Instructional Sample Practice for Eleventh-Grade (Grade Band 11th- 12th) Segment of a Science Unit Aligned to the Next Generation Learning Standards

Underlined sentences or words constitute hyperlinks. Sentences and words in bold are classroom activities that thread oral language, metalinguistic development, and flexible groupings throughout this unit.

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Instructional Sample Practice for Eleventh-Grade (Grade Band 11th- 12th) Segment of a Science Unit Aligned to the Next Generation Learning Standards

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Spotlight

This Instructional Sample describes a Transitional Bilingual Education (TBE)[1] eleventh-grade classroom with English Language Learners (ELLs)[2] in which the teacher set up an environment that incorporated ***oral language development, metalinguistic awareness, and flexible groupings*** *around the topic of genetically modified corn. These practices were designed with an interdisciplinary (science/English Language Arts (ELA)) lesson in mind and were implemented by a bilingual Living Environment teacher working with ELLs to build understanding and experience with instruction aligned to the 11-12 New York State Next Generation English Language Arts Learning Standards, as well as the Lifelong Practices for Readers and Writers that are embedded within them. The practices outlined can be applied by an ELA or English for Speakers of Other Languages (ESOL) teacher working in science classes. The science curricula for secondary students are flexible, and most schools do not adhere to a severely strict sequence. Therefore, the practices suggested below could serve as interdisciplinary lessons to students in any of the secondary grades.*

A review of the Next Generation ELA Standards for grades 9 through 12 revealed the skills of evaluating, examining, analyzing, integrating, and developing questions for deeper understanding as common threads throughout the four grades. This sample starts by asking students to engage with a simple text and deliberately exposes them to more complex texts that revolve around the topic of genetically modified corn. The final goal is to have ELLs read, with confidence and understanding, a complex text on the same topic. The general sequence of this sample requires students to first engage with a text presented in audio format. Students will then view a topical video and examine a written text. The unit culminates by reading a text that has been presented in an New York State (NYS) Regents Examination in English Language Arts.

The exercises that follow seek to answer the essential questions: "How did corn take over America?" and "How did genetically modified corn become a common food ingredient?" Students learn about DNA in middle school and often delve into learning about genes and genetic engineering in the secondary grades in courses such as Regents Living Environment, genetics, bioethics, anatomy, and physiology. Additionally, the topic of corn as a key ingredient in our diets is widely discussed in health and nutrition courses, making this topic highly relevant for high

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[1] *The goal of a TBE program is to provide students with the opportunity to transition to a monolingual English classroom setting without additional supports once they reach proficiency. Even though the amount of English instruction students receive will increase over time, in a TBE program, there will always be home language instruction/supports allowing students the opportunity to develop bilingually.*

[2] *Under CR Part 154, "English Language Learners (ELLs)" are defined as students who, by reason of foreign birth or ancestry, speak or understand a language other than English and speak or understand little or no English, and require support in order to become proficient in English.*

In addition, a Multilingual Learner (ML) definition was included to the Reopening Guidance in August 2020: All students who speak or are learning one or more language(s) other than English, including: 1) current ELLs, 2) students who were once ELLs but have exited out ELL status, 3) students who were never ELLs but are heritage speakers of a language other than English, and 4) World Languages students.

These abbreviations are used in this document and in NYSED guidance and other public materials.

school students. The standards that are covered appear at the end of each section. When appropriate, templates pertaining to the Bilingual Progressions are inserted. The activities described in this sample are not meant to be prescriptive. They should be taken as options or possible opportunities for ELLs to increase their understanding of a particular content area while increasing their mastery of the languages of instruction.

Oral language development, metalinguistic awareness, and flexible grouping *offer substantial opportunities for literacy development for every student, but especially for ELLs, as these practices encourage the contextual development of literacy skills. At this point, it is important to discuss the role of translanguaging in the pedagogies created for ELLs.*

Translanguaging is a practice that brings together the students' entire linguistic repertoires (home and new languages) in ways that create spaces for deeper and more complex thinking. Translanguaging requires the creation of spaces where learning is intentional, strategic, agentive, and thoughtfully carried out (Fu, Hasjioannou, & Zhou, 2019; Espinosa & Lerner-Quam, 2019). In this instructional practice, you will notice the intentionality that teachers bring to the teaching of ELLs in order to ***foster oral communication*** *that takes place in* ***flexible and dynamic partnerships****.* ***Metalinguistic awareness,*** *in particular, is made possible when teachers have opened a translanguaging space (Duarte, 2019; Mertin et al., 2018).*

The secondary classroom offers many opportunities for teachers to create environments in which students can utilize and further develop ***oral language*** *skills. At the secondary level, students may present a variety of language proficiency skills in both the home language and the new language. Therefore, when there are more opportunities provided for oral language use and for the use of students' entire linguistic repertoires, there is a better possibility for developing language proficiency. These practices offer occasions for students to share, discuss, integrate, analyze, synthesize, and present ideas to their peers.*

Flexible grouping *allows for teachers to create purposeful collaborative environments that are conducive to active discussions about the topic at hand. When working with ELLs at the secondary level, teachers can design groups that are based on either home language proficiency, new language proficiency, academic content knowledge, or a combination of any of these parameters.*

Metalinguistic awareness *can take place in many forms. These practices begin by emphasizing listening skills and targeting the development and awareness of new vocabulary. Scientific root words, prefixes, and suffixes are collaboratively discussed as this new vocabulary emerges. Following these discussions, students engage in various activities targeting metalinguistic awareness focusing on processing complex sentences in English and Spanish as well as analyzing how an opinion piece is put together. Throughout these meaningful practices, ELLs have the chance to use their home and new language and read in both. Students can discuss writing choices in both languages as they create a persuasive letter to an editor. When appropriate, corresponding templates pertaining to the Bilingual Common Core Progressions (BCCP) are integrated. These activities focus on students'*

ability to explore and analyze information presented in multiple formats to then integrate it and synthesize it. A road map of how these instructional practices may be organized is presented in Table 1.

Table 1: Road Map of a Segment of an Eleventh Grade Science Unit on Genetically Modified Corn

All the classroom practices described below can be mirrored in English and in the language other than English. These by no mean limit the variety of strategies that can support MLs.

