MULTILINGUAL PROGRAMS

2010

VOCABULARY STRATEGIES

Word Express

WORDS

WORDS

WORDS

Elementary & Secondary

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In Collaboration with the Houston ISD Multilingual Department

This document provides teachers a user-friendly tool ready to use for their classroom instruction

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INTRODUCTION

One of the biggest challenges faced by teachers of English Language Learners (ELLs) is to help students achieve proficiency in academic language and vocabulary or Cognitive Academic Language Proficiency (CALP). Every day in our schools a fast growing number of teachers of non- English speakers search for an essential tool their students need to continue their education. The missing piece is academic language. The vocabulary, grammar and comprehension skills that will enable these students to read, write, and construct meaning of subject specific texts (WestEd Education, 2008).

Conversational English or Basic Interpersonal Communication Skills (BICS) can be learned relatively quickly, while the formal academic English can take several years. Each content area has its own specialized vocabulary that students need to learn in order to advance on their academic careers. This Vocabulary Strategies document has been developed to assist teachers with students who speak little or no English, struggling readers, and students who need to be motivated and challenged to learn faster. For some of these students, school can be a confusing and even fearful experience as they struggle to understand what is being taught in their classes. This document will provide educators of English Language Learners (ELLs) and students who are falling behind, with the instructional support they need to succeed academically.

Research on Vocabulary Instruction

Research on vocabulary instruction reveals that vocabulary can be learned indirectly, although some vocabulary must be taught directly. Indirect vocabulary learning refers to the vocabulary that is learned through the process of hearing and seeing words, through conversations with older siblings or adults, through being read to, and through experiencing reading on your own. Direct vocabulary learning occurs through explicit and meaningful instruction that goes from decoding individual words to understanding the meaning of the word and to be able to make sense of the word to use it in normal conversation and in writing paragraphs and essays.

Indirect Vocabulary Learning

Indirect vocabulary learning refers to the indirect way children learn the meanings of most of the words through everyday experiences with oral and written language. The following are some of the ways children can learn indirectly:

- **Engaging students in daily conversations.** When children are engaged in conversations with others, especially with adults, they hear the repetition of the words and how these words are used in regular conversation. The more oral language experience children have, the more words and meaning of these words they will learn.
- **Reading aloud daily to students**. Reading aloud should be a daily practice. Providing opportunities to study particular unknown or unfamiliar words and engaging the

children in conversations related to the book provides them opportunities to relate to prior knowledge and experience or to build background when there is no prior knowledge.

- **Providing time and opportunities for students to read on their own.** When teachers and parents can engage children to on the exploration and selection of preferred readings or readings that will bring answers to important questions, students learn to value reading and the more they read, the more word meanings they will learn.

Direct Vocabulary Learning

Direct instruction is also important because it helps students learn difficult words that can guide them to a better comprehension of the reading. Usually these words can be related to a specific subject and are not part of the student's daily instructional vocabulary experiences. The following are some guidelines that can help with direct vocabulary instruction:

- **Teaching specific vocabulary words before the reading**. This practice can help students learn new words and comprehend the text.
- **Using the vocabulary taught in different contexts.** The more students use the words in different contexts during various periods of time, the more they are likely to learn the words.
- **Repeating vocabulary exposure**. The more children see, hear, read, or write specific words, the better they learn these words. Repeated exposure to words in different texts promotes active engagement an increases comprehension.

Communication, the First Step

When new students or students of non-English speaking families come to our schools, one of the most important goals is to establish some type of communication with the student. The goal is not to make a dull stimulus-response activity to provoke symbolic communication, but to empower the student through communication. The following are some tips to start according to children of different age groups:

- Young children:
  - Let the child get what he wants by:
    - Using this opportunity to teach the word and the child can listen , repeat and interact with the object requested
    - Encouraging the child is making a effort to request a preferred object
  - Allowing the child decide what game to play together by:
    - Reading and explaining the directions or providing the name of the game to the child

- ▪ Encouraging the child to request for the action or for the game
- Older children and teenagers:
  - o Allow a teen to refuse to do a task if he thinks is too hard by:
    - ▪ Verbally protesting. This is especially helpful for students who will start misbehaving if they do not understand the information.
    - ▪ Providing him with clues and vocabulary to be able to protest
  - o Provide a teen enough vocabulary words to describe his feelings or concerns
- All ages:
  - o Provide a list of pictures, words, or sentences according to the language proficiency of the student of likes and dislikes or favorite, non-favorite things, books, games, trips, or activities
  - o Provide opportunities for the students to have to some of these objects, books, pictures or games in the classroom
  - o Provide opportunities for the students to share their preferences with their classmates
  - o Build vocabulary skills programming activities based on these preferences
  - o Select initial vocabulary by concentrating first on:
    - ▪ Concepts students need to use more frequently
    - ▪ Concepts that could relate to students cultural, familiar, or educational background
    - ▪ Concepts that are pleasant and can be learned through acting, music and sharing. Learning concepts in a pleasant way will keep a positive communication focus and students will learn faster.
  - o Once the symbolic and initial communication is established, provide opportunities to the student to communicate with more people and to communicate about more topics. This means communicating with peers, other adults, and relating content area

According to Stephen Krashen, a "silent period" occurs before ELLs are ready to produce oral language and is generally referred to as the "Pre-productive" stage of language learning, This period is expected for most new learners of English, which is an interval of time during which they are unable or feel uncomfortable to communicate orally with adults or peers in the new language. The silent period may last for a few days or weeks depending on a variety of factors. ELLs should not be forced to speak before they are ready and teachers do not want to embarrass students by calling them prematurely.

What determines the length of the" silent period?" There are several factors involved in determining the length of the "silent period". The first one is personality. Normally, a shy and quiet youngster in native language is usually going to take longer before they feel comfortable speaking. Native culture will also play a role. In many cultures, for example, girls are not expected to speak out; they are expected to play a more passive role in family and social dynamics.

Teacher instruction is a very important factor in the length of the silent period. If the teacher provides differentiated activities and provides opportunities for students to interact in small groups, ELLs will be able to participate sooner in classroom interactions. They will feel more confident in participating even when they know they are allowed to make mistakes for self correction guidance. The following are characteristics that could be normally presented by students on the pre-production stage of language acquisition:

- They may have up to 500 words in their receptive vocabulary. They may have more vocabulary or will learn vocabulary faster when they bring a good educational background in their native language.
- They will be able to respond to pictures and other visuals.
- They can understand and duplicate gestures and movements to show comprehension.
- They can listen attentively and they may even be able to copy words from the board.

The following are initial steps teachers can take to address students in the pre-production stage:

- Choral reading and Total Physical Response methods will work well with them.
- English language learners at this stage will need much repetition of English.
- Provide the student a "buddy" who speaks their language.
- Focus attention on listening comprehension activities and on building a receptive vocabulary.

When the "silent period "or the period when the new student or student from a non-English speaking family tends to be too long (more than three months), look for the causes of this limited communication. The following could be some of the factors of limited communication:

- Some type of hearing impairment
- Some type of vision impairment
- Other type of physical impairment
- Low self esteem due to the language barrier or to some other type of physical attribute
- Lack of opportunities to communicate
- Classroom affective domain not present – child is isolated in the classroom and teacher seems to pay little or no attention to this fact
- Teacher has low expectations of the student

Provide strategies for the student to be able to select words and organize them into phrases and messages. Model using this strategy in a conversation before you give the strategy to the student. The following strategies can be used for this purpose:

- For young students:
    - Start with familiar words such as the names of toys or familiar persons and animals
- For older students:
    - Provide them with control phrases or sentence starters such as:
        - It looks like....
        - It rhymes with....
        - I think this is...
        - If this...then....
    - You can find a complete list of sentence starters is on page 13 of this manual.
- Provide magazines and newspapers to find the vocabulary they need
- Provide opportunities to use the Web and look for concepts and interesting readings
- Have available picture dictionaries for students to use words that are not currently being used in different classes

Monitor and assess the different component of the vocabulary acquisition process [semantics (words), syntax (grammar), morphology (prefixes and suffixes that add meaning), phonology (sounds of language), and pragmatics (the use of language in interaction)] as follows:

- Observing interaction and conversation with peers in the classroom and out of the classroom (formal and informal settings)
- Recording readings or conversations
- Having the student describe objects, retell stories, sing songs, act readings, create pictures, create timelines or work on graphs based on readings

Table 1. Goals for Teaching Vocabulary

GOALS AND ACTIONS STEPS/RESULTS		SELF ASSESSMENT	
GOAL	ACTION STEP (S)	I do this frequently	I will start using this procedure(s)
Teach content specific words	In order to improve comprehension of text		
Pre-teach words critical to text before the lesson	To trigger connections use: • Mnemonic devices • Visual-tactile representations		
Long term memory of high frequency words	Provide and allow: • multiple opportunities to use the words • time for significant independent reading • a variety of shared reading opportunities • many opportunities to hear language • writing opportunities • word games		
Make Independent word learning strategies automatic	Present lessons that incorporate: • contextual analysis • morphemic analysis • specialized dictionaries • questioning strategies		

Note: Table created from information obtained in Words, Words, Words, by Allen, J. (1999).

Sentence Frames and Sentence Starters

Lessons can be enhanced to address your students' strengths and limitations with the appropriate scaffolds or temporary instructional support to promote the student's independent skills. These scaffolds can include sentence stems, m=thinking maps, paragraph templates, graphic organizers, or word banks. The scaffolds should be prepared according to the learner's language proficiency level and the goals of the lesson. The following pages describe and present examples of sentence frame implementation.

