

# **Bilingual Students in the Secondary Classroom**

## **A Reference for Practicum Students at Boston College Lynch School of Education**



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## Introduction

*Despite the fact that at least fifty percent of American teachers educate a language minority student at some point in their careers, many mainstream content area teachers receive little or no preparation in working with these students (McKeon, 1994)). Under preparation often leads to resentment and a willingness to pass off these students to the bilingual or English as a Second Language (ESL) program. Secondary-level teachers are even more likely to react in such a way since they often perceive of themselves primarily as content teachers and not as language teachers (Constantino, 1994). Thus, pre-service teacher education that includes issues related to the education of language minority students is critical to implementing effective mainstream programs for these students (Jameson, 1998, p. 72).*

At Boston College, the Lynch School of Education (LSOE) strives to enhance the human condition through educational practices that support a more just world. As part of this mission, the LSOE prepares educators to effectively teach all types of learners. This manual will help you teach English language learners (ELLs) in secondary settings. By supporting students struggling due to language differences, you use methods that benefit all students. Instruction that considers the needs of diverse learners is good teaching. You might not read this manual from cover to cover. Consider which of the following sections will be helpful to you.

- ***In the Classroom with Your Cooperating Teacher (CT): What Can You Do?*** This section contains tips for supporting ELL students during your first pre-practicum experience.
- ***English Language Learners—What to Expect*** This section provides information about the different types of ELLs, their potential varying backgrounds and developmental levels, and how such diversity might impact instructional choices.
- ***Basic Lesson Structure—Tips for Teaching So That ALL Students Learn*** This section presents general teaching tips for second language learners.
- ***Tips for Core Content Area Instruction*** In this section, you will find teaching suggestions specific to each core content area. Other teacher specialists may benefit from the information in these sections.
- ***Learning and Teaching Tools and Activities*** Consult this section for cross disciplinary methods. For example, if a writing activity will be part of your lesson in a math, science, or social studies course, you can find tips on scaffolding writing.
- ***Lesson Protocol, TESOL Standards, Glossary, References, and Index*** This final section contains ELL standards according to the Teachers of English to Speakers of

*What do you need to know about English language learners? Consider the sections in this manual.*

Other Languages (TESOL); a glossary of key terms; a protocol for self or peer evaluation focusing on ELL instruction; and a list of resources.

### **In the Classroom with Your Cooperating Teacher: What Can You Do?**

As a practicum student, your job is to actively participate in the classroom setting. This means that if the teacher is passing out papers, so are you. If the students are working individually on assignments, you are circulating to offer assistance and monitor student time on task. If the teacher is presenting, you are reflecting on the teaching methods used while also noting student behavior and comprehension. Ideally, your cooperating teacher allows you some instructional responsibility a few times per day, so you gain whole class practice with students. At all times, you should be actively engaged in classroom learning.

*As a practicum student, your job is to be an active participant—not a passive observer—in the classroom setting.*

What does your role in the classroom have to do with students learning English? Since your cooperating teacher is responsible for directing the class as a whole, you can work with these students in more individualized ways. How do you identify who would most benefit from your assistance? How can you help students? These are questions addressed below.

#### ***The First Day***

Your first day in a classroom is an excellent opportunity to influence your role and work during the rest of the semester. Practice being an active participant in the classroom, and begin discovering who can most benefit from your assistance.

To help ELLs, start by finding out who they are—which is not as obvious as you might think! Begin by talking to your cooperating teacher. Has the teacher given out student surveys to discover who has differing language needs and/or unique language backgrounds? Has the teacher been working with the English as a Second Language (ESL) specialist or been in contact with parents? Talking to your cooperating teacher about these issues not only gives you insight into your students, but also supports the cooperative nature of schools as communities, reinforcing the “Community of Learners” model.

#### ***Finding the ELLs:***

- *ask your cooperating teacher*
- *ask the ESL specialist*
- *ask the students*
- *interact with students*

At the beginning of the school year or when new students enter a classroom, your cooperating teacher may not have had time to identify ELLs. How can you do this on your own? Talk with the ESL teacher(s) to see which students will receive services, but keep in mind that usually not all ELL students have been identified. Another option is including questions about language ability in an introductory survey for students. However, simply asking if students speak another language often leads those who can speak a little of a language to answer “yes” while students who are shy about their language practices or simply are not literate in their native language might respond

negatively. Appendix A contains a model survey for you to use with your students to discover who has differing language needs, as well as help you to get to know your students better.

Identifying home languages is not enough to really understand student needs. After all, some students who have identified themselves as speaking a home language other than English might be straight-A students. To focus your efforts where they are most needed, listen for students who don't seem to be following lessons—perhaps their notes look incomplete or perhaps they are not finishing in-class assignments. These students might benefit from your help more than ELL students receiving good grades.

### ***Working with Students During Whole Class Lecture***

Once you have identified ELL students with language needs, begin making your presence known to those students. Find out how much time they spend on homework each night and where they go for extra help. Most importantly, ask the students how you can help them achieve their goals.

***Ask students how you can best help them achieve their***

When the teacher lectures the whole class, you might sit close enough to a student so that you can lean over and speak to the student quietly when necessary, without disrupting the class. Be sensitive to stigmatizing the student as one who can't make it without you. You should be available to all students within reach, but perhaps focusing extra attention on one particular student.

***Sit close enough to the student so that you can easily provide assistance, but without disrupting the class or drawing***

As the teacher instructs, monitor the student's attention. Be discreet. If other students are taking notes, is this student doing the same? When the teacher gives directions, does this student understand the assignment? Communicate in the least obtrusive way when you help the student better understand the lesson.

At the end of the class, talk with the student about your support. Did the student find you helpful? What could you have done differently? If the student is embarrassed by or uncomfortable with the attention and assistance that you are providing, then you might find a different student to assist the following week. If the student seemed to benefit from and appreciate your assistance, then you might continue building the relationship over the course of the semester.

***At the end of the class, talk with the student about your assistance during class that day.***

As the semester progresses, your goal is to have the student work more and more independently. The student should not be relying completely on your assistance in order to understand the material being covered. Communicate regularly with your cooperating teacher about your work with the student and the student's performance. Ascertain whether the teacher perceives this assistance as being in everyone's best interest. You should also check

regularly with the student to see if your assistance is beneficial and to uncover anything that you might change to more effectively help the student.

### ***Working with Students During Small Group or Independent Work***

When the teacher allows students to read or work independently or in small groups, maximize the opportunity to interact individually with the students. Having acquainted yourself with this manual, you should be ready with a few strategies, such as those in the sections on teaching tips, and core content area instruction. These small group and independent work times are a great for some of the activities or suggestions provided. You may find other topics in this book helpful, such as graphic organizers,

***Be ready with specific strategies to help your student during group or independent work.***

jump-start mini-lessons, or reading and writing strategies, including looking for cognates or checking for comprehension. Remember your job is recognizing needs, making goals for yourself and your students, and taking steps to meet those goals.

### ***Wrapping up the Semester***

As your practicum experience comes to a close, reflect on how you have helped an ELL student succeed. Does the student function more independently in class? Does the student better understand the concepts presented, accompanying tasks, and responsibilities? Do you have a sense of which strategies succeeded and why?

Ten weeks is too short of a time to make an appreciable difference in a student's overall school experience. However, if you have been active with a student and have utilized both the student's and teacher's feedback about your efforts, then the student will undoubtedly have more skills than at the beginning of the semester. Before leaving this practicum experience, ensure the student knows how to obtain extra assistance in the school when needed.

Most importantly, reflect on your experience and awareness of ELL needs in the secondary classroom. Are you more aware of what these students need in order to succeed? Are you better able to provide instruction that the students can easily understand? Being aware of what you learned during this experience can inform your future practicum and teaching experiences. Equally important, reflect on your remaining questions about ELLs, so you can target your personal learning needs as you begin your life-long professional development.

***Most importantly, you should reflect on your experience and your awareness of English language learners' needs***

## The English Language Learner

The variety, both linguistic and cultural, among students learning English is as diverse as the students themselves. Often, people perceive students who cannot speak English as having a deficiency. This “deficit view” of linguistically diverse learners is unfair, untrue, and detrimental to their learning. Each student, whether an English language learner or not, comes to the educational setting with a unique array of background experiences and knowledge gained from those experiences.

**Avoid a “deficit view” of English language**

Understanding the experiences ELLs may have encountered provides you with additional insight to improve your instruction.

### ***An Historic Viewpoint***

Historically speaking, English language learners have been underserved by the public school system. A congressionally mandated study found that students who were labeled as Limited English Proficient (LEP) receive lower grades, are judged to have lower academic abilities, score below their classmates on standardized tests of reading and math, have higher dropout rates, and are placed more frequently in lower ability groups (Echevarria et al., 2000). These students are also often identified as having learning disabilities due to their limited ability to use English and are placed in special education programs before they have had the opportunity to fully acquire academic English and demonstrate their abilities. Once placed in a special education program, it takes an average of six years for a student who has been mislabeled to be correctly placed in a mainstream classroom, at which point they are often too far behind their classmates to get caught up in their content areas (Stefankis, 2002).

Remember that Boston College values social justice and improving the human condition through educational practices. This requires an extra effort in getting to know your students while adapting instruction to their needs. This also means treating all students with respect, including those speaking versions of English different than yours. Remember not to judge someone’s language as “bad” English. English is used to communicate differently in different ethnic groups and cultures. Imagine how you would feel, for example, if you went to England and were told that you spoke incorrectly because you referred to “trousers” as “pants,” avoided use of the word “shall,” and used expressions like “just a sec.” As you demonstrate standard English communication to students, remember that you are adding to their linguistic repertoire.

### ***Diversity in Educational Experiences***

English language learners in a mainstream classroom may have immigrated from far away places. Or, their parents may have immigrated, but the students themselves may be U.S. citizens. Either way, the students may not have been exposed to English before arriving at school. If these students began learning English early in their education, then they may come into the secondary classroom with little or no accent, but still in need of linguistic support. This is especially true if English language development was at the expense of

**English language learners represent a diverse array of educational and background**

native language development. A lack of support in native language literacy may have caused some gaps in the students' linguistic development, both oral and written. Others may be refugees from developing and/or war-torn countries where education was not available or was denied to students of a particular gender, religion, or race. These students may be dealing not only with a lack of primary education but also unfathomable traumatic experiences in their home countries. In contrast, students who learned to read and write in their native language before immigrating can transfer native language literary skills when learning to read and write in English.

English language ability among these students depends on many factors. The student's age upon arrival relates to the amount of English exposure. Also, students who studied English in their home countries are typically more prepared to develop

**English language  
ability depends on**

English language and literacy than those who have not. Students whose language is structurally closer to English, such as French or Spanish, will be able to grasp English grammatical structures more quickly, all other things being equal, than students whose language is structurally more distant, such as Japanese or Hmong (Bialystok & Hakuta, 1994). A student who has received a solid education in his or her native country will most likely not have as many content-area gaps, such as math and science, and will need to focus more on language acquisition, with the exception of U.S. history (Echevarria et al., 2000). A student with limited formal schooling needs to simultaneously learn English, background concepts, and current concepts at the same time.

