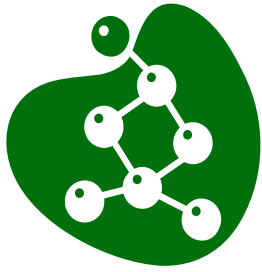


**EL MONTE  
UNION HIGH SCHOOL DISTRICT**

**Biology  
Curriculum Guide  
June 2011**

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# El Monte Union High School District

## Biology

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## Biology 1P Curricular Map

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**El Monte Union High School District**  
**Biology 1P**  
**Power Standards – Unwrapped**

**1<sup>st</sup> Grading Period**

Cell Biology

*Standards I&E, 1a-c, e, h, 10d*

**Academic Vocabulary: key vocabulary, but not limited to the following:**

Fluid mosaic model  
Semi permeable membrane  
Diffusion  
Carrier-facilitated diffusion  
Active transport  
Prokaryote cells  
Eukaryote cells  
Virus  
Biochemical catalyst (enzymes)  
Polysaccharide  
Protein  
Lipid  
Nucleic acids  
Polymers  
Chloroplast  
Mitochondria

**Verbs to get there:**

Create  
Use  
Demonstrate  
Differentiate  
Use

**Standards      Expected Learning Results**

- |            |  |
|------------|--|
| 1c, e, 10d | a.) Create a chart that represents the structure of a plant, animal, bacteria and virus.<br>b.) Use a table to compare and contrast structures and functions of organelles.    |
| 1e         | Identify the organelles that packages and distributes materials out of a eukaryotic cell.  |
| 1a         | <ul style="list-style-type: none"><li>● Demonstrate the structure and function of cell membrane.</li></ul>   |
| 1h         | <ul style="list-style-type: none"><li>● Differentiate between the three nutritional macromolecules and their subunits.</li></ul>   |
| 1b         | <ul style="list-style-type: none"><li>● Examine and enzyme as a biological catalyst</li><li>● Demonstrate how the environmental factors affect the rate of reaction.</li></ul> |
| 1/E, 1a    | <ul style="list-style-type: none"><li>● Effectively use a compound microscope.</li></ul>   |

## 2<sup>nd</sup> Grading Period

Photosynthesis, Cellular Respiration & Cell Division

*Standards 1f, g, 2b*

### **Academic Vocabulary: key vocabulary, but not limited to the following:**

Cellular Respiration  
Photosynthesis  
Calvin Cycle  
Kreb Cycle  
Fermentation  
Aerobic  
Anaerobic  
Grana  
Thylakoids  
Mitosis  
Meiosis  
Glycolysis  
Light dependent cycle  
Crossing Over  
Diploid  
Haploid  
Electron  
Glucose  
Somatic cell  
Gamete

### **Verbs to get there:**

Summarize  
Identify  
Explain  
Differentiate

### **Standards**

### **Expected Learning Results**

- |    |  |
|----|--|
| 1f | <ul style="list-style-type: none"><li>● Refer to the photosynthesis equation to summarize the processes involved in the chloroplasts.</li><li>● Differentiate between the reactants required and products created for the light dependent and light independent reactions of photosynthesis.</li></ul> |
| 1g | <ul style="list-style-type: none"><li>● Refer to the cellular respiration equation to summarize the processes involved in the mitochondria.</li><li>● Explain how the Krebs cycle is the main source of carbon dioxide.</li></ul>  |
| 2a | <ul style="list-style-type: none"><li>● Explain how the process of meiosis separates and segregates chromosomes randomly resulting in genetic variation.</li></ul>   |
| 2b | <ul style="list-style-type: none"><li>● Compare and contrast the stages of meiosis and mitosis.</li><li>● Compare and contrast the somatic cells and gametes resulting from the process of mitosis and meiosis.</li></ul>  |

### **3<sup>rd</sup> Grading Period**

#### Genetics

*Standards 2a-g, 3a-c, 4a-e, 5a-c*

#### **Academic Vocabulary: key vocabulary, but not limited to the following:**

Phenotype	Genotype
Allele	Gene
Heredity	Mutation
Dominant	Recessive
Genetics	Chromosomes
Heterozygous	Homozygous
F1 Generation	Fertilization
Haploid	Diploid
Sex Chromosome	Autosomes
Independent Assortment	Law of Segregation
Zygote	Mitosis
Meiosis	Amino Acids
Base Paring Rules	Semi Conservative Replication
mRNA, tRNA, rRNA	Protein Synthesis
Protein Synthesis	Transcriptions
Translation	

#### **Verbs to get there:**

Identify  
Apply  
Outline  
Recognize

#### **Standards Molecular Genetics: Expected Learning Results**

- |            |  |
|------------|--|
| 5a, 1d, 1h | <ul style="list-style-type: none"><li>● Identify that DNA is like a set of instructions for production of proteins.</li><li>● Compare and contrast the general structures and functions of DNA, RNA, and Proteins.</li></ul> |
| 4b, 5b, 1b | <ul style="list-style-type: none"><li>● Apply the base pairing rules to explain precise copying of DNA during semi-conservative replication and mRNA formulation (transcripts)</li></ul>                                     |
| 4a         | <ul style="list-style-type: none"><li>● Outline the general pathway b which ribosome's (rRNA) synthesize proteins, using tRNA's to translate genetic information carried by mRNA.</li></ul>                                  |
| 4b, 1d     | <ul style="list-style-type: none"><li>● Apply the genetic code rules to predict the sequence of amino acids from a sequence of codons in RNA (translation).</li></ul>  |
| 4e         | <ul style="list-style-type: none"><li>● Recognize the types, sequences and numbers of amino acids used to determine the type of protein produced.</li></ul>  |
| 4d         | <ul style="list-style-type: none"><li>● Explain that all cells have the same DNA, but depending on the location of the cell, only a certain part of the DNA molecule will be used for that cell protein.</li></ul>           |

**Standards****Mendelian Genetics: Expected Learning Results**

- 2a
- Compare and contrast the divisional process that occurs in sex cells and somatic cells. Differentiate the number of chromosomes in each (meiosis vs. mitosis). Define chromosomes, genes, alleles, and traits.
- 2b, 2e
- Demonstrate how the pairs of chromosomes separate and segregate randomly during meiosis to produce gametes containing one chromosome from each pair. Recognize that sperm and ovum cells contain haploid numbers of chromosomes.
- 2d
- Predict how combinations of alleles may be generated in a zygote through the fusion of male and female gametes (fertilization) through the use of a Punnett Square.
- 2c, 3b
- Outline the genetic basis for Mendel's laws of segregation and independent assortment.
- 2f
- Distinguish the gametes that contain the XY chromosome (sperm) and the XX chromosome (ovum). Deduce that this is the factor responsible for sex determination.
- 2g, 3a
- Predict possible genotypes and phenotypes from a Punnett square and mode of inheritance (dominant, recessive, autosomal, x-linked).
- 5c
- Give examples of how man applies genetic engineering (biotechnology) to produce biomedical and agricultural products.

## **4<sup>th</sup> Grading Period**

### Evolution & Ecology

*Standards 6a-f, 7a-d, 8a-e*

#### **Academic Vocabulary: key vocabulary, but not limited to the following:**

Geographic isolation	Reproductive isolation
Natural selection	Species
Heterozygous	Homozygous
Genetic variation	Community
Genetic drift	Diversity
Population	Fossil
Biodiversity	Succession
Ecosystem	Carbon cycle
Water cycle	Nitrogen cycle
Food web	Energy pyramid
Producers	Decomposers
Speciation	

#### **Verbs to get there:**

Describe  
Illustrate  
Explain  
Analyze  
Summarize

#### **Standards**

#### **Evolution: Expected Learning Results**

- |          |  |
|----------|--|
| 8d       | <ul style="list-style-type: none"><li>● Describe the factors that lead to speciation within a changing environment (geographic and reproductive isolation).</li></ul>              |
| 8a       | <ul style="list-style-type: none"><li>● Describe the effects of natural selection on the phenotype of a species.</li></ul>   |
| 7a, b, c | <ul style="list-style-type: none"><li>● Explain that mutations can be maintained in the gene pool by heterozygous organisms, providing genetic variation in a gene pool.</li></ul> |
| 7d       | <ul style="list-style-type: none"><li>● Describe how environmental changes determine the success of an organism within a species and throughout a community.</li></ul>             |
| 8c       | <ul style="list-style-type: none"><li>● Describe the effects of genetic drift on the diversity of organisms within a population.</li></ul>   |
| 8e       | <ul style="list-style-type: none"><li>● Analyze fossil evidence given a basic illustration and/or a geological time line.</li></ul>  |

- Standards Ecology: Expected Learning Results**
- 6a
    - Define biodiversity and give examples.
  - 6b
    - Analyze ecological change (succession) by identifying the factors that cause them.
  - 6c
    - List the factors that cause change in population size within an ecosystem.
  - 6d
    - Summarize the flow of matter through the following cycles: water, carbon, nitrogen.
  - 6f
    - Describe the relationship between food webs and energy pyramids (emphasis on the roles of producers and decomposers).
  - 6e
    - Illustrate the relationship between producers and decomposers.