Implementing Sentence Frame Activities

The use of sentence frames is focused on developing fast vocabulary for students to be able to speak effectively about a subject. It serves for tow purposes, to help students speak academically and in a logical sequence. When students use the sentence frames or sentence starters, they can participate in class and this fact increases their self-esteem. How to implement a sentence frame for beginner students:

1. Show the students the sentence or several sentences and model speaking the sentence frame to the students. Students can respond chorally after each sentence.
2. Ask the students to read the sentence and discuss the meaning with concrete examples
3. Ask if anyone has questions about the sentence. Are there any words that students do not understand?
4. Ask the students to fill in the blanks of the sentence frame with the numbers, mathematical expression, equation, or words that they believe will complete the sentence.
5. Ask the student to share their sentence frames with a partners and /or table groups. Check for accuracy.
6. Additionally, each group could repeat the sentence when each student shares the sentence frame.

The following table displays some main idea sentence starters that can be used with any subject areas:

Table 2. Main Idea Sentence Starters

It is amazing to think about_____	Sometimes _____
Let me explain _____	Historically, _____
You'll be excited to learn that_____	It's hard to believe, but _____
It is interesting to note that_____	You will find that _____
Experts agree that _____	You'll soon discover why _____
It's incredible that _____	You'll soon discover that _____
Most often, _____	No one will argue that _____
Many people believe that _____	Without a doubt, _____
Actually, _____	Truly, _____
Certainly, _____	You may be surprised to learn that ___
Positively, _____	Strangely enough, _____
Normally, _____	Most people are unfamiliar with _____
Surprisingly, _____	Experience shows that _____

Table 2. Main Idea Sentence Starters (continued)

Amazingly, _____	Experts agree that _____
Incredibly, _____	Let me tell you about _____
In the first place, _____	Have you ever thought about _____?
First of all, _____	Have you ever wondered _____?
Imagine that _____	Don't you think that _____?
Try to visualize_____	Wouldn't you agree _____?
Suppose that you _____	Have you ever seen _____?
In many ways, _____	Would you believe that _____?
Finally _____	What do you know about _____?
There are many reasons why _____	Do you want to understand how _____?
There are many ways in which _____	Why do _____?
Interestingly enough, _____	How can _____?
Let's take a look at _____	When do _____?
It all began when _____	Where can _____?
It is interesting to learn about _____	How do _____?
In my experience, _____	How does _____?
It is true that _____	Why is _____?
Usually, _____	Why are _____?
Frequently, _____	Are you aware that _____?
Often times, _____	What's so great about _____?
Many times, _____	Do you remember when _____?
For years _____	Do you realize that _____?

Note: Table created by Patsy Mills & Corinne Lock

Goals for Teaching Vocabulary

Teaching vocabulary is critical for the comprehension of texts. Building word awareness and vocabulary knowledge requires the students to make a personal construction of meaning. The process to teach the vocabulary may have variations from one teacher to another, but this manual provides a simple structure that can help establishing a framework that will address students from different levels of proficiency. The following strategies will build mnemonics and visual images to define new words:

Strategy 1 – Building Sentences

Teacher lists and pronounces 6-8 vocabulary words related to the major concepts to be learned and that are adequately defined by context in the text to study. Some of these words can present relations to the text that students already know.

1. Students individually, with a partner or in groups use at least 2 of these words to write sentences that they think may be in the text. Teacher has already provided the list of sentence starters to help beginner students create their sentences. This is a draft of the sentences that will be edited later.
2. Students read and verify the content vocabulary to verify if the content they predicted was related to the text.
3. Students generate new sentences using the targeted vocabulary and this time they will support their sentences with the text.

Strategy 2 – Keyword Strategy

1. Teacher reviews with the students the meanings of new vocabulary words and asks them to create personal, visual images to help them remember the meaning.
2. Students create images that they will remember and discuss them with their classmates and with the teacher.
3. Ne words with pictures or images are recorded in their vocabulary notebook.

Strategy 3 – Vocabulary Self-Collection

1. Students will read a common text and will select (highlight or write in their notebooks) a word they consider important and that should be shared with the class.
2. Students and teacher present the words and their meaning according to the text. These definitions can be expanded or clarified, and a dictionary can b e used for final clarification. During this process students share the reason why they think the word selected is important for understanding the text.
3. After all the words have been explored, a final list of words is made of the words that are considered most important for understanding the text. Students record these words in their vocabulary notebook or journal.
4. Follow-up with activities to monitor that words have been learned

The following table summarizes some of the steps presented, and displays strategies with goals to be used for every content area, including a self-assessment part for the teacher to keep track of strategies implemented that can work for specific classrooms:

Table 3. Summary of Vocabulary Strategies and Self Assessment

CLASS PERIOD/SUBJECT_____		SELF ASSESSMENT	
GOAL	**ACTION STEP (S)/RESULTS**	**I do this frequently**	**I will start using the following:**
Teach content specific words	In order to improve comprehension of text		
Pre-teach words critical to text before the lesson	To trigger connections use: • Mnemonic devices • Visual-tactile representations	Yes No Yes No	
Long term memory of high frequency words	Provide and allow: • modeling, guided practice, independent practice • multiple opportunities to use the words • time for significant independent reading • a variety of shared reading opportunities • many opportunities to hear language • writing opportunities • word games • inductive, inquiry or discovery learning • cooperative learning • culturally responsive teaching	Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No Yes No	
Make Independent word learning strategies automatic	Present lessons that incorporate: • contextual analysis • morphemic analysis • specialized dictionaries • questioning strategies	Yes No Yes No Yes No Yes No	
Effectiveness after the lesson	Well established: • motivation • linguistic knowledge • self-regulated comprehension • background knowledge	Yes No Yes No Yes No Yes No	

Note: Table created from information obtained in Bresser, Melanese & Sphar (2009) & Beck, McKeown & Kucan(2002).

Cognates

Cognates are words that have a common origin. These words have a common etymology and thus are similar or identical. For example, the English "kiosk" and the Spanish *quiosco* are cognates because they both come from the Turkish *kosk*.

Most cognates have a similar meaning, but in some cases the meaning has changed in one language or another. For example, in English the word "arena," usually refers to a sports facility, and in Spanish *arena*, means "sand." They both come from the Latin *harena*, meaning "sand", and also refer to the area of a Roman amphitheater that was covered with sand. Spanish retained the meaning of "sand" (and the word can sometimes refer to a sports arena). In English the meaning was expanded to include places that can be compared to Roman amphitheater.

The term "cognate" is also used to refer to words in two languages that are similar but have no common origin, such as the Spanish word *sopa* (meaning "soup") and the English word "soap." The phrase "false cognate" is used to refer to cognates that have different meanings, such as the Spanish word *embarazada* (to be pregnant) and the English "embarrassed" (to feel uncomfortable).

Providing opportunities in class for discussion and learning of cognates can help students recognize words that they already know in their native language and rapidly transfer this knowledge to the second language.

The following lists of cognates can offer a good start to your newcomer Spanish speaking students. The most commonly used words in English have been bolded. When you read through the lists of cognates for each subject, you will realize that there are common words that can be used in every subject area. Then you can just use all the lists in your classroom and let the students identify which ones pertain more to each class. Some cognate words have more than one definition in English, so you may want to guide your students to the definition according to the present objective.

Table 4. General List of Cognates

ENGLISH	SPANISH	ENGLISH	SPANISH
climate	clima	accustom, **get used**	acostumbrado
colleague	colega	**adjacent**, bordering	adjacente
elect, **choose**	elegir	amicable, **friendly**	amigable
embrace, **hug**	Abrazar,	castigate, **punish**	castigar
entire, whole	entero	commence**, start, begin**	comienzo
extraterrestrial, **alien**	extraterrestre	courteous, **polite**	cortés
inter, bury	enterrar	equilibrium, **balance**	equilibrio, balance
juvenile	juvenil	extroverted, **outgoing**	extrovertido
occupied	ocupado	inevitable, **unavoidable**	inevitable
pacific	pacífico	insect, bug	insecto
petroleum, oil	petróleo	lesion, **injury**	lesión
signify, to **mean**	significar	mandible, **jaw**	mandíbula
tariff, fee	tarifa	olfaction**, smell**	olfato
tranquil, **calm**	tranquilo	vapor, steam	vapor

Table 5. Math Cognates
The following examples of Math cognates will help teachers to advance faster with the Spanish speaking students.

ENGLISH	SPANISH	ENGLISH	SPANISH
activities	actividades	appropriate units	unidades apropriadas
algebraic	algebráica	coordinate	coordenada
analyze	analice	decimals	decimales
angles	ángulos	decision	decisión
application	aplicación	density	densidad
architecture	arquitectura	describe	describa
area	área	diameter	diámetro
capacity	capacidad	dimensions	dimesniones
circle	círculo	division	división
circumference	circumferencia	equation	ecuación
common	comunes	equivalent	equivalente
compare	compare	estimate	estime
complementary	complementario	estimation	estimación
conclusions	conclusiones	evaluate	evalúe
concrete	concreto	exact	exacto
cone	cono	experimental	experimental
conversion	conversión	points	puntos
coordinate	coordinar	predictions	predicciones
cylinders	cilindros	price	precio
exponents	exponentes	prism	prisma
factors	factores	probability	probabilidad
factorization	factorización	problem	problema
physic	físico	process	proceso
forms	formas	properties	propiedades
formulas	fórmulas	proportional	proporcional
fractions	fracciones	quadrilateral	cuadrilátero
geometry	geometría	quantitative	cuantitativo
geometric	geométrico (a)	radius	radio
incorporate	incorpore	range	rango
informal	informal	rational	racional
interpreting	interpretando	reasonable	razonable
investigation	investigación	reasoning	razonamiento
language	lenguaje	rectangular	rectangular
logical	lógico	relationship	ralación
mathematics	matemáticas	spatial	espacial
models	modelos	statistics	estadística

Math Cognates (continued)

