinished symphony of cognitive development.* Obtenido de New Ideas in Psychology: http://www.sciencedirect.com/science/article/pii/S0732118X04000327

Frith, M. B. (1978). *Interlanguage Theory: Implications for the Classroom.* Obtenido de McGill Journal of Education: http://mje.mcgill.ca/index.php/MJE/article/viewArticle/7202

Fromkin, V., Rodman, R., & Hyams, N. (2011). *An Introduction to Language, Ninth Edition.* Boston: Wadsworth.

Gass, S. M., & Selinker, L. (2008). *Second Language Acquisition.* New York: Taylor & Francis.

Keith, R. J. (1989). *The Second Language Curriculum.* Cambridge: Cambridge University Press.

Kitao, K., & Kathleen, K. S. (4 de April de 1997). *The Internet TESL Journal.* Obtenido de Selecting and Developing Teaching /LearningMaterials: http://iteslj.org/Articles/Kitao-Materials.html

Krashen, S. (1985). *The Input Hypothesis: Issues and Implications.* Longman.

Marsh, D., & Wolff, D. (2007). *Diverse contexts-converging goals. CLIL in Europe.* Frankfurt: Peter Lang.

McDonoough, J., Shaw, C., & Masuhara, H. (2003). *Materials and Methods in ELT.* Oxford: Wiley Blackwell.

McDonough, J., Christopher, S., & Hitomi, M. (2013). *Materials and Methods in ELT.* West Sussex: John Wiley & Sons, Inc.

McLaughlin, Barry. *Theories of Second-Language Learning*. Routledge. Chapman and Hall, Inc. 1987.

McLeod, S. (2007). *Lev Vigotsky.* Obtenido de Simply Psychology: http://www.simplypsychology.org/vygotsky.html

Nicholls, J. (October de 2011). *Methods in School Textbook Research.* Obtenido de University of Oxford: https://centres.exeter.ac.uk/historyresource/journal6/nichollsrev.pdf

O' Neill, R. (2 de January de 1982). *ELT Journal.* Obtenido de Why use textbooks: http://textbookuse.pbworks.com/f/Why+use+textbooks.pdf

Piaget, J. (1964). *Cognitive Development in Children: Piaget - Development and Learning.* Obtenido de Journal of Research in Science Teaching: http://onlinelibrary.wiley.com/doi/10.1002/tea.3660020306/pdf

Prator, C., & Celce-Murcia, M. (1979). An outline of Language teaching approaches. En M. Celce-Murcia, & L. Mcintosh, *Teaching English as a Second or Foreign Language.* New York: Newbury House.

Richards, J. (2001). *Curriculum Development in Language Teaching.* New York: Cambridge University Pres.

Richards, J., & Rodgers. (2001). *Approaches and Methods in Language Teaching.* New York: Cambridge University Press.

Richmond Publishing. Department of Educational Editions of Richmond Publishing. Science 1 to 6. Miami. Santillana Education. 2003. (Printed in Mexico)

Skehan, P. (1998). *A Cognitive Approach to Language Learning.* New York: Oxford University Press

Stake, R. E. (1995). *The Art of Case Study Research.* New York: Sage Publications.

Rodgers, T. *Syllabus design, curriculum development and policy determination.* In R. K. Johnson (ed.), *The second language curriculum.* New York. Cambridge University Press. 1989.

Uhl, A. C., & O'Malley, M. J. (1994). *The CALLA Handbook.* New York: Addison-Wesley Publishing Company.