**5<sup>th</sup> Grading Period**

Physiology

*Standards 9, a-e, 10, a-e*

**Academic Vocabulary: key vocabulary, but not limited to the following:**

Hormone	Target cell
Endocrine gland	Homeostasis
Feedback inhibition	Specialized cell
Pathogen	Antibody
Immunity	Antigen
Vaccination	Pulmonary
System circulation	Plasma
Hemoglobin	

**Verbs to get there:**

Create  
Describe  
Differentiate  
Explain  
Identify  
Outline

**Standards Physiology: Expected Learning Results**

- 9
  - Create a flow chart which represents the levels of organization from molecules to organisms.
- 9a, b
  - Describe the general structure and function of:
    - a. The central nervous system vs. endocrine system
    - b. Circulatory vs respiratory system
- 9 c, d, e
  - Explain the interdependence of:
    - a. The central nervous and endocrine system
    - b. Circulatory and respiratory system

- 9 c, d, e
  - Differentiate between the major sensory organs.
- 9 c, d, e
  - Describe the mechanism of a feedback loop using diagrams and flowcharts.
- 9b
  - Using an illustration, identify the parts of a neuron and distinguish between the functions of each structure.
- 10
  - Differentiate between specific and non-specific immune response using examples.
- 10b
  - Outline the following processes:
    - a. Phagocytosis by white blood cells
    - b. Antibodies attack on pathogens
- 10c
  - Describe the process and explain the purpose of vaccinations.
- 10e, I/E, 1d
  - Describe the consequences of a compromised immune system (AIDS).

### **6<sup>th</sup> Grading Period**

Re-teach and/or Lab Opportunities

**BIOLOGY**  
**COMMOM FORMATIVE ASSESSMENT**  
**TIMELINE**

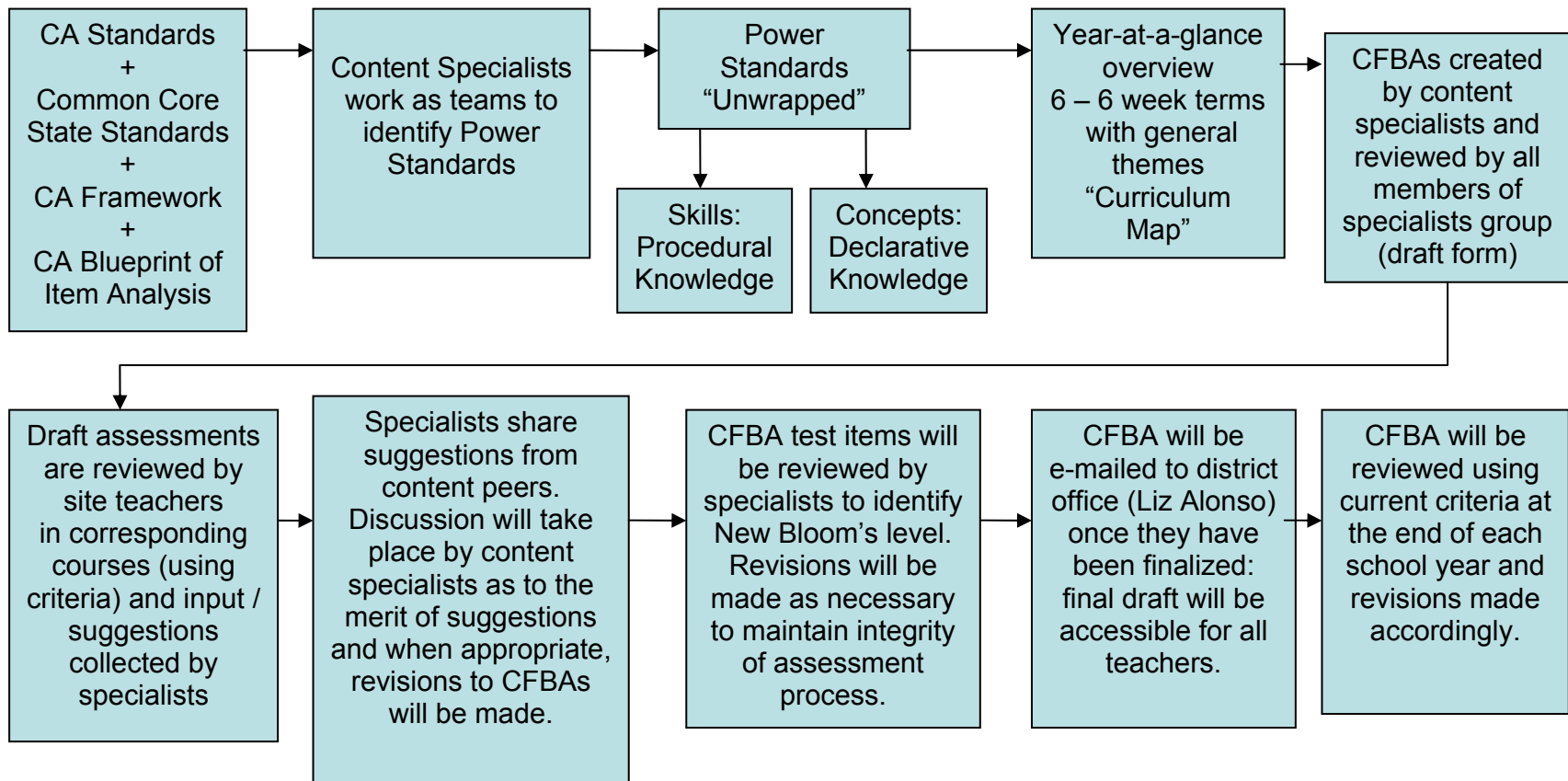
CFBA #	Pre Test Date	Post Test Date	Notes
CFBA #1	08/30-09/02/2011	10/10-10/14/2011	
CFBA #2	10/10-10/14/2011	11/21-12/02/2011	
CFBA #3	11/21-12/02/2011	01/25-01/27/2012	
CFBA #4	01/30-02/03/2012	03/13-03/16/2012	
CFBA #5	03/13-03/16/2012	04/30-05/04/2012	

Pre-tests and Post-tests should be given within 1 day of the above date to accommodate block scheduling.

Scanning of Pre-tests should be done within 2 days of the above date.

Scanning of Post-tests should be done within 5 days of the above date (weekends counted).

# Common Formative Benchmark Assessment (CFBA) Process / Flow Chart



## **Testing Protocols for District-Wide Common Formative Benchmark Assessments (CFBAs)**

District Distribution: Copies of the CFBAs will be produced at the district and sent to the Content Specialists at each site.

Site Distribution:

- Content Specialists will distribute the necessary copies of the test to each teacher
- Content Specialists will provide a copy of *Cover Sheet for Common Formative Benchmark Assessments (CFBAs)*.
- Answer documents (pre identified) will be produced at the site
- Content Specialist will employ proper security measures to account for all tests distributed and collected

Collection: Return copies of test to Content Specialist by 3:20 PM on date of test administration.

Administration: Teachers will follow the protocols on the *Cover Sheet for Common Formative Benchmark Assessments (CFBAs)* and *Guidelines for Teachers: Administration and Scoring*.

Scoring: The answer documents will be scanned as stated on assessment timeline. Once scanned, the teacher scanning the documents will have access to the results through the assessment data management system.

Data Analysis: In order to discuss student achievement during the late start collaboration period, the content specialist and course lead should produce the following reports:

- Create a report that shows the data for each teacher
  - Once after the pre-test (with % of students in each performance level if applicable)
  - Once after the post-test (if a pre-test exists, show the pre-test results along side of the post-test results for analysis)
- Item Analysis Report
- Work with the API to provide a report that compares all the sites' data for each of the CFBAs

A copy of each of the reports should be shared with the API.

Feedback/Intervention: Teachers make adjustments in strategies/activities based on data. These adjustments in strategies will occur at the sites (Course Lead meetings) as well as at the district level (Content Specialists' meetings).

June 23, 2011

Guidelines for Teachers: Administration and Scoring

- Testing materials will be distributed by Content Specialists.
- Teachers should give no reading comprehension or vocabulary support. (Don't answer questions about the questions on the test.)
- Classroom design should maintain integrity of the test. (No answers or help on posters on walls, straight rows, appropriate space for independent work, etc.)
- Materials should be distributed and collected (pre-identified answer documents) employing proper security measures (count all test and answer documents)
- Student clerks or helpers should not be allowed to handle test materials or return them to the Content Specialist.
- All materials should be returned to the Content Specialist department by the end of the day (3:20 PM).
- Answer documents should be scanned within 48 hours of test administration by individual teachers.

Specialists:

The following document is a copy of the cover sheet for the Common Formative Assessments. A copy of the cover sheet should be given to each teacher with their copies of the assessments.

Be aware that the cover sheet says that the teachers are to return the tests to you at the end of the test day. Be prepared to keep these assessments secure in a locked file or storage cabinet. If you do not have a secure storage area, please speak to your administration.

