Integrating Academic Language and Content Learning with the SIOP Model

Deborah J. Short, Ph.D.

The SIOP (Sheltered Instruction Observation Protocol) Model
Echevarria, Vogt & Short, 2000, 2013

Lesson Preparation

___ **1. Content objectives** clearly defined, displayed and reviewed with students

___ **2. Language objectives** clearly defined, displayed and reviewed with students

___ **3. Content concepts** appropriate for age and educational background level of students

___ **4. Supplementary materials** used to a high degree, making the lesson clear and meaningful (e.g., computer programs, graphs, models, visuals)

___ **5. Adaptation of content** (e.g., text, assignment) to all levels of student proficiency

___ **6. Meaningful activities** that integrate lesson concepts (e.g., interviews, letter writing, simulations, models) with language practice opportunities for reading, writing, listening, and/or speaking

Building Background

___ **7. Concepts explicitly linked to students' background** experiences

___ **8. Links explicitly made** between **past learning and new concepts**

___ **9. Key vocabulary emphasized** (e.g., introduced, written, repeated, and highlighted for students to see)

Comprehensible Input

___ **10. Speech appropriate** for students' proficiency levels (e.g., slower rate, enunciation, and simple sentence structure for beginners)

___ **11. Clear explanatio**n of academic tasks

___ **12. A variety of techniques** used to make content concepts clear (e.g., modeling, visuals, hands-on activities, demonstrations, gestures, body language)

Strategies

___ **13.** Ample opportunities provided for students to use **learning strategies**

___ **14. Scaffolding techniques** consistently used, assisting and supporting student understanding

___ **15.** A variety of **questions or tasks that promote higher-order thinking skills** (e.g., literal, analytical, and interpretive questions)

Interaction

___ **16.** Frequent opportunities for **interaction** and discussion between teacher / student and among students, which encourage **elaborated responses** about lesson concepts

___ **17. Grouping configurations** support language and content objectives of the lesson

___ **18.** Sufficient **wait time for student responses** consistently provided

___ **19.** Ample opportunities for students to **clarify key concepts in Ll** as needed with aide, peer, or L1 text

Practice & Application

___ **20. Hands-on materials and / or manipulatives** provided for students to practice using new content knowledge

___ **21.** Activities provided for students to **apply content and language knowledge** in the classroom

___ **22.** Activities integrate **all language skills** (i.e., reading, writing, listening, and speaking)

Lesson Delivery

___ **23. Content objectives** clearly supported by lesson delivery

___ **24. Language objectives** clearly supported by lesson delivery

___ **25. Students engaged** approximately 90% to 100% of the period

___ **26. Pacing** of the lesson appropriate to students' ability levels

Review & Assessment

___ **27.** Comprehensive **review of key vocabulary**

___ **28.** Comprehensive **review of key content concepts**

___ **29.** Regular **feedback** provided to students on their output (e.g., language, content, work)

___ **30. Assessment of student comprehension and learning** of all lesson objectives (e.g., spot checking, group response) throughout the lesson

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Academic Language
　　　　　　Research & Training

Objectives

- Content Objective: To explore research on effectives practices, such as the SIOP Model, for English language learners in language and content classrooms

- Language Objective: To describe some techniques that strengthen academic language development

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English language learners have ***Double the Work*** to develop academic literacy when they study challenging subject areas through a new language, such as English.

But what is academic language & literacy?

DOUBLE THE WORK

Academic Language in Middle School

TEACHER: What is the chemical formula for water?

SARAI :   H I J K L M N O!!

TEACHER: What are you talking about?

SARAI :   Yesterday you said it's H to O!

Academic Language & Literacy

- Prosody, Paralinguistics
- Mother Tongue Transfer
- Alphabetics
- Background Schema
- Phonemic Awareness & Phonics
- Fluency
- Classroom discourse
- Vocabulary
- Oral Language
- Comprehension Strategies: reading & listening
- Grammar
- Genre knowledge
- Writing
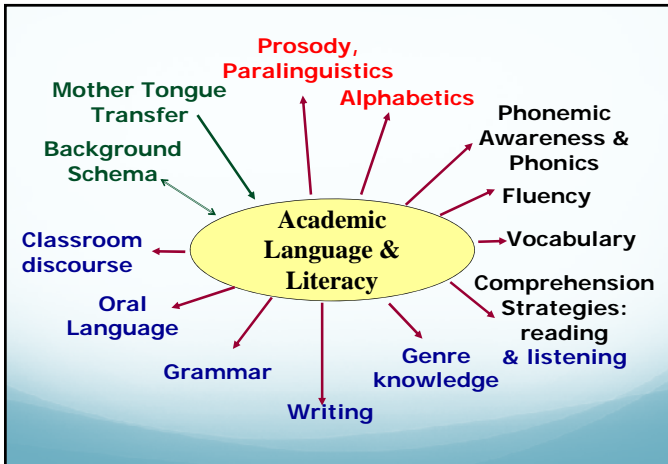
Academic literacy enables students to