Development of the Unit	***Suggestions for Classroom Practices***	***Suggested Classroom Practices for Teachers of ELLs***
Speaking and Listening Activities • *Students discuss a list of common food items.* • *Students listen to a six-minute-long audio segment titled "King Corn" and conduct a Word Find activity.* • *Students use a Scientific Root Words, Prefixes, and Suffixes tool to determine if the words in their list have a root word, prefix, or suffix, and what it means.* • *Students watch a segment of the documentary **Food Inc.** titled "Corn: The Miracle Crop" and collaborate to make a list of items made with corn.* • *Students discuss the information presented by the two sources and synthesize ideas. They work collaboratively to compile a list of things that make corn easy to grow and to consider the questions listed which address corn as an engineered food.* • *Each group presents this information to the class.*	• *Building background knowledge about corn as a common ingredient in food* • *Thinking and writing to understand* • *Integrating multiple sources of information* • *Enriching personal language and background knowledge* • *Making connections* • *Monitoring comprehension* • *Experimenting with language* • *Integrating and evaluating sources* • *Presenting claims, findings, and supporting evidence* • *Conveying a clear and distinct perspective*	• *Facilitate building background knowledge by providing examples of what she/he consumes.* • *Group students based on home language and language proficiency.* • *Design collaborative activities that require students to use their entire linguistic repertoires in the home language and in English.* • *Implement the Word Find activity in the home language or in English depending on the proficiency level of the students.* • *Provide examples of how to use the Scientific Root Words, Prefixes, and Suffixes tool.* • *Activate the closed-captioning feature with the video.*

Development of the Unit	Suggestions for Classroom Practices	Suggested Classroom Practices for Teachers of ELLs
		• *Provide examples of things that make corn easy to grow.*
Reading Activities • *Students read Chapter 1 of **The Omnivore's Dilemma**, "How Corn Took Over America." As they read, they highlight the words from the Word Find activity on the text. They can use a Diary of Unfamiliar Words, a Note-t aking Grid, and/or a Graphic Organizer.* • *In groups, students share their Diary of Unfamiliar Words with their teammates. Students compare their Graphic Organizers to make one large collaborative Graphic Organizer on a poster paper including everyone's ideas.* • *Students read a complex text titled "GMOs 101" retrieved from the Regents Examination in ELA (January 2016), also available in Spanish. As they read, they use the Evidence from Text worksheet to organize and synthesize information from the text.* • *Students can use a Note-taking Grid to organize the details from each paragraph or segment.*	• *Making connections* • *Reading for multiple purposes* • *Enriching personal language, background knowledge, and vocabulary through reading and communicating with others* • *Monitoring comprehension and flexibly apply reading strategies* • *Strengthening writing by planning, revising, editing, rewriting, or trying a new approach* • *Experimenting and playing with language*	• *Preload new vocabulary and work with Entering-level students in a small, guided reading group.* • *Show a sample filled-in Note-taking Grid and Graphic Organizer so students can see what is expected of them. The teacher can show this sample in the students' home language.* • *Place Entering-level students in a small group based on home language and language proficiency.* • *Engage students to use their entire linguistic repertoires in their home language and in English.* • *Translate sections of the Regents Examination in ELA into other languages to provide access to the content in the students' home languages.*

Development of the Unit	Suggestions for Classroom Practices	Suggested Classroom Practices for Teachers of ELLs
• *Students then organize the main idea from each segment using a Graphic Organizer.* • *Students compare their Graphic Organizers to make one large collaborative Graphic Organizer on a poster paper including everyone's ideas.*		• *Show a sample filled-in Note-taking Grid and Graphic Organizer so students can see a model of what is expected of them.*
Developing Metalinguistic Awareness • *Students analyze the ELA text to gain a deeper understanding of how to process complex sentences and cause and effect in both Spanish and English.* • *Students analyze how the structure of an opinion piece is developed.*	• *Reading to understand in both languages* • *Exploring how a persuasive text is organized*	• *Provide students access to texts in the home and new language.* • *Select opinion pieces written in the home and new language so students can analyze their structure and identify the linguistic devices authors use in both languages to express an opinion.*
Debating in Preparation to Write • *Students gather information to support a stance.* • *Students exchange ideas and debate three different perspectives on GMOs.*	• *Gathering information to engage in a formal discussion* • *Presenting propositions and arguments clearly*	• *Provide tools for students to prepare their arguments in the new and home language. Students can clarify their propositions in the language of their choice before the formal discussion.*
Writing • *Students analyze and deconstruct a persuasive essay.* • *Students gather evidence from all the resources.*	• *Monitoring comprehension* • *Drawing evidence from informational texts to support analysis, reflection, and research* • *Writing informative/explanatory texts*	• *Encourage students to use their entire linguistic repertoires in their home language and in English.* • *Group students based on home language and language proficiency.*

Development of the Unit	Suggestions for Classroom Practices	Suggested Classroom Practices for Teachers of ELLs
• *Students share their evidence with their groups and collaboratively draft an outline for a letter to be written to a local newspaper about the uses of genetically modified corn.* • *Students turn their draft into an article to be sent to a local newspaper. They research the local newspapers and decide where their letter should be sent.*	• *Thinking, reading, speaking, and listening to support writing* • *Writing informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content*	• *Monitor students' progress and assist students individually.* • *Provide a checklist of expectations to assist students in their writing.* • *Provide students samples of opinion articles sent to local newspapers. These models can be in the students' home language.*

Overall Description of the Classroom Setting

These instructional strategies were implemented by a bilingual Living Environment teacher working with ELLs. The practices below meet both Next Generation Science Standards and Next Generation ELA Standards. The main purpose of this unit is to provide students with the necessary skills to read and understand a text that has been included in the NYS Regents Examination in ELA, which all eleventh grade students in NYS must take. The Next Generation Learning Standards require every teacher to possess the necessary skills to support ELLs as they acquire content knowledge while also progressing toward English language proficiency. "It is imperative that all educators work across the content areas to ensure that all students meet the high demands of the Next Generation Learning Standards" (Blueprint for English Language Learner/ Multilingual Learner Success, NYSED).

Dr. Estrella Olivares Orellana teaches Living Environment at a public, bilingual high school (grades 10 and 11). She works in a Transitional Bilingual Education (TBE) class, and this class is the only one the students take in a bilingual setting. She is certified in biology, chemistry, and bilingual education. Additionally, Dr. Olivares Orellana has a doctorate degree in curriculum and teaching from Teachers College, Columbia University. Dr. Olivares Orellana has been a bilingual science teacher for 17 years. She often designs lessons that invite students to use their entire linguistic repertoires to make meaning and promote critical and higher order thinking that goes beyond superficial observations and memorization. The class in which these practices were implemented has 16 students, all of whom are bilingual (English and Spanish) and have been identified as ELLs. The strategies presented in this unit were designed for a classroom with bilingual students whose home language is Spanish and who fall primarily in the Emerging and Transitioning English proficiency levels. These practices could be co-taught by an ELA teacher who plans and facilitates lessons with an ESOL teacher. Students should be grouped in teams of no more than four members per group. Teams should be grouped to make sure that varied academic strengths, interests, and language proficiency levels in English and Spanish are considered.

The strategies presented are not exclusive to the bilingual science classroom. They can be modified to be used in any science class with ELLs:

- For an ELA classroom setting, these practices serve as preparation and practice for the NYS Regents Exam in ELA, as they start with audio segments and simple texts and culminate with a reading passage from a past Regents Exam on genetically modified corn.
- For an English as a New Language (ENL) class, these practices could be used with Transitioning-level students while gathering evidence for opinion/argument writing.