If you have any questions or concerns, please call me at ext. 4433.

Thank you for all your efforts to promote increased student achievement.

**EMUHSD****Cover Sheet for Benchmarks/CFBAs**

Thank you for administering this exam. In order to make this process go smoothly, please use the following guidelines:

**Preparation of testing area:**

Cover informational posters and displays in the room that could be used to directly answer or influence students.

Arrange seats into straight rows, if possible, or be sure to seat students in a manner conducive to testing.

No food or drink, besides water bottles, allowed in the room.

**Testing Materials:**

You are provided:

The assessments (students are NOT to write on this, all work must be completed on answer document(s)). Some essay questions may have been distributed and given prior to the multiple choice portion of the test. Directions for the essay portion will be with the essay, if applicable.

Answer Document(s): produced prior to the test

Tests are secure materials and are not to be handled by Teacher Assistants, or other non-teachers.

**Administration:**

Assessments are un-timed (within 1 regular period or 1 hour), however, please begin the assessment at the beginning of your class-time. Students will finish at different times; have an assignment or activity for students to complete when they finish.

Please circulate while the test is being administered.

Do not answer questions about test items, you may clarify directions only. If asked for additional help, please give student encouragement and walk away.

Materials should be distributed and collected in an orderly method – plan ahead.

**Collection and scoring:**

All materials should be returned to the Content Specialist Department by the end of the test day (3:20 p.m.). Each teacher should scan their answer documents. If an essay question was given prior to the test, the score should be entered on the answer document before scanning, if applicable. If assistance is needed, contact your content specialist.

**Script to read to students for the Pre-Test:**

You are about to take an assessment on information that may or may not be new to you. As your teacher, I need to know what you know in order to plan for class.

Please do the best you can, but do not worry about not knowing some of the answers because it has not been presented in class yet. It is our expectation that by the end of the unit, you will be able to demonstrate your proficiency on this material. Only answer questions based on what you know. On this assessment it is better to leave blank the questions that you do not know rather than to guess.

You have this period (or 1 hour for block schedules) to complete the test.\* Please do the best you can. When you finish, please work on the following assignment/activity (teacher will provide the assignment or):

Please stay in your seat. All materials will be collected from you.

**Script to read to students for the Post-Test:**

You are about to take an assessment on information that has been presented to you in class. This is your time to prove what you have learned in this class.

Please do the best you can.

You have this period (or 1 hour for block schedules) to complete the test.\* When you finish, please complete the following (teacher will provide the quiet activity) or:

Please stay in your seat. All materials will be collected from you.

\*For semester exams all sites should read, "You have this period," since all sites will have the same final exam schedule.

## **El Monte Union High School District**

### **GUIDELINES FOR DEVELOPING QUALITY COMMON FORMATIVE BENCHMARK ASSESSMENTS**

The District has established the following beliefs that serve to guide the construction, implementation and follow-up activities for common and interim assessments.

- The assessments must be carefully aligned to the content identified in the curricular calendar and measure what students have been asked to learn.
- The assessment questions must be individually analyzed to ensure that they are clear, focused, agreed-upon, reliable and valid assessments that accurately measure a specific curriculum standard.
- Each assessment must have a designated level of performance for determining proficiency.
- The assessment results must be able to identify students who are in need of immediate intervention for those who have not attained proficiency.
- The data when analyzed at the class and department level should provide questions that need to be discussed by department members so that insights are learned to improve the quality of student learning.
- After each assessment poor questions should be replaced to ensure that the assessments are being continually improved and refined.
- Assessment results must be tracked from year to year so that each department has a longitudinal record of past performance to adequately gauge the level of student learning from year to year.



**OPEN INVITATION**

To: All Staff

Contribute your "Best Teaching and Learning Strategies" by:

e-mailing your ideas or documents to the Content Specialist

**BEST PRACTICES**  
Teaching and Learning Strategies  
in the  
El Monte Union High School District

# Sheltered Instruction Observation Protocol (SIOP)

Finally a system that provides a concrete structure to plan and implement sheltered instruction in the content



## Improving the Quality of Instruction for English Learners

The Sheltered Instruction Observation Protocol (SIOP) Model (Echevarria, Vogt & Short, 2000) was developed to provide teachers with a well articulated, practical model of sheltered instruction. The intent of the model is to facilitate high quality instruction for English Learners in content area teaching.

The SIOP Model is based on current knowledge and research-based practices for promoting learning with all students, especially English Learners (ELs). Critical features of high quality instruction for ELs are embedded within the SIOP Model.

The SIOP Model can be viewed as an umbrella under which other programs developed for improving instruction can reside. Administrators and teachers alike are bombarded with new approaches to instruction, reform efforts, and practices that sometimes seem to be in competition with one another. Often what is lacking in schools is coherence, or a plan for pulling together sound practices (Goldenberg, 2004). The SIOP Model is not another “add on” program but rather it is a framework that can bring together a school’s instructional program by organizing methods and techniques, and ensuring that effective practices are implemented - and can be quantified. The SIOP Model is currently used in most of the 50 states and in hundreds of schools across the U.S. as well as in several other countries.

## Goals of the SIOP Institute

- To **understand the research-based framework of the sheltered instruction approach** for English language learners.
- To become **familiar with the eight components of effective sheltered instruction lessons**.
- To **practice observing and evaluating sheltered instruction lessons**.

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Go to <http://www.siopinstitute.net/index.html> for more information regarding SIOP.

# Eight Components of Effective Sheltered Instruction Lessons

**1. Preparation** - English Language Learners need to be prepared for learning by being able to communicate about the learning experience. They need to be able to ask for help when they need it. They should know the following basic learning phrases or sentences:

- "I don't understand."
- "Would you please explain that to me?"
- "Would you please show me how?"
- "What information do I need to remember?"
- "Is that important for the test?"
- "What is the most important part?"

Learning a new language mirrors the process we go through when we acquire our first language. English learners typically start with a pre-production, or silent period, when first introduced to English. During this period, students begin to comprehend English, but do not yet attempt to speak it. This period can last from a few days to many months, depending on the student. As ELLs continue to learn English, they begin to produce one or two word phrases, and then move to sentences. As students are acquiring English, they will often struggle with grammar and pronunciation, but our emphasis should be on conveying meaning, not grammatical perfection.

**2. Building Background** - Teachers can build background connections for English Language Learners by making purposeful connections to prior learning, by teaching the most important vocabulary, and by trying to connect the content to something the student may have already experienced. Building background can be accomplished through use of the following:

- **KWL Charts** - Students chart what they KNOW, what they WANT to know, and what they LEARNED
- **Pre-Reading Activities** - Walk through the text discussing the topics and photos before reading, or looking through a chapter backwards for the big picture view of the entire text.
- **Using Symbols** - students use post it notes with check marks, question marks, and plus signs to label a new text during the first reading. Check marks mean, "I understand this part." Question marks mean, "I need help with this part." Plus signs mean, "This is something new I've learned."
- **Student Journals** -
- **Personal Dictionaries** -
- **Four Squares Vocabulary** - paper folded into 4 parts: part 1 includes an illustration, part 2 includes a sentence, part 3 includes a definition, and part 4 includes the vocabulary word.
- **Similar Words** - [Similar Words - Palabras Similares Booklet](#) includes 1000 varied reading level words that are similar in spelling and pronunciation in both English and Spanish. Print front to back.
- **Making Predictions** - students survey the text and predict what they think they will be learning.
- [Text to Self Connections](#) - Research clearly shows that prior knowledge (including experiences and emotions---or schema---is a major factor in students being able to comprehend what they read.
- [Text to Text Connections](#) - Research shows that students who are explicitly taught and use strategies that activate prior knowledge comprehend better than students who don't.
- [Guided Comprehension](#) - students learn comprehension strategies in a variety of settings using multiple levels and types of text. It is a three-stage process focused on direct instruction, application, and reflection. Current studies demonstrate that when students experience explicit instruction of comprehension strategies, it improves their comprehension of new texts and topics (Hiebert et al., 1998).
- [Concepts and Vocabulary](#) - includes strategies and scaffolding for pre-reading
- [Vocabulary](#) - When teaching ELL students new vocabulary, it is important to select the *key vocabulary* for any given lesson or unit. Here are some guidelines to help you decide which words to teach. The next section will provide some ideas from Northshore School District in Bothell, Washington on how to teach new vocabulary.