- **read expository prose and find evidence for claims in texts and articles**

- **write persuasively about an environmental issue**

- **argue a point of view on the concept of belonging to the European Union**

- **take notes from teacher lectures**

Keep in Mind

A Catch-22 for Language Learners

- Most ELLs need 4-7 years to learn English before they reach average academic performance levels.
- But they are tested before they are proficient in English.
- As ELLs, they are by definition not proficient.

Educational Leadership-Nov 06

Q: So How Do We Develop the Academic Language Skills that English Language Learners Need?

A: Content-based ESL and Sheltered Instruction, like the SIOP Model

In the 1990s

- Language teachers realize **exited ESL students are *not successful* in mainstream** (regular English-medium, subject area) classrooms.

- State and national tests show **ESL students are *far below* the average scores** of native English speakers.

- There was **no systematic model** of content-based ESL or sheltered instruction and **research did not focus on effectiveness of instructional practices**

So, in 1996

- We decided to try to create and test a **replicable and effective model** of sheltered instruction, the SIOP.

- We examined both **teacher implementation** and **student achievement.**

- We have continued that **research for 20 years.**
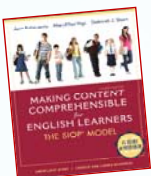
The SIOP Model is a lesson planning and instructional framework for teaching content comprehensible and academic language concurrently.

8 Components

- **Lesson Preparation**
- **Building Background**
- **Comprehensible Input**
- **Strategies**

- **Interaction**
- **Practice & Application**
- **Lesson Delivery**
- **Review & Assessment**

A Note About SIOP

- **SIOP** = Sheltered Instruction Observation Protocol

- **SIOP Model** – lesson planning and delivery

- **SIOP protocol** – lesson observation instrument with rating scale

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The SIOP Model Integrates Language and Content in English Class and Content Classes

- **Content-based ESL** – language teacher

- **Sheltered content instruction** – content teacher

- Both types of classes have language and content objectives in each lesson.

- Used in ESL and bilingual programs – any time second language learners study in a new language

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Content-Based ESL Lessons

- Target key subject area vocabulary and academic tasks needed in the content classroom (e.g., creating a timeline, taking notes from reference materials).

- Could include objectives   from math, economics,   language arts, and other   subjects.

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Sheltered Instruction Lessons

- ESL techniques to make
grade-level academic content
(e.g., science, history,
math) more accessible for
second language learners

- At the same time promote the learners'
second language development as it is used in
the content area.

Is the SIOP Model Effective?

Let's See What Research
Has Shown Us

The Effects of Sheltered Instruction on the Achievement of LEP Students

- CREDE (Center for Research on Education, Diversity & Excellence) 7-year research study (1996–2003)

- After several years of field-testing the SIOP, a validity and reliability study of the instrument was conducted. Findings showed the SIOP is a highly reliable and valid measure of sheltered instruction (Guarino, et al., 2001).

- 1998-99: Using a prompt for *expository* writing, ELLs in classes with SIOP-trained teachers outperformed and made greater overall gains than ELLs in classes with non-SIOP-trained sheltered teachers on a version of the IMAGE writing test.