The student's experience with language outside of the school also directly affects language acquisition and development. A student with a solid native language literacy background typically becomes literate in English more quickly than one whose parents try to only use English at home at the expense of the native language and literacy practices. Students benefit greatly from language practice and awareness in any language, and these skills transfer into the acquisition of English. Student's acquisition of English is also affected by other experiences, such as contact with older siblings who have learned English or having a job outside of school.

Students may also have come from an environment or country where English was spoken but of a non-standard variety. There are varieties of English around the world in such places as India and Hong Kong, as well as varieties within American culture which may differ from the way you, as a teacher, speak and were taught English. Educators must respect the culture and language of these students, and not view their language use as detrimental but rather as a cultural asset. The additional acquisition of standard language forms increases students' overall linguistic repertoire and allows these students greater levels of accessibility to higher education. Teachers should not "correct" the students' use of language, but rather teach alternative forms and present them as such.

### **Language Development: What Does it Mean to Know English?**

Walking through the halls, you may hear one of your ELL students talking excitedly in English to a peer. Based upon the rate of speech and quality of pronunciation, you might deduce that this student has been mislabeled—perhaps he didn't know English, but obviously he is getting around without any problem, maybe even using slang. You may think that it is no longer necessary to adapt your lessons to second language learners if you hear them speak and believe they are fluent. Many people mistakenly make the assumption that all types of language use require the same degree of proficiency; either someone speaks English, or she doesn't. A student who is able to easily converse in a language must be able to understand a teacher when she speaks, right? As you may have guessed, however, this is not always the case.

Think about some of the texts that you are currently reading for your college classes. Consider how much you focus on the author's use of language in order to understand the content being presented. Now, consider the focus required for reading a novel, a newspaper, or a letter from a friend. Language that is used in the academic

**Academic English is used in formal academic contexts, connected with literacy and academic achievement and**

setting is more complex than language used for everyday communication. It generally involves longer sentences and more complex linguistic structures while introducing new ideas which are challenging to comprehend (Jameson, 1998). This level of language usage in academic settings, known as "academic English," takes significantly longer for a student to acquire than does conversational English. Examples of

tasks that require the use of academic English would be: writing persuasively, taking notes from lectures, and articulating thinking skills in English. Students might also not be familiar with how American students perform academic tasks, such as generating outlines, negotiating roles in cooperative learning groups, and interpreting charts and maps (Echevarria et al., 2000).

### **BICS and CALP**

Basic Interpersonal Communication Skills (BICS) refer to the language required for conversational settings. In contrast, Cognitive Academic Language Proficiency (CALP) refers to language used in academic settings, such as textbooks, teacher talk or lectures, and student essays (Cummins, 1981, as cited in Solomon & Rhodes, 1995). Research shows that students need between three to five years to be proficient in BICS

**Research shows the ELL students need 3-5 years for proficiency in BICS (conversational language), and 5-10 years for proficiency in CALP (academic**

while five to ten years are needed for proficiency in CALP (Jameson, 1998). This is because academic linguistic structures are more difficult to master and are only available in the academic setting. ELL students also struggle to reach grade-level academic proficiency because their native English speaking peers are simultaneously in the process of developing CALP, and thus represent a moving target or language model for non-native speakers. Thus, non-native speakers are in a constant state of catching up with their peers (Jameson, 1998).

What does this mean for you as a teacher? When assigning tasks that involve higher-level thinking skills and which might require advanced terminology and linguistic structures, you must clarify the terminology and linguistic structures. For example, in a science class, if you ask students to analyze data, you must first ascertain that students know the meaning of “analyze” and “data.” You might do this by paraphrasing and modeling. Also, introducing a few key vocabulary terms at a time will help ELLs understand their tasks more completely in the long run. Pointing out possible cognates is also helpful. Sometimes if English is impeding learning, translation can help students with new concepts and technical terms. Written responses, such as essays, are often the most challenging for ELLs to produce (Echevarria et al., 2000). When evaluating student writing, keep in mind whether or not you are evaluating their language skills or their understanding of content area concepts, based upon the objectives for the lesson. In some cases, you and your ELL students might develop an alternative assessment which relies less on writing, such as the student demonstrating the concepts through conducting a science experiment that includes oral explanations. As Echevarria et al (2000) often tell their pre-service teachers: “Just because they can’t speak English proficiently, doesn’t mean they can’t think!” (p 90). As a teacher, your job is assessing students in a manner that allows them to demonstrate their changes in thinking, even if these changes are difficult to express in English.

- Adapt for students by:**
- **paraphrasing**
  - **modeling**
  - **using only a few new vocabulary words at a time**
  - **adapting**

structures, you must clarify the terminology and linguistic structures. For example, in a science class, if you ask students to analyze data, you must first ascertain that students know the meaning of “analyze” and “data.” You might do this by paraphrasing and modeling. Also, introducing a few key vocabulary terms at a time will help ELLs understand their tasks more completely in the long run. Pointing out possible cognates is also helpful. Sometimes if English is impeding learning, translation can help students with new concepts and technical terms. Written responses, such as essays, are often the most challenging for ELLs to produce (Echevarria et al., 2000). When evaluating student writing, keep in mind whether or not you are evaluating their language skills or their understanding of content area concepts, based upon the objectives for the lesson. In some cases, you and your ELL students might develop an alternative assessment which relies less on writing, such as the student demonstrating the concepts through conducting a science experiment that includes oral explanations. As Echevarria et al (2000) often tell their pre-service teachers: “Just because they can’t speak English proficiently, doesn’t mean they can’t think!” (p 90). As a teacher, your job is assessing students in a manner that allows them to demonstrate their changes in thinking, even if these changes are difficult to express in English.

**“Just because they can’t speak English proficiently, doesn’t mean they can’t think!”**

### **Stages of Language Proficiency**

Your teaching methods for ELL students depend on the level of their English proficiency. Of course, students with more developed English have fewer linguistic issues. However, these same students still may be lacking academic language and/or complex grammatical structures. One way of rating students’ language proficiency is to classify them in one of four stages, described as follows.

- Four stages of language proficiency:**
- **early emergent**
  - **emergent**
  - **proficient**
  - **advanced proficient**

#### *Early emergent*

At this stage, a student’s knowledge of English is extremely limited, and he may not be speaking at all. Any speaking is limited to a few simple words or phrases used to convey simple ideas. A student in the early emergent stage might say “Water?” to ask permission to go for a drink of water. This is also known as the silent period and is seen as a necessary first step in second language development.

#### *Emergent*

Emergent speakers of English are able to put words together into simple words or phrases. Although these constructions can be understood by native speakers, the

syntax is generally far from standard English. In the example of asking for a drink of water, this student might ask, “Water can I drink?”

### *Proficient*

A proficient speaker can use English in everyday speech and writing for communication purposes. Syntax is much more regulated, but still does not always conform to standard English grammar rules. Conversational and oral language are easier for this student to produce than written language. This student has not yet acquired much in the way of academic English, and thus has more difficulty with terms representing abstract ideas.

### *Advanced proficient*

An advanced proficient speaker of English has mastered both conversational and academic English. This student has both vocabulary and syntactical structures which are very close to that of a native speaker. This student can use both oral and written language fluently. It takes many years for a non-native speaker to attain this level of English proficiency.

### ***Cultural Capital: What Does it Mean to Know a Culture?***

Earlier in this section, the concept of language varieties was introduced as was the idea that there is no one “right” way to use language. The same is true for culture. Regardless of background, all students come to educational settings with a variety of cultural influences: family culture, neighborhood culture, and the cultures which may be associated with their religion or ethnic background, to name a few. All of these cultures are rich in traditions, beliefs, and values, and all differ. Recognizing these differences as an asset to your classroom makes students feel valued. You also demonstrate the need to respect and appreciate differences, even differences that don’t appear easily understood. This concept, known by some theorists as *cultural capital*, means that all students bring assets to the learning environment. It also means that some students do not necessarily have what Delpit (1998) refers to as “the accoutrements of the culture of power.” In other words, they may not possess the ability to control the spoken, written, and behavioral codes of the dominant society (Gibbons, 2002).

***Cultural capital—the cultural assets that the students bring to the learning***

When people think of culture, they usually consider a culture’s *surface structure*, or that which is most readily apparent. This is sometimes referred to as the “Three Fs”: food, fiestas, and famous people (Jameson, 1998). Another aspect of culture, one which is not as readily apparent, even to those within the culture itself, is called the *deep structure* of a culture. This refers to the shades of normalcy which are associated with behaviors, ways of using language and other forms of communication, and overall ways of life (Jameson, 1998). This can refer to more easily visible forms, such as personal space, business customs, and attitudes towards promptness, but it can also manifest itself in the deeply ingrained values and

***surface structure of a culture vs. deep structure***

morals. The deep structure of a culture also refers to practices which are seen as offensive by one culture but not another, such as touching someone on the head. Finally, this aspect of cultural also is also represented by everyday behaviors, such as eye contact to convey respect or a lack thereof, and the way that parents view teachers.

How does knowing that all people and cultures are different affect teachers and their classrooms? One often overlooked aspect of culture is that other cultures not only

***Not only do other cultures often live differently, but they also learn and are taught differently in***

live differently, but they might also learn and teach differently in schools. For example, in French secondary classrooms, all assessments are given in the form of essay tests for which the student is given a grade out of a possible score of twenty. A student who receives fourteen is considered to have scored high

on such an assessment. Students also write their notes on unlined paper, using a ruler to make their sentences straight, or on graph paper. Students may not be used to the American ways of being a student, such as taking notes from a lecture, participating in group work, or performing independent projects or experiments.

For these reasons, teachers must be flexible and explicit in helping students' understand their role in the educational process, and the ways in which they demonstrate knowledge of concepts. You may have to teach ELL students how to work in groups or complete assignments according to your customs and expectations. Out of either respect or uncertainty, ELL students might not tell you that they do not understand your expectations. Teachers working with all students must engage in "socially responsive teaching," using instruction that is sensitive to and builds on culturally different ways of learning, behaving, and using language (Echevarria et al., 2000). Understanding that students' cultures may differ and then beginning the process of examining cultures should help teachers and students better understand the many threads in the fabric of the world, as well as a more complete view of personal culture.

***"Socially responsive teaching" means using instruction that is sensitive to and builds on culturally different ways of learning, behaving, and using***

## Tips for Teaching So That ALL Students Learn

Every classroom has diverse learners, each of whom poses a unique challenge in a classroom where each student is entitled to the opportunity to learn. The tips included in this section help meet the specific needs of such diverse ELL students. However, you will find that these strategies make learning more accessible for other learners as well. This section discusses “tips” in several areas:

- *Basic lesson structure*
- *Teaching behaviors*
- *Adaptations within lessons*

But first, none of these teaching tips matters without a positive classroom environment.

