STEM
Problem-Based
Learning Unit
for the
World Language
Classroom

# Bioeconomía y La Soja:

Investigando Desafíos y Explorando Soluciones Sostenibles

Target Language:
Spanish

Bioeconomy and Soybeans:
Investigating Challenges and Exploring Sustainable Solutions

Level 3 / Level 4

(Intermediate Low Intermediate High)



Written by
Dr. Patricia L. Hanna
Contact:
plhanna@hotmail.com

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# **Description**

This is a transdisciplinary 2-week unit that uses the theme of sustainability to combine proficiency-based world language pedagogy with the real-world relevance of problem-based learning at the heart of STEM education. **NOTE**: The 2-week time frame allotted for this unit assumes double-block scheduling. Activities and time frames need to be adjusted by educators operating on a traditional 50-minute class schedule.

Efforts have been made to make it suitable as both a stand-alone unit for any world language classroom and a transdisciplinary problem-based learning (TPBL) unit that could be used across disciplines by teams of teachers collaborating in a STEM environment. While it is written with Spanish as the target language, it may be easily adapted to meet the needs of other world languages by replacing the case studies and ancillary materials with ones that highlight the countries of other target languages.

# **Intended Level of World Language Instruction**

Intended Level: Intermediate Low - Intermediate High

(Approximately late-year high school Level 3 or early to mid-year high

school Level 4)

# **Learner Objectives**

- By the end of this 2-week unit, students will be able to define sustainability, bioeconomy, and agricultural terminology using sentences and series of sentences in the target language. Students will do so with 85% accuracy or higher as measured by the unit assessment.
- By the end of this 2-week unit, students will be able to explain the role of soy as a key bioeconomic crop using sentences and series of sentences in the target language. Students will do so with 85% accuracy of higher as measured by the unit assessment.
- By the end of this 2-week unit, students will be able to identify countries of the Spanish-speaking world that are farming soy as a means of growing their bioeconomy. Students will do so with 85% accuracy of higher as measured by the unit assessment.
- By the end of this 2-week unit, students will be able to create sentences and series of sentences using the target language to discuss specific challenges facing soy cultivation in Spanish-speaking countries. Students will do so with 85% accuracy of higher as measured by the unit assessment.

- By the end of this 2-week unit, students will be able to create sentences and series of sentences using various moods in the target language to hypothesize potential solutions to mitigate the challenges facing soy cultivation in Spanish-speaking countries. Students will do so with 85% accuracy of higher as measured by the unit assessment.
- By the end of this 2-week unit, students will be able to create sentences and series of sentences using various time frames in the target language to make comparisons between products, practices, and perspectives surrounding agricultural aspects of the Spanish-speaking countries identified in the unit and the United States. They will do so with 85% accuracy of higher as measured by the unit assessment.

# STEM Connections for Transdisciplinary Project-Based Learning

- GEOGRAPHY CONNECTION: World language educators may consider collaborating with geography educators to develop lessons and learning targets that will give students an opportunity to explore how weather and topography of Spanish-speaking countries affect the cultivation of soybeans in those countries. The same can be done for the United States and students' own state, and international comparisons can be made.
- SOCIAL STUDIES/GOVERNMENT/HISTORY CONNECTION: World language educators may consider collaborating with social studies, government, or history educators to develop lessons and learning targets that will give students an opportunity to explore the social, cultural, and political implications of soybean cultivation in countries around the globe. Emphasis may also be placed on the international politics and policies pertinent to soybean cultivation and soybean supply and demand.
- ENGLISH LANGUAGE ARTS CONNECTION: World language educators may consider collaborating with English language arts educators to develop lessons and learning targets that will give students an opportunity to express their thoughts, learning, and findings about the challenges facing soybean cultivation and their hypothesized solutions to those challenges. As suggestions, students may journal their thoughts as they proceed through the unit, write an informational report on the results of their investigation into the problems facing soybean cultivation, write an informational report on the emergence of bioeconomics, write a research-based thesis paper arguing for their chosen solution to the challenges facing soybean cultivation or against a particular solution about which they have concerns.

- MATH CONNECTION: World language educators may consider collaborating with math educators to research and analyze metrics around soybean harvest yield and variables that affect it. They may also consider statistical analysis to explore the global supply and demand of soy and to make predictions about the quantity of soy that will be necessary in years and decades to come in order to meet the demand for it for human consumption, livestock consumption, and soy-derived products.
- PHYSICS CONNECTION: World language educators may consider collaborating with physics educators to research and analyze the physics involved in designing and programming farm equipment (such as combines and planters), GPS systems, and various software applications used to aid farmers in more precise and ideal seed selection and placement.
- ▶ BIOLOGY CONNECTION: World language educators may consider collaborating with biology educators to develop lessons and learning targets that will give students an opportunity to study the life cycle of soybeans, the structure of soybeans at the cellular level, and the genetics of soybean cultivation.
- ENGINEERING CONECTION: World language educators may consider collaborating with engineering educators to research problems pertinent generating gains in yield. Examples include: necessary innovations in farm equipment (for instance, the problem of soil compacting created by heavy machinery), the problem of materials and cost (newest and best machines and technologies easily priced at over \$500,000), the problem of limited-space/deforestation (how do we produce greater yield on the same space or how do we sustainably get more space i.e. vertical cultivation).
- EARTH/SPACE SCIENCE CONNECTION: World language educators may consider collaborating with earth/space science educators to develop lessons and learning targets that will give students an opportunity to research and study ecosystems, food-chains, weather patterns, weather systems, soil, and minerals as they pertain to soybean cultivation.

# Día 1: Introducción a la bioeconomía / Day 1: Introduction to Bioeconomics

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners understand and interpret authentic texts ranging from articles in contemporary magazines, newspapers and Internet sources to children's stories and classical literary texts.

- Learners derive meaning through the use of listening, viewing and reading strategies.
- Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.

# **ACTFL Can-Do Statements Achieved**

# **Interpretive Communication**

# PROFICIENCY BENCHMARK I can understand the main idea and some pieces of information on familiar topics from sentences and series of connected sentences within texts that are spoken, written, or signed. What can I understand, interpret or analyze in authentic informational texts? PERFORMANCE INDICATORS INTERMEDIATE LOW I can identify the topic and related information from simple sentences in short informational texts. I can understand the main idea and key information in short straightforward informational texts. I can usually follow the main message in various time frames in straightforward informational texts.