(IMAGE exam: Illinois Measure of Annual Growth in English)

The Sheltered Instruction Observation Protocol (SIOP®)

LESSON PREPARATION

4	3	2	1	0
1. **Content objectives** clearly defined, displayed and reviewed with students		**Content objectives** for students implied		No clearly defined **content objectives** for students

Comments:

4	3	2	1	0
2. **Language objectives** clearly defined, displayed and reviewed with students		**Language objectives** for students implied		No clearly defined **language objectives** for students

Comments:

4	3	2	1	0
3. **Content concepts** appropriate for age and educational background level of students		**Content concepts** somewhat appropriate for age and educational background level of students		**Content concepts** inappropriate for age and educational background level of students

Comments:

4	3	2	1	0
4. **Supplementary materials** used to a high degree, making the lesson clear and meaningful (e.g., computer programs, graphs, models, visuals)		Some use of **supplementary materials**		No use of **supplementary materials**

Comments:

1999-99 Pre/Post Writing Skills Student Scores on the IMAGE Test

SIOP Group: Pretest Score 2.70, Posttest Score 3.40
Comparison Group: Pretest Score 2.90, Posttest Score 3.10

Writing Gains on the IMAGE test

After 1 year, SIOP group shows more than twice the gain of the Comparison group

SIOP group / Comparison group

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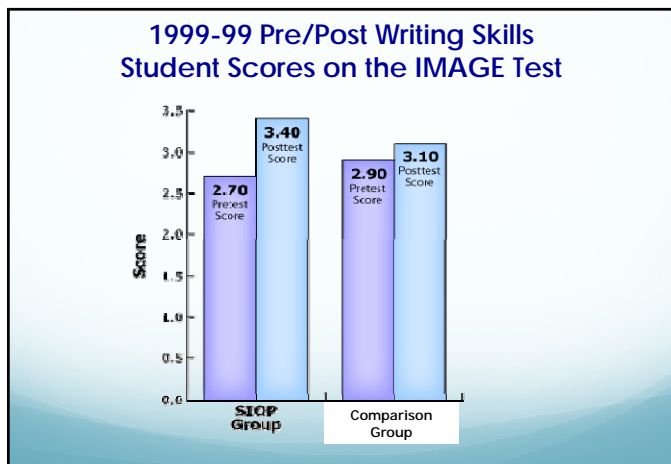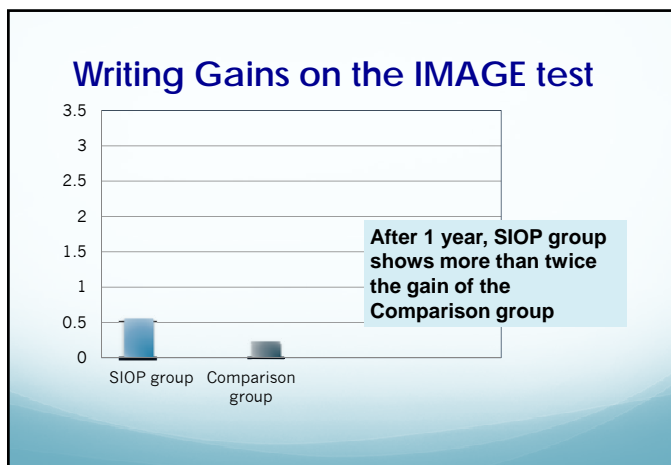
Lela Alston Elementary School – Phoenix, AZ (2002–05)

- Teachers were trained and coached to ensure fidelity to the SIOP Model over 2 years
- Significant growth on state reading, mathematics and writing exams at Grade 3 after 3 years of SIOP implementation schoolwide
- Moved from one of the lowest performing elementary schools in the Isaac (AZ) school district to one of the highest— became a model school for ELLs
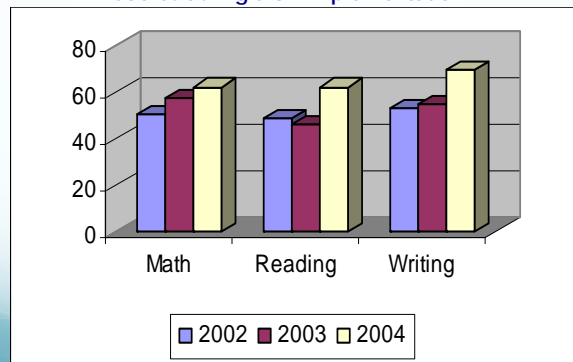
Lela Alston School, 2002-04
Arizona's Instrument to Measure Standards (AIMS) Test Scores during SIOP Implementation

Arizona's Instrument to Measure Standards - Spring 2004, Grade 3 Alston (red) + Comparison Schools

Mean Standard Score – Arizona Department of Education
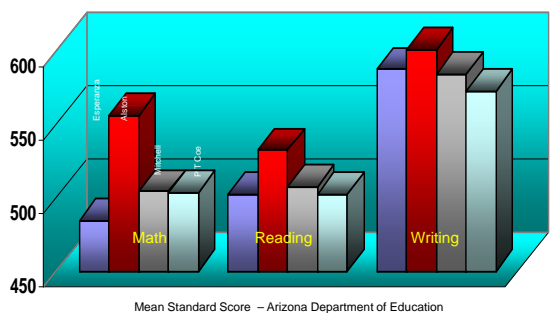
New Jersey SIOP Study (2004-6)

- Teachers can reach high levels of SIOP implementation after 1-2 years (1 year with more support). Sustained, supported professional development (workshops + coaching) works.