ENGLISH	SPANISH
distance	distancia
object	objeto
reflection	reflejo
equal	igual
angles	ángulos
manner	manera
situation	situación
equation	ecuación
base	base
triangles	triángulos
trigonometry	tigonometría
functions	funciones
model	modelo
vertical	vertical
horizontal	horizontal
parts	partes
phase	fase
concrete	concretos
geometric	geométricos
mode	modo
multiplication	multiplicación
multiples	múltiplos
negative	negativo
name	nombre
numbers	números
objects	objetos
obtuse	obtuso
operation	operación
order	orden, ordene
organizing	organizando
paper	papel
patterns	patrones
pentagon	pentágono
perimeter	perímetro
pyramid	pirámide
plan	plan
polygon	polígono
percentage	porcentaje

ENGLISH	SPANISH
attributes	atributos
circle	círculo
cycle	ciclo
demonstrate	demostrar
dependent	dependiente
determine	determinar
explain	explicar
gravity	gravedad
illustration	ilustración
independent	independiente
minute	minuto
range	rango
reasonable	razonable
representations	representaciones
result	resultado
round	redondee
seconds	segundos
sequence	secuencia
situations	sitaciones
solution	solución
sphere	esfera
student	estudiante
supplementary	suplementario
symbol	símbolo
table(s)	tabla(s)
techniques	técnicas
technology	tecnología
temperature	temperatura
theorem	teorema
theory	teoría
triangle	triángulo
units	unidades
validate	validar
value	valor
variety	variedad
visually	visualmente
vocabulary	vocabulario
volume	volumen

Note: Table created from information found in Region 4 Educated Solutions (2009).

Table 6. Science Cognates
The following examples of Science cognates will help teachers to advance faster with the Spanish speaking students.

ENGLISH	SPANISH
air quality	calidad del aire
analyze	analizar
appropriate	apropriado (a)
asteroids	asteroides
atmosphere	atmósfera
atoms	átomos
balances	balanzas
biomass	biomasa
calculator	calculadora
carbon cycle	ciclo del carbono
catastrophic	catastrófico
cells	células
certain types	ciertos tipos
classify	clasificar
comets	cometas
communicate	comunicar
compass	compas
complex	complejo (a)
components	componentes
composed	compuestos
computers	computadores
concepts	conceptos
conceptual	conceptual
conclusion	conclusión
conservation	conservación
consistency	consistencia
constancy	constancia
constantly	constantemente
cycle	ciclo
gradual changes	cambios graduales
graduated cylinders	cilindros graduados
rock cycle	ciclo de las rocas
science	ciencia
scientists	científicos
volcanic activity	actividad volcánica

ENGLISH	SPANISH
consumers	consumidores
continental	continental
contributions	contribuciones
critical	crítico
day	día
decisions	decisiones
define	defina
describe	describa
direct	directo
direction	dirección
discoveries	descubrimientos
distribute	distribuir
dominant	dominante
ecosystem	ecosistema
electrical	electric (a)
endothermic	endotérmico (a)
energy	energía
equilibrium	equilibrio
equipment	equipo
evaluate	evalúe
events	eventos
evidence	evidencia
examine	examinar
exothermic	exotérmica
explain	explicar
explanations	explicaciones
external	externos
kinetic energy	energía cinética
potential energy	energía potencial
radiant energy	energía radiante
recessive	recesivo (a)
space	espacio
species	especies
stimulus	estímulos
structures	estructuras

Science Cognates (continued)

ENGLISH	SPANISH
extinction	extinción
fever	fiebre
force	fuerza
formula	fórmula
frequency	frecuencia
function	función
galaxy	galaxia
generations	generaciones
genetic	genético
graphic	gráfica
history	historia
human	humano
hurricane	huracán
hydroelectric	hidroeléctrico
hypothesis	hipótesis
identify	identifique
impact	impacto
including	incluyendo
indirect	indirecto
individual	individual
ineractions	interacciones
inexhaustible	inagotable
inferences	inferencias
information	información
inheritance	herencia
instruments	instrumentos
interdependence	interdependencia
internal	interno
interpret	interprete
laboratory	laboratorio
limitations	limitaciones
maps	mapas
material(s)	material(es)
mathematical	matemático
matter	materia
phases	fases
phenomenon	fenómeno
simple machines	máquinas simples

ENGLISH	SPANISH
chemical properties	propiedades químicas
meteorites	meteoritos
meters	metros
methods	métodos
microscope	microscopio
movement	movimiento
natural	natural
nitrogen	nitrógeno
non-renewable	no renovable
observations	observaciones
observe	observar
obtain	obtenga
ocean	océano
orbit	órbita
organisms	organismos
organize	organice
organs	órganos
origin	origen
oxygen	oxígeno
parts	partes
percent	porcentaje
periodic table	tabla periódica
planets	planetas
plants	plantas
plastic	plástico
position	posición
production	producción
recessive	recesivo
recycling	reciclaje
renewable	renovable
rotation	rotación
sexual reproduction	reproducción sexual
solar system	sistema solar
solution	solución
substances	sustancias
tubes	tubos
universe	universo
variety	variedad

Note: Table created from information found in Region 4 Educated Solutions (2009).

Table 7. Social Studies Cognates

ENGLISH/FRENCH	SPANISH
adapt	adaptarse
animals	animales
area	área
bison	bisonte
cause	causa
causing	causando
causing	causando
climate	clima
continents	continentes
continue	continuar
disappear	desaparecer
epoch	época
extinct	extinto
glaciers	glaciares
groups	grupos
including	incluyendo
increase	incremento
large	largo (a)
level	nivel
mammals	mamíferos
migration	migración
miles	millas
millions	millones
move	mover
ocean	oceano
occurred	ocurrió, sucedió
period	periodo
plants	plantas
population	población
provide	proporciona
result	resultado
scientist	científico
spread	esparcir
strait (Bering Strait)	estrecho (de Bering
temperature	temperatura
turtles	tortugas
voyage	viaje

ENGLISH	SPANISH
artifacts	artefactos
astronomy	astronomía
calculate	calcular
calculate	calcule, calcular
calendar	calendario
central	central
ceramic	cerámica
certain	cierto
city	ciudad
civilization	civilización
create	crear
culture	cultura
different	diferente
form	forma
giant	gigante
government	gobierno
hieroglyph	jeroglífico
language	lenguaje
method	método
mountains	montañas
movements	movimientos
new	nuevo (a)
objective	objetivo
organized	organizado (a)
painting	pintura
passage	pasaje
person	persona
produce	produce
pyramid	pirámide
reason	razón
sculptures	esculturas
story	historia, cuento
symbol	símbolo
systems	sistemas
temples	templos
using	usando
village	villa

Note: Table created from information found in Region 4 Educated Solutions (2009).

Table 8. False Cognates

There are some words that are similar in English and Spanish, although they have different meanings or are used in different settings. The following are some of these words:

ENGLISH WORD	ENGLISH MEANING	SPANISH False Cognate	SPANISH MEANING	Word to use in Spanish for the English Meaning
Actual, actually	real	actual	presently, currently	real, realmente
assist	to help	asistir	to attend,	ayudar
billion	one thousand billions 1,000,000,000	billón	one million millions 1,000,000,000,000	mil millones
camp	outdoor site	campo	countryside	campamento
carpet	rug	carpeta	file folder	alfombra
complexion	Color, texture, and appearance of the skin	complexión	Constitución, naturaleza, figura, apariencia (v.gr. delgado, fuerte).	color, textura, o apariencia de la piel.
contest	challenge, competition	contestar	to answer	concurso, competencia
embarrased	humilliated	embarazada	pregnant	Avergonzada, apenada
exit	outlet	éxito	success	salida
fabric	cloth	fábrica	factory	tela
football	North American game	fútbol	Balón-pie Soccer- en los E.U.	football Americano
gang	group	ganga	bargain, sale	pandilla, banda
large	big	largo	large	gordo (a)
once	one time	once	eleven	una vez
to record	write down, register	recordar	to remember	registrar, grabar
rope	cord	ropa	clothing	lazo
revolver	gun	revolver	to stir	revólver, pistola
soap	cleansing product	sopa	soup	jabón
tuna	fish	tuna	fruit of a cactus	atún

Note: Table created from information found in Region 4 Educated Solutions (2009).

Table 9. Words with Different Meanings

ENGLISH WORD	ENGLISH USES (s)	SPANISH WORD	SPANISH MEANING(s)	Word to use in English for the Spanish Meaning
concrete	real	concreto	Real, cement	cement
cup	quantity measure, hat	tasa	quantity measure	cup
table	furniture graph table of contents multiplication table periodic table	mesa	piece of furniture	table
faculty	to be able to	facultad	- part of the educational body - to be able to	- faculty - capable
grade	academic level	grado	- academic level - measure of temperature	- grade - degree
front	anterior part	frente - al frente - la frente	- position	-in front -forehead
reflection	-thinking process -image bouncing back	-reflexión -reflejo	thinking process	reflection

Changing Words into Math Language

One of the concerns in Mathematics is the fact that students may understand the numeric expressions but cannot read the problems to be able to establish which the numerical expression to use is. The following table organizes the challenges on the left column and provides solutions to these challenges on the right hand column.