**Tell** the student the word and move on if:

- The word does not represent a new concept
- Students need to understand for this activity but are not likely to need it again

**Teach** the student the word if:

- The word represents a new concept
- The word crosses content areas or has multiple uses
- The word is important for students outside of this activity

### **Teaching Vocabulary to ELLs**

- Pronounce the word
- Provide a definition (show, paraphrase, act out, create experience)
- Post definition for reference
- Introduce in context in which it occurs or in a familiar context
- Relate word to students' prior experiences. Create an experience that demonstrates meaning
- Word walls
- Generate and record sentences (building from original context or familiar context)
- Use word often in instruction. Point it out in other content areas, have students find it in other contexts, classes, out of school.
- Add to word bank or student-made dictionaries
- Use first language to clarify
- Word webs
- Semantic-analysis chart, concept maps.
- Act out, use visuals or real objects (realia)
- [General Principals for Teaching ELLs](#) - Language acquisition theories have highlighted four key principles that can be directly applied to the mainstream classroom. These principles are important for all students, but are of particular importance to English language learners (Jameson, 1998)

**3. Comprehensible Input** - Teachers should make assignments clear by using vocabulary students can understand, and by providing a variety of instructional experiences including:

- **Total Physical Response** - teachers use hand gestures, facial expressions, and whole body movement to illustrate concepts or vocabulary words. Students emulate the movements.
- **Vocabulary Cards** - [Vocabulary Cards - Tarjetas del Vocabulario](#) - 1500 most commonly used words in English with Spanish translations. Words are clustered by category and fold to the size of a business card.
- **Similar Words and Opposite Words** - [Similar Words - Palabras Similares](#) - includes 1000 varied reading level words that are similar in spelling and pronunciation in both English and Spanish.
- **Vocabulary Picture Puzzles** - [Picture Puzzles](#) - when printed from to back, these vocabulary games allow students to work alone or in pairs or small groups to discuss targeted vocabulary words in a social setting while playing a game.
- **Confusing Words Bulletin Board** - students add commonly used slang phrases and idioms to a chart for other students to interpret.
- **Read Along Audio Files** -
- **Video Resources** -
- **Web Resources** - [ESL Websites Strategies](#) - 26 sites (A-Z) that support teachers in teaching English Language Learners.

**4. Student Strategies for Success** - English Language Learners can benefit from knowing specific strategies to use that increase comprehension including the following:

- **Survey, Question, Read, Review Recite** - [Classroom Posters](#) display the steps in each stage of SQRRR
- **Questions in a Can** - teacher or student-created questions ranging from lower to higher level questions are placed in a can. Students draw questions and answer in a team discussion.
- **Gallery Walks** - Students write or draw the most important ideas from a section of assigned text.
- **Split Page Note Taking** - Before reading, students write who, what, when, where, or why questions on the left side of the page and after reading, students write answers on the right side.
- **Similarities and Differences Using a Venn Diagram**

**5. Interactions** - Student-to-teacher and student-to-student interactions can be enhanced through the following:

- **Sufficient Wait Time** - In most classrooms, students are typically given less than one second to respond to a question posed by a teacher. Research shows that under these conditions students generally give short, recall responses or no answer at all rather than giving answers that involve higher-level thinking. Increasing the wait time from three to seven seconds results in an increase in:
  - 1) the length of student responses
  - 2) the number of unsolicited responses
  - 3) the frequency of student questions
  - 4) the number of responses from less capable children
  - 5) student-student interactions
  - 6) the incidence of speculative responses. In addition to pausing after asking questions, research shows that many of these same benefits result when teachers pause after the student's response to a question, and when teachers do not affirm answers immediately.
- **Group Consensus** - the teacher asks specific review questions. Students seated in groups of 4 or 5 write their answers and share them with other group members. Groups must discuss until they reach consensus. The group answer is submitted to the teacher. Points can be scored if the teacher chooses to make the review competitive.
- **Find Your Partner** - each student is given a vocabulary card with either a definition or a term written on it. Students are asked to find the matching card. Then students share with the class the pairs they have made.
- **Academic Relays** - See examples on the D11 web: [Grades K-2 Academic Relays](#) and [Grade 3-5 Academic Relays](#)

**6. Lesson Delivery** - Effective lessons clearly state for English Language Learners both the content standard and the language standard. Effective lessons are paced to accommodate the learner and keep the learner engaged for at least 90% of the lesson.

- [Classroom Tips](#) - includes research-based strategies for listening, speaking, reading, writing, and ELL Advocacy from experienced ELL students.

**7. Practice / Application** - English Language Learners need hands-on materials, opportunities to practice and to apply concepts learned, and opportunities to integrate reading, writing, speaking, and listening skills.

- **Bingo** - provides students a hands-on opportunity to review vocabulary or math facts. [BeanGo Cards Small](#) and [BeanGo Cards Large](#) - students can review Spanish and English vocabulary words or mat families, or other basic content by completing their own bingo cards. Dried beans can be used as playing pieces.
- **Graphic Organizers**
- **Compare and Contrast**
- **Fishbone Diagram** - used to identify causes and effect or main idea and supporting details

- **Concept Webs** Using *Inspiration* software
- **Pizza Pieces** - parts of stories or events over time are assigned to individuals or small groups which must write summaries of the assigned part of the story. Students or groups share their part as the pizza pieces are reassembled to make a whole.
- **Review Games for ESL Students** - PowerPoint is used as the method for providing vocabulary review. the PowerPoint files can be adapted by teachers to include specific vocabulary words for a content area.
- **Vocabulary Card Review Games** - [Ways to Use Vocabulary Cards](#) includes 5 minute fillers and other strategies to help students learn vocabulary words. The decks of cards listed below by category are in Microsoft Word format so teachers can create word lists of 13 words for any content
- **Pyramid Game** - Major facts and concepts from a unit are written on 6 papers which are taped to the wall in a pyramid shape face down. First students form pairs to play the first round of pyramid. One student (Clue Giver) is given a review sheet and one minute to see how many of the vocabulary terms or concept the Clue Receiver can accurately name. Play continues with the Giver and Receiver changing roles and passing the review sheet. After several rounds the two players with the highest scores move to the final round. The Clue Caller faces the wall with the pyramid shaped pages on it. The Clue Receiver faces the classroom. The teacher begins play by turning over the bottom left-hand card. The Caller gives clues and the Receiver guesses. After a correct answer the teacher turns over the next page and play continues until all pages have been revealed or time runs out.
- **Computer Review Games** - includes PowerPoint vocabulary review games that can be played alone or in pairs. Students keep score for their partners.  
[Unit 1](#) [Unit 2](#) [Unit 3](#) [Unit 4](#) [Unit 5](#) [Unit 6](#) [Unit 7](#) [Unit 8](#) [Unit 9](#) [Unit 10](#) [Unit 11](#) [Unit 12](#)

**8. Review and Assessment** - a comprehensive and deliberate review of vocabulary, and key content area concepts, and language standards will enable ELL students to demonstrate mastery. Expecting students with a limited vocabulary to perform well without intentional support or “sheltered instruction” will undoubtedly guarantee frustration and failure.

- **Table Discussion Groups** - students discuss answer to questions similar to those that will be on the assessment.
- **Simultaneous Roundtable** - students help each other review by writing their team number on a paper that is passed from one student to the next. Each student adds a fact about a given concept then passes it on to the next writer. Teams are given a short time frame to complete the task i.e. 2 minutes.
- **Find a Person Who Knows** - students are given review sheets with as many questions as there are students in the class. Students move around the room finding someone who knows an answer. Students can receive only one answer from each person.
- **Pyramid Game** - Major facts and concepts from a unit are written on 6 papers which are taped to the wall in a pyramid shape face down. First students form pairs to play the first round of pyramid. One student (Clue Giver) is given a review sheet and one minute to see how many of the vocabulary terms or concept the Clue Receiver can accurately name. Play continues with the Giver and Receiver changing roles and passing the review sheet. After several rounds the two players with the highest scores move to the final round. The Clue Caller faces the wall with the pyramid shaped pages on it. The Clue Receiver faces the classroom. The teacher begins play by turning over the bottom left-hand card. The Caller gives clues and the Receiver guesses. After a correct answer the teacher turns over the next page and play continues until all pages have been revealed or time runs out.
- **Check My Work** - the teacher writes a list of review statements or facts on a transparency. The sentences include incorrect information much like a mad lib. For example, “Sponge Bob was the first president of the United States, and was elected in 1997.” Students point out the mistakes and say fill in the correct information for the class.