WEBBLIOGRAPHY

Internet pages:

Allen, Barbara. *Content-Based Second Language Instruction: Teaching English through Mathematics in Grades 1-4. 1990.* Internet. http://www.eric.ed.gov:80/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/22/bf/d3.pdf (Date of access: October, 2009)

Branding, C.-C. (09 de June de 2011). *Summer Institute for Linguistics (SIL) Ethnologue Survey.* Obtenido de Your Bridge to the African World: http://afrobranding.wordpress.com/tag/summer-institute-for-linguistics-sil-ethnologue-survey/

Center for Advanced Research on Language Acquisition (CARLA). *Content-Based Second Language Instruction: What is it?.* 2009. Internet. http://www.carla.umn.edu/cobaltt/CBI.html (Date of access: October, 2009)

Murphy, Elizabeth. *Communicative Language Teaching.* 2000. http://www.mun.ca/educ/faculty/emurphy/CLT/sld001.htm (Date of access: January, 2010)

Contextualizing systems approaches. Internet. http://openlearn.open.ac.uk/mod/resource/view.php?id=257862 (Date of access: November, 2009)

Darn, Steve. *Content and Language Integrated Learning.* 2006. Internet. http://www.teachingenglish.org.uk/think/articles/content-language-integrated-learning (Date of access: October, 2009)

Davies, Stephen. *Content Based Instruction in EFL Contexts*. The Internet TESL Journal, Vol. IX, No. 2, February 2003. Internet. http://iteslj.org/Articles/Davies-CBI.html (Date of access: November, 2009)

European Commission on Multilingualism. *Content and language integrated learning*. 2008. Internet. http://ec.europa.eu/education/languages/language-teaching/doc236_en.htm (Date of access: December, 2009)

Gardner, Howard. *The Three Faces of Intelligence*. 2001. Internet. http://www.howardgardner.com/Papers/documents/Three%20Faces%20of%20Intelligence.pdf (Date of access: December, 2009)

Hudson, Peter. *Learning to Teach Science Using English As The Medium of Instruction.* Eurasia Journal of Mathematics, Science & Technology Education, 2009, 5(2), 165-170. Internet. http://www.ejmste.com/v5n2/EURASIA_v5n2_Hudson.pdf (Date of access: November, 2009)

Met, Myriam. *Content-Based Instruction: Defining Terms, Making Decisions.* Internet. http://www.carla.umn.edu/cobaltt/modules/principles/decisions.html (Date of access: October, 2009)

O'Neil, D. (02 de July de 2011). *Language and Culture.* Obtenido de Introduction: http://anthro.palomar.edu/language/language_1.htm

Pan, Claire. Theories of language acquisition. 2005. Internet. http://74.125.47.132/search?q=cache:88gbUDCidkcJ:www.pws.stu.edu.tw/clairep/documents/TESOL9282005.doc+Charles+Curran+(1972)%2Bcommunicative+language&cd=9&hl=en&ct=clnk&client=safari (Date of access: December, 2009)

Richmond Publishing: Catalogue. Primary CLIL. *Science. "De 3 a 6 de Primaria"* http://www.richmondelt.com/spain/english/catalogue/content-based-primary/science.htm (Date of access: December, 2009)

Richmond Publishing: Catalogue. Primary. Science. http://www.richmond.com.gt/detalle.php?id=15&cat=3 (Date of access: December, 2009)

Saint Ignatius High School. *The World's Most Widely Spoken Languages.* http://www2.ignatius.edu/faculty/turner/languages.htm August 29, 2008 (Date of access: December, 2009)

Smith, Mark K. (2002, 2008) *'Howard Gardner and multiple intelligences', the encyclopedia of informal education*, http://www.infed.org/thinkers/gardner.htm. (Date of access: December, 2009)

Weber, G. (06 de May de 2008). *Andaman Association, Lonely Islands - The Andamanese.* Obtenido de Top Languages: http://www.andaman.org/BOOK/reprints/weber/rep-weber.htm (Date of access: January, 2010)

World Education Services, International Grade Conversions. Mexico, Education Overview. 2004.http://www.wes.org/ca/wedb/mexico/mxedov.htm#grading (Date of access: January, 2010)

Wolff, Diete. *What Is CLIL?. 2007.* Internet. http//www.goethe.de/ges/spa/dos/ifs/en2747558.htm (Date of access: October, 2009)