Table 10. Addressing the English Language Learners' Challenges in Mathematics

CHALLENGES	STRATEGIES
Math Language ➢ Words and terms that are complex and academically challenging (such as coefficient, exponent, fraction) ➢ Words that are the same but have different meanings (such as quarter, factor, foot, difference, table, line) ➢ Words that are small but can cause a big difference (i.e. a, an, each, of, per) ➢ Multiple words that have the same meaning (i.e. add, altogether, sum, plus, total, increment, more)	➢ Integrating language objectives into content objectives ➢ Explicit instruction of math key vocabulary ➢ Interactive math word walls ➢ Providing written support such as labeling math symbols, operations, content processes, explaining step by step problems ➢ Verbal scaffolding to ensure multiple exposure of the same vocabulary and concepts, such as repetition, paraphrasing effective questioning ➢ Providing opportunities to practice and assessments through a variety of tasks ➢ Allowing the use of cognates and heritage language ➢ Pre-teaching and reviewing vocabulary. i.e. factor and greatest common factor. ➢ Reviewing the meaning of content words i.e. greater, less, greatest, least.
Word Problems ➢ Complex language structures ➢ Limited or no clues ➢ Require higher order thinking in new language ➢ Require processing math terms and operations ➢ Relevant details	➢ Procedural scaffolding: I do, you do.. ➢ Simplifying sentence structures ➢ Assisting with identifying target or key words ➢ Acting out the problem ➢ Using graphic representations ➢ Providing sentence starters and cloze sentences ➢ Using graphic organizers to break down steps of problem solving ➢ Apply thinking strategies through questions ➢ Acknowledge multiple ways to solve a problem ➢ **Model explicit teaching**

Table 10 (continued)

CHALLENGES	STRATEGIES
Culturally-Embedded Difficulties ➢ Linear vs. circular math curricula and instruction ➢ Unfamiliarity with concrete or graphic representations ➢ Use of math manipulatives ➢ Variety of ways to solve problems ➢ Focus on calculations rather than word problems ➢ Number formation ➢ Math symbols, decimal points, and commas ➢ Measurement system	➢ Pre-teaching o language and math concepts specific to American culture ➢ Providing opportunities for gradual transition from metric system at the initial stage Explicit Instruction of: ➢ The purpose and use of manipulatives ➢ The purpose and use of graphic organizers ➢ Steps of operations as used in the U.S. Math classrooms ➢ Number formation, the use of math symbols, decimal points, and commas

Table adapted from: ESOL Program PGCPS

The following examples are presented with the procedural scaffolding, simplifying sentence structures, targeting key words, using graphic representations, applying thinking strategies, and providing sentence starters and cloze sentences to support oral and written responses to help teachers implementing explicit instruction.

Example 1. Providing sentence starters and cloze sentences.
This table shows the total number of tires on different numbers of cars

Number of cars	Number of tires
1	4
2	8
5	20
8	32
10	?

On 1 car there are 4 tires. On car 2 _____ there are ____ _____ . On car 5 _____ _____ _____ ____ _____. On _____ _____ _____ ____ ____ _____.

How many tires are there on 10 cars?

First I need to multiply the number of cars times the number of tires.

1 X 4 = 4 One times four equals four

2 X 4 = 8 Two times four equals eight

5 X 4 = 20 Five _____ ____ _____ _____

8 X 4 = 32 _____ _____ _____ _____ _____

The rule for this pattern is to multiply the number of cars by the number of tires on each car, which is 4.

To find the number of tires on ten cars, multiply _____ by _____

10 X 4 = 40 Ten times _____ _____ _____

Answer: there are _____ tires on _____ cars.

26

Example 2. Reading and repeating

Read the following terms and have the students repeat after you:

Three x and four x are like terms (3x and 4x are like terms).
Two y and minus four y are like terms (2y and -4y are like terms).
Six c and five c are like terms (6c and 5c are like terms).
Minus eight x and five y are not like terms (-8x and 5y are not like terms).
Minus six y and minus twelve z are not like terms (6y and -12z are not like terms).

Example 3. Practicing Multi-step operation problems

Practice multi-step operation problems:

Danny makes $4 to $10 dollars every week walking the neighbor's dog. He is saving his money to buy a ticket to buy a 10 gallon fish tank. The fish tank costs $20. If Danny saves his money, what is a reasonable number of weeks it will take him to save $20?

1. Think about what you know. Danny makes at least $4 per week. If he makes exactly $4 per week, it will take him _____ weeks to save $20.
2. I need to multiply four times _____ to equal twenty.
3. 4 X _____ = 20
4. The most Danny makes per week is $10. If he makes exactly $10 per week, it will take him _____ weeks to save $20.
5. I need to multiply ten times _____ to equal 20.
6. 10 X _____ = 20
7. It will take Danny from _____ to _____ weeks to save $20.
8. A reasonable answer is _____ weeks, _____, _____ weeks, or _____ weeks.

Answer:

If Danny makes exactly $4 per week, it will take him 5 weeks to save $20. 4X5 = 20. If he makes exactly $10 per week, it will take him 2 weeks to save $20. 2X10=20. It will take Danny from 2 to 5 weeks to save $20. A reasonable answer is 2 weeks, 3 weeks, 4 weeks, or 5 weeks.

Example 4. Measuring Length

How do you measure length?

Marina is helping her teacher cut ribbons to hang the medals won by the math team.

She cuts three equal pieces of ribbon like the one shown below.
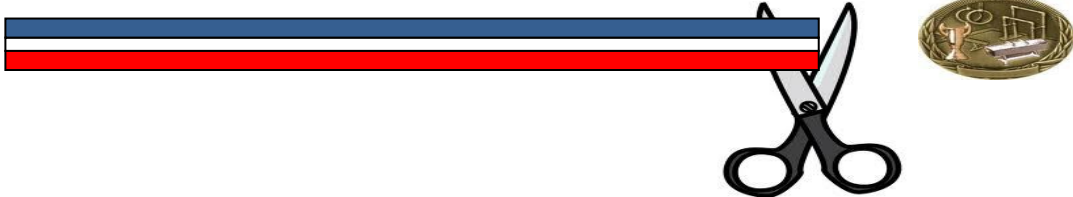
Use the ruler on the Mathematics Chart to measure the length of one of these pieces to the nearest inch.

What is the total length of the 3 pieces of ribbon Marina cut?

1. First I measure the _____ of the _____ with the _____.
2. Then I round the _____ measured to the nearest inch.
3. After I round I multiply this number by _____ .
4. The answer is: _____ inches.

Example 5. Providing oral and written instructions

Provide instructions.

How do you measure time?

Short periods of time, such as seconds, minutes, or hours, are measured with a _____. (clock)

Long periods of time, such as weeks, months, or years, are usually measured with a _____. (calendar)

There are _____ seconds in a minute. (sixty)

There are _____ minutes in an hour. (sixty)

There are_____ hours in a day. (twenty four)

These _____ hours are divided into two groups of twelve (12) hours each.

The hours between _____ and _____ are a.m. hours. (midnight ad noon)

The hours between _____ and _____ are p.m. hours. (noon and midnight)

Example 6. Including vocabulary instruction

Include vocabulary instruction and practice when using "scale" in linear measurement computation:

Jeanie goes walking from the garden to the lake every weekend. Look at the drawing below. Use the ruler on the Mathematics Chart to measure the distance from the garden to the lake to the nearest inch.

Garden   Scale: (1 inch= 2 miles)   Lake
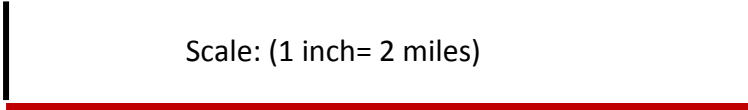
What is the closest to the actual distance in miles from the garden to the lake?

To solve this problem:

1. Read the instructions and highlight: Use the ruler to measure the distance from the garden to the lake to the nearest inch.

2. Measure the distance,

3. Round to the nearest _____,

4. Look at the scale,

5. Multiply _____ inches, times _____ miles,

6. Answer: the closest to the actual distance in miles from the garden to the lake is_____ miles.

Example 7. Pre-teaching vocabulary to solve problems

Use of vocabulary to solve sequence of steps of reasonableness problems.
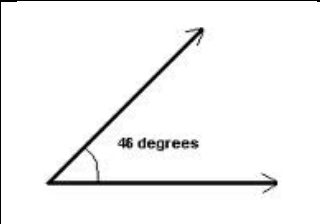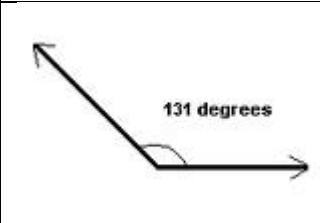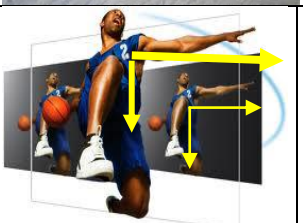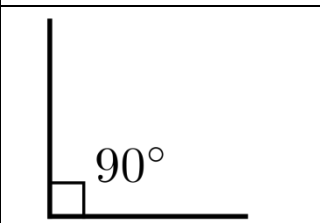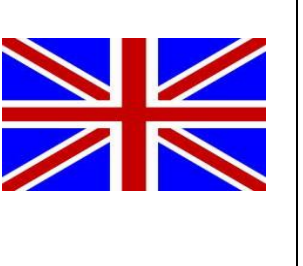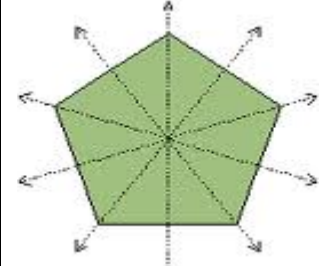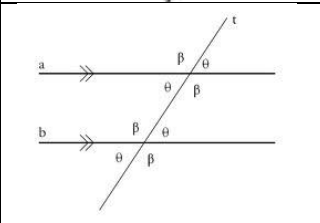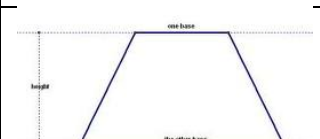
Diana bought a new CD that has 10 songs in it. The longest song is 4 minutes and 15 seconds, and the shortest song is 2 minutes and 5 seconds. What could be a reasonable length for the entire CD?