(Echevarria, Vogt & Short, 2000)

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# SIOP<sup>®</sup> Lesson Plan Template 1



**Date:**

**Grade/Class/Subject:**

**Unit/Theme:**

**Standards:**

**Content Objective(s):**

**Language Objective(s):**

Key Vocabulary	Supplementary Materials	
<b>SIOP FEATURES</b>		
<p><b>Preparation</b></p> <p><input type="checkbox"/> Adaptation of content</p> <p><input type="checkbox"/> Links to background</p> <p><input type="checkbox"/> Links to past learning</p> <p><input type="checkbox"/> Strategies incorporated</p>	<p><b>Scaffolding</b></p> <p><input type="checkbox"/> Modeling</p> <p><input type="checkbox"/> Guided practice</p> <p><input type="checkbox"/> Independent practice</p> <p><input type="checkbox"/> Comprehensible Input</p>	<p><b>Group Options</b></p> <p><input type="checkbox"/> Whole class</p> <p><input type="checkbox"/> Small groups</p> <p><input type="checkbox"/> Partners</p> <p><input type="checkbox"/> Independent</p>
<p><b>Integration of Processes</b></p> <p><input type="checkbox"/> Reading</p> <p><input type="checkbox"/> Writing</p> <p><input type="checkbox"/> Speaking</p> <p><input type="checkbox"/> Listening</p>	<p><b>Application</b></p> <p><input type="checkbox"/> Hands-on</p> <p><input type="checkbox"/> Meaningful</p> <p><input type="checkbox"/> Linked to objectives</p> <p><input type="checkbox"/> Promotes engagement</p>	<p><b>Assessment</b></p> <p><input type="checkbox"/> Individual</p> <p><input type="checkbox"/> Group</p> <p><input type="checkbox"/> Written</p> <p><input type="checkbox"/> Oral</p>
<p><b>Lesson Sequence:</b></p>  <p><b>Reflections:</b></p>		

(Reproduction of this material is restricted to use with Echevarria, Vogt, and Short, 2008. *Making Content Comprehensible for English Learners: The SIOP<sup>®</sup> Model.*)

# SIOP<sup>®</sup> Lesson Plan Template 2

PEARSON

**STANDARDS:**

**THEME:**

**LESSON TOPIC:**

**OBJECTIVES:**

Language:

Content:

**LEARNING STRATEGIES:KEY**

**VOCABULARY:**

**MATERIALS:**

**MOTIVATION:**

*(Building background)*

**PRESENTATION:**

*(Language and content objectives, comprehensible input, strategies, interaction, feedback)*

**PRACTICE AND APPLICATION:**

*(Meaningful activities, interaction, strategies, practice and application, feedback)*

**REVIEW AND ASSESSMENT:**

*(Review objectives and vocabulary, assess learning)*

**EXTENSION:**

*(Reproduction of this material is restricted to use with Echevarria, Vogt, and Short, 2008. Making Content Comprehensible for English Learners: The SIOP<sup>®</sup> Model.)*

# SIOP<sup>®</sup> Lesson Plan Template 3



<b>Topic:</b>	<b>Class:</b>	<b>Date:</b>
<b>Content Objectives:</b>		<b>Language Objectives:</b>
<b>Key Vocabulary:</b>	<b>Materials (including supplementary and adapted):</b>	
<b>Higher Order Questions:</b>		
<b>Time:</b>	<b>Activities</b>	
	<b>Building Background</b>	
	<i>Links to Experience:</i>	
	<b>Links to Learning:</b>	
	<i>Key Vocabulary:</i>	

# SIOP<sup>®</sup> Lesson Plan Template 3



<b>Time:</b>	<p><b>Student Activities</b> (Check all that apply for activities throughout lesson):</p> <p><i>Scaffolding:</i>   <input type="checkbox"/> Modeling      <input type="checkbox"/> Guided      <input type="checkbox"/> Independent</p> <p><i>Grouping:</i>   <input type="checkbox"/> Whole Class      <input type="checkbox"/> Small Group      <input type="checkbox"/> Partners      <input type="checkbox"/> Independent</p> <p><i>Processes:</i>   <input type="checkbox"/> Reading      <input type="checkbox"/> Writing      <input type="checkbox"/> Listening      <input type="checkbox"/> Speaking</p> <p><i>Strategies:</i>   <input type="checkbox"/> Hands-on      <input type="checkbox"/> Meaningful      <input type="checkbox"/> Links to Objectives</p> <p><b>Review and Assessment</b> (Check all that apply):</p> <p>Individual<input type="checkbox"/>      Group<input type="checkbox"/>      Written<input type="checkbox"/>      Oral<input type="checkbox"/></p> <p><i>Review Key Vocabulary:</i></p> <p><i>Review Key Content Concepts:</i></p>
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# SIOP<sup>®</sup> Lesson Plan Template 4



Key: **SW** = Students will | **TW** = Teachers will | **SWBAT** = Students will be able to... | **HOTS** = Higher Order Thinking Skills

<b>SIOP<sup>®</sup> Lesson Title:</b>		<b>Grade:</b>
<b>Content Standard(s):</b>		
<b>Key Vocabulary:</b>	<b>Visuals/Resources/Supplementary Materials:</b>	
<b>HOTS:</b>		
<b>Connections to Prior Knowledge/ Building Background:</b>		

# SIOP<sup>®</sup> Lesson Plan Template 4



<b>Content Objective(s):</b>	<b>Meaningful Activities:</b>	<b>Review/Assessment:</b>
<b>Language Objective(s):</b>	<b>Meaningful Activities:</b>	<b>Review/Assessment:</b>
<b>Wrap-Up:</b>		

# Nine Essential Instructional Strategies

Researchers at Mid-continent Research for Education and Learning (McREL) have identified nine instructional strategies that are most likely to improve student achievement across all content areas and across all grade levels. These strategies are explained in the book Classroom Instruction That Works by **Robert Marzano, Debra Pickering, and Jane Pollock.**

- 1. Identifying similarities and differences**
- 2. Summarizing and note taking**
- 3. Reinforcing effort and providing recognition**
- 4. Homework and practice**
- 5. Nonlinguistic representations**
- 6. Cooperative learning**
- 7. Setting objectives and providing feedback**
- 8. Generating and testing hypotheses**
- 9. Cues, questions, and advance organizers**

The following is an overview of the research behind these strategies as well as some practical applications for the classroom.

## **1. Identifying Similarities and Differences**

The ability to break a concept into its similar and dissimilar characteristics allows students to understand (and often solve) complex problems by analyzing them in a more simple way. Teachers can either directly present similarities and differences, accompanied by deep discussion and inquiry, or simply ask students to identify similarities and differences on their own. While teacher-directed activities focus on identifying specific items, student-directed activities encourage variation and broaden understanding, research shows. Research also notes that graphic forms are a good way to represent similarities and differences.

Applications:

- Use Venn diagrams or charts to compare and classify items.
- Engage students in comparing, classifying, and creating metaphors and analogies.

## **2. Summarizing and Note Taking**

These skills promote greater comprehension by asking students to analyze a subject to expose what's essential and then put it in their own words. According to research, this requires substituting, deleting, and keeping some things and having an awareness of the basic structure of the information presented.

Applications:

- Provide a set of rules for creating a summary.
- When summarizing, ask students to question what is unclear, clarify those questions, and then predict what will happen next in the text.

Research shows that taking more notes is better than fewer notes, though verbatim note taking is ineffective because it does not allow time to process the information. Teachers should encourage and give time for review and revision of notes; notes can be the best study guides for tests.

Applications:

- Use teacher-prepared notes.
- Stick to a consistent format for notes, although students can refine the notes as necessary.

### **3. Reinforcing Effort and Providing Recognition**

Effort and recognition speak to the attitudes and beliefs of students, and teachers must show the connection between effort and achievement. Research shows that although not all students realize the importance of effort, they can learn to change their beliefs to emphasize effort.

Applications:

- Share stories about people who succeeded by not giving up.
- Have students keep a log of their weekly efforts and achievements, reflect on it periodically, and even mathematically analyze the data.

According to research, recognition is most effective if it is contingent on the achievement of a certain standard. Also, symbolic recognition works better than tangible rewards.

Applications:

- Find ways to personalize recognition. Give awards for individual accomplishments.
- “Pause, Prompt, Praise.” If a student is struggling, pause to discuss the problem, then prompt with specific suggestions to help her improve. If the student’s performance improves as a result, offer praise.

### **4. Homework and Practice**

Homework provides students with the opportunity to extend their learning outside the classroom. However, research shows that the amount of homework assigned should vary by grade level and that parent involvement should be minimal. Teachers should explain the purpose of homework to both the student and the parent or guardian, and teachers should try to give feedback on all homework assigned.

Applications:

- Establish a homework policy with advice-such as keeping a consistent schedule, setting, and time limit-that parents and students may not have considered.
- Tell students if homework is for practice or preparation for upcoming units.
- Maximize the effectiveness of feedback by varying the way it is delivered.

Research shows that students should adapt skills while they’re learning them. Speed and accuracy are key indicators of the effectiveness of practice.

Applications:

- Assign timed quizzes for homework and have students report on their speed and accuracy.
- Focus practice on difficult concepts and set aside time to accommodate practice periods.

## **5. Nonlinguistic Representations**

According to research, knowledge is stored in two forms: linguistic and visual. The more students use both forms in the classroom, the more opportunity they have to achieve. Recently, use of nonlinguistic representation has proven to not only stimulate but also increase brain activity.

Applications:

- Incorporate words and images using symbols to represent relationships.
- Use physical models and physical movement to represent information.

## **6. Cooperative Learning**

Research shows that organizing students into cooperative groups yields a positive effect on overall learning. When applying cooperative learning strategies, keep groups small and don't overuse this strategy-be systematic and consistent in your approach.

Applications:

- When grouping students, consider a variety of criteria, such as common experiences or interests.
- Vary group sizes and objectives.
- Design group work around the core components of cooperative learning-positive interdependence, group processing, appropriate use of social skills, face-to-face interaction, and individual and group accountability.

