

Cell Structure and Function

Identify
Pattern
Control
Process
Contain
Combine
Condense
Synthesis
Convert
Function

What does it mean?

Word:	Definition:	
Part of speech: <ul style="list-style-type: none"><input type="radio"/> Noun<input type="radio"/> Verb<input type="radio"/> Adjective<input type="radio"/> Adverb	Synonyms:	Antonyms:
	Sentence:	

Word:	Definition:	
Part of speech: <ul style="list-style-type: none"><input type="radio"/> Noun<input type="radio"/> Verb<input type="radio"/> Adjective<input type="radio"/> Adverb	Synonyms:	Antonyms:
	Sentence:	

Name: _____

Vocabulary Sketches

Word	
Definition	
Draw It	Use it

Word	
Definition	
Draw It	Use it

Word: _____	Definition: _____
Sketch	Teacher's Notebook.com
	Sentence: _____

Word: _____	Definition: _____
Sketch	_____
	Sentence: _____

Word: _____	Definition: _____
Sketch	_____
	Sentence: _____

- | | | |
|--------------------|-------------------------|-----------------|
| ■ Eukaryotic cell | ■ Nucleolus | ■ Mitochondrion |
| ■ Organelle | ■ Ribosome | ■ Chloroplast |
| ■ Cytoplasm | ■ Endoplasmic reticulum | ■ Cytoskeleton |
| ■ Nuclear envelope | ■ Golgi apparatus | ■ Centriole |
| ■ Chromatin | ■ Lysosome | |
| ■ Chromosome | ■ Vacuole | |

- | | | |
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Term	
Definition	
Characteristics	
	Illustration
Examples	

Planning Instruction for ELLs in Integrated Content Area Classes

Background Knowledge to Build	
Academic Vocabulary to Develop	
Forms of Language (Grammar) to Practice	
Text Structure to Support (Discourse Structure)	
Reading Skills and Strategies to Practice	
Map/Graphic Skills to Practice	
Communicative Functions Expected (Bilingual Progressions; with Differentiation for ELLs of Varied Proficiency Levels)	

Based on Access to Academics: Planning Instruction for K-12 Classrooms with ELLs (Egbert + Ernst-Slavit, 2011, Pearson)



Forms of
Language

+ Forms of Language

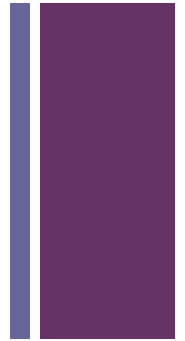
Stock Market Crash

- Irregular past tense verbs (rose, ran, bought, fell, sold, stuck, lost, burst, spent, withdrew, went)
- Time clauses (by 1928, in early September 1929, On October 24....)
- Other introductory clauses (Though..., although.... In reality,.....)
- Modifiers (panicked investors, career politician, utmost confidence, prosperous economy, average American, etc.)

Cell Structures and Functions

- Passive voice (are known as, which is found, is shown in, is called, is spread, is passed, are assembled, are synthesized, are made, are attached, are involved)
- Adverbs (newly made, see patterns clearly)
- Introductory clauses (in the same way, in some respects)
- Prepositions/Prepositional phrases (throughout, to and from)

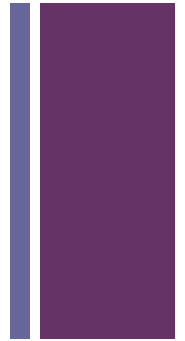
+ modifiers



- Panicked investors
- Career politician
- Overwhelming victory
- Utmost confidence
- Economic health/law
- Public office
- Prosperous economy
- Average Americans
- Quick profit
- Small percentage
- Frantically sell
- Shrewd investor

+ modifiers

- Specialized organs
- Major parts
- Hereditary information;
Genetic information
- Dense region
- Coded instructions
- Nuclear envelope; nuclear pores
- Steady stream
- Granular material
- Threadlike structures
- Internal membrane system
- Specialized tasks
- Serious human diseases
- Saclike structures
- Large central vacuole
- Outer/Inner membrane



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Text Structure



TEXT STRUCTURE

Chronological (Time Sequence)