### ***Classroom Environment***

How students feel upon entering a classroom largely affects how much they learn. Good teachers are like good parents—firm but caring (Steinberg, 2002). A positive classroom environment is one that fosters an atmosphere of mutual respect, meaning that the teacher respects the students, the students respect the teacher, and the students respect one another. Some teachers reportedly dedicate the first two weeks solely to building a positive classroom environment. They state that students learn so much faster with a positive environment that the students are actually ahead of where they would be at the end of the year if they had started with content right away. Take some time at the beginning of the year to know your students as people and make them comfortable in the learning environment. This could include team building activities or icebreakers that establish the atmosphere you expect for the year.

***Take time at the beginning of the semester to get to know your students and make them comfortable in their***

A positive classroom environment should also be accepting of human limitations, different cultures, ways of communicating, and learning. Differences of all types should be seen as assets rather than deficits.

### ***Context-Embedded Lessons Enhance Learning***

Students benefit from language that is context-embedded or in a meaning-rich environment. This is particularly true when introducing new vocabulary by paraphrasing or providing examples and analogies. For example, asking students to use language in a science class might begin with small group experiments in which students talk with peers and teacher about the experiment. Oral language use in this environment is conversational in nature and does not generally require complete sentences. Experiment materials should also be available so students can describe them and associate meaning with them. As students become more comfortable with speaking about the topic, they can move away from talking about the task towards more abstract concepts, summarizing what happened in the experiment without materials in front of them. As

***Use language in a meaning-enriched or context-embedded***

they transition from more spoken contexts to more written contexts and more capably use terms and concepts, ELL students can better communicate their ideas in a context-reduced environment, such as a written summary of the experiment (Gibbons, 2002).

Connecting new concepts and vocabulary to students' real life and background experiences is also essential. Teachers should be familiar with students' background knowledge, which may vary greatly depending upon background knowledge. Students also benefit from the use of realia, which are objects or pictures that allow students to "see" the concept. For example, when introducing a unit on frontier life, a teacher could share pictures of homestead cabins or clothing, or even an item which might represent frontier life, such as a water pitcher that may have served the purpose of modern-day faucets. This allows students to make personal connections with the concepts and vocabulary being presented by embedding language in the situational context.

**Context-embedded instruction:**

- **is concrete and/or hands-on**
- **uses pictures, other graphics, and/or realia**
- **makes connections to students' background**

**Scaffolds Lead from the Concrete to the Abstract**

Scaffolding learning involves supporting students with new concepts and content until they can proceed on their own. Picture a new building under construction. The building blueprints represent the plans of the teacher while the building itself represents

**Scaffolding means making tasks manageable until the student grasps the concept enough to**

the concepts that the students will understand and use at the lesson's end. As the teacher and students construct this structure, the teacher provides *scaffolding* to support the rising structure—making tasks manageable until the student grasps the concept enough to use it independently, at which point the scaffolding is removed, and students use the concept independently (Gibbons,

2002). For example, a biology teacher, who wants students to understand basic cellular structure, might begin with students investigating what they can see in cells, both in drawings and on slides. Then, the class can discuss how these components might function in cells by making analogies to concepts previously learned. Finally, students might demonstrate that they understand cellular structure through a formal or informal assessment.

How can scaffolding best be used with second language learners of English?

Scaffolding for these learners is two-fold: both *procedural* and *verbal* (Echevarria et al., 2000). *Procedural scaffolding* is that which is supplied to all students as they adapt their ways of thinking to integrate new types of information, as was described above in the biology example. *Verbal scaffolding* means that the teacher is conscious of the way that language supports

**When scaffolding:**

- **adjust your speech**
- **paraphrase regularly**
- **elaborate on student**

concepts, adjusting language, so content is more accessible. This can be done by adjusting the speed and quality of speech and enunciating clearly, paraphrasing

regularly in simple language, giving examples, providing analogies, and elaborating on student responses to questions. Both linguistic and cognitive tasks are adjusted, so they are incrementally challenging. Students eventually understand and use the concept independently. Second language learners might need different forms of assessment in order to demonstrate this knowledge. However, if content is made accessible, they should be developing content knowledge, even if their language development limits their ability to demonstrate such understanding orally and in writing.

### The “Basic Lesson” Structure: A Classroom Example

All *language users* in the presence of *language learners* are, by default, *language teachers*. This includes content area teachers. Teachers who make their language more comprehensible not only make content concepts more accessible for ELL students, but also help students acquire language. Students who listen to many different users receive more language input and more opportunities to practice their developing linguistic skills. Thus, by incorporating more interaction in their classes, teachers give students more opportunities for linguistic and academic development.

Based on these ideas, content area teachers have three goals as instructors: increase comprehensibility, increase interaction, and increase thinking skills (Jameson, 1998). The Center for Applied Linguistics (CAL) has proposed a technique which allows teachers to easily modify their lessons by teaching *before* the text to accomplish these three goals (Jameson, 1998). This may seem the reverse of what you experienced with textbooks, but students receive more exposure to the concepts before encountering information in the context-reduced environment of textbook reading. This strategy goes as follows:

**Your teaching goals:**

- **increase comprehensibility**
- **increase interaction**

- application or expansion activity
- discuss the material
- examine study questions and summary at the end of the chapter
- read the text

Reading an academic text is often a difficult task for any student. For students not yet proficient in academic English, reading textbooks can be a frustrating experience with little knowledge gained. Using this CAL method, the first activity draws on prior

**Teach before the text to allow students to develop a context for the content before engaging in an**

knowledge while establishing a purpose and relevance for learning. The second activity, the discussion of the material, introduces new language and concepts in context. The use of oral language, visuals, and hands-on activities makes both the language and the content more comprehensible. The third activity, examining the study questions and the summary at the end of the

chapter, previews the reading and identifies the key concepts. All of these prepare students for the final activity, reading the text, which can be even more manageable by reducing the quantity of reading through group assignments.

Teaching before the text is advantageous to the learner and teacher because it increases comprehensibility, thinking skills, and interaction by encouraging a more cooperative learning approach. In educational settings which do not use texts, this can be accomplished by using a lesson sequence which proceeds from prior knowledge to new knowledge, from the concrete to the abstract, from oral language to texts, and from more contextual support to less contextual support (Jameson, 1998). Begin by engaging the students using their prior knowledge and making content relevant, then exploring and discussing concepts using oral language, visuals, and hands-on activities. Continue by addressing key concepts and then developing the content and extending the learning.

### ***Teaching Behaviors***

The way in which the teacher interacts with the students also impacts the student success. Key teaching behaviors empower more students to learn more content and have a better class experience. Key teaching behaviors mean that you:

- use appropriate speech
- model correct language
- increase your wait time
- give explicit directions
- repeat concept messages frequently
- use teacher-guided reporting or open-ended questioning
- check for understanding

#### *Use appropriate speech*

ELLs understand more oral language when speakers try to make their speech more comprehensible. This includes facing the class when speaking, slowing down the speech rate so that all words are pronounced clearly, and regularly paraphrasing words that might be ambiguous or unfamiliar. Simple paraphrasing consists of using the words “that is” or “in other words.” For example, instead of saying, “Our task today is to analyze the Declaration of Independence and look for words with strong connotations,” a teacher focusing on appropriate speech might say, “Our task today is to *analyze, in other words*, look critically at, the Declaration of Independence and look for words with strong *connotations, that is*, words that are intended to make us feel strongly about something.” You’ll notice that in this sentence, the teacher clarifies academic language (the word “analyze”) as well as terminology associated with the lesson (the phrase “strong connotations”).

#### *Model correct language*

All ELL students make errors in their language usage. Students benefit most when teachers monitor language for meaning rather than form, as is done by parents when their child first begins to speak (Bialystok & Hakuta, 1994). In other words, respond to students by commenting on *what* they said, not *how* they said it. Students benefit most when teachers model correct language, instead of having their language corrected. Error correction can make students feel uncomfortable about practicing language in front of others, as well as encourage them to focus on the form of their

message rather than the meaning they're trying to express, thereby discouraging higher-order thinking skills (Gibbons, 2002). For example, if a student giving a presentation says, "And then the boy, he go to a house..," a teacher could respond with, "Yes, the boy goes to his house. And then what happens?" The teacher in this example is encouraging the focus on meaning, as well as encouraging the student to further elaborate.

#### *Increase your wait time*

After teachers ask a question, students need at least five seconds before responding. During this "wait time," students formulate their answers and come up with enough courage to say the answer in front of the class. ELL students benefit from even more wait time. Not only are they formulating the correct answer mentally, they are constructing the most accurate and grammatically appropriate way to share the answer, and this takes time (Echevarria et al., 2000).

**Allow ELLs more  
time to think and**

#### *Give explicit directions*

Giving understandable directions is one of the most challenging tasks that any teacher faces. How can you give directions so that your expectations are clear to all students? When giving directions, you should have previously outlined the specific steps that students will follow in order to accomplish the task. This is best communicated to the class with a numbered list. You might say, "First, you will get into your assigned groups. Second, you will determine who will play which roles. Third, you will read the article which we have overviewed and discuss it. Finally, you will use the paper on the table to write the three most important points from the article." Students benefit even more from seeing the directions written on the board or overhead projector while hearing them listed. When you finish giving directions, ask a volunteer to explain the task in his or her own words. This not only allows everyone to hear the directions for the task a second time but also helps you identify areas needing clarification.

#### *Repeat concept messages frequently*

The previous section contained examples of a message being repeated in different ways and by different people. When the teacher both *spoke* and *wrote* the directions, the message was repeated twice. Having a student *state the directions in her own words* the directions repeated the message a third time. This kind of repetition is valuable in other aspects of teaching and communication as well. Important concepts and vocabulary should be introduced several times and in a variety of ways during a lesson. Concept messages can be repeated by teachers, texts, and students (Gibbons, 2002).

#### *Use teacher-guided reporting or open-ended questioning*

Sometimes, an appropriate task for students is reporting back to the class what they have learned. ELLs often struggle with communicating ideas in a cohesive manner if just introduced to the idea. Teacher-guided reporting allows the teacher to support the student. This means the teacher occasionally asks the student to clarify a point when the student could better express himself if encouraged to do so. The teacher also

paraphrases what the student has said after the ELL communicates the idea. The teacher should not interrupt and complete the sentences for struggling students. When the teacher has questions, using open-ended questions encourages the student to be more involved and actively thinking (Gibbons, 2002).

### *Check for understanding*

All teachers should regularly check if students understand new concepts by asking the class or individuals to directly communicate their level of understanding. Many student teachers leave out this comprehension check, perhaps assuming students are following along if their eyes are on the teacher. This can be disastrous particularly if the students don't understand the material and the content will be required for future tasks. By frequently checking for understanding, teachers can reteach when necessary, which allows for further concept repetition.

***Try these checks for understanding:***

- ***thumbs-up***
- ***five-fingers***
- ***traffic light***
- ***barometer***

Examples of checks for understanding include:

- Thumbs up/thumbs down—Thumbs up if you understand, down if you don't, put your hand flat if you're in between.
- Five finger check—Hold up your hand. Five fingers means you completely understand the information. One means you're not really sure what we're talking about today.
- Traffic-light check—Use colored slips of paper (green, yellow, red) or colored plastic cups which students hold up to demonstrate their level of understanding. Green means you understand, yellow means you're unsure, and red means you don't understand. You should explain this to ELLs, because some languages use the color "blue" to describe a "go" light.
- "Barometer" student—if someone in the lower fifth of the class demonstrates understanding, then the rest of the class is probably okay.