# **Interpersonal Communication**



# **Intercultural Communication**



#### **Materials Needed**

- 1. Internet access for the teacher
- 2. Method of sharing streamed online video content with all students (projector and screen, smart board, individual student smart devices, computer lab, etc.)
- 3. Internet access for all students and/or hardcopies of the article, "La bioeconomía: oportunidades y desafíos para el desarrollo rural, agrícola y agroindustrial en América Latina y el Caribe" for all students. Link to article: https://repositorio.cepal.org/bitstream/handle/11362/42724/1/S1701068 es.pdf
- 4. Chalk and/or dry erase markers suggested in various colors for categorizing vocabulary
- 5. Paper, chalkboard, and/or markerboard for listing and categorizing new vocabulary

# **Suggested Pre-Unit Assignment**

- 1. As this is a unit for an advanced language-learner classroom, it is highly recommended that you assign the following videos as homework on the day before you start this unit. A constructivist approach will be used in vocabulary-building for this unit, and it is suggested that students come to class having already generated an initial list of agricultural target vocabulary to be practiced.
- 2. Ask students to view the following bilingual videos. The videos show the English/Spanish word with pictures. Ask students to write down the target word in Spanish and then, rather than provide a direct English translation, ask them to sketch a tiny pictorial representation of the word to associate with the word in the target language. For instance, for the word *la cosecha* (harvest), they might sketch a small cornucopia. Instruct students to be ready to share their lists and sketches with the rest of the class the following day.

Vocabulary Video 1: Maquinaria agrícola (Agricultural Machinery)

Link: https://www.youtube.com/watch?v=OpaIRkGYbqo

Vocabulary Video 2: Agricultura en inglés (Agriculture in English)

Link: https://www.youtube.com/watch?v=oCDH7u-rk4c

# **Suggested Activities**



- 1. Bell Ringer: Use the following video, *Visita a la granja (Visit the Farm)*, to spiral material from previous lessons, units, and levels. It is approximately 3:00, and reviews basic animal and farm vocabulary. Pause the video with every new vocabulary word and ask students to respond to various questions about the image this can be a great review for weather vocabulary, number vocabulary, color vocabulary, and descriptions using the verbs *ser* and *estar*. Example questions might be:
  - ¿Cómo se llama este animal?
  - ¿Dónde está este animal?
  - ¿Por qué está en este lugar?
  - ¿Cómo es este animal?
  - ¿Cuántos animales hay?

As an alternative, instruct students to write questions for one another based off of what they see in the video. Ask students to generate 3-5 original questions before the end of the video, and then spend 1-2 minutes allowing students to ask and answer questions from one another.



2. Distribute hardcopies or grant online access to the article, La bioeconomía: oportunidades y desafíos para el desarrollo rural, agrícola y agroindustrial en América Latina y el Caribe (Bioeconomy: Opportunities & Challenges for Rural Development, Agriculture, and Agroindustry in Latin America and the Caribbean). Explain that students are going to read a

couple of excerpts from the article, and that they will read them multiple times individually and in groups.

- First Read Through: Direct students to page 3, and ask them to read section II titled, ¿Qué es la bioeconomia? (What is bioeconomy?). During the first reading, restrict student access to dictionary resources and emphasize that they should rely on interpretive reading strategies such as previous knowledge, context clues, and cognates to help them comprehend as much of the reading as possible.
- Second Read Through: Group Students and organize them according to your pedagogical objective for your class. Lift the restriction from dictionary resources and allow students access to paper and/or online dictionaries in the target language to assist them with building comprehension. Examples and suggested activities for groupings are:

Pair & Share: This grouping is one option for attending to students' social and emotional learning. It allows students to foster friendships and to practice the social skills necessary for successful collaboration. If pair and share is selected as the grouping option, then instruct students to choose a partner. Direct them to: (1) share with their partner what they think they understood from their first reading, (2) read through the passage ¿Qué es la bioeconomía? (What is bioeconomy?) together a second time and collaborate on making a list of vocabulary words that they need defined and/or have questions about precise meaning. Inform students that they will be sharing their lists with the class at the end of the activity.

Ability-Grouping: This grouping is most appropriate to differentiate your instruction according to students' individual proficiency levels.

For Intermediate-Low groups, ask students to: (1) share their identification of the main topic of the passage from the first read through and work together to reach consensus about the main topic, and (2) read through the passage ¿Qué es la bioeconomía? (What is bioeconomy?) together a second time and collaborate on making a list of vocabulary words that they need defined and/or have questions about precise meaning. Inform students that they will be sharing their lists with the class at the end of the activity.

For Intermediate-Mid groups, ask students to: (1) share their understanding of the main topic and their identification of 2-3 supporting details of the passage from the first read through, (2) read through the passage ¿Qué es la bioeconomía? (What is bioeconomy?) together a second time and collaborate to produce a list of vocabulary words that they feel are most important from this passage, and (3) use target language dictionary resources to ascertain the meaning of any words that they have not been able to derive meaning. Inform students that they will be sharing their lists with the class at the end of the activity.

For Intermediate-High groups, ask students to: (1) report to each other their understanding of the main topic and supporting details of the passage, (2) collaborate to produce a list of essential vocabulary that they feel must be mastered to communicate with a Spanish-speaker about the topic of bioeconomy, and (3) create 1 original sentence using each identified vocabulary word in an appropriate context. Inform students that they will be sharing their vocabulary list and original sentences with the class at the end of the activity.