1. There are 10 songs on the CD.
2. The longest song is 4 minutes and 15 seconds.
3. Round this time to the nearest minute. This is close to 4 minutes.
4. Multiply 4 minutes by 10 songs to find what the length of the entire CD would be if every song were 4 minutes.
5. Four times ten equals 40.

   4X10 = 40
6. The entire CD would be _____ minutes if every song were _____ _____.
7. Is 40 minutes a reasonable length of time? No, this is too long because not every song is _____ minutes. Some songs are shorter.
8. The shortest song is _____ minutes and _____ seconds.
9. Round this time to the nearest _____. This is close to _____ _____.
10. Multiply two minutes by _____ songs to find out what the length of the entire CD would be if every song were _____ minutes.

    2X10 = 20
11. The entire CD would be _____ minutes long if every song were _____ _____.
12. Is 20 a reasonable length of time? No, this is too short because not every song is _____ minutes long.
13. Answer: It would be reasonable for Diana's entire CD to be any length of time between twenty (20) minutes and forty (40) minutes.

Example 8. Pre-teaching vocabulary for logical reasoning

Vocabulary for logical reasoning of problems. For this practice examples you have previously study the definitions with the students.

Practice 1

Word	Definition	Real Life Example	Native language support	Picture
Acute angle	An acute angle is an angle that is less than 90 degrees but more than 0 degrees		ángulo agudo	
Obtuse angle	An angle that is greater than 90 degrees but less than 180 degrees		ángulo obtuso	
Right angle	A right angle is an angle of 90 degrees, corresponding to a quarter of a full circle.		ángulo recto	
Lines of symmetry	Line of symmetry is a line that divides a figure into two congruent parts, each of which is the mirror image of the other.		líneas simétricas	
Parallel lines	Two lines in the same plane that, no matter how far they extend, do not intersect with each other.		líneas paralelas	
Parallel sides	Parallel sides are the same distance apart at any given point.		lados paralelos	

Practice 1 question:

Which statement about the lines below appears to be true?
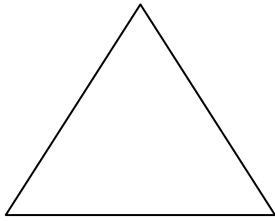
W
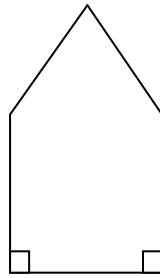
X
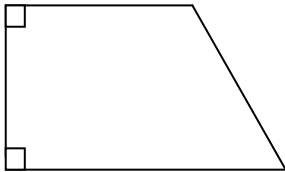
Y
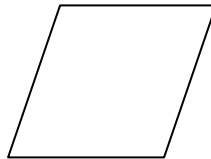
Z

A. They all have at least 1 right angle
B. They all have at least 2 lines of symmetry
C. They all have at least 1 acute angle
D. They all have at least 1 pair of parallel lines

Practice 2

Word	Definition	Example	Native language support
multiple	A multiple of a number is the product of that number and any other whole number. Zero is a multiple of every number.	Example: 4 × 5 = 20 20 is a multiple of 4 and also of 5	múltiplo
factor	In multiplication the factor is one of the numbers being multiplied. factor x factor = product	10 as a product, 2 × 5 = 10. 2 and 5 are both factors of 10, which is the product.	factor
divisible	The word divisible means to be able to divide one number and get an answer that is an integer	8 is divisibly by 2 because the answer is 4 with no remainder.	divisible

Practice 2 Question

The groups of numbers below have something in common:

18, 9, 27, 30

   A. Multiples of 9
   B. Factors of 30
   C. Numbers that are divisible by 3
   D. Multiples of 6

Steps to solve the question:
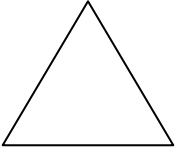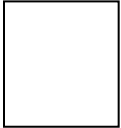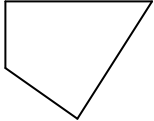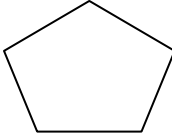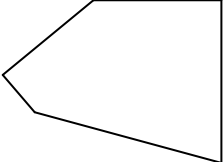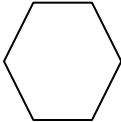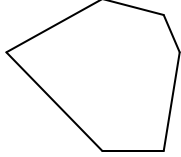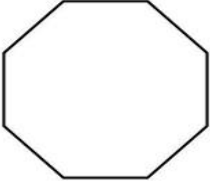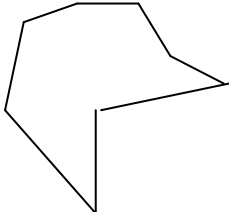
1. Read the question.
2. Check the numbers.
3. Read the first answer. Are all the numbers multiples of 9?
   Multiply: nine times nine equals nine
   9×1=9
   Nine times two equals eighteen
   9×2 = 18
   Nine _____ three _____ _____
   Nine _____ four _____ _____
4. Is nine a multiple of all the numbers?
5. Answer: _____ nine _____ a multiple of 30
6. Read the second answer. Are all the numbers factors of 30?
   Is eighteen a factor of thirty?
   Is 9 a factor of 30?
   Is 27 a factor of 30?
7. The answer is _____
8. Read the third answer. Are all numbers divisible by 3?
   Eighteen divided by three equals nine.
   18 ÷ 3 = 9
   Thirty _____ ___ _____ _____ _____
   30 _____
   Three _____ ___ _____ _____ _____
   3 _____
9. Answer: _____

The groups of numbers in this group are all _____ _____ _____.

Practice 3

Include vocabulary words that mean the opposite to clarify understanding

Example: Include a column of non-congruent sides as illustrated in the following table:

Figure	Description	Congruent sides	Non-congruent sides
Triangle	• 3 sides • 3 vertices • 3 angles	All sides are equal in length	Sides are not equal
Quadrilateral	• 4 sides • 4 vertices • 4 angles	All sides are equal in length	Sides are not equal
Pentagon	• 5 sides • 5 vertices • 5 angles	All sides are equal in length	Sides are not equal
Hexagon	• 6 sides • 6 vertices • 6 angles	All sides are equal in length	Sides are not equal
Octagon	• 8 sides • 8 vertices • 8 angles	All sides are equal in length	Sides are not equal

Example 9. Pre-teaching vocabulary to work with graphs

Teach vocabulary to find coordinate word problems:

Example:

The grid below shows a map of the school.
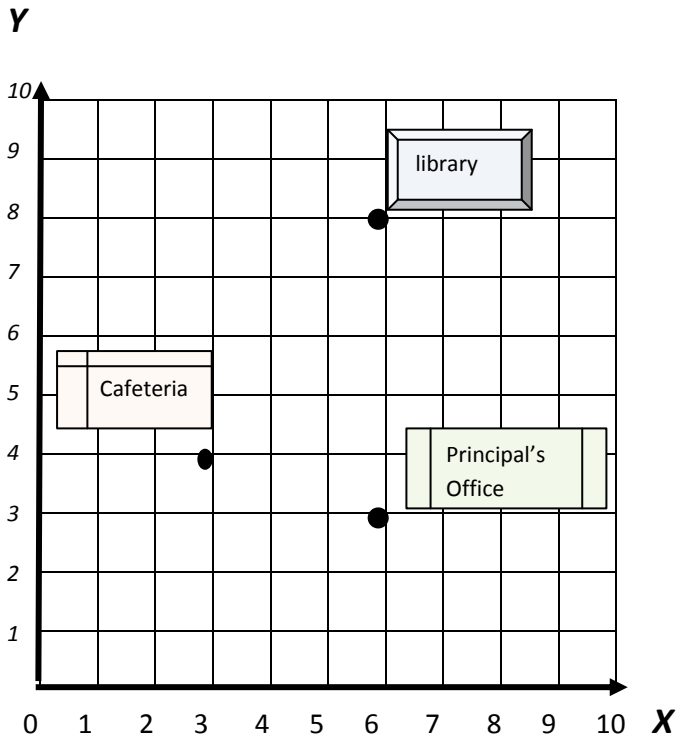
The cafeteria is _____ units to the right of the origin and _____ units above the origin. The cafeteria is located at (_____, _____).

The Principal's office is _____ units to the right of the origin and _____ units above the origin. The Principal's office is located at (_____, _____).

The library is _____ units to the right of the origin and _____ units above the origin. The library is located at (_____ , _____).

Example 10. Pre-teaching vocabulary to solve higher thinking problems

Include Vocabulary Instruction and Problems on nonsensical words in examples/non examples. Use the pre-taught Vocabulary words on Example 6

Maria drew some figures below and named them *overps.*

A   B   C
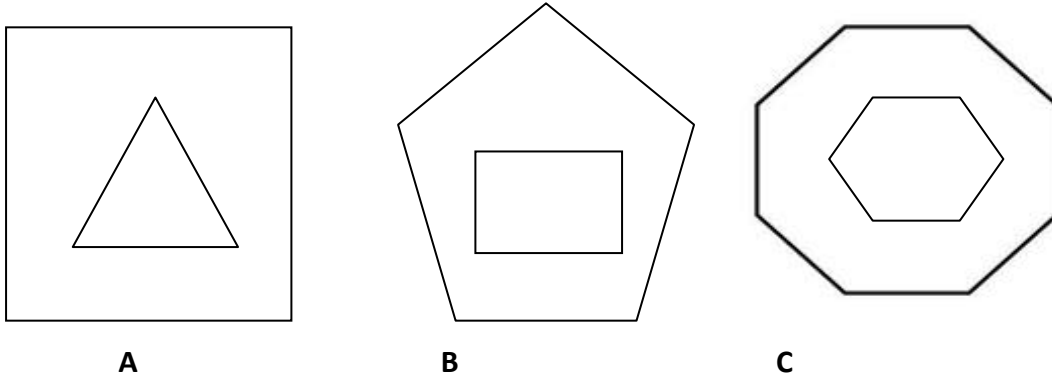
Notice that each of Maria's *overps* is made up of two shapes, one on the outside and one on the inside. Count the number of sides on each shape.