### ***Adaptations Within Lessons***

Perhaps you have lessons already prepared that you have found to be highly successful, or you are bound by what your cooperating teacher, supervisor, or professor wants you to address during a given lesson. This section shows you how to make smaller changes within the structure of your lesson to better reach English language learners.

### *Include both content and language objectives*

All effective lessons have well-defined objectives. Ideally, students are aware of these objectives and striving to reach them. Objectives should focus on both knowledge to be acquired as well as ways that knowledge should be applied. This is known as the "know and be able to do" format because objectives should identify both what students should know about a topic, as well as what they will be able to do with it. For example, the objective for a math lesson on calculating the area of a circle might be: "At the end

of this lesson, students will know what  $\pi$  is and where it comes from, and be able to use  $\pi$  as part of an equation to find the area of a circle.”

In a classroom with second language learners, teachers should have both content objectives and language objectives (Echevarria et al., 2000). Language objectives can also be designed in conjunction with the ESL teacher as part of a co-teaching model.

**Focus on students' language needs through the use of**

#### *Use background knowledge*

Connect new information with learned concepts or experiences, so the learner can see where concepts fit with prior knowledge. This can be done by questioning students about their past experiences and encouraging them to make connections between new and old material. Students will not necessarily make connections between what they already know and what they are learning without teacher support. This also helps the teacher assess what students have already learned.

#### *Include all language processes*

Ideally, all lessons provide students a risk-safe environment with the opportunity to practice all four language processes: speaking, listening, reading, and writing.

#### *Speaking*

Language production encourages learners to process language more deeply than is required with listening (Gibbons, 2002). Speaking is easier for students in a classroom with a positive and nurturing environment, where students will not be criticized or corrected for imperfections in their English. Progress from pairs to small groups and then to whole class speaking activities, so students practice using the terminology associated with the topic as well as build confidence (Jameson, 1998). In a classroom where students have the opportunity to work in groups regularly and where speaking is necessary to accomplish a task, students are more likely to be comfortable with the oral aspects of the material. Such tasks should require, not simply encourage, speaking (Gibbons, 2002).

**To build the experience and confidence of second language learners, progress from pairs to groups to**

#### *Listening*

Listening to the teacher talk can provide excellent listening practice for students, as long as the teacher is making the input comprehensible by speaking slowly and clearly, paraphrasing often, and avoiding use of pronouns when possible. Listening to other students talk, especially in paired activities, can also benefit ELLs because other students respond directly to the listener's comprehension needs.

## Reading

When reading a new text, students benefit from being taught how to be reflective about what they're reading and from monitoring their own comprehension. Some examples of reading comprehension strategies are in the chart that follows.

Reading Comprehension Strategies				
Strategy	When to use			Student asks...
	before	during	after	
Review material	✓			What kind of text is this? Who are the characters? What is the setting?
Predict	✓	✓		What will this be about? How will it end? Why do I think that?
Wonder or question	✓	✓		I wonder why the character did that? I wonder what they mean by "tempestuous"? I wonder if this detail is important?
Answer questions		✓	✓	What are the answers to my question? What new questions do I have now that my other questions have been answered?
Determine importance		✓		Is this a relevant detail? Why might the author be telling me this?
Monitor comprehension		✓		Do I really know what is going on? Could I explain it to someone else? Should I reread or ask for assistance?
Summarize			✓	What was this text about? What are some implications that may not be directly addressed by the text?
Revisit predictions/ evaluate learning			✓	Was I right in what I predicted? Why or why not? What have I learned by reading this text?

adapted from (Echevarria et al., 2000; Tovani, 2000)

Reading comprehension improves when the teacher encourages students to use these strategies as they think aloud, write in reading journals, and read actively and reflectively. Eventually with guidance, students will automatically complete these tasks on their own. Emergent readers benefit from texts which have been adapted by simplifying sentence structure and including paraphrasing for vocabulary the student might not know (Echevarria et al., 2000). Reading tasks should be at the appropriate comprehension level for the students.

## Writing

Students should be given the opportunity to practice writing regularly in many forms, eventually building up to longer essays and reports. Proper scaffolding with writing begins with the class discovering what they will be expected to write

### **Scaffold for writing by letting students:**

- **discover about the topic**
- **write as a class**
- **write in pairs**

about, then completing a writing task as a whole group on the overhead as an example while each student copies it down. This progresses to group writing, pair writing, and, finally, independent writing. This process is known as: building the field, modeling the text type, joint construction, and independent writing (Gibbons, 2002). All of these activities rarely take place during one class period and could take as long as a few weeks. Remember that assessments including written answers should focus on whether or not the student is able to demonstrate acquisition of the concepts learned, rather than appropriate language and grammar usage—unless the purpose of the assessment is to ascertain acquisition of language objectives as well as content objectives.

### *Vocabulary knowledge*

Vocabulary knowledge varies greatly among ELLs, depending on each student's prior experiences with English. New vocabulary should be broken down into manageable chunks. A thesaurus is a useful tool to help students understand new vocabulary that isn't specifically content vocabulary. Meaningful vocabulary instruction focuses on using vocabulary in multiple contexts and in both reading and listening activities.

Traditional dictionary definitions have proven to be largely unsuccessful in the acquisition of new vocabulary (Echevarria et al., 2000). For reading purposes, texts that contain more than 10% of words that are unfamiliar to students are considered incomprehensible.

***For meaningful vocabulary instruction, focus on the use of vocabulary in multiple contexts and in both reading and listening***

### *Group work and cooperative learning*

Incorporating opportunities for students to work and learn together allows them to reflect and process their learnings while helping each other explore the content. Groups function best if all members are assigned a role, and if the group has a task that can only be accomplished by working collaboratively (Jameson, 1998). ELLs can be grouped either with native speakers of English or paired up across language proficiency levels (such as proficient with emergent speakers), if both ELLs speak the same first language. This allows for concepts to be reinforced in the native language if necessary.

### *Supplementary materials*

Outside materials brought into the classroom help students connect concepts to background knowledge, as well as make a visual and physical connection with the subject matter. Some examples of supplementary materials include:

- hands-on manipulatives—for example, colored blocks for learning fractions
- realia—any objects brought into the classroom to illustrate content
- pictures—large enough so students can see them and make connections
- visuals—overhead charts, graphs, classroom maps, graphic organizers
- multimedia—video and audio tapes, computer demonstrations
- demonstrations—science experiments modeled in front of the class
- related literature—other fiction and non-fiction relating to the topic
- adapted text—alternative texts which contain simpler sentences and paraphrased new words

### *Assessment*

Assessment should be ongoing, formal, and informal. Informal assessments are questions you ask your students or tasks they perform that demonstrate whether they have learned the concept. This includes checks for understanding, as discussed in the previous section. To check for understanding, the teacher uses direct methods of communication to ascertain if students understand the concepts.

**Assess your students both formally and**

Formal assessments come in two forms: *traditional assessments* and *performance assessments*. In traditional assessments, the student directly demonstrates specific knowledge of content that correlates to unit objectives. In performance assessments, the learner applies acquired knowledge to perform a related task, such as history students applying what they have learned about the history of transportation to design a comprehensive transportation system for a new city.

When evaluating assessments for ELLs, the teacher should consider the assessment's validity. Validity refers to whether or not the test is really measuring what it claims to measure (Jameson,

**If an assessment is valid, then it is really measuring what it**

1998). Was the learner given the opportunity to demonstrate acquisition and application of the required concepts, even if it is difficult for the student to elaborate on this acquisition in English? If the objectives for the lesson included both content objectives and language objectives, then the assessment should be assessing both content and language acquisition. Otherwise, students should be given the opportunity to demonstrate what they know without dependence on advanced proficient use of English.

## **Tips for Core Content Area Instruction: Social Studies, Math, Science, and English Language Arts**

Each content area has unique challenges for both English Language Learners and their teachers. Teachers must consider not only the students' languages and cultures, but also the characteristics of these learners and their relationship to the content being taught (Anstrom, 1997). This section provides tips specific to the four core content areas. Within each content section, the following subsections should be a helpful reference in your planning and teaching.

***Teachers must consider not only the languages and cultures from which the students come, but also consider the characteristics of the learners and their***

- *Cultural differences*—An explanation of possible cultural differences specific to this content area that could affect your students' learning.
- *Academic language challenges*—An overview of language functions, syntactic (grammatical) features, and semantic (meaning-based) features common in or specific to this content area that can pose learning challenges for ELLs.
- *Teaching tips*—A brief list of ideas for classroom instruction appropriate for ELLs.

### **Social Studies**

#### *Cultural differences*

If raised outside of the United States, even students with advanced academic English can have cultural issues with social studies. Because U.S. history is taught only in the United States, ELL students might not have the background knowledge of their fellow students. They might even have a different cultural depiction of world history. Also, ELL students might be learning unfamiliar political or cultural concepts, such as democracy (Chamot & O'Malley, 1987, as cited in Solomon & Rhodes, 1995). Social studies teachers should be aware that such cultural differences exist, and that a traditional American historical perspective is one of many.

#### *Academic language challenges*

Remember that academic language refers to the type of language used in school settings that require cognitive and conceptual tasks of speakers that differ from those found in conversational contexts. Academic language goals specific to social studies should be embedded in lessons. Design instruction to make material accessible and language tasks comprehensible. Students may also need explicit instruction and modeling in order to identify, comprehend, and use these various aspects of academic language effectively within the content area. The following table demonstrates some of the language functions and syntactic and semantic features particular to social studies.

## Academic Language in Social Studies

<b>Language functions</b>	
Explaining	“Explain the events leading up to the Cuban Missile Crisis.” (past tense and temporal signals)
Describing	“Describe what you would have seen if you visited a battlefield at the time of the Civil War.” (conditional tense in the past and special vocabulary)
Defining	“Define the following terms: dictatorship, anarchy, democracy.” (special vocabulary)
Justifying	“In the 1910’s, many people were advocating women’s suffrage. Pick one side of the debate and justify its position.” (past subjunctive verb tense and special vocabulary)
Giving examples	“Give examples of the ways that Mussolini was a powerful leader.” (past tense and special vocabulary)
Sequencing	“Describe the events that lead to the Louisiana Purchase.” (past tense and special vocabulary)
Comparing	“Compare the democratic government of the United States with that of Mexico.” (comparative adjectives and sentence structures, special vocabulary)
Evaluating	“The following is an argument by a southern farmer before the Civil War in which he is advocating secession from the Union. Evaluate his argument and identify whether or not it is valid.” (multiple verb tenses and special vocabulary)
<b>Syntactic features</b>	
Simple past	Vote—voted, go—went, dig—dug
Historical present	“Abraham Lincoln is one of the most important presidents to have ever...”
Active voice	“The colonists won the Revolutionary War.” (As opposed to the passive voice: “The Revolutionary War was won by the colonists.”)
Textbook sentences with multiple embeddings	“Despite this image, many suburban mothers, particularly those with school-aged children, worked part-time to help support the family while still fulfilling most of the duties of the household.”
<b>Lexical features</b>	
Temporal signals	First, then, next, finally, at last, eventually, etc.
Signaling of cause and effect	“As a result of the protests of the 1960s...,” therefore, because, because of, caused by
Specialized vocabulary	Democracy, suffrage, slavery, trailblazers
Expository discourse style	Textbooks about historical events use different vocabulary than narratives depicting the same events.