- After 1 year, students with SIOP-trained teachers outperformed non-SIOP students within the Clifton district on mean scores for oral, reading, writing IPT tests and for total IPT to statistically significant levels. Same results for Year 2.

- After 2 years, with SIOP-trained teachers in Clifton, students outperformed non-SIOP students in comparison district on mean scores for oral, writing IPT tests and total IPT across districts) to statistically significant levels.

% Teachers with high implementation of SIOP features

	Year 1	Year 2
SIOP Teachers		
· Cohort 1	56%	71%
· Cohort 2	N/A	74%
Comparison	5%	17%

IPT Total Oral Scores for Clifton SIOP and NJ Comparison Group

Center for Applied Linguistics, 2008
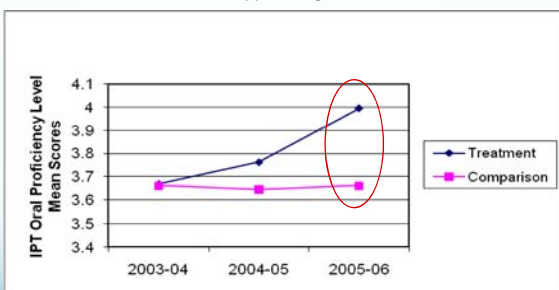
IPT Total <u>Reading</u> Scores for Clifton SIOP and Comparison Group

Center for Applied Linguistics, 2008
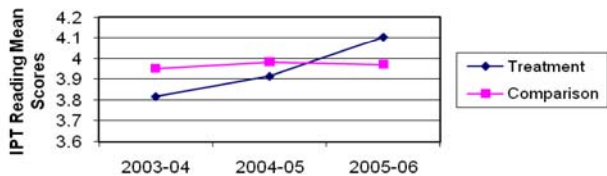
IPT Total <u>Writing</u> Scores for Clifton SIOP and Comparison Group

Center for Applied Linguistics, 2008
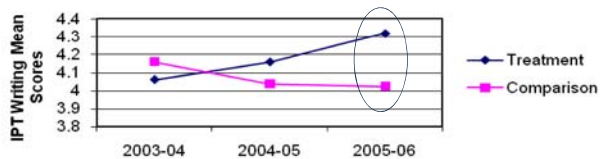
IPT <u>Total</u> Mean Scores for Clifton SIOP and NJ Comparison Group

Center for Applied Linguistics, 2008
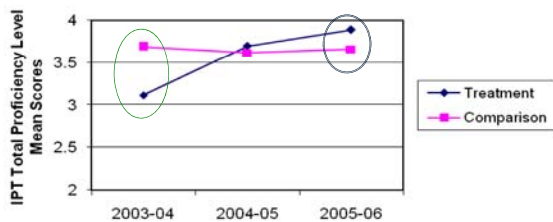
The Impact of the SIOP Model on Middle School Science

- CREATE (Center for Research on the Educational Achievement and Teaching of English Language Learners) 6-year study (2005-2011)
- The higher the teacher rating on the SIOP protocol, the better the students performed. This is true of both SIOP and control teachers
- For all total scores of the tests the SIOP group outperformed the control
- Groups included ELs, former ELs, native English speakers, and students with disabilities
- Analyses of the data indicated this difference was approaching significance

Difference in Performance Between SIOP and Control Students

CREATE
Center for Research on the Educational Achievement and Teaching of English Language Learners
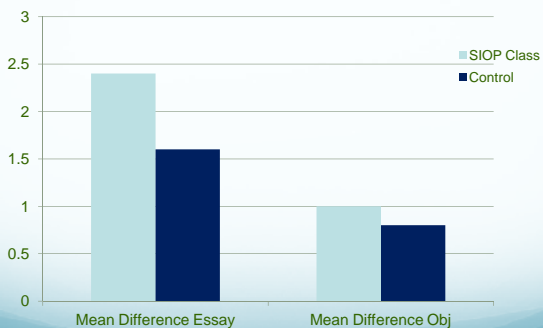
School-Wide Intervention (2010-12)