3. Third Read Through & Vocabulary List Construction: Ask students to take out their homework from the Pre-Unit Assignment. Using markers or chalk (preferably of varying colors), write 3 categories of new vocabulary on the chalkboard or markerboard: *La Agricultura* (Farming), *La Maquinaria* (Machinery), and *La Bioeconomia* (The Bioeconomy). Ask for 3 student volunteers to own each category and give each student the appropriate colored chalk/marker for each category. Then, ask individual students to contribute words from their homework and in-class activity until all three categories are filled (at a minimum) with the following essential target vocabulary:

# La Agricultura (66)

un acre (an acre)
una hectárea (a hectare)

un ingeniero agrónomo (an agricultural engineer)

el granero (the barn)
una caja (a box)
un cajón (a crate)
la ganadería (livestock)
el ganado (cattle)
la arcilla (clay)
cultivar (to farm)
los cultivos (the crops)

ios curivos (the crops)

la rotación de cultivos (crop rotation)

una lechería (a dairy farm)
el equipo (equipment)
la granja (the farm)
un ranchero (a farmhand)
un granjero (a farmer)
una cerca (a fence)
el fertilizante (fertilizer)
el campo (the field)
el trigo (wheat)
el alambre (the wire)

un tractor (a tractor) una rastra (a harrow) una empacadora (a baler)

sostenible (sustainable) el consumo (consumption) aprovechar (to take advantage of) el surco (the furrow)
el portón (gate)
los cereales (grains)
la cosecha (the harvest)

cosechar (to harvest) escardar (to weed) la manguera (the garden hose)

el insecticida (insecticide) la irrigación (irrigation)

el canal de riego (the irrigation canal)

la escalera (the ladder) el huerto (the orchard) el pasto (the pasture)

sembrar (to plant/to sow seeds)

la planta (the plant)
la vara (the pole)
el poste (the post)
las aves de corral (poultry)
el producto (produce)

las tijeras podadoras (pruning shears)

un molino (a mill) un trabajador (a worker) criar (to raise)

maduro/madura (ripe)

trabajo temporal (seasonal work)

las semillas (seeds) la pala (the shovel) un silo (a grain silo) la tierra (the soil)

la siembra (the act of sowing)

el riego por asperción (irrigation spray)

el aspersor (the sprinkler)

el sistema de riego (the sprinkler system)

el establo (the stable)
la estaca (the stake)
un novillo (a steer)
las herramientas (tools)
el tractor (tractor)
el tráiler (trailer)
una bandeja (a tray)
un camión (a truck)

un milino de viento (a windmill)

el algodón (the cotton)

regar (to water)

# La Maquinaria (9)

una trilladora (a thresher) una cortadora (an agricultural mower) una fumigadora (an agricultural sprayer) un piscador (a harvester) una sembradora (a seed drill) un arado (a plower)

# La Bioeconomía (9)

los recursos (resources) la producción (production) el conocimiento (knowledge) la economía (the economy) el desecho biomásico (biomastic waste) la emulación (emulation)



4. Vocabulary Practice/Homework Assignment: Students will have the remaining class time to practice vocabulary by creating original written sentences using the new vocabulary. Encourage students to practice using various time frames (tenses) and sentence forms (statements, questions, exclamations) as they create sentences. Students will produce 50 original sentences. They may choose any 50 words from the list of 84 to create their sentences. Vocabulary words used should be underlined in the sentence. Inform students that they will be expected to share some of their work in the next class session. Students have 25 minutes to work in class on this assignment and will be expected to spend approximately 30 additional minutes on this assignment as homework.

# Día 2: Introducción a la soja / Day 2: Introduction to Soy

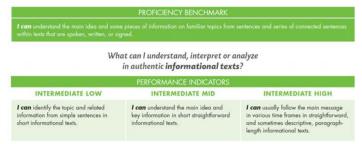
# **World Language Content Standards Addressed (Ohio)**

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.

# **ACTFL Can-Do Statements Achieved**

**Interpretive Communication** 

# INTERMEDIATE



# **Interpersonal Communication**

# INTERMEDIATE PROFICIENCY BENCHMARK I can participate in spontaneous spoken, written, or signed conversations on familiar topics, creating sentences and series of sentences to ask and answer a variety of questions. How can I exchange information and ideas in conversations? PERFORMANCE INDICATORS INTERMEDIATE LOW I can request and provide information in conversations on familiar topics by creating simple sentences and acking a variety of features of sentences and sentences and sentences and sentences and sentences and sentences and sentences of sentences and sentenc

- 1. Internet access for the teacher
- 2. Method of sharing online content with all students (projector and screen, smart board, individual student smart devices, computer lab, etc.)
- 3. Internet access for all students and/or hardcopies of the handout, "Soja y su modo de producción" for all students. Link to article: https://www.salvalaselva.org/temas/bioenergia/soja
- 4. Chalk and/or dry erase markers suggested in various colors for categorizing vocabulary
- 5. Paper, chalkboard, and/or markerboard for listing and categorizing new vocabulary

# **Suggested Activities**



1. Bell Ringer: Ask students to access their homework from the night before. Pick several student volunteers to share their work on the chalkboard/markerboard while the rest of the class participate in pair-and-share work with somebody sitting next to them. Students participating in pair-and-share should pick their 5 best sentences and practice them out loud with one another. After students doing board work have finished writing their sentences on the board, review the sentences as a class. Clarify vocabulary meaning and address structural features of the language with respect to time frames and grammar as pertinent.



- 2. Distribute hardcopies or grant online access to the article, *Soja y su modo de producción (Soy and its method of production)*. Explain that students are going to read a brief article, and that they will read it multiple times both individually and in groups.
  - Divide students into 5 mixed-level, random groups. Assign each student group one of the sections of the article with which to work. (The article has been pre-divided into 5 sections for you.)
  - First Read Through: During the first read through, individual students will read the section that their group has been assigned. During this read through, restrict student access to dictionary resources and emphasize that they should rely on interpretive reading strategies such as previous knowledge, context clues, and cognates to help them comprehend as much of the reading as possible.
  - Second Read Through: Students will read through their group's section a second time
    together as a group. Lift the restriction from dictionary resources and allow students
    access to paper and/or online dictionaries in the target language to assist them with
    building comprehension. Circulate around the room to assist supervise group work and
    assist in comprehension-building.
  - Third Read Through: After confirming each group's comprehension of their assigned section, ask students to read it one last time. During this read through, ask groups to do the following- make sure students know they will be sharing their findings with the class:
    - Identify and list biological facts about soy

- Identify and list reasons soy is an important crop for bioeconomic purposes
- Identify and list ecological and social problems and issues surrounding the cultivation of soy



3. Class Discussion: Using markers or chalk (preferably of varying colors), write 3 categories on the board: Datos de Soja (Facts about Soy), Importancia de Soja (Importance of Soy), and Desafíos Ecológicos y Sociales (Ecological and Social Challenges of Soy). Ask for 3 student volunteers to own each category and give each student the appropriate colored chalk/marker for each category. Then, ask groups to share their findings. Record and categorize group findings accordingly. Examples of findings from the reading may be:

# Datos de Soja

Es una legumbre. (It is a legume.)