Figure A is a _____ with a _____ inside it.

The _____ has ____ sides and the _____ has _____ sides.
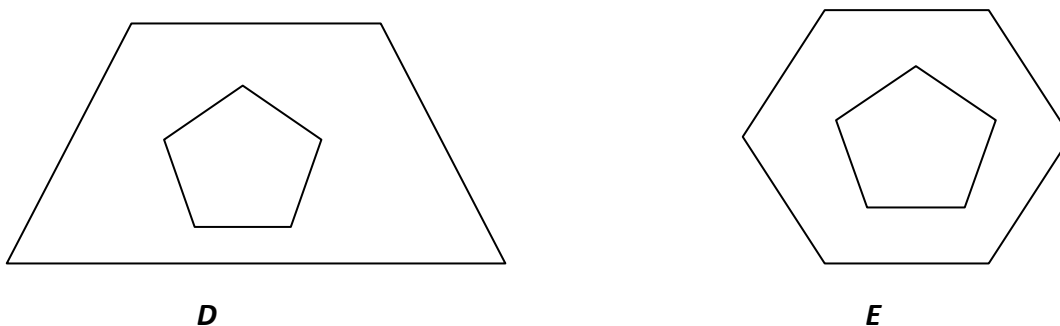
Figure B is a _____ with a _____ inside it.

The _____ has _____ sides and the _____ has _____ sides.

Figure C is a _____ with __ _____ inside it.

The _____ has _____ sides and the _____ has _____ sides.

In Maria's *overps* the shape on the outside has one more side than the shape on the inside.

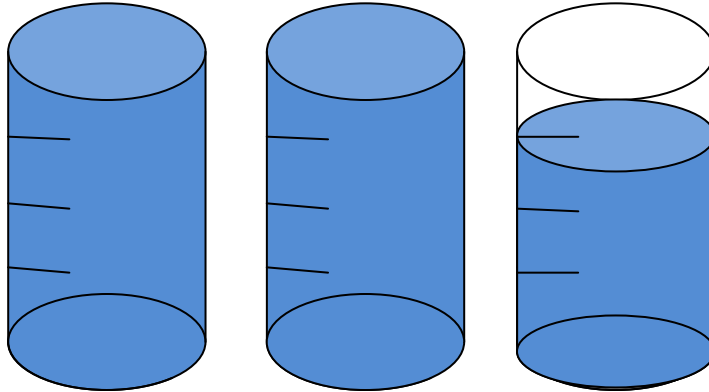Look at Figures D and E. Which of these could be an *overp?*

D   *E*

Example 11. Adding visuals to help understanding

Add Capacity graphics to help with understanding of vocabulary and concept of mixed numbers and improper fractions

Example:

What part of the glasses is filled?

Of these glasses, _____ are completely filled and $\dfrac{\boxed{}}{\boxed{}}$ of the last glass is filled.

The mixed number _____ describes the filled part of the glasses.

The improper fraction _____ also describes the filled part of the glasses.

_____

Of these glasses, two (2) are completely filled and $\dfrac{3}{4}$ of the last glass is filled.

The mixed number 2 $\dfrac{3}{4}$ describes the filled part of the glasses.

The improper fraction $\dfrac{11}{4}$ also describes the filled part of the glasses.

Example 12. Adding instruction and practice to words and tables

Use words and tables adding instruction and practice on relationships described.

The table below shows the total number of pieces in different numbers of puzzles. Each puzzle has the same number of pieces.

Puzzles

Number of Puzzles	Total Number of Pieces
2	200
4	400
7	700
10	1,000

Which of the following correctly describes the relationship in the table?

A. Number of puzzles plus two hundred equals total number of pieces.

   Number of puzzles + _____ = total number of pieces

B. Number of puzzles minus two hundred equals total number of pieces.

   Number of puzzles _____

C. Number of puzzles divided by one hundred equals total number of pieces.

   N_____

D. Number of puzzles times one hundred equals total number of pieces.

   _____

Example 13. Pre-teaching vocabulary using customary measurement conversions

Teach vocabulary using customary measurement conversions of "mixed quantities"

1 gal   **1 qt**

Tony bought 2 gallons of milk and Hilda bought 5 quarts of milk. How many quarts of milk did Tony and Hilda bought together?

Tony bought 2 _____ of milk and Hilda bought 5 _____ of milk.

The question asks to find the number of _____ of milk Tony and Hilda bought. First convert the 2 gallons of milk James bought into quarts.

Use the Mathematics Chart to find how many quarts are in one gallon. There are _____ quarts in one gallon.

If 1 gallon equals 4 quarts, then 2 gallons equals (how many quarts?)

Multiply: _____ × _____ = _____ quarts

Tony bought _____ quarts of milk.

Add to find the total number of quarts of milk both Tony and Hilda bought.

       _____ + _____ = _____ quarts.

Answer: Tony and Hilda bought _____quarts of milk altogether.

Vocabulary Tips for Social Studies

Difficulty with sentence structure

Social Studies is often difficult for English language learners. Because of the sentence structure and the vocabulary involved, it is difficult to construct events in chronological order. To help students understand the relationship of time words with events they need to understand the chronology.
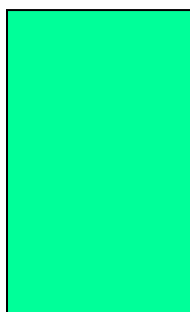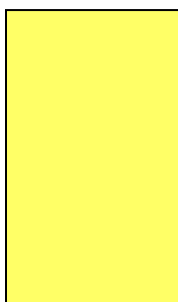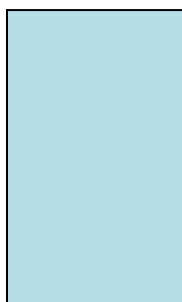
Creating a Chronology Lesson

The following are examples of materials you can use to have the students to label or record the sequence of events:

1. **Sequence cards**

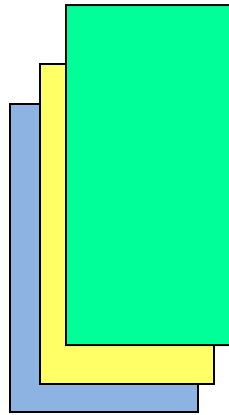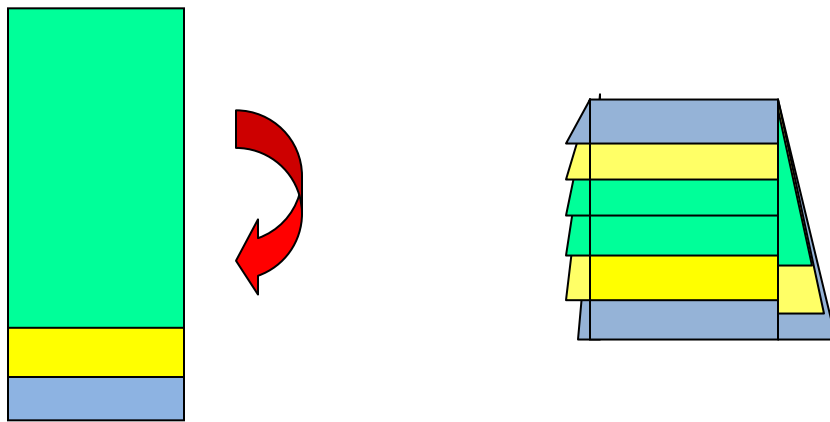| First	Second	Third	Fourth
Begin	Next	After	Final

2. **Time-line or Sequence Flip Book**

Step 1. Select 3 pages of different colors

Step 2. Place one page on top of the other, then slide each one about 1 inch above the top of the one below.

Step 3. Fold the three pages at the same time over, where you can see the three lower tabs.

Step 4. On each tab, the students can record the events in sequence or the dates to create a timeline. Under each tab, students can write a description of the event according to the sequence.

First
Second
Third
Fourth
Fifth
Sixth

At the beginning the.........
and also....
Second
Third
Fourth
Fifth
Sixth
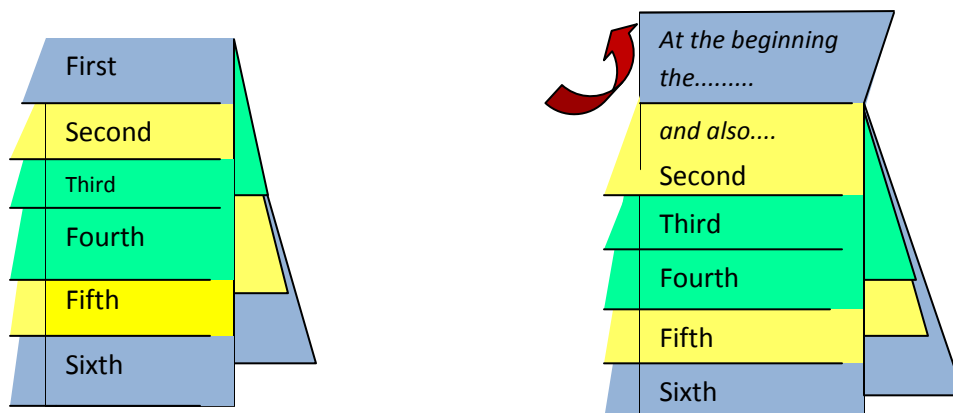
3. **Sentence Strips**

   Step 1. Give the students pictures of the events that they have to organize on the timeline.

   Step 2. Provide time for the students to organize the pictures according to the sequence of events.

   Step 3. Ask the students to brainstorm words or phrases (for beginner students), phrases or sentences (for intermediate students) and complete sentences (for advanced students), to write on the sentence strips.
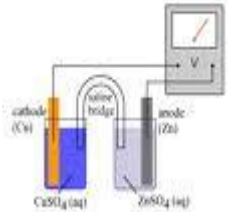
   Step 4. Students match pictures with sentence strips and tell the sequence of events to a partner.