## **7. Setting Objectives and Providing Feedback**

Setting objectives can provide students with a direction for their learning. Goals should not be too specific; they should be easily adaptable to students' own objectives.

Applications:

- Set a core goal for a unit, and then encourage students to personalize that goal by identifying areas of interest to them. Questions like "I want to know" and "I want to know more about ...." get students thinking about their interests and actively involved in the goal-setting process.
- Use contracts to outline the specific goals that students must attain and the grade they will receive if they meet those goals.

Research shows that feedback generally produces positive results. Teachers can never give too much; however, they should manage the form that feedback takes.

Applications:

- Make sure feedback is corrective in nature; tell students how they did in relation to specific levels of knowledge. Rubrics are a great way to do this.
- Keep feedback timely and specific.
- Encourage students to lead feedback sessions.

## **8. Generating and Testing Hypotheses**

Research shows that a deductive approach (using a general rule to make a prediction) to this strategy works best. Whether a hypothesis is induced or deduced, students should clearly explain their hypotheses and conclusions.

Applications:

- Ask students to predict what would happen if an aspect of a familiar system, such as the government or transportation, were changed.
- Ask students to build something using limited resources. This task generates questions and hypotheses about what may or may not work.

## **9. Cues, Questions, and Advance Organizers**

Cues, questions, and advance organizers help students use what they already know about a topic to enhance further learning. Research shows that these tools should be highly analytical, should focus on what is important, and are most effective when presented before a learning experience.

Applications:

- Pause briefly after asking a question. Doing so will increase the depth of your students' answers.
- Vary the style of advance organizer used: Tell a story, skim a text, or create a graphic image.
- There are many ways to expose students to information before they "learn" it.

Source: Adapted from Classroom Instruction That Works by R.J. Marzano, D.J. Pickering, and J.E. Pollock, 2001, Alexandria, VA: ASCD.

# Specially Designed Academic Instruction in English

From Wikipedia, the free encyclopedia

**Specially designed academic instruction in English (SDAIE)** is a [teaching](#) approach intended for teaching students who are still learning English various academic content (such as social studies, science or literature) using the [English language](#). SDAIE requires the student possess intermediate fluency in English as well as mastery of their [native language](#). The instruction is carefully prepared so the student can access the English language content supported by material in their primary language and carefully planned instruction that strives for comprehensible input. SDAIE is a method of teaching students in English in such a manner that they gain skill in both the subject material and in using English.

SDAIE is not an English-only submersion program where the student is dependent solely on English, nor is it a watered down curriculum. SDAIE is an approach that seeks to teach both content and language in a cognitively demanding environment. As such, it is an important aspect of some structured English immersion programs. Lessons thus include both content goals and language goals for the students.

Preparing good lessons in SDAIE require awareness that the student is not a native English speaker and avoidance of those aspects of English that might make it difficult for a person learning English as a second language. This includes avoiding [idiomatic](#) English, which may seem natural to a native speaker but would confuse non-native speakers.

## Features of SDAIE

### Low [affective filter](#)

- [Error correction](#) done in context through teacher modeling
- New teaching material introduced and presented by the teacher in a way that engages the student.

### Modified speech

- slower [speech rate](#)
- clear [enunciation](#)
- controlled [vocabulary](#)
- use of [cognates](#)
- limited use of [idiomatic](#) speech
- words with [double meaning](#) defined

### Contextual clues

- [gestures](#) and [facial expressions](#)
- [meaning](#) acted out
- color-coded materials/ graphic organizers

### Multisensory experiences

- [realia](#), props and manipulatives
- audio-visual materials
- [hands on](#) activities and demonstrations
- overhead transparencies and similar projection technologies

## Comprehensible input

- [graphic organizers](#) ([maps](#), [charts](#), [graphs](#))
- [word banks](#) with picture clue
- bulletin boards
- explanation of word origins ([etymology](#))
- use of examples and [analogies](#)

## Frequent [Comprehension](#) checks

- questions asked about details
- eliciting responses through various modalities (write on white boards, thumbs up/down, etc.)

## Formative assessment

- [confirmation](#) checks
- [clarification](#) requests
- [repetitions](#)
- [expansions](#)
- variety of question types
- interaction: teacher: student student:teacher student: student group

## Summative assessment

- mastery assessed using a variety of modalities
- review of main topics and key vocabulary
- resulting product shows mastery of key concepts and synthesis of information
- written assessment appropriate for intermediate/ early advanced English language learners

## Appropriate lesson design

- student fluency level is reflected
- evidence of [scaffolding](#)
- [listening](#) and [speaking](#) activities precede [reading](#) and [writing](#) activities
- reading assignments include prereading, during reading, postreading activities
- writing activities preceded by pre-writing
- vocabulary emphasis
- use of cooperative learning groups
- tapping prior knowledge/ personal application
- appropriate pacing
- modeling of activities
- specific [learning strategies](#) or [study skills](#) are taught and modeled
- evidence of text adaptation
- emphasis on higher order [critical thinking](#) skills
- provision of [native language](#) support
- extension/ debriefing activity included

## Content-driven

- rigorous [core curriculum](#) (not 'watered down')
- key topics organized around main themes
- topics appropriate to grade level

# SDAIE Strategies

## A Glossary of Instructional Strategies

**Anticipatory Chart** - Before reading a selection, hearing a selection or viewing a video students are asked to complete the first two sections of the chart-"What I already know about ...." and "What I would like to find out about ...." After the information has been presented students complete the "What I learned..." section. Responses are shared with a partner. This is also known as a KWL Chart

**Anticipatory Guide** - Students are given a series of statements that relate to a reading selection, lecture, or video. Students indicate AGREE or DISAGREE. After the information has been presented, students check to see if they were correct.

**Brainstorming** - Students work as a whole group with the teacher, or in small groups. Begin with a stimulus such as a word, phrase, picture, or object and record all responses to that stimulus without prejudgment. Prewriting or INTO strategy. The students give ideas on a topic while a recorder writes them down. The students should be working under time pressure to create as many ideas as possible. All ideas count; everything is recorded. More ideas can be built on the ideas of others.

**Carousel Brainstorming** - Each small group has a poster with a title related to the topic of the lesson. Each group uses a different colored marker to write 4 to 5 strategies/activities that relate to their topic. Students rotate to all the other posters, reading them and adding 2 to 3 more strategies. Students discuss the results.

**Character Matrix** - In groups, students create a grid, which lists the characters horizontally on the left and character traits vertically across the top. The students determine the traits used. Group members decide if each character possesses each of the traits and writes "yes" or "no" in the appropriate box.

**Choral Reading** - Groups of students chorally present a poem, or other reading selection. One person reads the title, author, and origin. Each person says at least one line individually. Pairs of students read one or more lines. Three students read one or more lines. All students read an important line.

**Clustering/Webbing/Mapping** - Students, in a large group, small groups, or individually, begin with a word circled in the center, then connect the word to related ideas, images, and feelings which are also circled. Prewriting or INTO strategy.

**Comprehension Check** - The teacher or students read the selection aloud. Intermittently, the teacher asks for verbal and nonverbal comprehension checks ("raise your hand", "thumbs up for 'yes' ", "thumbs down for 'no'." The teacher uses a variety of question types: *Right There, Think and Search, On My Own* (See QAR, Day One.)

**Co-op Co-op** - Students work in teams to complete a project. The steps are: student-centered class discussion, selection of student study teams, team building and skill development, team topic selection, mini-topic selection, mini-topic preparation, mini-topic presentations, preparation of team presentations, team presentations, evaluation.

**Cooperative Dialogue -**

1. Students number off one through four.
2. Each student pairs with another student from a different group who has the same number.
3. Following the timeline from the article that was previously read each pair writes a dialogue between two characters in the passage.
4. Pairs are selected to present dialogues in chronological order to the class. activity is designed to be a text "re-presentation."

**Cooperative Graphing -** This activity involves graphing information based on a survey. Each group of four will take a survey of how many countries each has visited (or other teacher-determined information). A bar graph is then developed. Each person in the group is responsible for one aspect of the graph, and signs his/her name on the chart along with their area of responsibility. Jobs are: survey group members and record results, construct the graph, write names and numbers on the graph, write title and assist with graph construction. Each person in the group describes his/her part of the graph to the class.

**Corners -** Cooperative activity used to introduce a topic. The teacher poses a question or topic along with four choices. On a 3x5 card students write their choice and the reasons for it. Students go to the corner of the room representing their choice. In their corner, students pair up and share their reasons for selecting that corner. The topic is discussed. For example, the corners could be labeled cone, cube, pyramid, and sphere with information about each figure provided. Students go to the corner, learn about the figure, and return to teach other team members.

**Directed Reading-Thinking Activity** This is a group activity to get students to think about the content of a fiction or non-fiction reading selection. The steps are 1) Students predict what they will read and set purposes for reading. 2) Students read the material. 3) Students discover if their predictions and hypotheses are confirmed.

**Famous Person Mystery -** The name of a famous person, living or deceased is placed on the back of each student. Without looking, students try to guess who the person is by asking questions that require only yes/no answers.