Source: (as cited in Solomon & Rhodes: 1995, Short, 1994; Coelho, 1982; Chamot & O’Malley, 1986)

*Teaching tips for social studies*

- Use a thematic approach (Farr & Trumbull, 1997).
- Link new concepts to students' prior knowledge, even if it's different from mainstream knowledge (eg., The Civil War is like other conflicts that come from differences).
- Use oral history to show that history is composed of stories like the ones their families have shared.
- Use a variety of instructional approaches, including cooperative learning for concept attainment (August & Pease-Alvarez, 1996).
- Use visuals and realia.

Source: (Anstrom, 1997)

**Mathematics**

*Cultural differences*

Many people assume that of the four core content areas, math allows the easiest language transition for ELL students because of its reliance on symbols instead of language. Math is often deemed "culture-free." However, consider the following cultural differences that exist in the way that math is used around the world (Jameson, 1998).

Example: Hand writing of numbers

Someone from another culture might perceive a *seven*, as written in the United States, to be a *one*.

United States:

Other Cultures:

1: | or 1



7: 7



Other cultural differences include the ways that certain mathematical functions are performed. Consider the way that American children are taught to divide (Jameson, 1998).

quotient  $\frac{122 \text{ r}4}{7) 858}$  remainder  
divisor      dividend  
computations are  
written here

Some cultures perform division using the following format:

dividend 858	7	divisor
computations are written here	122	quotient
remainder 4		

Even students, who understand the same mathematical concepts, might not have the same background knowledge as the other students.

### *Academic language challenges*

Remember that academic language refers to conceptual language used in school settings. Math instruction should be designed to make material accessible and language tasks comprehensible. The following table demonstrates some language functions particular to math.

Academic Language Features in Math

<b><i>Syntactic features</i></b>	
Comparatives	Greater than/ less than
Complex strings of words	Least common denominator, negative exponent
Uses of prepositions	1/5 of the pie, divide 7 into 35
<b><i>Lexical features</i></b>	
Technical vocabulary	Additive inverse, coefficient
Ordinary vocabulary with different meanings in math	Square, power, table
Logical connectors	If...then, given that
Passive voice	“9 is divided by 3” can be confusing, because the student must understand the passive voice to see how that computation is different from “divide 3 into 9.” (These are the same computation, but the word order is different in the two sentences.)
Synonymous words and phrases	Add, plus, combine
Mathematical symbols and notations	As we have seen, the methods used for computations vary from culture to culture.

Source: as cited in Solomon & Rhodes: 1995: (Spanos, Rhodes, Dale, & Crandall, 1988)

### *Teaching tips for math*

- Use a multi-sensory, activity-centered approach.
- Engage students in solving interesting, real-life problems that encourage critical thinking, basic skill development, and practice.

- Work from concrete, problem-solving situations to more abstract, context-reduced ones. Start with word problems and examples, then move to math without context.
- Provide opportunities for individual, small group, and whole-class work.
- Use a variety of instructional methods, such as direct instruction, guided discovery, cooperative learning, and computer-assisted instruction.
- Use journal writing for students to explore and write about various strategies for using math to encourage self-awareness and metacognition—an awareness of one’s own thinking.

Prompt examples for journals (Bagley & Gallenberger, 1992):

- (Display a picture.) Based on this picture, construct a word problem that can be solved mathematically.
- What is the most important idea you’ve learned this week, and why?
- Write a paragraph containing as many of the following words as possible:
- List some things you must remember when answering this type of question or doing this type of problem.

Source: (Anstrom, 1997)

## Science

### *Cultural differences*

Cultural issues in the field of science are apparent even within American society. Some religious doctrines conflict with prevalent theories in the field of science, such as the theory of evolution. Other scientific methodologies, such as the scientific method or the scientific focus on classification, can be foreign concepts to students from some cultures. Science teachers should be aware that these cultural differences may exist, and should be prepared to address them in such a way that students from other cultures do not feel that they must deny their own cultures in order to learn about science in the United States. There are many different ways of looking at the world, and the American scientific field presents just one of these ways.

### *Academic language challenges*

Science teachers must be aware of academic language challenges common or specific to their discipline. Students may need explicit instruction and modeling in order to identify, comprehend, and use these various aspects of academic language effectively within the content area. Refer to the following table for examples.

Academic Language Features of Science

<b>Language function</b>	
Formulating hypotheses	“Develop a hypothesis to explain why plants grow taller in sunlight.”
Proposing alternative solutions	“You have found that plants grow taller when they are exposed to more sunlight. What are some other reasons that the plants may have grown taller?” (uses complex verb forms to describe possibilities)
Describing	“Describe the plants used in your study.” (requires a wide range of vocabulary)
Classifying	“Classify your plants into the appropriate areas.” (requires not

<b>Language function</b>	
	only understanding classifications, but the ability to linguistically justify classifications)
Inferring	“Based on the evidence available to you, infer the reasons why...” (uses complex verb forms to describe possibilities)
Interpreting data	“Following is a table showing... Based on the information in the table...” (must be able to justify interpretations)
Predicting	“Based on the evidence available, predict what would happen if you...” (uses complex verb forms to describe that which does not exist)
Generalizing	“Given the data available to you, make a generalization about how plants grow.” (must be able to synthesize all information available and justify conclusions)
Communicating findings	“What were the results of your experience?” (uses multiple forms of the past tense, as well as non-contextualized information)
<b>Syntactic features</b>	
Passive voice	“The leaf is eaten by the insect,” As opposed to the active voice: “The insect eats the leaf.” (Without understanding the difference between the passive and active voice, the ELL student might be unsure who is eating and who is being eaten.)
Use of noun phrases	“Vibrations in the inner ear (noun phrase) pass through...”
<b>Lexical features</b>	
Ordinary vocabulary with different meanings in science	Table, energy, kingdom
Sequence of events (temporal signals)	First, then, next, finally, at last, eventually, etc.
Interlocking definitions	“Digestive system, stomach, stomach acid,” all use one another in their definitions.
Technical taxonomies	Kingdoms of life

Source: as cited in Solomon & Rhodes, 1995:( NSTA, 1991); (Chamot & O’Malley, 1986;(Halliday, 1989)

*Teaching tips for science*

- Provide hands-on activities that provide opportunities for purposeful language in meaningful academic experiences.
- Provide various venues for students to learn a particular science concept.
- Spend more time learning fewer concepts to allow for a deeper level of understanding.
- Use unit organizers to demonstrate how activities are structured and connected.
- Limit new terminology to a manageable number.
- Use visual or real referents whenever possible.
- Reintroduce technical vocabulary in different contexts.

- Use repetition, paraphrasing and the active voice (e.g.: “living things need nutrients” instead of “nutrients are needed by living things”).
- Adapt written materials into charts, outlines, or simplified prose without losing the concepts.
- Add simplified background information if necessary (for example, by use of a jump-start mini lesson).
- Model think-alouds to guide students from data collection to hypothesizing.
- Use a three-tiered modeling approach, in which guided presentation proceeds group activity which then proceeds to open-ended individual study. This allows a natural progression through the stages of language learning: observing to solving, listening to speaking, interacting to initiating (Fathman, 1992).

Source: (Anstrom, 1997)

## ***English Language Arts***

### *Cultural differences*

Cultural differences in English language arts go beyond differences in language usage. Different cultures use language in written and oral forms in different ways. In some cultures, literature is experienced through oral stories, where the listeners are actively involved in the creation and presentation of the story. In other cultures, essays are written using an entirely different format than used by Americans. American students are taught to write essays that have the most important point at the end of the first paragraph, with each succeeding paragraph supporting that point. Some cultures have the most important point at the beginning of the first paragraph or the end of the last paragraph, and supporting paragraphs would appear to an American to be wandering off topic. English language arts teachers should remember that literature and writing may be used differently in American culture than in students’ home cultures. Be willing to directly instruct these students on the American perspective without requiring that ELLs *replace* previous understandings of literature and language usage.

### *Academic language challenges*

Remember that academic language refers to the kind of language used in school settings that require very different tasks of speakers than those used in conversational contexts. English language arts teachers must be aware of academic language challenges common or specific to their discipline so that language goals for ELLs can be embedded into lesson planning. Instruction should be designed to make material accessible and language tasks comprehensible. Students may also need explicit instruction and modeling in order to identify, comprehend, and use these various aspects of academic language effectively within the content area.

Academic language in English language arts covers the spectrum of the language features. Review the tables for social studies, math, and science presented previously to see the many ways that students use academic English in the educational setting. English language arts uses all of these. Students might be asked to describe their understanding, write a persuasive essay, or analyze an argument. Students will come across words with multiple meanings in different contexts. An English language

arts class focuses on many language or text types, from expository text to drama to poetry.

*Teaching tips for English language arts*

- Use diverse literature, so all students gain different perspectives on culture.
- Select texts that are relevant to various life experiences and cultures.
- Make literature more comprehensible by:
  - using graphic organizers to illustrate text structure, and
  - having students keep journals.
- Allow students to create graphic organizers, outlines, or drafts in their native language in order to organize their thoughts and ideas before writing in English.
- Pair students of the same native language but different levels of English proficiency.
- Assess either language use of specific items or content, but not both at the same time, as this can be overwhelming for students (Jameson, 1998).

Source: (Anstrom, 1997)

## Learning and Teaching Tools and Activities

This section presents learning and teaching tools and specific activities to enhance ELL learning.

### ***Learning and Teaching Tools***

#### *Graphic organizers*

Graphic organizers allow material to be presented in a way that is less dependent on text while providing a visual display of the relationships among concepts or the progression from one concept to another. One method developed by Gloria Tang, a professor at the University of British Columbia, is called “From Text to Graphics and Back Again” (Jameson, 1998). In this method, teachers organize and present students with concepts from the text in a graphic organizer. Once students understand the information presented in the graphic organizers, they can create their own texts demonstrating this knowledge.

To use graphic organizers the way Tang did, start by identifying the key concepts of the unit or chapter. Organize these graphically, using subsequent organizers to give further detail to the concepts. Use the same few graphic organizers repeatedly, because this helps students identify regular patterns. Graphic organizers must accurately depict the information and concepts in the text or unit, and contain key vocabulary. To scaffold graphic organizers, teachers begin by selecting or creating an organizer, and then filling it in. After a while, students learn to select an appropriate graphic organizer with teacher guidance, and the teacher fills it in. Finally, groups of students, or individual students, are able to both select and create their own organizers, and be able to complete them independently. This progressive nature allows students to develop independence (developed by Gloria Tang, as cited in Jameson, 1998).

Examples of graphic organizers include:

- timelines
- tables
- relationship webs
- charts (cause/effect, etc.)
- Venn diagrams
- outlines
- graphs

See Appendix B for samples of completed graphic organizers.