- Curriculum interventions for science, social studies and English language arts infuse SIOP features
- Integration of the SIOP Model for comprehensive professional development
- Significant (positive) treatment effects for all measures (science vocab, science content, social studies content, English writing) except Gates reading comprehension

Let's See What SIOP Instruction Looks Like

Science Standard

- The health, growth, and development of organisms are affected by environmental conditions such as the availability of food, air, water, space, shelter, heat, and sunlight. (5.2g)

SIOP Science Lesson: Growing Plants

- **CO:** Identify factors that affect plant growth

- **LO:** Write if-then statements about plant growth

- **Vocab:**

HFW: water, grow

Science: plant, root, stem, leaf, soil

Academic: factor, if, then

- **Lang Function:** Causation "If ___, then ___ ."

If the plant has soil, *then* it can grow.

If the plant does not have water, *then* it cannot grow.

- **Science Lab**

- **Read and Write:**
Write an observation on index card. Do Mix & Match. Exchange cards.

Vocabulary Development in SIOP Lessons

- Select key vocabulary carefully to pre-teach
- Build conceptual knowledge and add related terms
- Structure opportunities to practice: Read, write and speak the terms, do word work on affixes, explore multiple meaning words
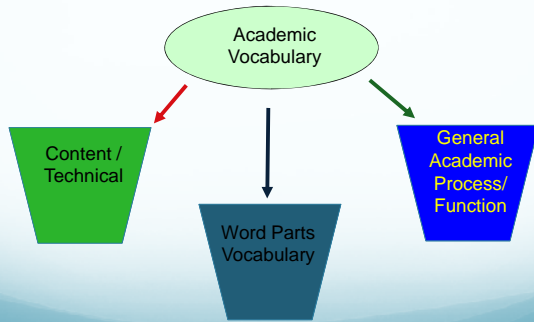- Tap into cognates, context clues, and on-page supports for unfamiliar words

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Select Key Vocabulary Wisely

Academic Vocabulary

Content / Technical

Word Parts Vocabulary

General Academic Process/ Function

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Academic Vocabulary

- <u>Subject-specific and technical terms</u> (found in informational and expository texts, e.g., *stem, xylem, phloem, transpire*)

- <u>General academic vocabulary—cross-curricular terms/process & function words</u> (used in all academic disciplines and often on state tests, e.g., *results, occur, discuss, skim, describe, compare, however, unless*)

- <u>Word parts: Roots and affixes</u> (word parts that enable students to learn new vocabulary, e.g., *photo-* = light, as in *photocopy, photograph, photosynthesis; un* =not, *as in unhappy)*

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4 Corners Vocabulary

Word/Translation	Picture
Desert/Desier to	
Word in context	Definition
Plants have adapted to a dry climate in the desert.	**A dry, hot environment with little vegetation, little rainfall, and no permanent body of water**

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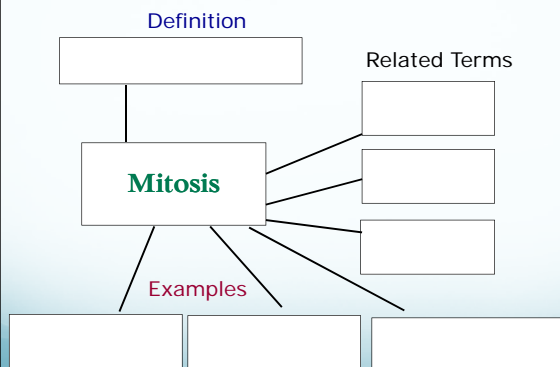## Concept Definition Map

Definition

Related Terms

Mitosis

Examples

41

Shades of Meaning

Teach shades of meaning: gradation and nuances of synonyms

hungry
starving
famished
ravenous

Take Advantage of English Learners' Native Language for Determining New Words

SPANISH	ENGLISH
<u>in</u>capaz	<u>un</u>able
<u>in</u>cómodo	<u>un</u>comfortable

SPANISH	ENGLISH
velocidad	velocity
discutir	discuss

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Oral Interaction in SIOP Lessons