Es una fuente de aceite y de proteína. (It's a source of oil and protein.)

Sus subproductos incluyen el aceite y la harina de soja. (Its products include soybean oil and soy flour.)

Es una fuente de proteína vegetal, hierro, magnesio y otros minerales. (It is a source of vegetable protein, iron, magnesium, and other minerals.)

La demanda de soja sigue aumentando. (The demand for soy continues to rise.)

La demanda se ha multiplicado por 10 desde 1960. (The demand has multiplied by 10 since 1960)

#### Importancia de Soja

Se utiliza en la industria alimentaria. (It is used in the food product industry.)

Se utiliza para forraje para el ganado. (It is used as fodder for livestock.)

Se utiliza en la producción de biodiesel. (It is used in the production of biofuel.)

Hace posible que las fábricas de animales produzcan mucha carne, huevos y leche de forma rápida y barata – y generen muchos beneficios. (Makes it possible for animal manufacturing to quickly and cheaply produce more meat, eggs, and milk - and generate more profits.)

# **Desafíos Ecológicos y Sociales**

Se puede influir la devastación del suelo. (It can influence the devastation of soil.)

Deforestación (Deforrestation)

Contaminación de ríos y acuíferos (Contamination of rivers and springs)

Desaparición de biodiversidad (Disappearance of biodiversity)

Expoliación del patrimonio natural (Pillaging of indigenous lands)

Eliminación de la agricultura familiar que alimentaba a las poblaciones (Elimination of local agriculture that used to feed the people)

Indirectamente: La calidad de vida de los animales/Los derechos del animal (Indirectly: Animal quality of life/Animal rights)



- 4. Framing the Problem: Students will now research in greater detail some of the challenges surrounding soy cultivation. Ask students to record their answers to the following research questions and to be prepared to share their findings with the class.
  - In their groups, direct students to visit the Grow Next Gen website to explore the problem of world hunger/the global food supply and the ways in which soy cultivation currently seeks to mitigate the problem of affordable insufficient protein supplies. Website address: https://grownextgen.org/curriculum/soy-and-world-hunger
    - Students should be seeking answers to the question: ¿Cuáles son los problemas globales que el cultivo de la soja quiere abordar? (What is/are the global problems that soy cultivation seeks to address?)
    - Answer: World hunger via access to affordable mass quantities of vegetable protein for humans and livestock.
  - In their groups, direct students to research the following question: ¿Cuáles son los problemas de cultivo que afectan la capacidad de los granjeros para aumentar el rendimiento de soja? (What kinds of cultivation problems do soybean farmers face as they seek to increase yield?)
    - Answers will vary but should include topics such as: seed selection, pests, disease, row spacing/planting, adverse weather conditions, soil compacting, tariffs, social/political resistance to soy cultivation

Día 3: Investigaciones: ¿Cuáles países hispanohablantes cultivan la soja? / Day 3: Research: Which Spanish-speaking countries grow soy?

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.

- Students gain and use knowledge and understanding of other cultures.
- Students analyze and describe relationships among products, practices and perspectives and compare them across cultures.
- Students experience the target language and culture(s) and share information and personal reactions with others.

#### **ACTFL Can-Do Statements Achieved**

Interpretive Communication

# INTERMEDIATE PROFICIENCY BENCHMARK I can participate in spontaneous spoken, written, or signed conversations on familiar topics, creating sentences and series of sentences to ask and answer a variety of questions. How can I exchange information and ideas in conversations? PERFORMANCE INDICATORS INTERMEDIATE LOW I can request and provide information in conversations on familiar topics by creating simple sentences and asking appropriate follow-up questions. I can exchange information in conversations on familiar topics and some researched opics, creating sentences and series of sentences and se

**Interpersonal Communication** 

#### INTERMEDIATE

PROFICIENCY BENCHMARK

I can understand the main idea and some pieces of information on familiar topics from sentences and series of connected sentences within texts that are spoken, written, or signed.

What can I understand, interpret or analyze in authentic informational texts?

PERFORMANCE INDICATORS

INTERMEDIATE LOW

I can identify the topic and related information from simple sentences in short informational texts.

I can understand the main idea and key information in short straightforward informational texts.

I can usually follow the main message in various time frames in straightforward, and sometimes descriptive, pages in formational texts.

#### Intercultural Communication

# INTERMEDIATE PROFICIENCY BENCHMARK In my own and other cultures I can make comparisons between products and practices to help me understand perspectives. PRODUCTS In my own and other cultures I can compare products related to everyday life and personal interests or studies. PRACTICES PRACTICES PRACTICES

# **Materials Needed**

- 1. Internet access for the teacher
- 2. Method of sharing online content with all students (projector and screen, smart board, individual student smart devices, computer lab, etc.)
- 3. Internet access for all students and/or hardcopies of the handout, "La Historia de Soja en Latinoamérica" (The History of Soy in Latinamerica)

Link to La Historia de Soja en Latinoamérica: http://www.soyinfocenter.com/HSS/latin america1.php

- 4. Chalk and/or dry erase markers suggested in various colors for categorizing vocabulary
- 5. Paper, chalkboard, and/or markerboard for listing and categorizing new vocabulary

# **Suggested Activities**



1. Bell Ringer: Prior to the start of class, write the previous day's investigation questions on the board. These were: ¿Cuáles son los problemas globales que el cultivo de la soja quiere abordar? (What is/are the global problems that soy cultivation seeks to address?) and ¿Cuáles son los problemas de cultivo que afectan la capacidad de los granjeros para aumentar el rendimiento de soja? (What kinds of cultivation problems do soybean farmers face as they seek to increase yield?). Ask students to access their classwork from the day before. Then, spend the first few minutes of class sharing investigation findings and building lists of findings on the board.