#### *Student portfolios*

Portfolios of student work, which are built over an extended period of time, are an excellent way to track progress. They can demonstrate to the learner, the teacher, the parent, and the administrator what kind of progress each student has made with regards to both language acquisition and content area topics. This also provides a way of reviewing important concepts at the end of units, especially if journals are included.

Artifacts of student work, which include projects, graphic organizers, and writing activities, help students develop their understanding of concepts.

### *Adapted materials*

Adapted texts makes information more accessible to ELL students. Creating adapted texts is worthwhile when you have more than two or three ELL students in a class. With less than three, other kinds of adaptation, such as partner sharing, may be more efficient. An adapted text focuses on the topic's key concepts, with each paragraph sharing the same, consistent format of a topic sentence and supporting details. Students also benefit from texts that paraphrase for less common words; simple sentence structures, fewer embedded clauses; and limited pronoun use. For example, a non-adapted text might say: "The Civil War, dividing America for a short time, was an event which helped to redefine states' rights with relation to the country as a whole." An adapted version of this text might say, "The Civil War *divided* (split in two) America for a short time. The war *forced* (made) the country to question the role of states and the role of the country in the government" (Echevarria et al., 2000).

When direct text adaptation is not feasible, highlighted text can be an effective strategy. Important sentences or paragraphs in a lengthy text are highlighted, so that the student discerns what is important from what is supplementary. This can be done by the teacher, a student aid, or the students themselves with guidance (Echevarria et al., 2000).

Students can greatly benefit from a preview of a topic or reading via a study guide. This tool also serves as a review at the lesson's end. A study guide might be an outline, a short text, or a graphic organizer (Echevarria et al., 2000).

### *Jump-start mini lesson*

Most ELL students have learned different topics than other students. Therefore, there may appear to be gaps in their background knowledge that you must identify and address before they can fully grasp new concepts. Remember that all students, regardless of language ability, should be able to learn and understand new concepts. You can help these students acquire this background knowledge with a small group mini-lesson prior to a whole-class lesson. In-depth understanding of these preliminary concepts might not be reached due to time limitations, but students can at least be exposed to basic information. Ideally, ELL students would understand the foundational concepts enough to support them in understanding the whole class lesson (Echevarria et al., 2000).

### *Marginal notes*

A text, which already has important points listed in the margin, can aid in reading comprehension as well as help students to identify key points in a paragraph, section, or chapter (Echevarria et al., 2000).

## Activities

### *Speaking activities*

There are many ways for students to practice speaking in a classroom, including the following.

- Think/write/pair share—Students process new information before having to actively produce such knowledge. In this activity, students reflect on new information, then write about it in the form of a journal entry or by filling in a graphic organizer. Students then share orally with partners the concepts expressed in writing (Jameson, 1998).
- “Turn to your partner and...”—Students can use the resources all around them in the form of other students to talk about what they have learned and try out new ideas.
- Jigsaw—Students work in “expert” groups on a particular topic; each expert group has a different topic. Students then get into new groups where each member shares their new “expertise.” For example, in an English class, students might be learning about transcendentalist authors. There might be four different groups, each one learning about the life and works of a different author. Once they have become “experts,” students regroup so that there are groups of four, with one member having studied each author. Students then share what they learned about their author.
- Oral presentation of written work—This is best done after a few practice sessions in smaller groups.
- Student retell—Students retell what they have learned from a text, video or tape to a partner, small group, or the whole class.
- Class creating a dialogue—Each member of the class or small group can contribute one sentence or a key word about a particular topic.
- Pair sharing—This activity is helpful for students who are uncomfortable speaking in front of the whole class. In pairs, students spend a designated period of time explaining one of the concepts learned. This oral activity reinforces comprehension and gives students practice with both listening and speaking while preparing them for class discussions.

***Jigsaws allow for two different collaborative groups and plenty***

### *Listening activities*

You can easily incorporate listening activities into a lesson, but you should make them diverse and comprehensible. Here are some suggestions.

- Audiotope or other recording—These are good for famous speeches, relevant songs, etc. A recording of text which students can listen to while reading can increase their comprehension level.
- Video tape—Tapes can be created by students and then incorporated into a lesson as can videos about a particular content topic. Just make sure that the information is comprehensible!
- Oral reading—Oral reading is when a teacher reads a text aloud. In general, students enjoy being read to, whether it's narratives or expository text. Students should have a copy of what you are reading, so that they can follow along with your intonation and pronunciation. This also makes the input more accessible.
- Storytelling—Teachers can tie important concepts into fictional stories to give students multiple levels for understanding concepts.
- Class creating dialogue—This also makes a great listening activity, where each member of the class or small group contributes one sentence or a key word about a particular topic.
- Guest speaker—Make sure your guest understands how to communicate comprehensibly with your students.
- Pair sharing—This is also good as a listening activity. This activity is helpful for students who are uncomfortable speaking in front of the whole class. In pairs, students spend a designated period of time explaining to each other something about a concept. This is a great way to reinforce comprehension with oral language as well as give students practice with both listening and speaking.

#### *Reading activities*

Once you have found appropriate reading activities to reinforce a concept, you can develop a repertoire of possibilities. A variety of reading activities helps keep students interested in the topic. Here are some ideas.

- Magazine articles—Provide content material from youth magazines.
- Chapter summaries—These are often a good introduction before reading a chapter or introducing a new topic.
- Student essays and projects—Reading previous students' writing about a topic provides passages that are generally on the students' level. Students also enjoy sharing what peers have learned and created.
- Jigsaw—Students can be reading various sources to prepare for small group presentations.

- Graphic organizers—Reading graphic organizers allows students to directly see relationships and make comparisons while completing a reading task.
- Narratives—Students can read stories related to the content. For example, a depiction of a teenager during the Civil War can help students “see” what was happening during that time period as well as make more personal connections to the information. Science students can read about important discoveries, or read stories about how others have used the information they are learning.
- Newspaper articles—Current media treatment of topics you are covering helps students see the relevance of the topics to the current state of our world.
- Text from a chapter—This is best done after students are fairly familiar with a reading in order to reinforce content concepts. ELLs can benefit from working in groups to get through a long chapter.
- Poetry—There is good poetry written about just about everything, from nature to wars to important discoveries. Interdisciplinary instruction can combine elements from English Language Arts topics with other content areas to reinforce learning.
- Lesson preview—Before a lesson which introduces complex topics, provide students with an outline or summary of what they will know at the end of the lesson. This way of previewing lesson objectives gives students a framework in which to place what is covered in the lesson. They may not yet be able to describe or explain the concepts, but they will recognize the concepts’ importance.
- Alternating sentences or paragraphs—When students are reading text that is challenging due to vocabulary, sentence structure, or content, try alternately reading sentences or paragraphs with the students. The student reads the first sentence aloud, then you read the second sentence, and so on. This also allows you to monitor the students’ comprehension more carefully and stop and review the concepts when comprehension breaks down.
- Overhead transparencies—Students read an outline of a lecture topic and see relationships between topics more clearly. Make sure that the words on the overhead are large enough to be seen; i.e., never just photocopy a page of writing and expect that students beyond the third row can read the projection.

### *Writing activities*

Writing is often the most challenging task for second language learners. Unlike reading, where they are provided with a context for the information being presented, writers have to create their own context and use language that is both comprehensible and that communicates the intended message (Kucer, 2001). Here are some ideas which might make writing activities less daunting for students.

- Interactive journal—This type of journaling involves a direct interaction between the teacher and the student. First, the student writes a few sentences in a journal. The teacher responds to these sentences, by modeling though not correcting correct grammar and vocabulary, and prompts the student to respond. This interaction can take place on the spot or over a period of days. The focus is on authentic communication.
- Comic strip—Students very much enjoy writing comic strips and using creativity to display understanding of concepts. They can either fill in the bubbles on comic strips that you provide or create their own pictures and bubbles.
- Making lists—Students can make lists on the spot to review information, allow you as a teacher to elicit background knowledge, or try out something new.
- Writing a newspaper article—This allows students to demonstrate current connections to what they are learning
- Journaling—Writing something is one way that students process what they've learned. Because journaling can have a very free structure, students get their ideas on paper without worrying too much about grammar, sentence structure, spelling, or organization.
- Writing a new ending—Students have a wonderful time feeling in control of the works that they read by being able to change endings. This also allows them to “think out of the box” while considering the many angles of a story or situation and consider the consequences of actions. It can also be fun for students to write on the topic of “what if \_\_\_\_\_ didn't happen/wasn't discovered...” such as with Newton's law of gravity or the Civil War.
- Writing a poem—Teachers can make connections across disciplines by combining the creative writing techniques of English language arts with concepts in other classes. This also emphasizes a higher level of understanding by the students, because not only must they understand the topic, they must also creatively express it, and even see beauty in it. Imagine the treasures you would find if you asked students to write haiku about the Pythagorean theorem!
- Write three things you learned today—Asking students to reflect immediately about what they learned during a class increases their awareness level about content and language objectives. Reflecting in writing about what was learned during a given lesson can have many benefits.
- Filling in graphic organizers—At first, students fill in organizers that you provide, then they select their own appropriate organizers. Eventually, they can create and/or use graphic organizers to demonstrate relationships in topics that they select and research themselves.

- Written presentation of oral work—Students can benefit by tying together oral and written work. Because writing can be more challenging for some ELLs than speaking, this provides a valuable scaffold while encouraging further reflection about content.
- Think/write/pair share—Students reflect on something they have discovered or seen presented, write about it, then share it orally with their partner, encouraging the reprocessing of concepts at least twice (Jameson, 2001).
- Writing a letter or postcard—students can write letters or postcards to friends or relatives about what they are learning in class. They can even embellish these with “photographs” about what they’re seeing. One science teacher in the Boston area recently had his students write postcards to their parents about the fascinating attributes of organelles.

### *Vocabulary activities*

Vocabulary acquisition can be one of the most important factors of ELL student success in your classroom. ELLs are constantly in a state of “catching up” to native speakers; therefore, they must focus on new content-area vocabulary as well

***Vocabulary acquisition can be one of the most important factors of ELL student success in your***

as academic vocabulary for higher-order thinking skills (analyze, synthesize, etc.), less common words, and idiomatic expressions. In a traditional classroom, vocabulary is learned through dictionary definitions and by using new words in a sentence. Although dictionaries are valuable reference tools, they rarely result in long-term learning when applied to lengthy vocabulary lists. Following are some vocabulary acquisition activities which might be more beneficial (Echevarria et al., 2000).

- Personal dictionaries—Students keep track of new words and write down definitions in their own words for later reference.
- Picture dictionaries—Students include the new word, as well as a picture to jog their memory about the meaning or uses of that word.
- Word wall—This is most beneficial if there is only one wall with important words in the classroom (multiple word walls can be too much of an overload). Once students seem to be using the words on the wall consistently and accurately, the words can be changed to a new group of words.
- Concept definition map—This type of graphic organizer helps students see the direct relationship between new vocabulary words.
- Cloze sentences—This is a “fill-in-the-blank” activity which uses previously studied words in context to allow for vocabulary practice.