Unit Segment Summary

For secondary school teachers, it is important to recognize the significance of literacy development with topics students will be studying in their content courses and to create opportunities in which literacy can be promoted in ways that are interdisciplinary. The focus of the segment is genetically modified organisms (GMOs). Specifically, the segment discusses corn, and how it has taken over as a super ingredient that is included in a variety of items we consume daily. A GMO is an organism that has had its DNA modified through genetic engineering practices. High school students know about DNA, genes, and genetically modified organisms. This segment uses this topic to engage students in a variety of text analysis practices, beginning with simple audio-format text and taking the student through various exercises, culminating in the analysis of a complex text that has been included in a previous Regents Examination. This is followed by the writing of an informative article about genetically modified corn, which will be sent to a local newspaper to inform readers about the crop and its role in the modern diet. These practices include strategies that promote oral language development through discussions and presentations and metalinguistic awareness through word and text analysis during both reading and writing tasks.

Table 2: The Next Generation Science Standard Addressed with This Segment is HS-LS1-1

From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can construct an explanation, based on evidence, for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.

Science and Engineering Practices	***Disciplinary Core Ideas***	***Crosscutting Concepts***
Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review, etc.) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.	*Systems of specialized cells within organisms help them perform the essential functions of life.* *All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells.*	*Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.*

Speaking and Listening Activities

Prior to beginning this segment, students explored the structure of DNA and the field of biotechnology. They could explain what a genetically modified organism is, how it becomes modified, and how it reproduces. Students knew what corn was, but many had been unaware of its various uses. To acquaint students with items containing corn, students were provided with a Student Work Packet, which had a table that listed common food items (I) with Spanish translations. Students were asked to select things they consume from it as well as items they thought might contain corn. Part of this table is shown below.

Common Food Items

I. Place an X for the food items you consume and for the ones that you think might contain corn.

Food Items	Alimentos	I consume/ Yo consumo	Contains Corn/ Tiene Maiz
Soda	Bebida Gaseosa		
Corn	Maiz		
Popcorn	Palomitas de Maiz		
Candy	Caramelo		
Flavored Yogurt	Yogur Con Sabor		
Salad Dressing	Aderezo Para Ensaladas		
Frozen Foods	Comidas Congeladas		

Students Were Clustered in Partnerships Based on How Well They Work Together

They shared their lists with their partners and determined similarities in items they consume and items they think contain corn. Dr. Olivares Orellana walked around the room, to ensure students were understanding and participating in the assignment. Interesting conversations took place as students shared their surprise to find that unexpected items listed—such as soda and candy—contain corn.

TEACHERS OF ELLS CAN PROVIDE THE WORD FIND ACTIVITY IN THE HOME LANGUAGE OR IN ENGLISH DEPENDING ON THE PROFICIENCY LEVEL OF THE STUDENTS.

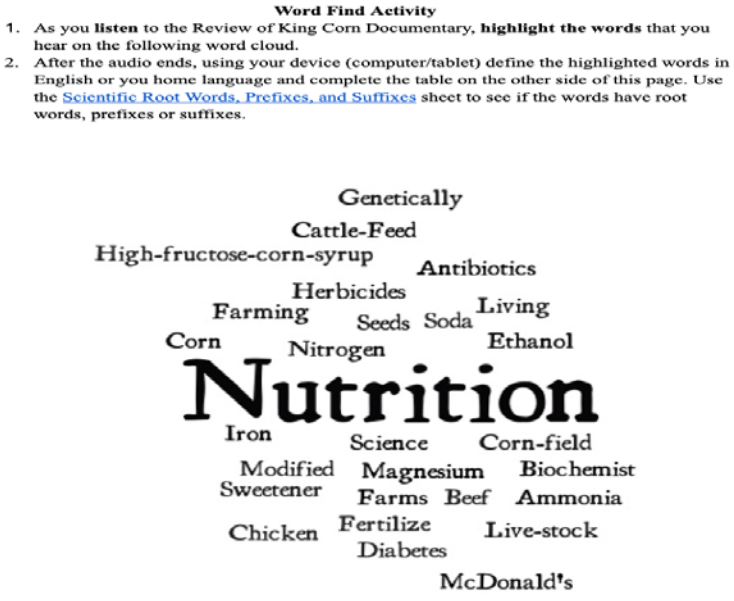
Reading and Researching about Corn and Its Uses

The previous activity encouraged dialogue between students around corn and their assumptions regarding where corn is found in the everyday products they consume. As the unit continued, Dr. Olivares Orellana provided her students with a Word Find activity and played a six-minute-long audio segment from the King Corn documentary for review. This was an account of how two graduate students learned that about 70% of the planted corn would not be used for direct consumption, but as a resource for manufacturing a vast array of items, including many of the ones the students had reported they consume. Students listened attentively to this audio in English and helped

GROUPS CAN BE MADE BASED ON HOME LANGUAGE AND LANGUAGE PROFICIENCY.

each other, circling words they heard. Students then copied the list of words, used their devices to define them, and translated the into their home language. They did the translation by either asking a partner or by using a web-based tool.

The second purpose of this activity was to engage the students in an exercise that targeted **metalinguistic awareness** by analyzing prefixes. The audio recording referred to antibiotics. The students consulted their Scientific Root Words, prefixes, and suffixes tool to determine the prefix in "antibiotic" and what that prefix means. The students were **grouped according to cross-language proficiency**[3], and students discovered that "anti-" means against and that "biotic" refers to living things, in this case, bacteria. Dr. Olivares Orellana asked her students to think about other words that have this prefix. The students mentioned the words antihero, antisocial, and antidote. When she asked them for the translations of these words in Spanish, the **students shared** that these were all cognates. The words share the same meaning and similar spelling.



As the unit continued, Dr. Olivares Orellana asked students to watch a five-minute segment of the documentary *Food, Inc.* titled "Corn: The Miracle Crop" and collaborate to make a list of items that are made with corn using the information from both the audio and video. Students **worked in groups** to compare the list of things made with corn according to the evidence gathered. Then students discussed the information presented by the two sources and synthesized the key ideas. They went back to their resources (**packets III & IV) and worked**

CLOSED CAPTIONING CAN BE EMPLOYED WITH VIDEO.

LIFELONG PRACTICES OF READERS:

LISTEN TO UNDERSTAND.

ENRICH PERSONAL LANGUAGE, BACKGROUND KNOWLEDGE, AND VOCABULARY THROUGH COMMUNICATING WITH OTHERS.