- 2. Distribute hardcopies or grant online access to the article *La Historia de Soja en Latinoamérica*. This is an academic-length article that outlines the instruction of soy to Latinamerica and the history of its cultivation to the present. Students will read the article in class in groups, with each group being assigned a portion of the article over which they will become an expert. The article is in English. Students will be transferring their learning across languages to produce a bullet-point summary of the history of soy in Latinamerica in Spanish. Inform students that summaries will be collected as a formative written assessment. They will also be shared and/or distributed to classmates.
  - Divide students into 5 mixed-level, random groups. Assign each student group one of the sections of the article with which to work. The article is 24 pages long, so assign pages 1-5 to group 1, 6-10 to group 2, etc. until all pages have been assigned. One group will have a slightly shorter reading than the others.
  - Students have 45 minutes to read their section of the article and to produce their bulletpoint summaries in Spanish to be collected and shared with the rest of the class.



- 3. Comprehensive Timeline: After groups have finished their bullet-point summaries, they will share them with the rest of the class. Be sure to begin with the group assigned to pages 1-5 and proceed in order as the article is written in chronological order. At the end of the class, ask students to identify, according to the article, the Spanish-speaking countries for which soy cultivation is a key crop in terms of bioeconomic development. Countries identified should be: Argentina, Paraguay, Uruguay, and Bolivia. NOTE: Students may try to include Brasil. Brasil is a top producer of soy beans, but it is a Portuguese-speaking country.
  - Before dismissing class, notify students that in the next class period, they will be choosing one of these four Spanish-speaking countries to research and conduct a case study on its specific challenges with respect to soybean production. The United States of America will also be included as a 5th Spanish-speaking country because Spanish is its second most widely spoken language, it is one of the world's largest producers of soybeans, and including it will promote intercultural analysis and communication.

# Día 4: Estudios de Caso / Day 4: Case Studies

# **World Language Content Standards Addressed (Ohio)**

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.

#### **Cultures:**

- Students gain and use knowledge and understanding of other cultures.
- Students analyze and describe relationships among products, practices and perspectives and compare them across cultures.
- Students experience the target language and culture(s) and share information and personal reactions with others.

#### **ACTFL Can-Do Statements Achieved**

**Interpretive Communication** 

# **Interpersonal Communication**





#### Intercultural Communication



- 1. Internet access and/or library access for the teacher and students
- 2. Laptops, tablets, or mobile/electronic devices and/or their pencil-and-paper counterparts that will allow students to research, compile information, and collaborate in groups to produce original pecha kucha presentations
- 3. Ability to give students access to *Pecha Kucha: Tips, Resources, & Examples* online and/or hardcopies of the document for students
- 4. Ability to give students access to the Pecha Kucha Planner online and/or hardcopies of the document for students

# **Suggested Activities**



1. Bell Ringer: As a formative assessment and review activity, ask students to define a selection of target vocabulary in the target language using their own words or to effectively demonstrate their understanding of the target vocabulary by using it in a sentence in the target language - examples of words to be defined/used include: *bioeconomía*, *la granja*, *el cultivo*, *la cosecha*, *la soja*, etc.



2. Decide prior to class how to best form student groups based on your classroom dynamic and pedagogical goals. Sample groupings include random groupings, self-selected groups, and ability groups. Consider alternatives to group work for students who prefer to work alone or who have unique propositions for a novel approach to the assignment. Also decide how to match groups to countries for the assignment. Sample strategies include teacher-assigned countries, randomly assigned countries, or group-selected countries.

Once in groups, provide access to the handout *Pecha Kucha: Tips, Resources, & Examples*. If students are already familiar with the pecha kucha format, then this step may be eliminated, although it may be advisable to revisit the pecha kucha format briefly with students.

Provide students with digital access and/or hardcopies of the Pecha Kucha Planner. After collecting research on their country, students will work together to complete their planner prior to beginning construction on the final presentation. When groups believe they have successfully completed their planner, they will schedule a review with the teacher to receive approval before beginning work on assembling the pecha kucha.



3. Students will have the remainder of the class period to research the country of their case study. As students discover the answers to the following questions, they should take notes that can later assist them with completing their Pecha Kucha Planner. Monitor group progress throughout the class session. Before the end of the class period, visit with each student group for completion of the day's tasks. If tasks are not completed, then they will need to be completed as homework to keep students on track.

At a minimum, students should research the following questions:

¿Dónde está ubicado el país? (Where is the country located?)

¿Cómo es el clima del país? (What is the climate of the country like?)

¿Cómo es la tierra del país? (What is the land/soil of the country like?)

¿Cuáles plantas cultivan de nivel industrial en el país? (What plants are grown on an industrial level in the country?)

¿Cuál es el papel de la soja en la bioeconomía del país? (What is the role of soy in the bioeconomy of the country?)

¿Dónde cultiva la soja en el país? (Where is soy grown in the country?)

¿Cuáles son los desafíos que afrontan a los granjeros de soja en el país? (What are the challenges that soybean farmers face in the country?)

# Día 5: Día de Trabajar #1/ Day 5: In-Class Work Day #1

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.
- Communication: Interpersonal Communication (Speaking/Signing, Listening/Viewing, Reading and Writing)
  - Leaners negotiate meaning using requests, clarifications and conversation strategies.
  - Learners interact with others using culturally appropriate language and gestures on familiar and some unfamiliar topics.
  - Learners express preferences, feelings, emotions and opinions about familiar and some unfamiliar topics.
- Presentational Communication (Speaking/Signing and Writing)
  - Students convey meaning using writing processes and presentation strategies. Competency
  - Students present information, concepts and viewpoints on familiar and some unfamiliar topics from across disciplines.
  - Students present a range of literary, creative and artistic endeavors to audiences near or far.

- Students gain and use knowledge and understanding of other cultures.
- Students analyze and describe relationships among products, practices and perspectives and compare them across cultures.
- Students experience the target language and culture(s) and share information and personal reactions with others.