**Graphic Organizers -** Graphic organizers are charts, graphs, or diagrams, which encourage students to see information as a component of systems rather than isolated facts. Students may complete these as they read or view a presentation. There are a variety of ways to use graphic organizers, including the following: semantic word map, story chart, Venn diagram, spider map, network tree, word map, and KWL chart. Other examples of graphic organizers are listed below.

Comparison-Contrast Matrix-Students determine similarities and differences between two people, things, solutions, organisms stories, ideas, or cultures.

Branching Diagrams -Organization charts, hierarchical relationships systems, family trees.

Interval Graphs-Chronological order, bar graphs, parallel events, number value.

Flowcharts - Sequential events, directions, decision making, writing reports, study skills.

Matrix Diagram-Schedules, statistics, problem solving, comparisons with multiple criteria.

Fishbone Diagram-Cause and effect, timeline.

**Group Discussion, Stand Up and Share, and Roam the Room** - After the teacher asks a question, students discuss and report their group findings to the class. Teams can share their best answer, perhaps on the board at the same time, or on an overhead transparency. When an individual student has something important to share with the class, he or she stands up. When one person from each group is standing, the teacher calls on one of these students for a response. If others have a similar response, they sit down. Students move around the room to view the work of other teams. They return to their teams to Round Robin share what they have learned.

**Hot Topics** - Students title a sheet "Hot Topics". This sheet is kept in an accessible place in their notebooks or portfolios. Students brainstorm with the teacher on possible topics of interest related to the content of the course. Each student writes down at least ten Hot Topics and adds to the list throughout the year. Students occasionally choose one Hot Topic and write in depth on the topic as a class assignment or as homework. These may be included in their portfolios.

**Idea Starts** -Use a prompt for writing, such as a quote, a photo, words from a vocabulary list, an article, a poem, opening lines to a story, an unusual object, a film, or a guest speaker to get students started.

**Image and Quote with Cooperative Poster** - Groups of four are formed. Students read a selection. Each chooses a quote and an image that have impact for them. Round Robin share. Groups come to consensus on favorite image and quote. Each student takes one colored pen. With all members participating, and each using their chosen color, they draw the group image and write the group quote on a piece of butcher or easel paper. Each member signs the poster with his or her pen. Posters are shared with the class.

**Inside-Outside Circle** - Students are arranged into two equal circles, one inside the other. Students from the smaller inside circle face those in the outer larger circle and vice versa. Students ask each other questions about a review topic. These may be either teacher or student generated. Students from one of the circles rotate to either the left or right. The teacher determines how many steps and in which direction. Another question is asked and answered.

**Interactive Reading Guide** - Working in groups, students write down everything they know about a reading selection topic. Then, they write three questions they want to have answered by the selection. Each student reads a short first section silently; then students retell the information with a partner. Next, the first \_\_\_pages (teacher's choice) are read aloud in the group, each person taking a turn to read. Then, the group predicts four things that will be discussed in the next section. The groups finish reading the chapter silently. Each person writes four thinking questions for a partner to answer. (Why do you think ? Why do/did \_\_\_ ? How does \_\_\_relate to your life or experiences? Compare \_\_\_to \_\_. What if \_\_\_? Predict \_\_\_) Papers are exchanged and answers are given to each other's questions. Finally, with a partner, a chart or diagram is drawn to illustrate the main points of the chapter.

**In-Text Questions** - Students answer teacher-constructed questions about a reading selection as they read it. Questions are designed to guide students through the reading and provide a purpose for reading. Students preview In-Text questions first then answer them as they read the article. Students review their answers with their small group, then share them with the whole group.

**Jigsaw** - 4-6 people per "home" team. Name the teams. Within each team, number off 1-4. All ones form an "expert group," as do twos, threes, and fours. Each expert group is assigned a part to read (or do). Experts take 15 minutes to read, take notes, discuss, and prepare presentations. Return to home teams. Each expert takes 5 minutes to present to home team.

**Journals** -Students keep questions and ideas in a journal. These may be used later to develop a formal piece of writing.

**Key Words Story Prediction** - In their groups, students using key words listed by

**Language Experience Approach** - This is a reading strategy based on a common experience. The students dictate a story to the teacher, who then records the story. The teacher then uses the reading as a practice on word recognition, sentence patterns, and vocabulary items.

**Learning Logs** - Double-entry journals with quotes, summaries, notes on the left and responses reactions, predictions, questions, or memories on the right.

**Line-Ups** - Line-ups can be used to improve communication and to form teams. The entire class lines up according to a specific criteria (age, birthday, first letter of name, distance traveled to school, etc.). The end of the line can move to the head of the line and pair up until each person has a partner. This is called "folding the line." Teams of four members can then be formed from this line-up.

**Multiple Intelligences Inventory** Given a list of preference statements organized according to the eight multiple intelligences, students place checks next to those that are true for them. By totaling the number of checks per intelligence students are able to determine areas of strength and weakness.

**Novel Ideas** - Groups of four are formed. Each group member has a sheet of paper with the team name or number in the corner. Each person writes, "We think a story/selection entitled (insert appropriate title) might be about ..." Each person then has one minute to list what he or she thinks the story might be about. For example, a story entitled "Eleven" might be about a football team, roll of dice, etc. Each person draws a line. Members Round Robin share their lists. As each member shares, other members add new ideas to their lists. Groups then take turns standing in a line and reading their possible topics for the whole group. Topics may not be repeated. All students add new or "novel" ideas, not on their lists.

**Numbered Heads Together** - A 5-step cooperative structure used to review basic facts and information. Students number off 1 to 4. Teacher asks a question. Students consult one another to make sure everyone can answer the question. Teacher randomly picks a number from 1 to 4. Those students with that number raise their hand: Teacher randomly chooses one of the groups. The group member with the previously-selected number answers the question. After the student responds, the other teams may agree with a thumbs up or a thumbs down hand signal. Teacher may ask another student to add to the answer if an incomplete response is given.

**Open Mind Diagram** - Each person in a group of four uses a different colored marker to participate in the poster creation. Students draw a shape of a head and, inside the head, write words, quotes from the story, symbols and pictures. Words can be made into pictures of parts of the face.

**Pairs Check** - Cooperative pairs work on drill and practice activities. Students have worksheets. One student answers the first question while a second student acts as the coach. After the coach is satisfied that the answer is correct, then roles are reversed. Then this pair can check with the other pair on the team. If all agree, then the process continues. If they do not agree, students try one more time to figure out the answer, or ask for help from the teacher.

**Pantomime-A-Tale** - This technique can be used with fiction or nonfiction reading selections. Divide an article into sections. Each group prepares their assigned section as a pantomime. There should be one group member who reads the section, with appropriate pauses, and three members who act it out without using words. Rehearsal is important, so allow time for it.

**Pass the Picture** -Each person in a group has a visual of a person. A blank sheet of paper is clipped to the back. The teacher asks a question (e.g., "What is his/her name?"). Students write the answer in a complete sentence on the blank paper. Students then pass the visual and the paper to the student on the right. The teacher continues asking questions and students continue writing the answer, then passing the visual to the right for 6-8 questions. At the end, each student will have a descriptive paragraph for each visual. Each student takes a visual and shares it with the group while reading **the final** paragraph description.

**Picture This** - This activity is useful as a vocabulary or concept review. A blank paper is divided into eight sections. Students draw pictures or symbols to represent words or major concepts. Students are not to label the drawings. Students exchange papers with a partner and partners try to correctly label each other's drawings.

**Pie Graph** - Using the results of the Multiple Intelligences inventory students draw a pie graph representing how they are smart on a paper plate. Students may color, make designs, or draw symbols for each section. Students can determine the size of each section by creating a fraction that represents each intelligence. The total number of checks is the denominator and the number of checks for that section is the numerator. This fraction can then be changed to a percent by dividing the numerator by the denominator.

**Posters** - As a BEYOND activity students create a poster in small groups. The following list describes several types of posters that the teacher may assign.

Illustrated Timeline Tell the plot or sequence on a timeline, with pictures that depict the events.

Movie Poster Advertise the content from a lesson by creating a movie poster complete with ratings, pictures, actors, descriptions, and comments by a critic.

Comic Strip Create a 6-paneled comic strip of the lesson content.

Image and Quote Choose an image and quote from the lesson content that are representative or important. Poster should include a title.

Advertisement Choose an item from the lesson content and make a newspaper or magazine ad for it.

**PQRST Study Strategy** - **Preview**: Student skims the title, side headings, pictures and graphics to identify writer's generalization. **Question**: Student identifies questions that the writer is going to answer during the reading. **Read**: Student reads to obtain answers to the questions and takes notes. **Summarize**: Student summarizes the information regarding each question posed. **Test**: Student tests the generalization against the supporting information to see if the author has enough information to support the generalization.

**Prediction** - Students make a prediction about the subject they are about to read by selecting an answer to a multiple-choice question.

**Question-Answer Relationship (QAR)** - This program teaches students strategies for answering questions. It also points out the sources for different kinds of questions. Here are the three types of answers:

Right There The answer is located directly in the reading

Think and Search The answer is "between the lines." The reader needs to analyze, make inference and/or predict the answer based on the information in the reading.