[3]*Cross-linguistic language levels in ELLs refer to the different degrees of language proficiency or control that ELLs can demonstrate in the new and home language. A student with more control over English can be paired with one whose home language is stronger than her/his English proficiency.*

collaboratively in small groups based on **cross-language proficiency** to compile a list of things that make corn easy to grow. The students arrived at answers to the following questions: What makes corn easy to grow? What does the scientist mean when he states, "We are now engineering our food"? For what reasons is corn engineered? What food items contain corn? One member from **each group stood and presented their conclusions** to the rest of the class, giving a three-minute presentation of their findings. These activities took one forty-four-minute high school class period. The teacher covered the following standards:

- ***11-12 Speaking and Listening 2: Integrate multiple sources of information presented in diverse formats (e.g., including visual, quantitative, and oral). Evaluate the credibility and accuracy of each source and note any discrepancies among the data to make informed decisions and solve problems.***
- ***11-12 Speaking and Listening 4: Present claims, findings, and supporting evidence, conveying a clear and distinct perspective; alternative or opposing perspectives are addressed; organization, development, substance, and style are appropriate to task, purpose, and audience.***
- ***11-12 Speaking and Listening 5: Make strategic use of digital media and/or visual displays in presentations to enhance understanding of findings, reasoning, and evidence, and to add elements of interest to engage the audience.***

Dr. Olivares Orellana found the Speaking and Listening NLAP for `eleventh grade useful to scaffold the material presented to her students:

NEW LANGUAGE ARTS PROGRESSIONS (ESL/New Language) — **Grades 11–12: Speaking and Listening 2**

Common Core Anchor Standard (SL.2): Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively and orally.					MAIN ACADEMIC DEMAND *Compare/Contrast and Evaluate the Credibility of Information Presented in Various Formats*	
Common Core Grades 11–12 Standard (SL.11–12.2): Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.					GRADE LEVEL ACADEMIC DEMAND *Integrate Sources of Information* *Evaluate the Credibility and Accuracy of Each Source*	
5 Levels of Language Development		**Entering (Beginner)**	**Emerging (Low Intermediate)**	**Transitioning (High Intermediate)**	**Expanding (Advanced)**	**Commanding (Proficient)**
When acquiring a new language, using **grade level** texts and appropriate supports, students are able to:						
RECEPTIVE	**Oracy and Literacy Links**	**Listening-Centered Activity:** Organize *pretaught words and phrases on a main-ideas-and-details matrix* to identify and comprehend information presented in various formats, as the texts are read aloud in *partnership and/or teacher-led small groups*	**Listening-Centered Activity:** Organize *preidentified words and phrases on a main-ideas-and-details matrix* to identify and comprehend information presented in various formats, as the texts are read aloud in *partnership and/or small groups*	**Listening-Centered Activity:** Organize *phrases and sentences on a partially completed main-ideas-and-details matrix* to identify and comprehend information presented in various formats, as the texts are read aloud in *partnership, small group and/or whole class settings*	**Listening-Centered Activity:** Organize *information on a main-ideas-and-details matrix* to identify and comprehend information presented in various formats, as the texts are read aloud in *partnership, small group and/or whole class settings*	**Listening-Centered Activity:** Organize *information, when taking notes independently,* to identify and comprehend information presented in various formats, as the texts are read aloud in *partnership, small group and/or whole class settings*
		Reading-Centered Activity: Organize *pretaught words and phrases on a Venn diagram* that compares and contrasts important ideas and details to analyze multiple sources of information in diverse formats	**Reading-Centered Activity:** Organize *preidentified words and phrases on a Venn diagram* that compares and contrasts important ideas and details to analyze multiple sources of information in diverse formats	**Reading-Centered Activity:** Organize *phrases and sentences on a partially completed Venn diagram* that compares and contrasts important ideas and details to analyze multiple sources of information in diverse formats	**Reading-Centered Activity:** Organize *information on a Venn diagram, after teacher modeling,* that compares and contrasts important ideas and details to analyze multiple sources of information in diverse formats	**Reading-Centered Activity:** Organize *information in a note taking guide, independently,* that compares and contrasts important ideas and details to analyze multiple sources of information in diverse formats
		in the *new and/or the home language.*	in the *new and/or the home language.*	in the *new and, occasionally, in the home language.*	in the *new language.*	in the *new language.*

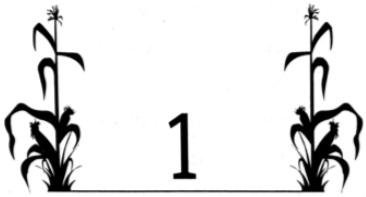
5 Levels of Language Development		Entering (Beginner)	Emerging (Low Intermediate)	Transitioning (High Intermediate)	Expanding (Advanced)	Commanding (Proficient)
PRODUCTIVE	Oracy and Literacy Links	**Speaking-Centered Activity:** Use *pretaught words and phrases* and the *previously completed graphic organizers to complete sentence starters* that integrate multiple sources of information presented in diverse formats to address solving problems and making decisions, when speaking in *partnership and/or teacher-led small groups*	**Speaking-Centered Activity:** Use *preidentified words and phrases* and the *previously completed graphic organizers to complete sentence starters* that integrate multiple sources of information presented in diverse formats to address solving problems and making decisions, when speaking in *partnership and/or small groups*	**Speaking-Centered Activity:** Use a *word bank* to integrate multiple sources of information presented in diverse formats to address solving problems and making decisions, when speaking in *partnership, small group and/or whole class settings*	**Speaking-Centered Activity:** Use the *previously completed graphic organizers* to integrate multiple sources of information presented in diverse formats to address solving problems and making decisions, when speaking in *partnership, small group and/or whole class settings*	**Speaking-Centered Activity:** Use *knowledge of the topic, independently,* to integrate multiple sources of information presented in diverse formats to address solving problems and making decisions, when speaking in *partnership, small group and/or whole class settings*
		Writing-Centered Activity: Use *pretaught words and phrases to complete cloze paragraphs* that evaluate the credibility of multiple sources of information in diverse formats and assess the accuracy of the sources and note any inaccuracies among data	**Writing-Centered Activity:** Use *preidentified words and phrases to write two or more paragraphs* that evaluate the credibility of multiple sources of information in diverse formats and assess the accuracy of the sources and note any inaccuracies among data	**Writing-Centered Activity:** Use a *word bank* and the *previously completed graphic organizers to compose a short essay* that evaluates the credibility of multiple sources of information in diverse formats and assesses the accuracy of the sources and notes any inaccuracies among data	**Writing-Centered Activity:** Use the *previously completed graphic organizers* and *teacher-provided models to compose an essay* that evaluates the credibility of multiple sources of information in diverse formats and assesses the accuracy of the sources and notes any inaccuracies among data	**Writing-Centered Activity:** Use *knowledge of the topic, independently, to compose a multiple page essay* that evaluates the credibility of multiple sources of information in diverse formats and assesses the accuracy of the sources and notes any inaccuracies among data
		in the *new and/or the home language.*	in the *new and/or the home language.*	in the *new and, occasionally, in the home language.*	in the *new language.*	in the *new language.*

Reading Activities

These activities provided opportunities for students to build their background knowledge and reading skills so they could understand the Regents Exam text on corn. Dr. Olivares Orellana asked her students to engage with the text to determine its central idea, as well as the details it offers and emphasizes. Dr. Olivares Orellana asked her students to perform the following tasks:

- Find pre-learned vocabulary words.
- Determine the central idea of text.
- Integrate the information presented by text with information presented in other formats.
- Determine which details are emphasized by a given text.