# **ACTFL Can-Do Statements Achieved**

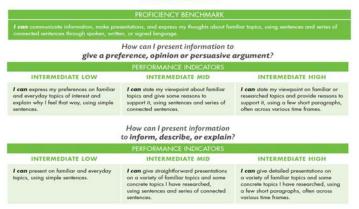
# **Interpretive Communication**

#### INTERMEDIATE



#### **Presentational Communication**

#### INTERMEDIATE



# **Interpersonal Communication**

#### INTERMEDIATE



#### **Intercultural Communication**

#### **INTERMEDIATE**

	PROFICIENCY BENCHMARK
In my own and other cultures <b>I can</b> make comparisons between products and practices to help me understand perspectives.	
	PERFORMANCE INDICATORS
PRODUCTS	In my own and other cultures <i>I can</i> compare products related to everyday life and personal interests or studies.
PRACTICES	In my own and other cultures <i>I can</i> compare practices related to everyday life and personal interests or studies.

# **Materials Needed**

- 1. Internet access and/or library access for the teacher and students
- 2. Laptops, tablets, or mobile/electronic devices and/or their pencil-and-paper counterparts that will allow students to research, compile information, and collaborate in groups to produce original pecha kucha presentations
- 3. Ability to give students access to *Pecha Kucha: Tips, Resources, & Examples* online and/or hardcopies of the document for students
- 4. Ability to give students access to the Pecha Kucha Planner online and/or hardcopies of the document for students

5. Ability to give students access to the Pecha Kucha Assessment Rubrics online and/or hardcopies of the document for all students

# **Suggested Activities**



1. Consolidating, Analyzing, and Organizing Information: Using notes from the previous class session and homework (if tasks were not completed in class), instruct students to sift through information and rank it according to importance. Encourage them to use the target language to communicate with each other as they work, and circulate around the room to supervise and assist with communication. Their goal should be to complete the Pecha Kucha Planner within the 45 minute time frame allotted. Remind students that their Pecha Kucha Planner is like a blue print for their Pecha Kucha presentation, and doing a thorough job on the planner will benefit them greatly when they create their presentation. As the 45 minute time frame draws to a close, touch base with each group to check readiness for proceeding to the second activity and notify groups of their approval to proceed. If groups are not ready to proceed, they will have to complete more work outside of class.



2. Rough Draft of the Pecha Kucha Presentation: Distribute the Pecha Kucha Assessment Rubric(s), and ask students to read and review it. Give students an opportunity to ask questions about the rubric and/or how they will be scored on this assessment. For the remainder of class, groups will use their Pecha Kucha Planner as a blueprint to create their Pecha Kucha Presentations. Students may use any district or school approved technology to create their presentations. Examples of common technologies used include Google Slides, Power Point, and Prezi. Students should attempt to complete a rough draft of their presentation by the end of the class period. If they do not complete the rough draft of their presentation in class, they will need to complete it as homework before the next class period.

# Día 6: Día de Trabajar #2/ Day 6: In-Class Work Day #2

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.

- Communication: Interpersonal Communication (Speaking/Signing, Listening/Viewing, Reading and Writing)
  - Leaners negotiate meaning using requests, clarifications and conversation strategies.
  - Learners interact with others using culturally appropriate language and gestures on familiar and some unfamiliar topics.
  - Learners express preferences, feelings, emotions and opinions about familiar and some unfamiliar topics.
- Presentational Communication (Speaking/Signing and Writing)
  - Students convey meaning using writing processes and presentation strategies.
     Competency
  - Students present information, concepts and viewpoints on familiar and some unfamiliar topics from across disciplines.
  - Students present a range of literary, creative and artistic endeavors to audiences near or far

- Students gain and use knowledge and understanding of other cultures.
- Students analyze and describe relationships among products, practices and perspectives and compare them across cultures.
- Students experience the target language and culture(s) and share information and personal reactions with others.

#### **ACTFL Can-Do Statements Achieved**

# **Interpretive Communication**

#### INTERMEDIATE

PROFICIENCY BENCHMARK

I can understand the main idea and some pieces of information on familiar topics from sentences and series of connected sentences within texts that are spoken, written, or signed.

What can I understand, interpret or analyze in authentic informational texts?

PERFORMANCE INDICATORS

INTERMEDIATE LOW

I can identify the topic and related information from simple sentences in short informational texts.

I can understand the main idea and key information in short straightforward informational texts.

I can understand information at texts?

I can understand the main idea and key information in short straightforward informational texts.

#### Presentational Communication

#### INTERMEDIATE



# **Interpersonal Communication**

#### INTERMEDIATE



#### Intercultural Communication

#### INTERMEDIATE

	PROFICIENCY BENCHMARK
In my own and other cultures <i>I can</i> make comparisons between products and practices to help me understand perspectives.	
	PERFORMANCE INDICATORS
PRODUCTS	In my own and other cultures <i>I can</i> compare products related to everyday life and personal interests or studies.
PRACTICES	In my own and other cultures <i>I can</i> compare practices related to everyday life and personal interests or studies.

- 1. Internet access and/or library access for the teacher and students
- 2. Laptops, tablets, or mobile/electronic devices and/or their pencil-and-paper counterparts that will allow students to research, compile information, and collaborate in groups to produce original pecha kucha presentations
- 3. Ability to give students access to *Pecha Kucha: Tips, Resources, & Examples* online and/or hardcopies of the document for students
- 4. Ability to give students access to the Pecha Kucha Planner online and/or hardcopies of the document for students
- 5. Ability to give students access to the Pecha Kucha Assessment Rubrics online and/or hardcopies of the document for all students

# **Suggested Activities**



1. Peer Review & Teacher Review of Rough Drafts: Assign groups to one another to review each other's rough drafts. As groups are peer reviewing, pull out a single group from the rotation to review rough drafts with students.



2. Revisions of the Pecha Kucha Presentation: Students have the remainder of the class to revise their Pecha Kucha presentations. If some groups have few revisions and/or finish early, then they may begin rehearsing their presentations. On the contrary, if any groups have many revisions, then they may need to complete revisions outside of class time. Students should have completed presentations ready to begin the next class session.

# Día 7: Ensayos y Presentaciones / Day 7: Rehearsals and Presentations

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.