On My Own The answer is "beyond the lines." The reader must base the answer on his/her own experience.

**Quickdrawing** - Students sketch ideas that relate to a topic. Prewriting or INTO strategy.

**Quickwrite** - Pre-reading or pre-writing focus activity. Students are asked to respond to a question in writing for 5 minutes. Emphasis is on getting thoughts and ideas on paper. Grammar, spelling, style not important.

**Quickwriting** - Students respond quickly to a prompt without self-editing. If students get stuck they can repeat phrases over and over until a new idea comes to mind. Prewriting or INTO strategy.

**RAFT** - May be used in any content area to reinforce information and check for understanding. Individuals or groups of students write about information that has been presented to them. The teacher determines the role of the writer, audience, format, and topic (RAFT). For example, in a science class, students are asked to write using the following RAFT - Role of Writer Cloud; Audience Earth; Format Weather report; Topic Explanation of upcoming thunderstorms.

**Ranking and Consensus Building** - Students individually rank items in a list from least important to most important. Each group or pair comes to a consensus on the order.

**Read Around Groups** - After completing a writing assignment, students are divided into groups of equal size. A group leader collects the group's papers then, in a clockwise direction, passes them to the next group. Each member of the group receives one paper then reads it. Readers star a line they especially like. One minute is allowed for reading and marking each paper. At signal the students pass the paper to the person on the right. After reading the papers of one group, the group chooses one paper to read aloud to the class. If time allows, groups may continue to pass papers until everyone has read all the papers.

**Reader Response Chart** - Students draw a T-chart on their paper. On the left side they write 3 interesting quotes from the story and on the right side students respond to the quote with personal reactions, memories, questions, compare/contrast, or something to learn more about.

**Reading Circles/ Book Clubs** Once students choose a book from a selection of 4 to 5 titles, they form a group with those reading the same book. Students read and solve the teacher-designed activities that relate to their book. The group shares with the class what they have learned from their reading.

**Reading Guide** 1. Headings Read -Around- Students take turns reading the headings of the reading  
2. Prediction Chart- With their group, students choose two headings and predict what will be discussed in those sections. Students write their answers on a prediction chart with the following labels: "Heading", "Prediction", "Yes or No". In their groups, students take turns reading the first page aloud, and finish reading the selection in silence. They write "yes" or "no" on the prediction chart to indicate whether or not their predictions were correct.  
5. Thinking Questions- Students write one thinking question (Why..., How..., Compare..., What if...), and exchange papers to answer each other's questions.

**Reading Log-** Students complete while reading a selection. The left-hand side contains topic headings for sections of the reading. Students are to briefly summarize each topic. On the right--hand side students reflect on the implications of each topic.

**Reciprocal Teaching** - Two students work together to read a passage. Each may have a text or they may share a text. Student A reads one paragraph aloud, then asks Student B one or two good questions. (See QAR below.) B answers or explains why (s)he cannot. A and B discuss questions and answers. The process is repeated in reverse.

**Reflections** - Students reflect, in writing, on what was learned, what was confusing, and connections of this lesson to other lessons/other content areas/real world. Students may also reflect on their progress as a student, what to do differently next time, or what was liked about the topic.

**Round Robin** - Cooperative learning structure in which team members share ideas verbally on a topic. Group members share in order, without interruption, comment, discussion, or questions from other members so that everyone has an opportunity to share.

**Round Table** - The teacher asks a question that has many possible answers. In groups, the students make a list of possible answers by one at a time saying an answer out loud and writing it down on a piece of paper. The paper is then passed to the next student to record another answer. The process continues until the teacher tells the students to stop.

**Same-Different** - In pairs, students sit across from but different, pictures. Their job is to fill out what is the same and what is different in their pictures, without seeing what the other sees. Each student has a recording sheet. Students alternate recording the similarities and differences they find. One resource is Same-Different: Holidays by Dr. Spencer Kagan, Kagan Cooperative Learning 1 (800) WEE CO-OP.  
SDAIE STRATEGIES GLOSSARY

**Send-A-Problem** - Each student on a team makes up a review question and writes it on a 3x5 card. The writer asks the question of the other members of the team. When everyone agrees on an answer it is written on the back of the card. The teams then send their review questions to another team. Teams respond by having one student read the first question. Each team member writes down an answer. Team members then compare and discuss their answers. If they agree, they turn the card over to see if they concur with the sending team. If not, they write their answer on the back of the card as an alternative answer. A second student reads the next question, and so on. The stacks of cards are sent to a third, then a fourth group until all teams have had a chance to answer all questions. When the cards return to the senders, the teacher should provide an opportunity to discuss and clarify.

**Startling Statements** - Students are told not to look at the startling statement (question) that they have on their backs. They circulate asking five others to provide an estimate for an answer. After finding the average of the five estimates provided by others, students look at their statements (questions) and write their own estimate if they disagree with the average. Actual answers are given after the students share estimates with the whole group.

**Tableau** - The students form a tableau of characters or scenes or concepts. The teacher directs students regarding their positions and facial expressions. Students hold their positions in a brief tableau.

**Tap-A-Word** - Students practice pronouncing words or phrases by using a combination of claps, hitting the table, and snapping the fingers.  
the teacher. In Round Table style, each member uses a word from the list, in the order given, in a sentence to create a collaborative story.

**Think-Pair-Share** - When asked to consider an idea or answer a question, students write their ideas on paper (think). Each student turns to another student nearby and reads or tells his or her own responses (pair, share). This is an oral exchange, not a reading of each other's papers.

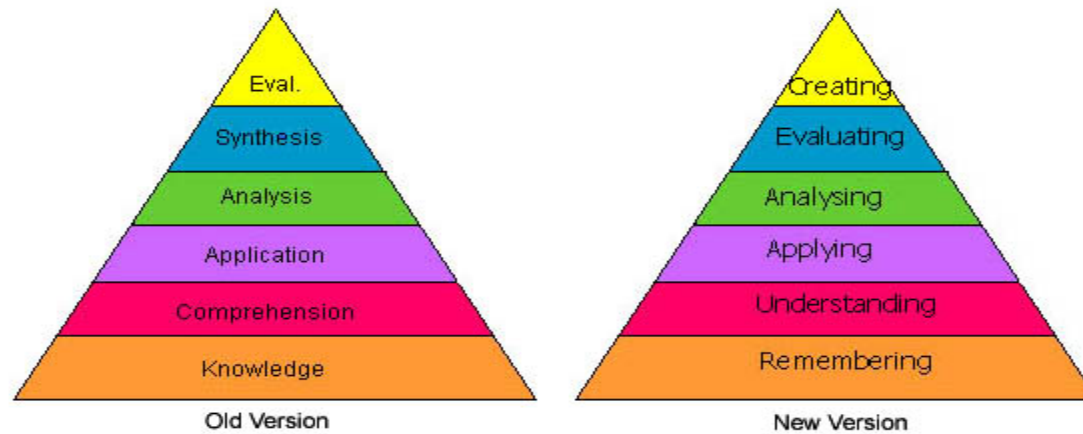
**Three Step Interview** - Group participants letter off A-B-C-D. They use the following interview steps in order to share what they have written in a quickwrite until they all have been read. Step 1: A interviews B C interviews D Step 2: B interviews A D interviews C Step 3: A interviews C and D about B B interviews C and D about A, C interviews A and B about D, D interviews A and B about C.

**Verbalizing** -Students share with a partner ideas they have on a topic. Pre-writing or INTO strategy.

**Visualization** - In response to a teacher prompt, students visualize in their mind a particular time or place and concentrate on sensory images. (Tell students to "turn on the TV in their minds.")

**Vocabulary Cards** Each student selects a difficult vocabulary word fro the story and creates a card in the following manner: The word and its definition in the front, and a drawing and the vocabulary word in a sentence in the back. These cards are shared with team members, then exchanged with other groups.

## Bloom's "New" Taxonomy



**Caption: Terminology changes** "The graphic is a representation of the NEW verbage associated with the long familiar Bloom's Taxonomy. Note the change from Nouns to Verbs [e.g., Application to Applying] to describe the different levels of the taxonomy. Note that the top two levels are essentially exchanged from the Old to the New version." (Schultz, 2005) (Evaluation moved from the top to Evaluating in the second from the top, Synthesis moved from second on top to the top as Creating.) Source:

[http://www.odu.edu/educ/llschult/blooms\\_taxonomy.htm](http://www.odu.edu/educ/llschult/blooms_taxonomy.htm)

The new terms are defined as:

- **Remembering:** Retrieving, recognizing, and recalling relevant knowledge from long-term memory.
- **Understanding:** Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.
- **Applying:** Carrying out or using a procedure through executing, or implementing.
- **Analyzing:** Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, and attributing.
- **Evaluating:** Making judgments based on criteria and standards through checking and critiquing.
- **Creating:** Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing.

(Anderson & Krathwohl, 2001, pp. 67-68)