Cause/Effect

+ Problem/Solution

Description

Enumeration

Comparison/Contrast

+ Text Structure



Stock Market Crash

- Chronological/Time Sequence
- Definitions in Text

Cell Structure and Functions

- Enumeration
- Description
- Definitions



Graphic Organizers for Note Taking

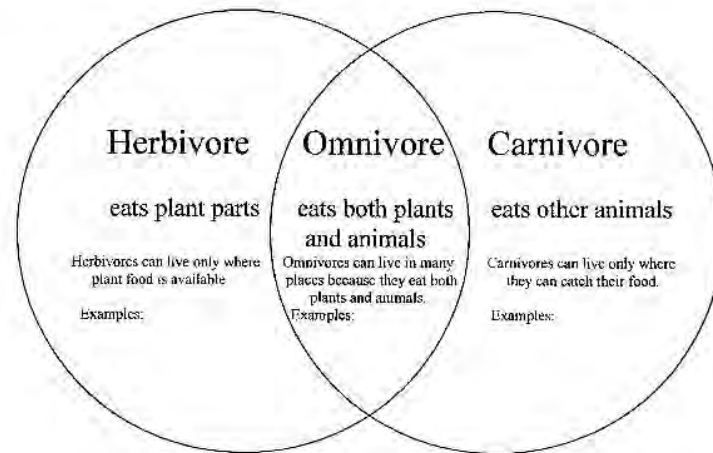
Analyze the text structure

Choose a graphic organizer that matches the text structure

Provide models and demonstrations

Compare student products

Venn Diagram Overhead Master



Cause

Cause

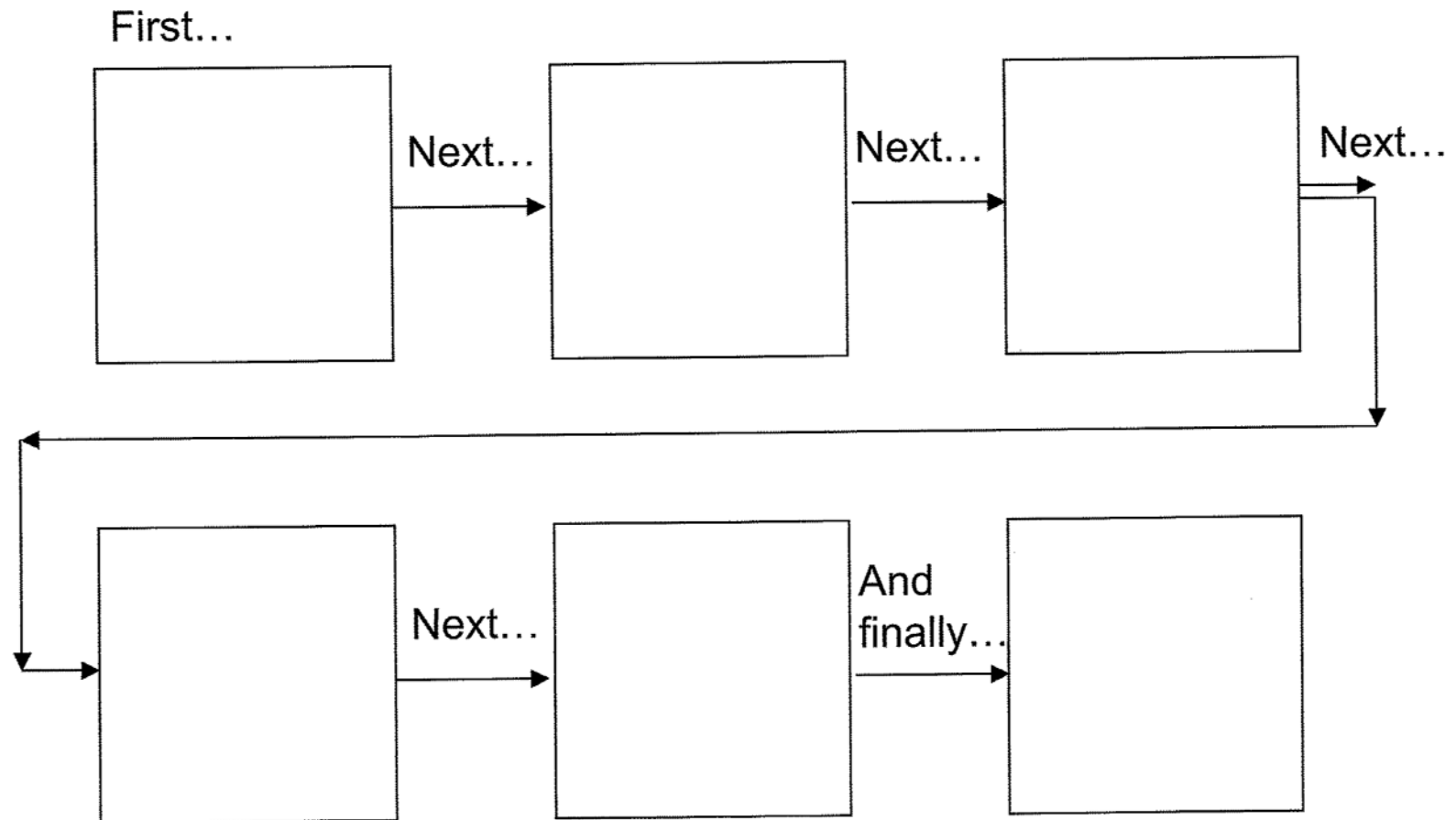
What's Inside?