TEACHERS OF ELLS CAN FACILITATE BY PRELOADING NEW VOCABULARY AND WORKING WITH ENTERING-LEVEL STUDENTS IN A SMALL GUIDED READING GROUP.

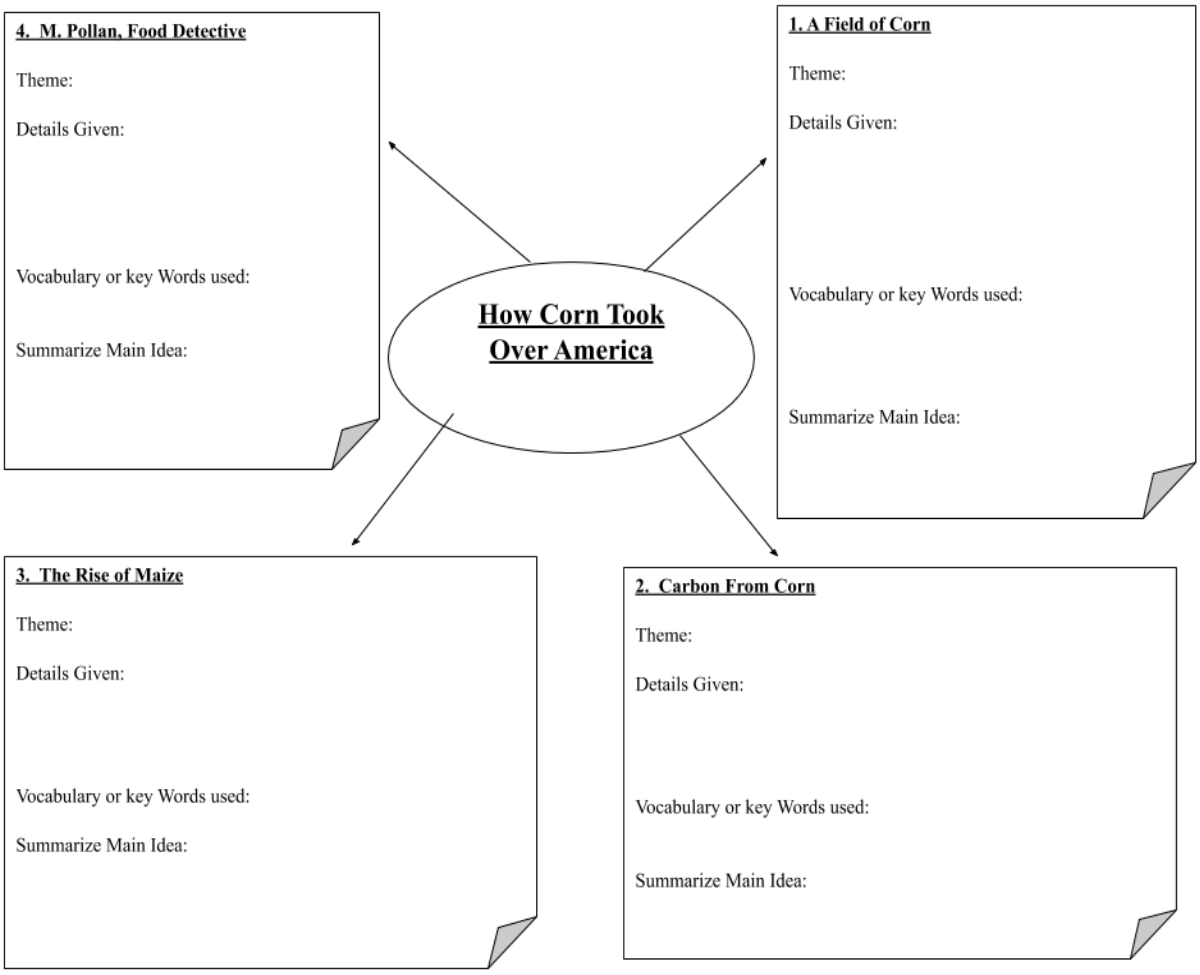


How Corn Took Over America

A FIELD OF CORN

The average supermarket doesn't seem much like a field of corn.

Take a look around one. What do you see? There's a large, air-conditioned room. There are long aisles and shelves piled high with boxes and cans. There are paper goods and diapers and magazines. But that's not all. Look again. Somewhere, behind the brightly colored packaging, underneath the labels covered with information, there is a mountain of corn.



Students began using the text (excerpt shown above) "How Corn Took Over America", which is the first chapter in the book *The Omnivore's Dilemma*. Students were asked to read the chapter in segments and find the main idea from each segment of the chapter. As students read, some used a Diary of Unfamiliar Words to keep track of unknown words. Other students used a Note-taking Grid to organize the details from each paragraph or segment.

TEACHERS OF ELLS CAN FACILITATE BY SHOWING A FILLED --IN NOTE -TAKING GRID AND GRAPHIC ORGANIZER SO STUDENTS CAN SEE WHAT IS EXPECTED OF THEM. TEACHERS CAN SHOW THIS SAMPLE IN THE STUDENTS' HOME LANGUAGE.

In groups based on **cross-linguistic language proficiency,** Dr. Olivares Orellana asked **students to share** their Diary of Unfamiliar Words to **contrast and compare with those of their teammates**. **Students compared** their notes to make one large collaborative Graphic Organizer on a poster paper.

Once students created their collaborative Graphic Organizers/posters, Dr. Olivares Orellana considered that her students had built up background knowledge on corn as a resource and not for consumption. She had exposed them to reading about the same topic. She considered that they were

ready to read a more complex text, titled "GMOs 101," which was retrieved from the Regents Examination in ELA (January 2016)**, and was** also available in Spanish. Table 3 presents text excerpts in both languages.

Table 3: English and Spanish ELA Regents Text Excerpts for Genetically Modified Corn

English Text Excerpt	Spanish Text Excerpt
1. What are GMOs [Genetically Modified Organisms], and what are they used for? A GMO is created by injecting genetic material from plants, animals, or bacteria into a crop in hopes of creating a new and beneficial trait. For example, one of the most popular genetically modified (GM) crops is a corn plant that's capable of producing its own pesticide, called Bt, which is also used in spray form by some organic farmers. The idea is to make the plant resistant to insect damage and to limit the amount of harmful pesticides farmers have to spray. Other GM plants, such as Roundup Ready corn, were created to survive the spraying of the herbicide Roundup, which kills weeds and would normally kill the plant, too, says Stephen H. Howell, Ph.D., director of the Plant Sciences Institute at Iowa State University.	**1 ¿Qué son los OGM [organismos genéticamente modificados] y para qué se usan?** Un OGM se crea al inyectar material genético de plantas, animales o bacterias en un cultivo con la esperanza de crear un rasgo nuevo y beneficioso. Por ejemplo, uno de los cultivos genéticamente modificados (GM) más populares es una planta de maíz que es capaz de producir su propio pesticida, llamado Bt, que también es utilizado en forma de rocio por algunos agricultores orgánicos. La idea es hacer que la planta sea resistente al daño por insectos y limitar la cantidad de pesticidas dañinos que los agricultores tienen que rociar. Otras plantas GM, como el maíz Roundup Ready, fueron creadas para sobrevivir a la fumigación del herbicida Roundup, que mata las malezas y normalmente también mataría a la planta, dice Stephen H. Howell, Ph.D., director del Instituto de Ciencias de las Plantas en la Universidad Estatal de Iowa.