   Step 5. Students write the sequence of events in sentences or in paragraphs according to the English level of proficiency of each student.
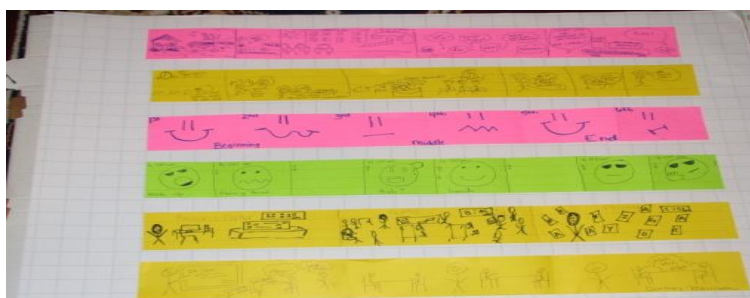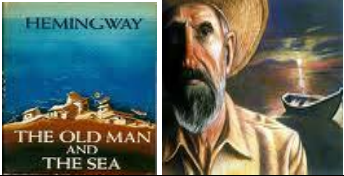
4. **Understanding Passive Voice**

   For beginner students understanding passive voice can be challenging. The following table can be used by teachers and students to record passive and the corresponding active sentences. Pictures and video clips help new comer students to understand faster the content.

PASSIVE VOICE	ACTIVE VOICE	ILLUSTRATION
The first electric cell was developed by Alessandro Volta in 1800.	Alessandro Volta developed the first electric cell in 1800.	
The telephone was invented by Alexander Graham Bell.	Alexander Graham Bell invented the telephone.	

Understanding passive voice (continued)

PASSIVE VOICE	ACTIVE VOICE	ILLUSTRATION
The Old Man and the Sea was written by Ernest Hemingway.	Ernest Hemingway wrote the Old Man and the Sea.	
The summit of Mount Everest was first reached by Sir Edmund Hillary.	Sir Edmund Hillary was the first one who reached the summit of Mount Everest.	
Troy was destroyed by the Greeks.	The Greeks destroyed Troy.	
Harry R. Truman was killed in Washington State by the eruption of Mount St. Helen	The eruption of Mount St. Helen in Washington State killed Harry R. Truman.	
The light bulb was invented by Thomas Alba Edison	The.......	
These spaces can be used by students to create some more sentences.	Students can use these spaces to create more sentences.	

Note: Table created from information found in Region 4 Educated Solutions (2009).

Copy the following web addresses on your browser to watch Mount St. Helen's eruption:

http://videos.howstuffworks.com/discovery/7161-mt-saint-helens-powerful-erruption-video.htm

http://videos.howstuffworks.com/discovery/7161-mt-saint-helens-powerful-erruption-video.htm

5. **The Frayer Model**

The Frayer Model for vocabulary instruction works like a thinking map. The framework includes the word or theme that is written on the center of the frame. The definition, characteristics of the word, examples and non-examples of the word are written on each of the quadrants. A picture can be added to address the language proficiency of the students. The following is an example of the Frayer Model:
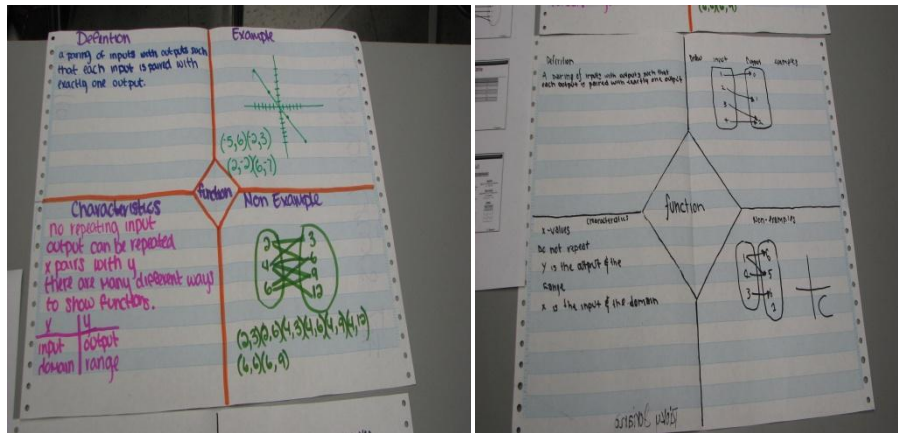
Pictures by Gerardo Ramirez

Copy the following address on your web browser to see strategies with vocabulary instruction video-clips.

http://www.jackson.k12.ky.us/readingstrategies/more/socialstudies/understand.htm

The following frames can be used to start with the Frayer Model for vocabulary instruction:
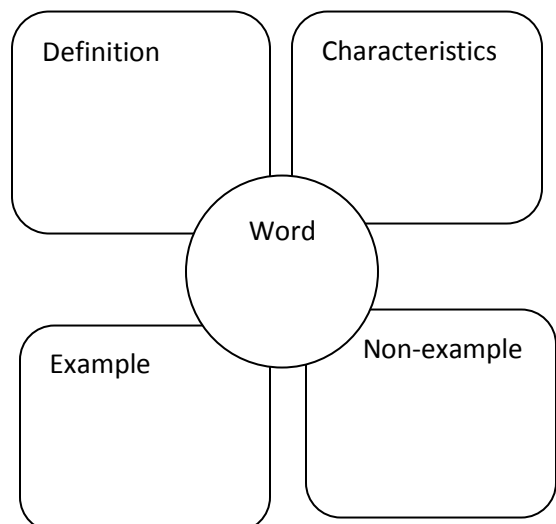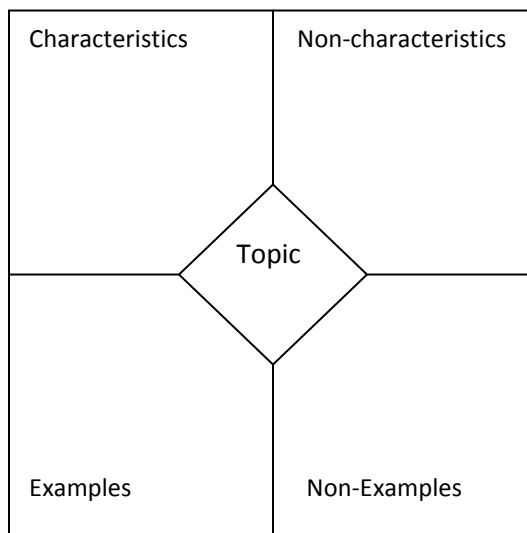
Social Studies example of Frayer Model

Definition:

Refugees are people who travel from one country to another during war and bad times.

Characteristics:

- Need shelter
- In danger of starving or becoming ill

Word:

Refugees

Assistance Provided:

Countries can take care of some numbers of refugees but not of large numbers of refugees.

Non examples:

- Migrants
- Guerrilla members
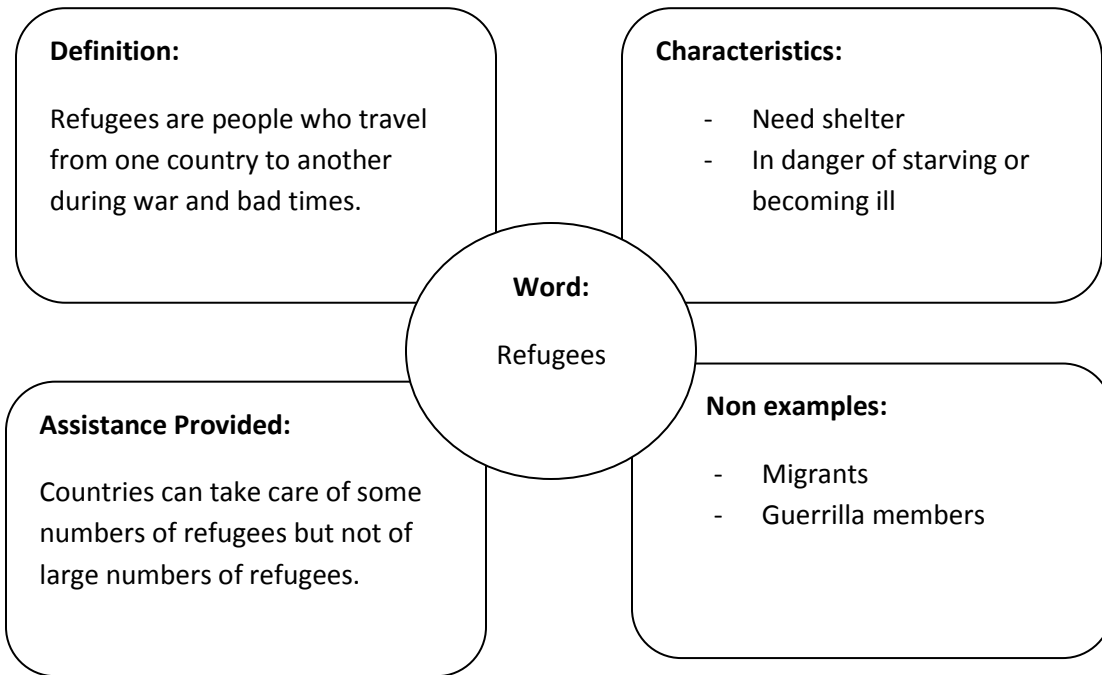
Science Example of the Frayer Model

Definition:	Characteristics:
Angiosperms are flowering plants that have the capability of reproducing by seeds.	- Produces covered seeds - Produces flowers - Produces fruits

Word:

Angiosperm

Examples:	Non- Examples:
- grass - roses - maple trees	- moss - ferns - pines

Table 11. Helping Students Understand and Remember Facts in Social Studies

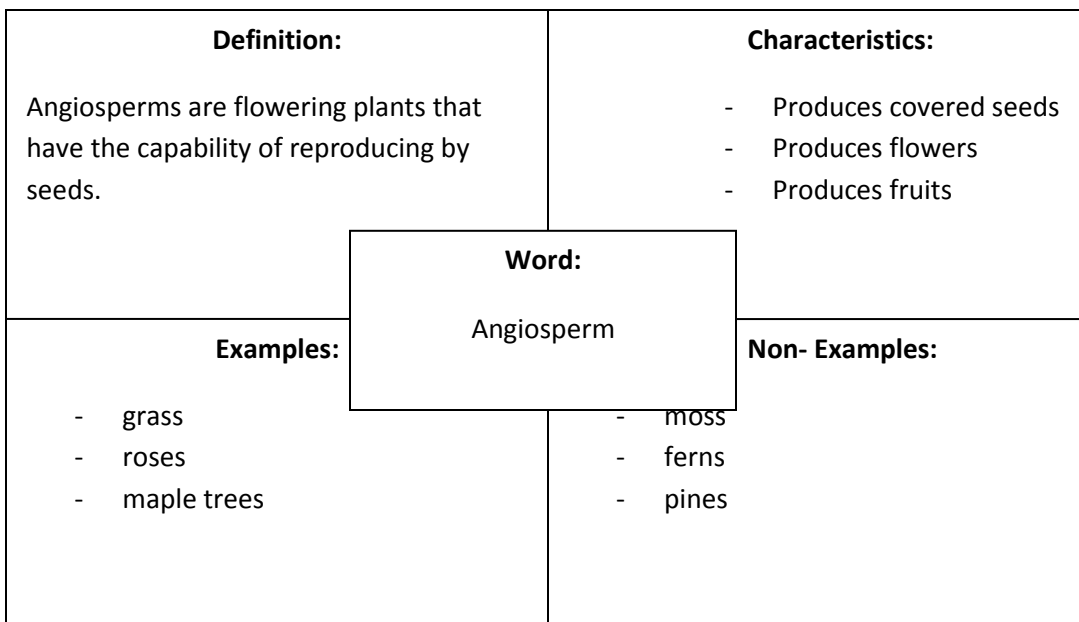| CHALLENGES	STRATEGIES
➢ Taking things for granted	➢ Provide real life examples that refer to the text. For example: Think about electric power. How would your home be different without electricity?
➢ Remembering facts	➢ Use strategies and games. See example in Practice 1. Remembering facts
➢ When the student gives up because it is too much reading and it is not interesting. Student cannot remember what was reading.	➢ Guide the students to search for subjects that may interest them more than others. Ask them to find out more about a topic that sound specially interesting to them. For example the airplane created by the Wright Brothers. Or, Marie Curie was the discoverer of polonium and radium, and she won 2 Nobel Prizes. Or, Isaac Newton discovered the law of gravity by watching an apple falling from a tree...
➢ Books are too long to read.	➢ Look for newspapers, magazines, internet, or telephone lines to communicate with people who can tell the students the story.
➢ When studying history you may come with suffixes and prefixes.	➢ See the list of some Greek and Latin prefixes and suffixes titled Practice 2. These prefixes and suffixes can be found in Social Studies and in other subjects as well.
➢ Understanding different points of view.	➢ Guide the students to think of themselves in the situation they are reading about. For example, imagine being a German whose country has just been defeated in war and maybe some of your close friends have died. Now your country has been forced to sign a treaty. How would you feel? This will help the student see different points of view and see history from a personal perspective.

Note: Table created from information obtained in Social Studies by Taggart (2005).

Practice 1.

Remembering Facts

Match each inventor with his invention

COLUMN A	COLUMN B
_____ 1. Alexander Graham Bell	a. The light bulb
_____ 2. Thomas Alba Edison	b. The practical roll of photographic film
_____ 3. Henry Ford	c. The modern moving assembly lines in cars
_____ 4. George Eastman	d. The world's first successful airplane
_____ 5. Wright Brothers	e. The telephone

Answers: 1e, 2a, 3c, 4b, 5d.

Practice 2.

GREEK PREFIXES	MEANING	WORDS
ante	before	anterior
anthrop	man	anthropoid anthropology
anti	against	antibiotic antibody anticipate antioxidant
aster	astro, star	astrology astral astronomer astronomy
auto	self	autobiography autograph automatic automobile autonomy
biblio	book	bibliography
bio	life	biochemical biodegradable biology biomass biosphere
derm	skin	dermatitis dermatology

GREEK PREFIXES	MEANING	WORDS
geo	Earth	geography geology geometric geometry geophysics
mal	badly	maladjusted malformed malfunction malignant
micro	small	microbe microbiology microfilm micrometer microscopic microwave
mis	wrongly	misappropriate misbehavior mischief misconduct misfortune misguided misinterpret misjudge mismatch misplace misrepresent
phil	love	philology philosopher philosophy
post	after	postcard postdate postgraduate
pseudo	false	pseudonym
psych	mind	psychiatrist psychoanalysis psychological psychology
tele	far	telegraph telephone telescope television
zo	animal	zookeeper zoological

Greek Suffixes

GREEK SUFFIXES	MEANING	WORDS
crat	power, rule	aristocrat
cracy	rule	democracy
graph	writing	stenograph pictograph
gram	record	pictogram
ism	action, condition	mutualism nationalism
ist	certain person	scientist optometrist dentist
ology	study of	philology paleontology biology
phobe	fear	photophobic
phone	sound	microphone telephone
scope	sight	telescope microscope

Note: Table created from information found in Region 4 Educated Solutions (2009).

Latin Prefixes

LATIN PREFIXES	MEANING	WORDS
aqua	water	aquamarine aquarium aqueduct
aud	hear	audacious audible audience audiovisual audition auditory
cap	Take, hold	capitalize capitol captain capture captivity

Latin Prefixes (continued)

LATIN PREFIXES	MEANING	WORDS
con	with	concavity conceal conceive concentration concept concentrate conclude concordant conditional conversation
contra	against	contradict contraindication contrast
cred	believe	credibility credentials credit creditor
de	down	debate debilitate decaffeinated deceased decentralization declination decompose decompression decongestant decorator dedication deduction
dict	tell	dictator dictation
fac	make	factorial factorization factory faculty
fort	strong	fortitude fortunate fortune

Latin Prefixes (continued)

LATIN PREFIXES	MEANING	WORDS
gen	race, birth	gender genetics general generate generosity
inter	between	interaction intercalate interconnect interdepartmental interest interestingly interface interlink intermediate
man	hand	manager mandate manicure manipulate manipulative manufacture
met	send	metabolism metallurgic metaphysical metastasis
mis	incorrect	misappropriate misbehave miscellaneous mischievous misfortune misguided misgovernment
non	not	nonessential non-existent nonflammable non-negotiable nonproliferation nonsense nonstandard nonverbal nonstick nonexistent nonstop

Latin Prefixes (continued)

LATIN PREFIXES	MEANING	WORDS
ped	foot	pedal pedestal pedestrian pediatrician pedicure pedigree
port	carry	portable portal portfolio
post	after	postal postcard post office postulate
re	again	reaction reaffirm reforestation realignment reality reappearance rearrangement
spec	look	spectacle spectacular spectral speculation speculator
trans	across	transaction transcribe transfer transform translate translucent transparent
tri	three	triceps tricycle triennial tripod
via	see	viable viaduct
voc	call	vocal vocalize

Note: Table created from information found in Region 4 Educated Solutions (2009).

MULTILINGUAL PROGRAMS - CONTACTS

NAME	POSITION
Matilda Orozco	Assistant Superintendent Special Populations
Irma Rohatgi	Multilingual Programs Director
Trudy Freer- Alvarez	Title III Manager
Jennifer Alexander	Multilingual Programs Manager
Terrie Armstrong	Multilingual Team Leader
Celeste Coiman-Lopez	Outreach Worker Team Leader
Mary Ann Herrera	Multilingual Team Leader, Assessment
Randal Jones	Special Populations Program Specialist
Cristina Cruz-Wiley	Spec. Pops. Program Specialist, Instruction
Carolyn Straatmann	Academic trainer
Corinne Lock	Academic Trainer
Patsy Mills	Academic trainer
Martha Ewane	Budget Analyst
Nancy Cintron	Student Information Rep.
Anne Stryker	Secondary Curriculum Specialist
Cruz Rochez	Secondary Curriculum Specialist
Enrique Hug	Secondary Curriculum Specialist
Hilda Gentry	Secondary Curriculum Specialist
Maida Feliciano	Secondary Curriculum Specialist
Mireya Ortiz	Secondary Curriculum Specialist
Rene Saldivar	Secondary Curriculum Specialist
Ricardo Avila	Secondary Curriculum Specialist
Toni Marshall	Secondary Curriculum Specialist
Adalia Azuara	Elementary Spec. Pop. Program Specialist
Irma Villarreal	Elementary Spec. Pop. Program Specialist
Jackie Cordova	Elementary Spec. Pop. Program Specialist
Jose Cazares	Elementary Spec. Pop. Program Specialist
Kathy Warren-Ramirez	Elementary Spec. Pop. Program Specialist
Laura Mendoza	Elementary Spec. Pop. Program Specialist
Lavondia Menephee	Elementary Spec. Pop. Program Specialist
Leona Fortson	Elementary Spec. Pop. Program Specialist
Maria Olga Valenzuela	Elementary Spec. Pop. Program Specialist
Marta Perez	Elementary Spec. Pop. Program Specialist
Sharon Zallis-Youngblood	Elementary Spec. Pop. Program Specialist
Silvia Trinh	Elementary Spec. Pop. Program Specialist

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