	What is it?	Page
Cause and Effect	Graphic Organizer	1
Compare/Contrast	Graphic Organizer	2
Concept Definition Map	Graphic Organizer	3
Drawing Conclusions	Graphic Organizer	4
Identifying Author's Purpose	Graphic Organizer	5
Main Idea and Supporting Details	Graphic Organizer	6
Making Inferences	Graphic Organizer	7
Summarizing	Graphic Organizer	8



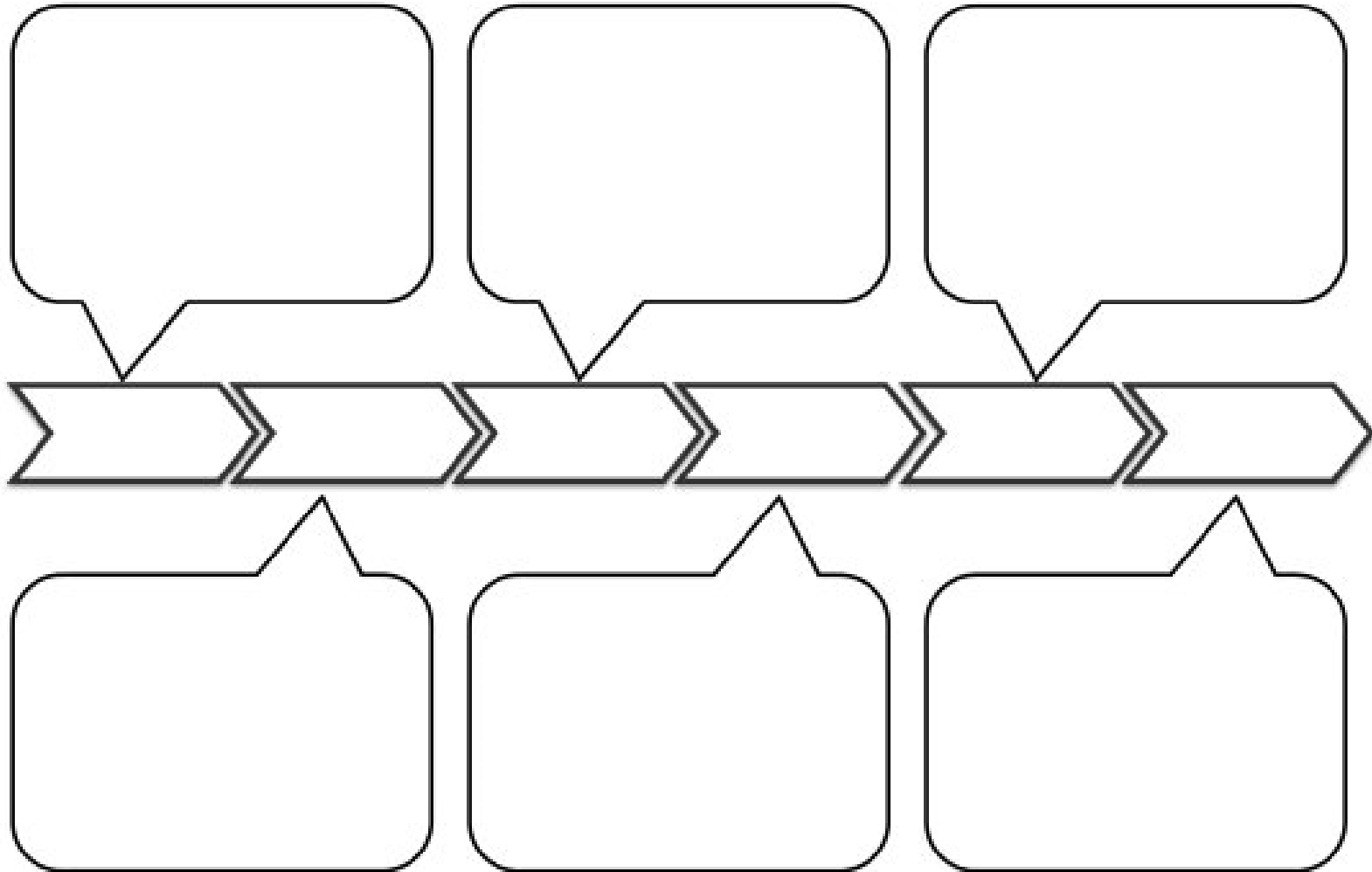
Stock Market Crash

Sequence Chart



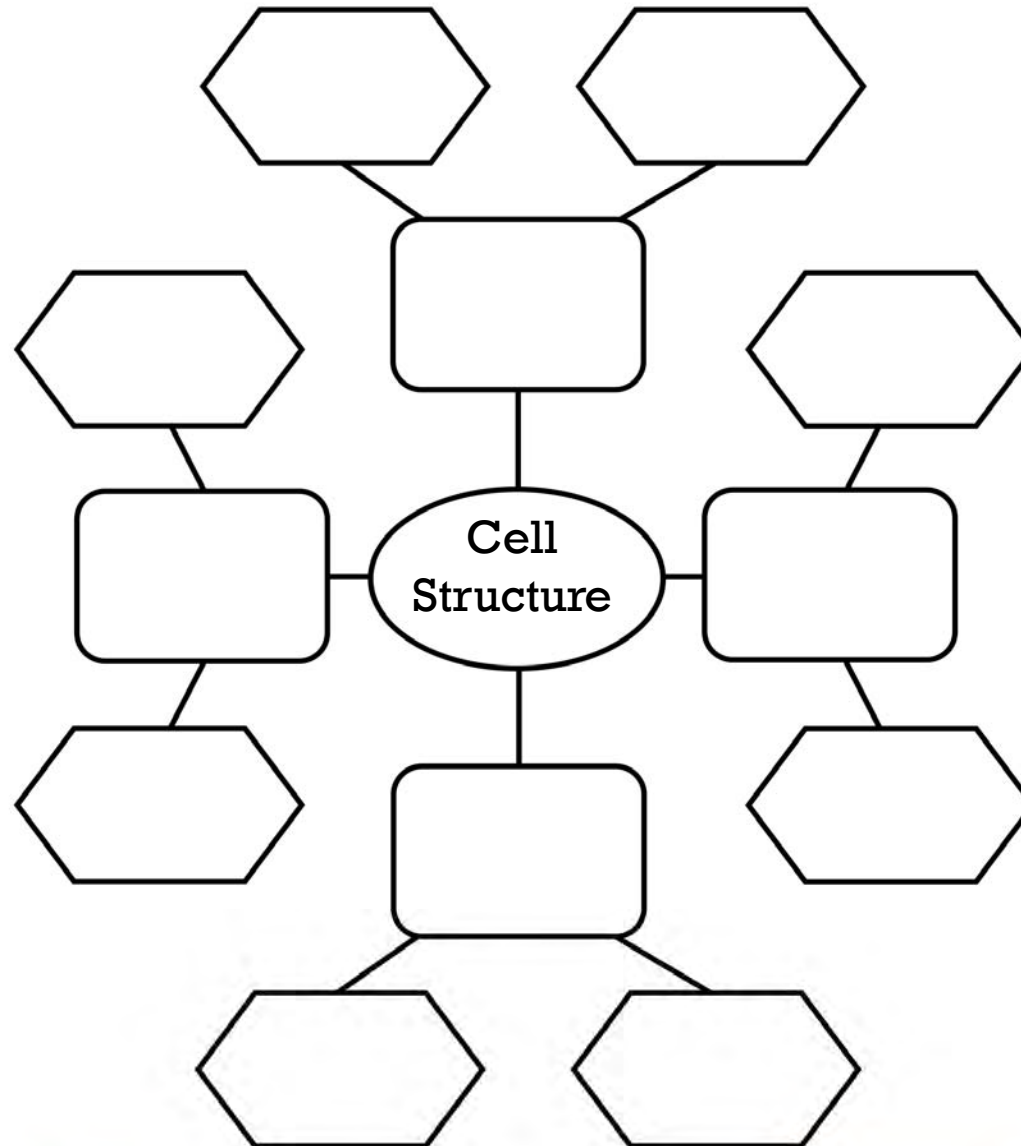
Stock Market Crash

Timeline for:



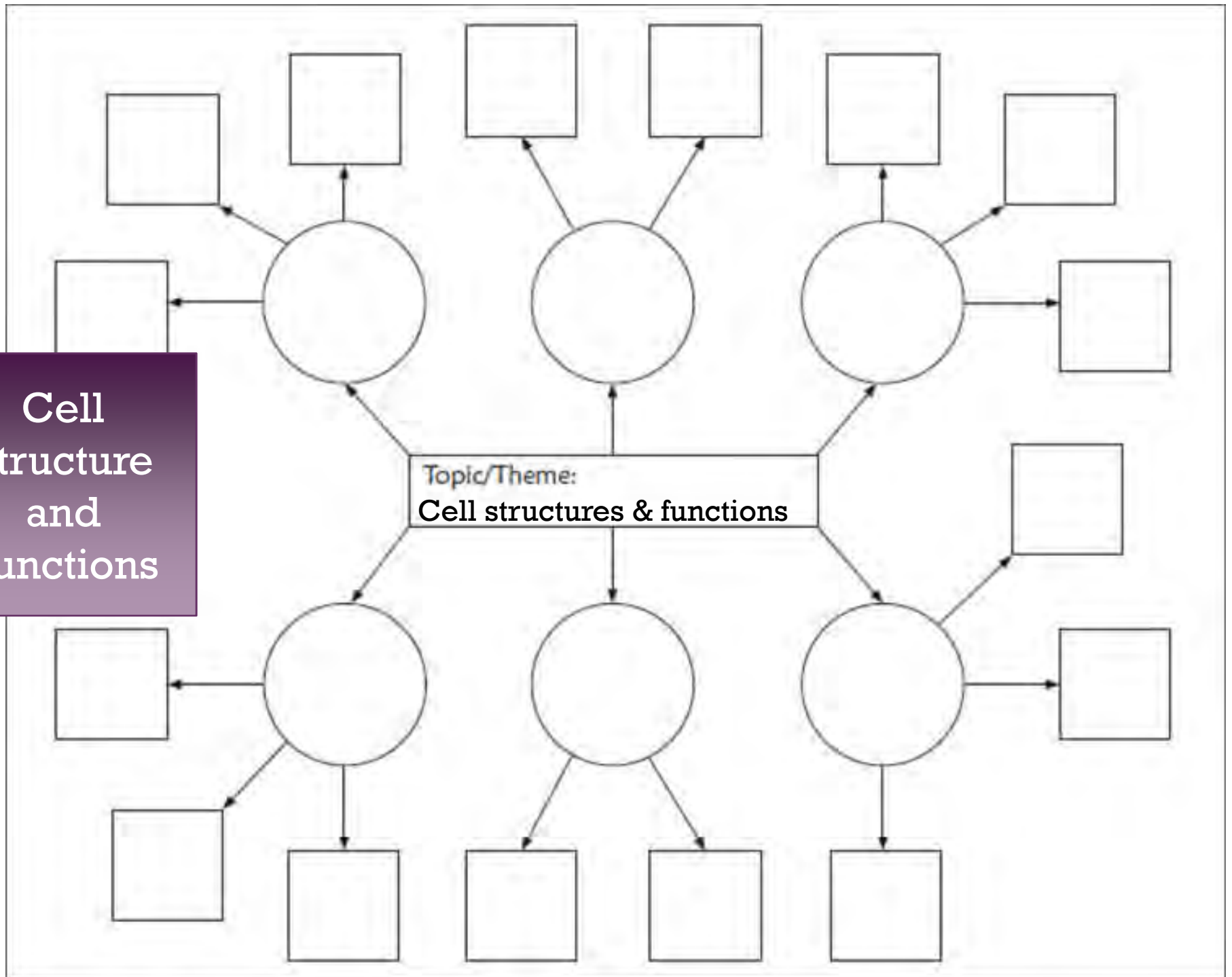
Name: _____ Date: _____

Concept Map: Extended Web



**Cell
Structure
and
Functions**

Cell Structure and Functions



Cell Structure and Functions

Note Taking Template:

Cell Structure

Function(s)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	

Summary:

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Reading
Comprehension
Skills
Strategies



+ Reading Comprehension Strategies

Stock Market Crash

- Summarizing as you go
- Taking notes as you read; Determine importance
- Ask Questions
- Using Text Features (bolding; Glossing Re: Main Ideas)
- Reading Headings and Subheadings
- Reading Pull-Out Boxes, Captions

Cell Structures & Functions

- Re-reading difficult or dense text
- Taking notes as you read
- Monitor comprehension
- Visualize
- Reading Headings and Subheadings
- Using Text Features (bolding; “key” symbols)

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Map/Graph
Skills



+ Map/Graph Skills



Stock Market Crash

- Timelines (with insets)
- Photographs
- Political buttons
- Political cartoons
- Line Graphs

Cell Structures and Functions

- Photographs
- Magnified Images
- Diagrams (Labeled Diagrams)
- Captions
- Explanations of Figures



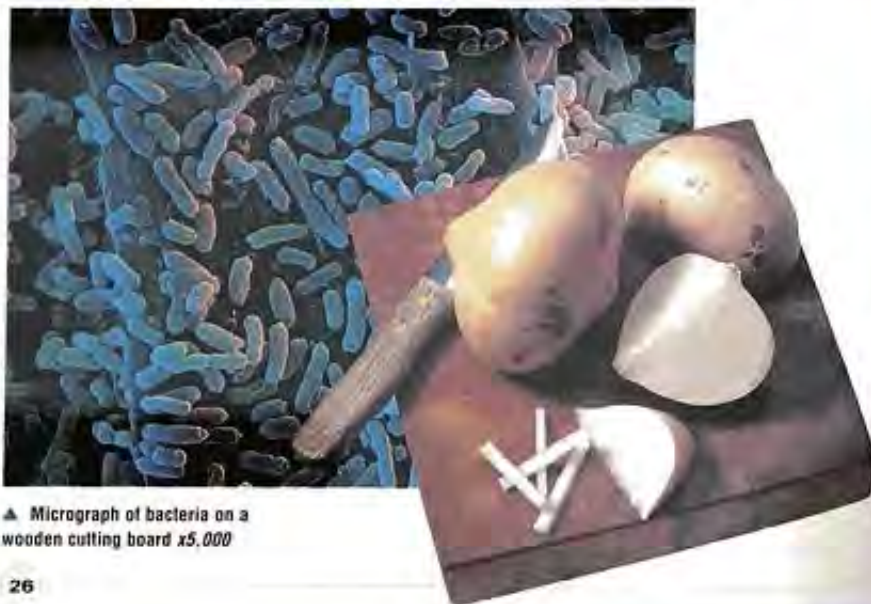
Thinking Like a Scientist

Measuring

When you take a picture with a camera, you end up with a photograph. When scientists take a picture of what they see with a microscope, the result is a micrograph.

When you see a micrograph in a book or magazine, how do you

know the size of the original object? The secret is to look for a measurement—the micrograph's magnification. For example, the micrograph below shows bacteria found on a kitchen cutting board. Printed beside the image is $\times 5,000$. That's the magnification. It means that in this micrograph, the bacteria are 5,000 times (the \times stands for "times") their actual size.



▲ Micrograph of bacteria on a wooden cutting board $\times 5,000$

Practice the Skill

Now that you know the magnification "code," study the micrographs of the cells pictured at right. Then use what you've learned about micro-measuring to answer the questions.

1. What is the magnification of each micrograph?
2. Which cell or type of cell has been magnified the most? The least?
3. Which cell or type of cell is the smallest in real life?

Check It Out

Suppose you have permission to photocopy the picture of the *Paramecium*, and you enlarge it to twice its size. Would the magnification of $\times 110$ still be correct? Explain.