Developing Metalinguistic Awareness

Comparing Acronyms and Deconstructing Complex Sentences

After reading the whole texts, Dr. Olivares Orellana used the excerpts presented in Table 3 to focus on certain aspects that would draw her students' attention to the language used in the text. In turn, this led to the students deepening their understanding of the text and increasing their content and language knowledge in English and Spanish.

During the first activity, the students and the teacher engaged in ways to compare the acronyms in English and Spanish for Genetically Modified Organism (GMO) and Organismos Genéticamente Modificados (OGM). Given that her students were familiar with suffixes, they were able to conclude that

the English -ly and the Spanish -mente were equivalent. By analyzing these acronyms, students were also able to see that the order of the words changed in both languages. The words genetically/genéticamente and organisms/organismos appeared in different positions within the acronym.

The analysis of the Spanish and English paragraph continued by analyzing complex, subordinate sentences that appear in the text presented in below:

For example, one of the most popular genetically modified (GM) crops is a corn plant that's capable of producing its own pesticide, called Bt, ***which*** *is also used in spray form by some organic farmers.* After the teacher modeled that *which* was referring to Bt, the students could break the sentence in two and see the role that *which* plays:

- For example, one of the most popular genetically modified (GM) crops is a corn plant that's capable of producing its own pesticide, called Bt.
- Bt (can be replaced by which) is also used in spray form by some organic farmers.

Dr. Olivares Orellana grouped her **students according to cross-language proficiency,** and they worked with the equivalent sentence in Spanish:

- *Por ejemplo, uno de los cultivos genéticamente modificados (GM) más populares es una planta de maíz que es capaz de producir su propio pesticida, llamado Bt,* ***que*** *también es utilizado en forma de rocío por algunos agricultores orgánicos.*

The students deconstructed the sentence by revising it into two sentences. They demonstrated their understanding to process a complex sentence.

As the teacher continued deconstructing this paragraph, she wanted her students to focus on the next section of the text excerpt they were in the process of analyzing:

- *For example, one of the most popular genetically modified (GM) crops is a corn plant that's capable of producing its own pesticide, called Bt, which is also used in spray form by some organic farmers.* ***The idea is to make*** *the plant resistant to insect damage and to limit the amount of harmful pesticides farmers have to spray.*
- *Por ejemplo, uno de los cultivos genéticamente modificados (GM) más populares es una planta de maíz que es capaz de producir su propio pesticida, llamado Bt, que también es utilizado en forma de rocio por algunos agricultores orgánicos.* ***La idea es hacer*** *que la planta sea resistente al daño por insectos y limitar la cantidad de pesticidas dañinos que los agricultores tienen que rociar.*

Dr. Olivares Orellana's intention was to have the students analyze the linguistic and contextual ways that the author introduced a cause-and-effect relationship in these passages through the phrase, "The idea is to make/La idea es hacer."

The deconstruction of this paragraph in both languages opened spaces for the students to gain a deeper knowledge of the text. She gave them time to keep on working in a **partnership based on cross-linguistic language proficiency.**[4] **The discussions** led the students to understand the complex role GMOs have, and to practice the essential skill of reading a paragraph holistically and not as individual sentences.

Table 4: Using Metalinguistic Awareness to Gain Understanding of the Texts: Comparing Complex Sentences in Both Languages

English Paragraph	Spanish Paragraph
For example, one of the most popular genetically modified (GM) crops is a corn plant that's capable of producing its own pesticide, called Bt, which is also used in spray form by some organic farmers.	Por ejemplo, uno de los cultivos genéticamente modificados (GM) más populares es una planta de maíz que es capaz de producir su propio pesticida, llamado Bt, **que** también es utilizado en forma de rocío por algunos agricultores orgánicos.
Understanding Cause and Effect	
For example, one of the most popular genetically modified (GM) crops is a corn plant that's capable of producing its own pesticide, called Bt, which is also used in spray form by some organic farmers. The idea is to make the plant resistant to insect damage and to limit the amount of harmful pesticides farmers have to spray.	Por ejemplo, uno de los cultivos genéticamente modificados (GM) más populares es una planta de maíz que es capaz de producir su propio pesticida, llamado Bt, que también es utilizado en forma de rocío por algunos agricultores orgánicos. **La idea es hacer** que la planta sea resistente al daño por insectos y limitar la cantidad de pesticidas dañinos que los agricultores tienen que rociar.

Reading to Find the Main Idea of the Text

As students read in **small groups based on their ability to work together,** they used an Evidence from Text Worksheet and a Graphic Organizer to organize and synthesize information from the GMO 101 Regents text.

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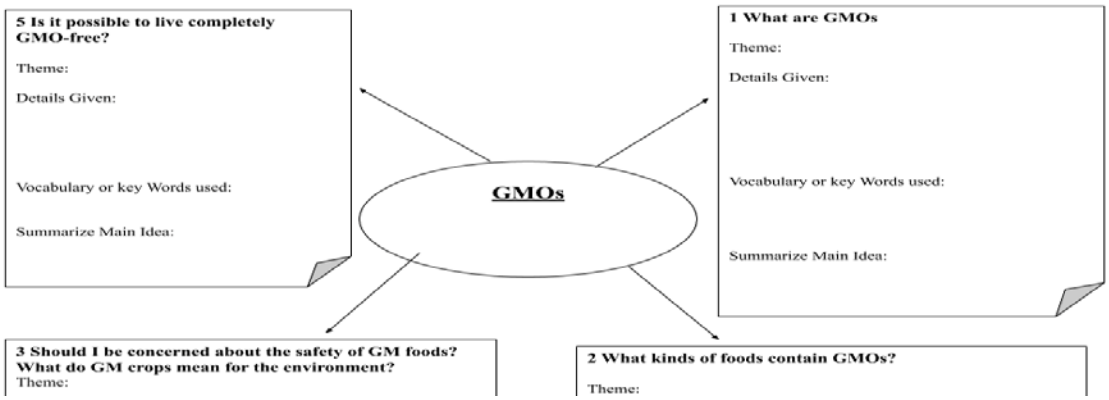
[4]*Cross-linguistic language levels in ELLs refer to the different degrees of language proficiency or control that an ELL can demonstrate in the new and home language. A student with more control over English can be paired with one whose home language is stronger than her/his English proficiency.*



This Graphic Organizer embeds a vocabulary section and a summary section. **Students then shared** with their partners the words they had not understood and asked for feedback. **They contrasted and compared** their Graphic Organizers. As a concluding activity for this segment of the unit, the whole class created one large collaborative Graphic Organizer on a poster paper including everyone's ideas. The teacher used the following standards:

- ***11-12 Reading 2: Determine two or more themes or central ideas in a text and analyze their development, including how they emerge and are shaped and refined by specific details; objectively and accurately summarize a complex text. (RI&RL)***
- ***11-12 Reading 7: In informational texts, integrate and evaluate sources on the same topic or argument in order to address a question, or solve a problem. (RI)***

LIFELONG PRACTICES OF READERS

READ FOR MULTIPLE PURPOSES.