- Communication: Interpersonal Communication (Speaking/Signing, Listening/Viewing, Reading and Writing)
  - Leaners negotiate meaning using requests, clarifications and conversation strategies.
  - Learners interact with others using culturally appropriate language and gestures on familiar and some unfamiliar topics.
  - Learners express preferences, feelings, emotions and opinions about familiar and some unfamiliar topics.
- Presentational Communication (Speaking/Signing and Writing)
  - Students convey meaning using writing processes and presentation strategies.
     Competency
  - Students present information, concepts and viewpoints on familiar and some unfamiliar topics from across disciplines.
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- Students gain and use knowledge and understanding of other cultures.
- Students analyze and describe relationships among products, practices and perspectives and compare them across cultures.
- Students experience the target language and culture(s) and share information and personal reactions with others.

#### **ACTFL Can-Do Statements Achieved**

# **Interpretive Communication**

#### INTERMEDIATE

PROFICIENCY BENCHMARK

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What can I understand, interpret or analyze in authentic informational texts?

PERFORMANCE INDICATORS

INTERMEDIATE LOW

I can identify the topic and related information from simple sentences in short informational texts.

I can understand the main idea and key information in short straightforward informational texts.

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#### Presentational Communication

#### INTERMEDIATE



# **Interpersonal Communication**

#### INTERMEDIATE



#### Intercultural Communication

#### INTERMEDIATE

	PROFICIENCY BENCHMARK
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PRACTICES	In my own and other cultures <i>I can</i> compare practices related to everyday life and personal interests or studies.

- 1. Internet access and projector capabilities for the teacher and students
- 2. Laptops, tablets, or mobile/electronic devices and/or their pencil-and-paper counterparts that will allow students to research, compile information, and collaborate in groups to produce original pecha kucha presentations
- 3. Ability to give students access to *Pecha Kucha: Tips, Resources, & Examples* online and/or hardcopies of the document for students
- 4. Ability to give students access to the Pecha Kucha Planner online and/or hardcopies of the document for students
- 5. Ability to give students access to the Pecha Kucha Assessment Rubrics online and/or hardcopies of the document for all students

# **Suggested Activities**



1. Students have 45 minutes to rehearse their Pecha Kucha Presentations in class. Remind them that they will be scored based on the rubric that has been provided to them.



2. Students deliver Pecha Kucha presentations to the class. Instruct student audience members to take notes in the target language about each group's presentation. Allow for question and answer periods of approximately 5 minutes between presentations. Check for basic comprehension and also allow for expansion questions.

# Día 8: Excursión a la Granja de Waterman / Day 8: Field Trip to Waterman Farm

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.
- Communication: Interpersonal Communication (Speaking/Signing, Listening/Viewing, Reading and Writing)
  - Leaners negotiate meaning using requests, clarifications and conversation strategies.
  - Learners interact with others using culturally appropriate language and gestures on familiar and some unfamiliar topics.

- Learners express preferences, feelings, emotions and opinions about familiar and some unfamiliar topics.
- Presentational Communication (Speaking/Signing and Writing)
  - Students convey meaning using writing processes and presentation strategies.
     Competency
  - Students present information, concepts and viewpoints on familiar and some unfamiliar topics from across disciplines.
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- Students gain and use knowledge and understanding of other cultures.
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#### **ACTFL Can-Do Statements Achieved**

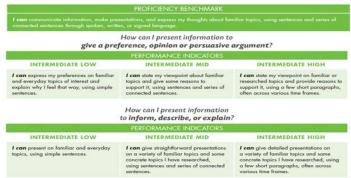
# **Interpretive Communication**

# INTERMEDIATE



#### **Presentational Communication**

# INTERMEDIATE



# **Interpersonal Communication**

#### INTERMEDIATE



# Intercultural Communication

#### **INTERMEDIATE**



- 1. Confirmed field trip permissions from Waterman Farms, school administration, and parents/guardians of students
- 2. Notes of student presentations for panel discussion with farmers at Waterman Farms.

# **Suggested Itinerary for Field Trip**

8:00 - 8:30 AM	Depart School & Travel to Waterman Farms
8:30 - 9:30 AM	Dairy Farm Tour & Discussion of the Role of Soybeans in Dairy Farming
9:30 - 10:30 AM	Crop Tour & Discussion of Soybean Farming in Ohio & United States
10:30 - 11:30 AM	Engineering Tour & Discussion of Engineering Issues in Soybean Farming
11:30 - 12:00 PM	Sack Lunch
12:00 - 1:15 PM	Authentic Audience: Panel Discussion with Waterman Farmers - Students share findings from their Pecha Kucha presentations with farmers and ask farmers questions about issues facing soybean farmers domestically and internationally
1:15 - 2:00 PM	Depart Waterman Farms and Return to School

# Día 9: Explorando Soluciones / Day 9: Exploring Solutions

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.
- Communication: Interpersonal Communication (Speaking/Signing, Listening/Viewing, Reading and Writing)
  - Leaners negotiate meaning using requests, clarifications and conversation strategies.
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- Learners express preferences, feelings, emotions and opinions about familiar and some unfamiliar topics.
- Presentational Communication (Speaking/Signing and Writing)
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#### **ACTFL Can-Do Statements Achieved**

# **Interpretive Communication**

#### INTERMEDIATE



# **Presentational Communication**

#### INTERMEDIATE



# **Interpersonal Communication**

#### INTERMEDIATE



# Intercultural Communication

#### INTERMEDIATE

	PROFICIENCY BENCHMARK
In my own and other cultures <i>I can</i> make comparisons between products and practices to help me understand perspectives.	
	PERFORMANCE INDICATORS
PRODUCTS	In my own and other cultures <i>I can</i> compare products related to everyday life and personal interests or studies.
PRACTICES	In my own and other cultures <i>I can</i> compare practices related to everyday life and personal interests or studies.