- Word sorts—Students categorize words or phrases into predetermined groups to demonstrate their knowledge of word relationships.
- Word study books—New words or phrases are included in a text which the students reference over an extended period of time.

## SIO Protocol Lesson Protocol: What Do Effective Lessons Look Like?

The Sheltered Instruction Observation Protocol (SIO Protocol) Model is one way of measuring the degree to which an educator is teaching all students. Because the SIO Protocol lists 30 items that should be part of any teaching repertoire, it provides a helpful guideline for your own lesson planning.

Although a lesson might not address all 30 items, most should be evident weekly. This is an excellent tool for focused observation. Have the protocol in front of you when you have the opportunity to observe another teacher, and see how well each item is addressed on a scale of one to five. Following is an overview of the 30 items, grouped into eight categories, and adapted from Echevarria et al (2000).

### **SIO Protocol addresses:**

- **lesson preparation**
- **instruction**
- **review and**

### *Lesson Preparation*

1. Clearly defined **content objectives** for students
2. Clearly defined **language objectives** for students
3. **Content concepts** appropriate for age and educational background level of students
4. **Supplementary materials** used to a high degree, making the lesson clear and meaningful (e.g., graphs, models, visuals)
5. **Adaptation of content** (text, assignments, etc.) to all levels of students' proficiency
6. **Meaningful activities** that integrate lesson concepts (surveys, letter writing, simulations, constructing models) with language practice opportunities for reading, writing, listening, and/or speaking

### *Instruction: Building Background*

7. **Concepts explicitly linked** to students' background experiences
8. **Links explicitly made** between past learning and new concepts
9. **Key vocabulary emphasized** (e.g., introduced, written, repeated, and highlighted for students to see)

### *Instruction: Comprehensible Input*

10. **Speech** appropriate for students' proficiency level (e.g. slower rate, enunciation, and simple sentence structure for beginners)
11. **Explanation** of academic tasks clear
12. Variety of **techniques** make content concepts clear (e.g. modeling, visuals, hands-on activities, demonstrations, gestures, body language)

### *Instruction: Strategies*

13. Ample opportunities for students to use **strategies**
14. Consistent use of **scaffolding** techniques throughout the lesson, assisting and supporting student understanding
15. Variety of **questions types, including those that promote higher-order thinking skills** (e.g. literal, analytical, and interpretive questions)

*Instruction: Interaction*

16. Frequent opportunities for **interaction** and discussion between teacher/student and among students, which encourage elaborated responses about lesson concepts
17. **Grouping configurations** support language and content objectives of the lesson
18. Sufficient **wait time for student responses**
19. Ample opportunities for students to **clarify key concepts in L1** (their first language) as needed with aide, peer, or L1 text (if resources are available)

*Instruction: Practice/application*

20. **Hands-on** materials and/or manipulatives for students to practice using new content knowledge
21. Activities for students to **apply content and language knowledge** in the classroom
22. Activities that integrate all **language skills** (reading, writing, listening, and speaking)

*Instruction: Lesson delivery*

23. **Content objectives** clearly supported by lesson delivery
24. **Language objectives** clearly supported by lesson delivery
25. **Students engaged** approximately 90% to 100% of the time
26. **Pacing** of the lesson appropriate to the students' ability level

*Review and Assessment*

27. Comprehensive **review** of key vocabulary
28. Comprehensive **review** of key content concepts
29. **Feedback** to students on their output (i.e., language, content, work)
30. **Assessment** of student comprehension and learning of all lesson objectives (e.g. spot checking, group response) throughout the lesson

## TESOL Standards for English Language Learners

Teachers of English to Speakers of Other Languages (TESOL) is a professional organization dedicated to the betterment of English language teaching. The following standards, written by members of TESOL, will help you to identify the goals for English language learners in your classroom in relation to other learners. The following standards were adapted from the TESOL standards (1997).

Standard 1: Students will use English to communicate in social settings.

- Students will use English to participate in social interactions.
- Students will interact in, through, and with spoken and written English for personal expression and enjoyment.
- Students will use learning strategies to extend their communicative competencies.

Standard 2: Students will use English to achieve academically in all content areas.

- Students will use English to interact in the classroom.
- Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form.
- Students will use appropriate learning strategies to construct and apply academic knowledge.

Standard 3: Students will use English in socially and culturally appropriate ways.

- Students will use the appropriate language variety, register, and genre according to audience, purpose, and setting.
- Students will use nonverbal communication appropriate to audience, purpose, and setting.
- Students will use appropriate learning strategies to extend their sociolinguistic and sociocultural competence.

## Glossary of Terms

**Academic language:** Language used in formal contexts for academic subjects. The aspect of language connected with literacy and academic achievement. This includes technical and academic terms.

**Additive bilingualism:** Rather than neglecting or rejecting students' language and culture, additive bilingualism promotes building on what the child brings to the classroom and adding to it. (Contrast with subtractive bilingualism).

**Assessment:** The orderly process of gathering, analyzing, interpreting, and reporting student performance, ideally from multiple sources over a period of time.

**BICS (Basic Interpersonal Communication Skills):** Face-to-face conversational fluency, including mastery of pronunciation, vocabulary, and grammar. English language learners typically acquire conversational language used in everyday activities before they develop more complex, conceptual language proficiency.

**CALP (Cognitive/Academic Language Proficiency):** Language proficiency associated with the abstract language abilities required for academic work. A more complex, conceptual, linguistic ability that includes analysis, synthesis, and evaluation.

**Cross-cultural competence:** The ability to understand and follow the cultural rules and norms of more than one system. The ability to respond to the demands of a given situation in a culturally acceptable way.

**ELLs (English language learners):** Children and adults who are learning English as a second or additional language. This term may apply to learners across various levels of proficiency in English. ELLs may also be referred to as non-English speaking (NES), limited English proficient (LEP), and a non-native speaker (NNS).

**ESL:** English as a second language.

**L1:** First language. a widely used abbreviation for the primary, home, or native language. The second language is often referred to as

**Language objectives:** Statements that identify what students should know and be able to do while using a language, such as English. They support students' language development, often focusing on vocabulary, functional language (questioning, articulating predictions or hypotheses), reading, writing, and so forth.

**Language proficiency:** An individual's competence in using a language for basic communication and academic purposes. May be categorized as stages of language acquisition.

**LEP (Limited English Proficient):** A term referring to a student with restricted understanding or use of written and spoken English; a language learner who is still developing competence in using English.

**Mnemonics:** From the Greek *mnemon*, meaning “mindful”. Mnemonics are devices to jog the memory. For example, steps of a learning strategy are often abbreviated to form an acronym or word that enables the learner to remember the steps.

**Nonverbal communication:** Paralinguistic messages such as intonation, stress, pauses and rate of speech; nonlinguistic messages such as gestures, facial expressions; body language accompanying speech or conveyed without speech.

**Realia:** Real-life objects and artifacts used to supplement teaching; can provide effective visual scaffolds for English language learners.

**Scaffolding:** Teacher support for learning and student performance of the tasks through instruction, modeling, questioning, feedback, graphic organizers, and more, across successive engagements. These supports are gradually withdrawn, thus transferring more and more autonomy to the child. Scaffolding activities provide support for learning that can be removed as learners are able to demonstrate strategic behaviors in their own learning activities.

**Sheltered instruction (SI):** An approach to teaching that extends the time students have for receiving English language support while they learn content subjects. SI classrooms, which may include a mix of native English speakers and English language learners or only ELLs, integrate language and content while infusing sociocultural awareness. Teachers scaffold instruction to aid student comprehension of content topics and objectives by adjusting their speech and instructional tasks, and by providing appropriate background information and experiences. The ultimate goal is accessibility for ELLs to grade-level content standards and concepts while they continue to improve their English language proficiency.

**Sociocultural competence:** The ability to function effectively by following the rules and behavioral expectations held by members of a given social or cultural group.

**Standard American English:** “That variety of American English in which most educational texts, government, and media publications are written in the United States; English as it is spoken and written by those groups with social, economic, and political power in the United States. Standard American English is a relative concept, varying widely in pronunciation and in idiomatic use but maintaining a fairly uniform grammatical structure” (Harris & Hodges, 1995, p. 241).

**Subtractive bilingualism:** The learning of a new language at the expense of the primary language. Learners often lose their native language and culture because they don’t have opportunities to continue learning or using it, or they perceive that language to be of lower status. Loss of the primary language often leads to cultural ambivalence.

## Appendix A—Sample Student Survey

### Getting to Know You Better

Welcome to a new semester! Please answer the following questions so that I can begin to get to know you. Let me know if I can assist you in any way. Items marked with a \* are required questions.

\*Name: \_\_\_\_\_ \*Age \_\_\_\_\_

\*Grade: \_\_\_\_\_ Where else have you lived? \_\_\_\_\_

\*Languages you speak or hear at home: \_\_\_\_\_

\*When do you use this language? With whom do you use it? \_\_\_\_\_

\_\_\_\_\_

Favorite subject: \_\_\_\_\_ Why? \_\_\_\_\_

Birthday: \_\_\_\_\_ Favorite food: \_\_\_\_\_

Music you like: \_\_\_\_\_

Instruments you play or want to learn: \_\_\_\_\_

Sports you play: \_\_\_\_\_

Sports you watch: \_\_\_\_\_

What's your dream for the future? \_\_\_\_\_

Pet Peeve (what annoys you?): \_\_\_\_\_

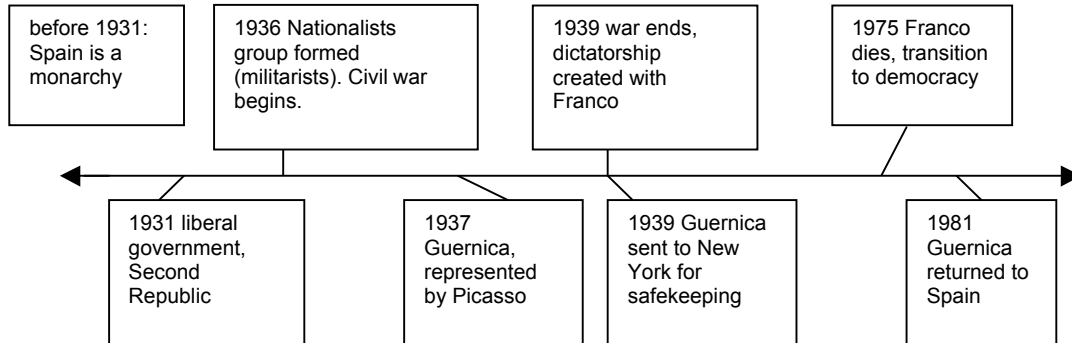
\*What do you hope to learn in this class? \_\_\_\_\_

\*What grade do you expect to earn in this class? \_\_\_\_\_

## Appendix B: Sample Graphic Organizers

### Timeline

A timeline for the history of *Guernica*, a painting by Picasso representing a bombing which took place in Spain during the Spanish civil war:



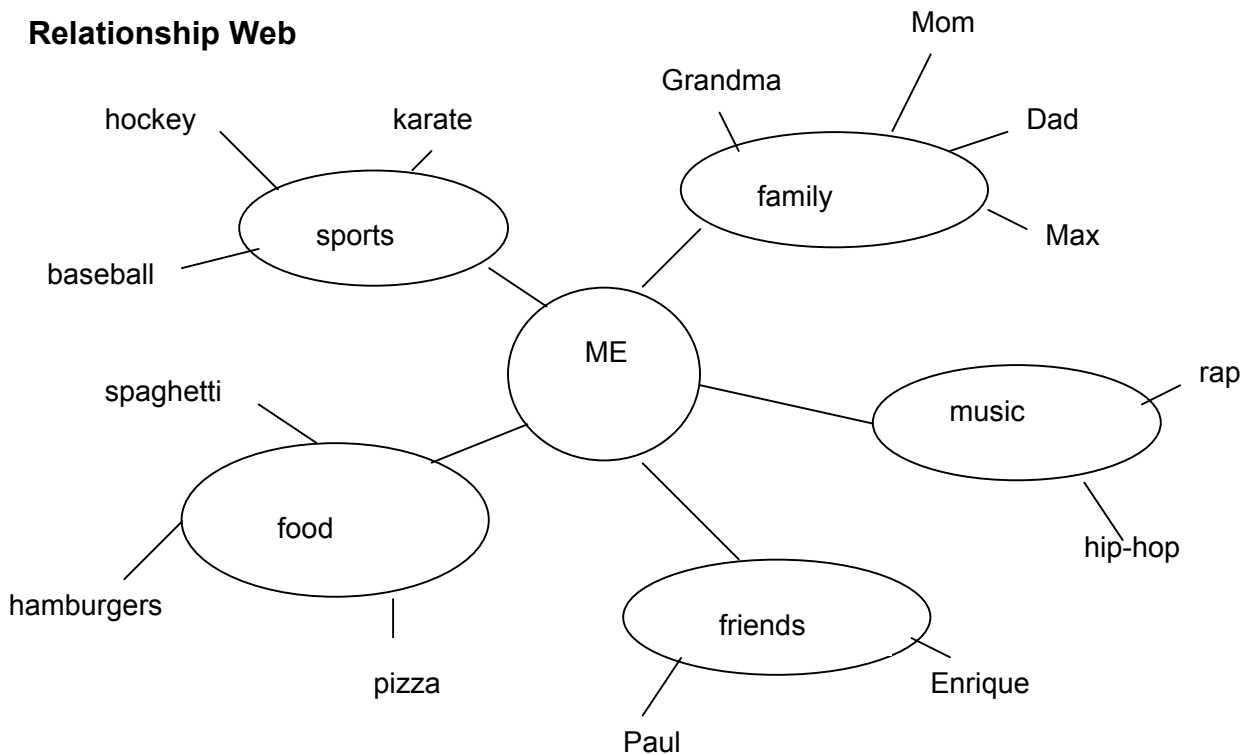
### Table

A table for describing famous astronomers:

Name of Astronomer	Years Alive	Important Contributions to Astronomy
Claudius Ptolemy	Circa 100	Wrote of Greek astronomy and an Earth-centered universe in his <i>Almagest</i> , which dictated scientific thought for 1400 years.
Nicolaus Copernicus	1473-1543	Aware of pre-Ptolemy Greek ideas about a sun-centered universe and added the physical and mathematical argument that the earth spins and planets revolve around the sun.
Galileo Galilei	1564-1642	Improved the telescope and was the first to use it for celestial observations. His discoveries (such as sunspots) helped support Copernicus' ideas about a sun-centered solar system. He suffered greatly for these ideas in the Inquisition.
Isaac Newton	1642-1727	Developed an explanation for what holds the universe together with the laws of gravity and motion, and invented the first notion of calculus.
Albert Einstein	1879-1955	Radically changed astronomy and physics with the theory of relativity which was the basis for tapping the energy of the atom (among other things).

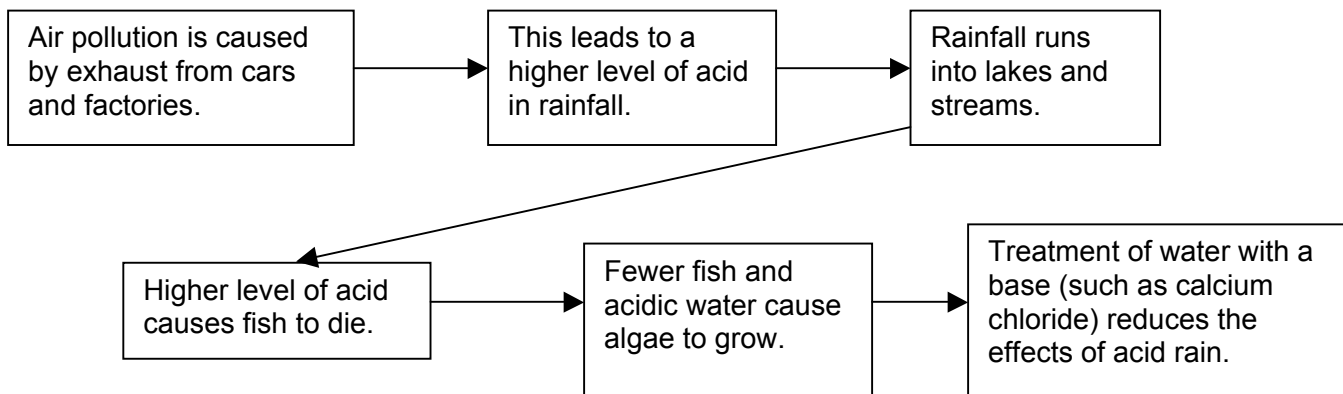
Source: (Chamberlin, Paine, Billard, Siddeley, & Uhl, 1970)

### Relationship Web



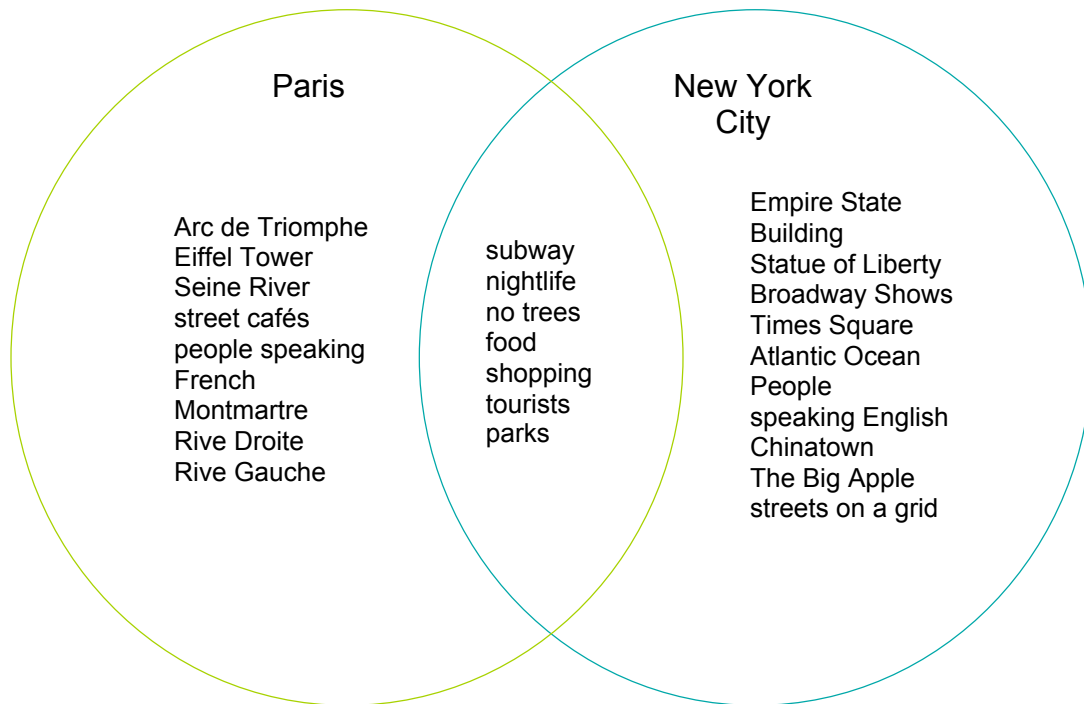
### Charts (cause/effect, etc.)

#### Acid Rain



## Venn Diagrams

### A Comparison of Paris and New York City



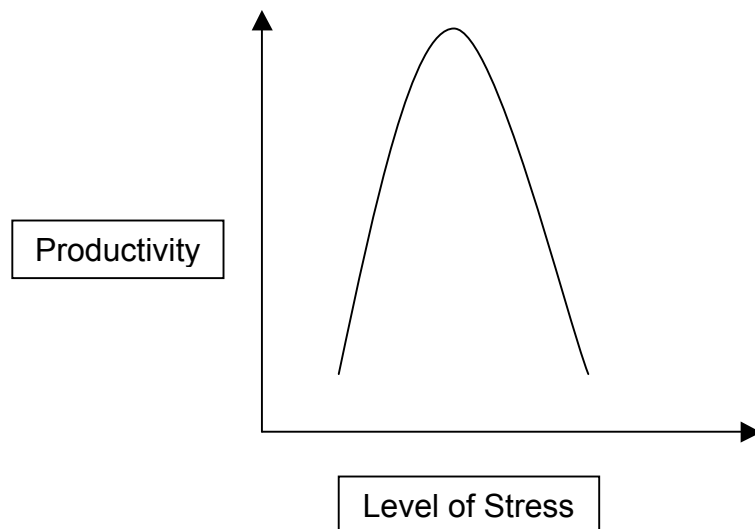
## Outlines

### Greece

- I. Introduction
  - A. Where Greece is located
    1. Mediterranean Europe
    2. Across from Turkey
  - B. Interesting facts about Greece
    1. Planets are named after Greek gods
    2. Greece uses the Euro, but does not border any other countries who do
  - C. Purpose of reading about Greece: history, geography, and Greek culture
- II. History
  - A. Ancient Greece
    1. Greek empire
    2. Greek myths and gods
  - B. Greece during the middle ages
    1. influence of the Byzantines
      - a. walled cities
  - C. Greece in modern times
    1. cities are modernized
    2. still many remnants of Greece's past

- III. Geography of Greece
  - A. Mainland
  - B. Islands
    - 1. Cycladic Islands
    - 2. Ionian Islands
    - 3. Crete and Other islands
  - C. Peloponnesse
    - 1. connected to the mainland by an Isthmus (isthmus of Corinth)
      - a. canal dug through isthmus in 1893 makes it effectively an island
    - 2. important cities
      - a. Corinth
      - b. Patras
      - c. Sparta
- IV. Greek culture
  - A. Religion
    - 1. in ancient Greece, worshipped many gods
    - 2. currently, Greek orthodox church
      - a. worship one god
  - B. Language
    - 1. standard Greek
    - 2. Greek language varieties
  - C. Traditions and holidays
- V. Conclusion
  - A. Historically speaking, Greece has had a large impact on Western civilization
  - B. Geography of Greece is diverse
  - C. Greek culture is unique and beautiful

**Graphs**



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