ENRICH PERSONAL LANGUAGE, BACKGROUND KNOWLEDGE, AND VOCABULARY THROUGH COMMUNICATING WITH OTHERS.

MONITOR COMPREHENSION.

MAKE CONNECTIONS.

READ FROM A RANGE OF DIVERSE TEXTS.

Dr. Olivares Orellana found the RI Standard 2 from the NLAP templates beneficial:

THE NEW LANGUAGE ARTS PROGRESSIONS — **Grades 11–12: Reading for Information 2**

Common Core Anchor Standard (RI.2): Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	MAIN ACADEMIC DEMAND *Summarize Text by Determining Main Idea and Supporting Details*
Common Core Grade 11–12 Standard (RI.11–12.2): Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.	GRADE LEVEL ACADEMIC DEMAND *Summarize Text Objectively, Analyzing the Relationships and Development of Multiple Central Ideas*

5 Levels of Language Development		Entering (Beginner)	Emerging (Low Intermediate)	Transitioning (High Intermediate)	Expanding (Advanced)	Commanding (Proficient)
When acquiring a new language, using **grade level** texts and appropriate supports, students are able to:						
RECEPTIVE	Oracy and Literacy Links	**Listening-Centered Activity:** Organize *pretaught words and phrases on a double main idea web* to identify two or more central ideas of a text, as a text is read in *partnership and/or teacher-led small groups*	**Listening-Centered Activity:** Organize *preidentified words and phrases on a double main idea web* to identify two or more central ideas of a text, as a text is read in *partnership and/or small groups*	**Listening-Centered Activity:** Organize *phrases and sentences on a partially completed double main idea web* to identify two or more central ideas of a text, as a text is read in *partnership, small group and/or whole class settings*	**Listening-Centered Activity:** Organize *information on a main idea web* to identify two or more central ideas of a text, as a text is read in *partnership, small group and/or whole class settings*	**Listening-Centered Activity:** Organize *information, when taking notes independently,* to identify two or more central ideas of a text, as a text is read in *partnership, small group and/or whole class settings*
		Reading-Centered Activity: Organize *retaught words and phrases on a timeline* to analyze the relationships and development of two or more central ideas	**Reading-Centered Activity:** Organize *preidentified words and phrases on a timeline* to analyze the relationships and development of two or more central ideas	**Reading-Centered Activity:** Organize *phrases and sentences on a partially completed timeline* to analyze the relationships and development of two or more central ideas	**Reading-Centered Activity:** Organize *information on a timeline, after teacher modeling,* to analyze the relationships and development of two or more central ideas	**Reading-Centered Activity:** Organize *information in a note-taking guide, independently,* to analyze the relationships and development of two or more central ideas
		in the *new and/or the home language.*	in the *new and/or the home language.*	in the *new and, occasionally, in the home language.*	in the *new language.*	in the *new language.*

5 Levels of Language Development		Entering (Beginner)	Emerging (Low Intermediate)	Transitioning (High Intermediate)	Expanding (Advanced)	Commanding (Proficient)
PRODUCTIVE	Oracy and Literacy Links	**Speaking-Centered Activity:** Use *pretaught words and phrases* and the *previously completed graphic organizers to complete sentence starters* that summarize a text objectively, when speaking in *partnership and/or teacher-led small groups*	**Speaking-Centered Activity:** Use *preidentified words and phrases* and the *previously completed graphic organizers to complete sentence starters* that summarize a text objectively, when speaking in *partnership and/or small group*	**Speaking-Centered Activity:** Use a *word bank* to summarize a text objectively, when speaking in *partnership, small group and/or whole class settings*	**Speaking-Centered Activity:** Use the *previously completed graphic organizers* to summarize a text objectively, when speaking in *partnership, small group and/or whole class settings*	**Speaking-Centered Activity:** Use *information, independently,* to summarize a text objectively, when speaking in *partnership, small group and/or whole class settings*
		Writing-Centered Activity: Use *pretaught words and phrases to complete cloze paragraphs* that summarize a text objectively by analyzing the relationship and development of multiple central ideas	**Writing-Centered Activity:** Use *preidentified words and phrases to write two or more paragraphs* that summarize a text objectively by analyzing the relationship and development of multiple central ideas	**Writing-Centered Activity:** Use a *word bank* and the *previously completed graphic organizers to compose a short essay* that summarizes a text objectively by analyzing the relationship and development of multiple central ideas	**Writing-Centered Activity:** Use the *previously completed graphic organizers* and *teacher-provided models to compose an essay* that summarizes a text objectively by analyzing the relationship and development of multiple central ideas	**Writing-Centered Activity:** Use *information, independently, to compose a multiple page essay* that summarizes a text objectively by analyzing the relationship and development of multiple central ideas
		in the *new and/or the home language.*	in the *new and/or the home language.*	in the *new and, occasionally, in the home language.*	in the *new language.*	in the *new language.*

Debating in Preparation to Write

As the unit ended, the teacher provided her students with an opportunity to debate their ideas and gain a deeper understanding of the nuances of GMOs. The final goal was to produce a persuasive piece that would be sent to a local newspaper. In preparation for this goal, **students debated** about the use of GMOs in our society. Individually, each student made a list of the information that would best support their argument. They compiled information from the texts and audio about corn. **They chose one of three different positions** and they each aligned themselves with the stance of their choice:

1. A group of students supported the use of GMOs to feed a growing world population.
2. Others were in favor of GMOs, but supported the view that care had to be central in planting corn. That is, if Bt corn is planted too close to a neighboring organiccorn crop, crosspollination could occur and contaminate the latter.
3. A third group favored not consuming GMOs and raised the point that insects could become resistant to the Bt crops.

TEACHERS OF ELLS CAN ENCOURAGE STUDENTS TO PREPARE THEIR ARGUMENTS IN THE NEW AND HOME LANGUAGE. STUDENTS CAN CLARIFY THEIR PROPOSITIONS IN THE LANGUAGE OF THEIR CHOICE BEFORE THE FORMAL DISCUSSION.

The students **exchanged ideas and debated.** One area in which they all agreed was that the public had to be informed about this topic. This led to the last segment of the unit, in which students had to write a letter to an editor explaining the importance of spreading information about this topic. The teacher used the following standards:

- ***11-12 Speaking and Listening 1a: Come to discussions prepared, having read and researched material under study; draw on that preparation by referring to evidence to stimulate a thoughtful, well-reasoned exchange of ideas.***
- ***11-12 Speaking and Listening 3: Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric; assess the premises and connections among ideas, diction, and tone.***

Writing

By debating and exchanging ideas, the students were ready to start writing their persuasive piece. They agreed that they would address their letters to a local newspaper. Dr. Olivares Orellana explained how editorial and opinion pieces must appeal quite directly to the values and beliefs of their audience.