- 1. Internet access and projector capabilities for the teacher and students
- 2. Laptops, tablets, or mobile/electronic devices and/or their pencil-and-paper counterparts that will allow students to research, compile information, and collaborate in groups
- 3. Unit Assessment Rubric: 200 Word Statement on Solutions to Soybean Cultivation in Spanish-Speaking Countries can be downloaded at the following locations and differentiated according to most appropriate level:

Intermediate Low: http://education.ohio.gov/getattachment/Topics/Learning-in-Ohio/Foreign-Language/World-Languages-Model-Curriculum/World-Languages-Model-Curriculum-Framework/Instructional-Strategies/Scoring-Guidelines-for-World-Languages/Intermediate Low Holistic Rubric Presentational feb2018.pdf.aspx?lang=en-US

Intermediate Mid: http://education.ohio.gov/getattachment/Topics/Learning-in-Ohio/Foreign-Languages/World-Languages-Model-Curriculum/World-Languages-Model-Curriculum-Framework/Instructional-Strategies/Scoring-Guidelines-for-World-Languages/Intermediate\_Mid\_Holistic\_Rubric\_Presentational\_feb2018.pdf.aspx?lang=en-US

Intermediate High: http://education.ohio.gov/getattachment/Topics/Learning-in-Ohio/Foreign-Languages/World-Languages-Model-Curriculum/World-Languages-Model-Curriculum-Framework/Instructional-Strategies/Scoring-Guidelines-for-World-Languages/IH-AL\_Holistic\_Rubric\_Presentational\_feb2018.pdf.aspx?lang=en-US

# **Suggested Activities**



1. Bell Ringer Activity: Ask students to get into their country-based groups from their Pecha Kucha presentations. Ask students to spend the first few minutes of class discussing the panel discussion with the farmers at Waterman Farm. Ask students to brainstorm and discuss the problems, concerns, and issues facing soybean cultivation domestically and globally. Inform students that they will be asked to share their discussion with the class.



2. Framing the Problem: Use the work of the Bell Ringer to facilitate a class discussion to list the key challenges facing soybean cultivation in the U.S. and abroad. After a list has been generated, ask students to return to their seats for individual work. Using laptops, mobile devices, or the computer lab, ask students to research which of the challenges facing soybean cultivation is most prominent in the country that they studied with their group. After students have identified the prominent problem in the country they have studied, ask them to research potential solutions to those problems.



3. Unit Assessment: After students have identified potential solutions to their country's problems with soybean cultivation, ask students to pick which solution they think is the most viable. Then, as an assessment, ask students to produce a 200-word written rationale (approximately 2 well-rounded paragraphs or 1/2 page total) for their selection. Students will have the remainder of the class period to work on their written responses. If students do not finish in the time allotted, it will need to be completed outside of class time.

In their written response, students must answer the following questions:

¿Qué es la bioeconomía? (What is bioeconomy?)

¿Cómo define la sostenibilidad? (How is sustainability defined?)

¿Por qué es importante el cultivo de la soja? (Why is soybean cultivation important?)

¿Cuáles son los países hispanohablantes que cultivan la soja como producto agrícolo? (What Spanish-speaking countries grow soy as an agricultural product?)

¿Cuál país decidiste investigar? (Which country did you choose to research?)

¿Cuáles son los desafíos que afectan el cultivo de la soja en el país que investigaste? (What are the challenges that affect soy cultivation in the country you researched?)

¿Cuáles soluciones posibles existen para abordar estos desafíos? (What possible solutions exist to address these challenges?)

En tu opinion, ¿cuál solución sería la mejor? ¿Por qué? (In your opinion, which solution would be the best one? Why?

# Día 10: Entrevistas Orales / Oral Interviews

- Communication: Interpretive Communication (Reading, Listening/Viewing)
  - Learners comprehend the main idea and relevant details in a variety of levelappropriate written and recorded messages, personal anecdotes, and narratives in the language.
  - Learners derive meaning through the use of listening, viewing and reading strategies.
  - Learners reinforce and expand their knowledge across disciplines as they acquire information and distinctive viewpoints directly through authentic print, non-print and digital language and culture sources.
- Communication: Interpersonal Communication (Speaking/Signing, Listening/Viewing, Reading and Writing)
  - Leaners negotiate meaning using requests, clarifications and conversation strategies.
  - Learners interact with others using culturally appropriate language and gestures on familiar and some unfamiliar topics.
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- Presentational Communication (Speaking/Signing and Writing)
  - Students convey meaning using writing processes and presentation strategies.
     Competency

- Students present information, concepts and viewpoints on familiar and some unfamiliar topics from across disciplines.
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#### **ACTFL Can-Do Statements Achieved**

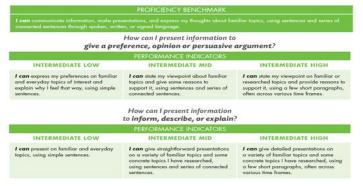
# **Interpretive Communication**

#### INTERMEDIATE



#### **Presentational Communication**

#### INTERMEDIATE



# **Interpersonal Communication**

#### INTERMEDIATE



#### **Intercultural Communication**

#### **INTERMEDIATE**



# **Materials Needed**

- 1. Internet access and projector capabilities for the teacher and students
- 2. Laptops, tablets, or mobile/electronic devices and/or their pencil-and-paper counterparts that will allow students to research, compile information, and collaborate in groups
- 3. Unit Assessment Rubric: 200 Word Statement on Solutions to Soybean Cultivation in Spanish-Speaking Countries can be downloaded at the following locations and differentiated according to most appropriate level:

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# **Suggested Activities**



1. Pair and Share Student Discussions & Teacher Oral Interviews: Pair students with one another using a method that suits your individual class (random selection, student selection, etc.). Ask students to spend 5 minutes sharing their prepared written response with one another and interacting with each other about their responses. Every 5 minutes, reform the student pairs either through random selection or student self-selection. Over the course of the entire 90-minute block, students should meet with 10-12 of their peers for discussion. While students are interacting with one another, pull individual students aside one at a time for the teacher-led oral interview. Using the provided rubrics, interact with each student to assess his or her speaking proficiency with respect to the questions addressed in the 200 - word written statement.

# **Transdisciplinary Expansions**

As a transdisciplinary expansion to this unit, world language educators may encourage world language students to attempt to design and/or create the solution they have chosen and to collaborate with educators in other disciplines as needed in order to do so.