- Generate discussion topics of high interest and build background and vocabulary

- Encourage students to share ideas and elaborate

- Structure opportunities to practice: Sentence starters, Signal words, Language frames

    - Link classroom discourse and interaction with engaging reading and writing texts

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Signal Words for Language Functions

Comparison

- is similar to
- differs from
- is the same as
- both/neither
- on the one hand/on the other
- but
- in contrast

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Academic Language Frames (Seidlitz, 2008)

Cause-Effect	• _____ was caused by … • If _____ happens, then _____ • The result is _____ • Because of ____, _____ affected/aided _____ by ….
Define/Describe	• ____ means … • ____ is an example of … • The diagram shows that … • _____ looks like …. • It has ____ but doesn't have …

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Express Opinions – Role Play

Partner A
- I think that …
- In my opinion, …

Will astronauts land on the moon by 2040?

Partner B
- I agree. *OR* I disagree.
- I agree with you and …
- I agree with you but …
- I disagree because …

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Practice Oral Presentation Skills

	First of all,
• Transition to a new point	*Next, I want to tell you . . .* *Now,* *Why is she my hero?*
• List points	*One reason/factor is . . .* *Another reason is . . .* *A final reason is . . .*
• Give examples	*For example, . . .* *Let me give you an example . . .*

Reading Development in SIOP Lessons

- Build background and vocabulary to support access to text
- Pair fiction and non-fiction to capitalize on content and vocabulary
- Scaffold the reading process, move students towards independence
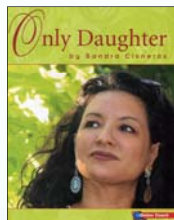- Link classroom discourse and interaction with engaging reading and writing texts

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Rich, Diverse & Relevant Literature: Multi-cultural, Multi-subject, Multi-lingual

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Pair Fiction & Non-Fiction
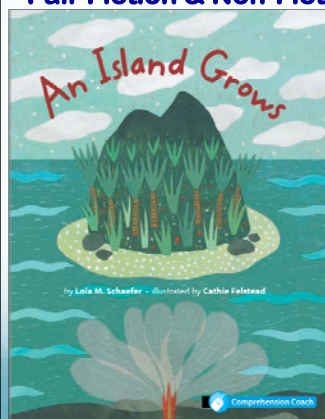
Explicit Instruction in Reading Comprehension Strategies

- ❖ Plan and Monitor
- ❖ Determine Importance
- ❖ Make Connections
- ❖ Ask Questions
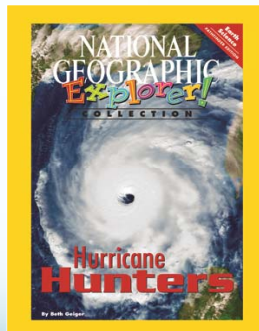- ❖ Make Inferences
- ❖ Synthesize
- ❖ Visualize

Same information, different reading levels

Below to On Level   **On to Above Level**

Give Teachers Time and Support to Get Good at It

SIOP Professional Learning Program

Design

- 6-8 workshop days, spread out over 1 -2 years
- Teacher volunteers, especially year 1
- Classroom observations and lesson plan development
- On-site coaching and feedback
- Collaborative teacher groups
- Set expectations for levels of implementation

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SIOP Professional Learning Program

Topics

- Second Language Acquisition Research
- Academic Language of Subject Areas
- SIOP Model Components: Practice
- SIOP Lesson & Unit Design
- SIOP Coaching

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Support Teachers to Implement the SIOP Model

- Offer teachers time to visit other classrooms
- Set common planning time and encourage collaboration on lesson planning
- Designate a SIOP coach – ft, pt, duty period
- Offer ongoing (sustaining) professional development
- Use a SIOP walk-through checklist for supportive and specific feedback

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How Do We Know If Students Are Successful?

Look at Student Performance

- Oral interaction in class
- Student work displayed on walls
- Student-generated texts
- Performance on assessments
- Growth modeling
- Student attendance

Lessons Learned

- Sheltered instruction can make a difference. Literacy and content achievement rise.
- The greater the teacher level of implementation (= fidelity), the better the student performance.
- Teacher buy-in and administrator support make a difference.
- Ongoing, job-embedded professional learning is needed.
- It takes teachers 1–2 years to reach consistent high levels of implementation.
- Coaching leads to higher levels of implementation.

Thank You