In order to provide her students with examples of what constitutes an opinion piece, the teacher presented her students with a mentor text titled, The Problem with Our Clothes in Landfills. Different text excerpts are presented in Table 5. **In a whole group,** the teacher and the students worked together to understand how the teenage author wrote this persuasive piece. The students first focused on its content, and then examined closely the author's writing techniques, such as the literary devices the author used to compose this type of text (e.g., how to draw the attention of the reader). The analysis of the author's use of language developed the students' metalinguistic awareness regarding the text structure of a persuasive text.

Table 6
: Text Excerpts from an Opinion Piece about Clothing and Landfills and What the Students Noticed

Paragraphs	***What We Notice***
According to the Environmental Protection Agency (EPA), 84 percent of unneeded clothing ends up in landfills or incinerators. On account of this, we should note that although almost everyone grows too big to fit into their clothes or decides to disregard them again, clothes shouldn't be mindlessly thrown into the trash; they can end up in landfills which can have negative side effects such as pollution and other forms of damage to our environment.	The author is providing evidence. The author starts by citing the Environmental Protection Agency, (EPA) which is a trusted institution. The author uses transitions such as: "On account of this, we should note…". The author provides a cause and the effect of the problem he wants to discuss (unneeded clothing can end up in landfills, which can have negative side effects).
Much of the clothing made today is made of synthetic polyester because it is cheaper and stronger than other alternatives. Although saving money is great for everyone, clothes made of artificial materials like these can take hundreds to a thousand years to biodegrade. This characteristic of the textile causes its waste to remain in landfills for extended periods of time.	The author provides a second reason. The author again provides a cause and effect (this characteristic of the textile causes its waste...).
You may assume that the amount of clothes in landfills are very limited. That is Incorrect.	This is a very important sentence because the author is drawing the reader's attention to straighten out any misconceptions. The author capitalizes the word "Incorrect" to give it emphasis.
The EPA said that with clothes as the main source for municipal solid waste (MSU), landfills received 10.5 million tons of it in 2015. As crazy as that sounds, it is the sad reality of the number of clothes we dispose each year.	The author provides information showing that this is not an easy problem to solve.
What is my purpose? What do I believe would make the greatest impact to solve this issue? I suggest that we need to teach our communities about the harmful effects of improper clothing disposal, and the benefits of proper disposal. Much like how we are taught to refrain from littering, whether it's from a PSA or a billboard ad, we should educate the public to do the same with the act of throwing away clothing. I do acknowledge that it is difficult to get every city to participate in this, but it is my goal to grab the attention of our public to take this message seriously. With this	By using the sentence: "What is my purpose?" the author is clearly stating his stance. By using the phrases : "I do acknowledge; to take this message seriously; With this new knowledge" the author is pointing the way of what can be done.

new knowledge, everyone should have a much better understanding of how to keep our earth green.	

Dr. Olivares Orellana also provided her students with two GOrganizers - one to support them in gathering evidence from the text and an additional one to address the students' letters to an editor. The letters were done collectively, according to the position that the students had defended when debating.

> TEACHERS OF ELLS CAN FACILITATE BY WORKING WITH ENTERING-LEVEL STUDENTS IN A SMALL GROUP.

Letter to the editor template

<Date>

<Name of media outlet or publication>

Attention: <Dr./Ms./Mr. editor's first name and last name* or Editor>

<Address 1>

<Address 2>

<City, State/Province, Zip/Postal Code>

Dear <Dr./Ms./Mr. last name of editor or Editor>:

Introduction

<State your reason for writing here. If you are responding to articles or editorials by the media outlet, use the first sentence to reference the name of the publication (in italics), the title of the article, author's name and date when it appeared.>

Case

<State your case here. Include facts, references or research here to establish credibility. Mention your expertise on the issue. Keep length in mind. Acceptable letter length will vary. Look at the newspaper's or periodical's letters section to get a feel for an appropriate length.

Include a call to action, asking readers to follow up with some activity, such as calling on policymakers to address the issue.>

Conclusion

<End with a strong, positive statement in support of your case.>

Sincerely,

<Writer's signature>

<Name of writer>

<Writer's title>

<Writer's organization's name and address>

<Daytime contact information>

**Find the editor's name on the masthead of the publication.*

The teacher used the following standards:

- ***11-12 Writing 2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.***
- ***11-12 Writing 2c: Use precise language, content-specific vocabulary and literary techniques to express the appropriate complexity of a topic.***
- ***11-12 Writing 5: Draw evidence from literary or informational texts to support analysis, reflection, and research. Apply the grade 11/12 Reading Standards to both literary and informational text, where applicable.***

LIFELONG PRACTICES OF WRITERS

THINK, READ, SPEAK, AND LISTEN TO SUPPORT WRITING.

WRITE FOR MULTIPLE PURPOSES.

ENRICH PERSONAL LANGUAGE, BACKGROUND KNOWLEDGE, AND VOCABULARY THROUGH WRITING AND COMMUNICATING WITH OTHERS.

WRITE IN A VARIETY OF FORMATS.

STRENGTHEN WRITING BY PLANNING, REVISING, EDITING, REWRITING, OR TRYING A NEW APPROACH.

Table 6 presents a summary of the strategies developed in this instructional unit. These instructional strategies were designed to support ELLs with meeting Next Generation ELA Standards while learning about science. These activities were implemented by a bilingual Living Environment teacher working with ELLs to build understanding and experience with instruction aligned to the Next Generation Learning Standards. Given that these practices meet the 11-12 Next Generation ELA Standards, they can be used in classes with ELLs such as ELA, ENL, or bilingual science classes.

Table 7: Summary of the Strategies Dr. Olivares Orellana Used to Increase the Understanding, Engagement, and Participation of All Students

Oral Language Development, Metalinguistic Awareness, and Flexible Groupings *These instructional strategies are meant to overlap. For instance, students working in a small group can use oral language to translate and to discuss prefixes, scientific root words, and suffixes in order to gain metalinguistic awareness.*		
Oral Language Development	***Metalinguistic Awareness***	***Flexible Groupings***
• Built background knowledge by discussing corn as a common ingredient in food and discussed their findings *• Emphasized the discussion of key words throughout the speaking and listening activities* *• Encouraged peer discussion to promote connections* *• Used oral language to make meaning and to learn with and from each other* *• Provided opportunities for students to ask their own questions to clarify meaning* *• Encouraged conversations and translations by using the language (home or new) that fostered understanding*	*• Extended knowledge of prefixes* *• Analyzed complex sentences in a text in both Spanish and English* *• Analyzed cause and effect in a text in both Spanish and English* *• Analyzed a persuasive essay in order to understand the structure, linguistic features, and tools the author employed to achieve the purpose of the text*	*• Grouped students based on cross-linguistic language proficiency and students' abilities to work in groups (e.g.,. interests, similar views when debating)*

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