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Communicative
Functions



+ Major Communicative Functions

Stock Market Crash

- State, tell, retell
- Describe
- Sequence events
- Explain causes and effects
- Explain the relationship between the stock market crash, bank failures and unemployment

Cell Structures and Functions

- Describe the function of....
- Describe the role of...
- Name functions of.....
- Compare a cell to a factory
- Compare an animal cell to a plant cell
- Define.....
- Identify/Label



+ Communicative Functions
(Bilingual Progressions) and
Differentiating Instruction in your
Integrated ENL Classroom

ENL Progressions

Differentiated Instruction



Entering



Emerging



Transitioning



Expanding



Commanding

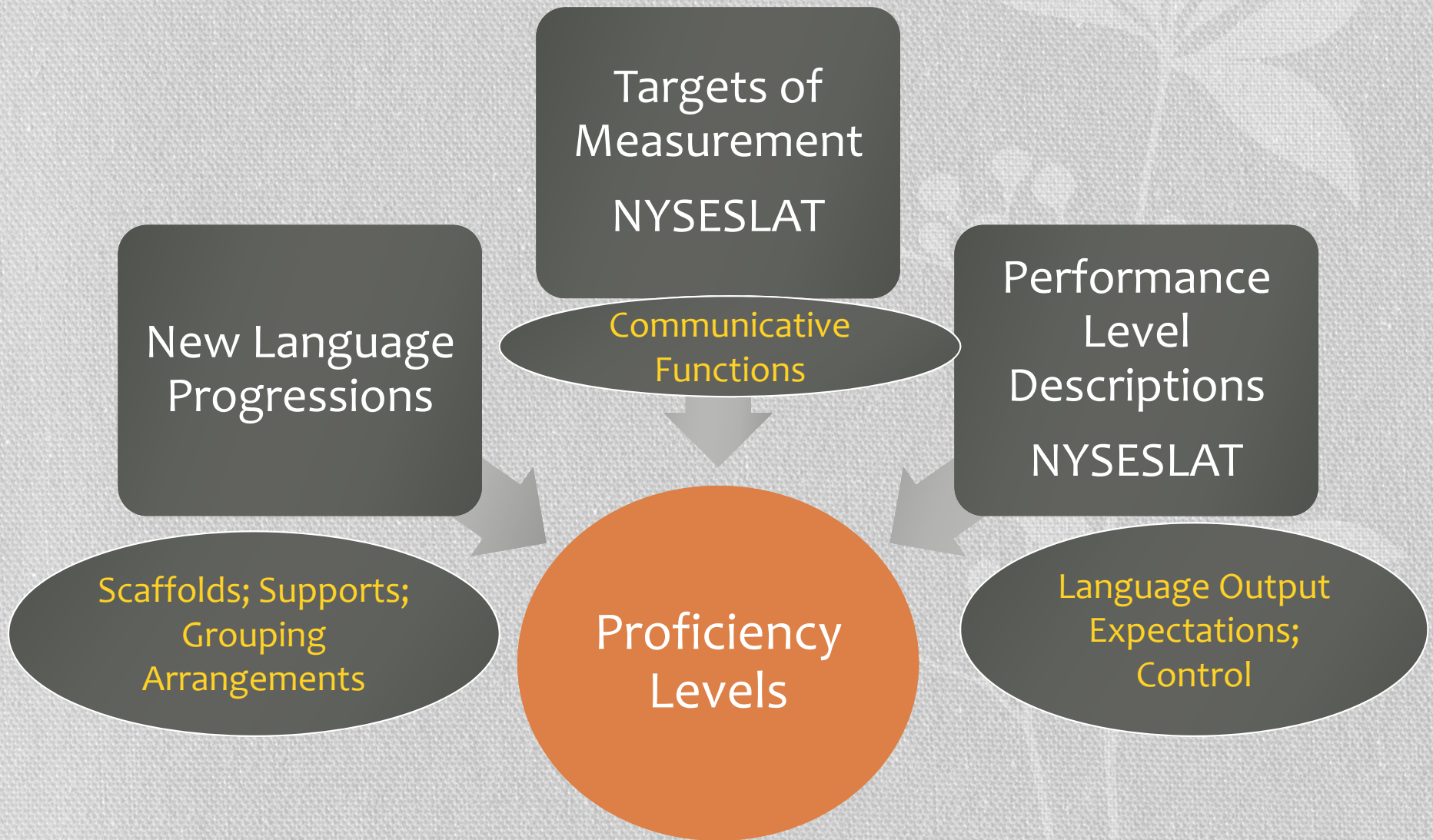
Amount, Complexity of Language Produced
Amount of Scaffolding Needed

Let's Unpack the **Performance Level Descriptions** for Listening, Speaking, Reading and Writing, the **ToMs** and The **New Language Progression** Documents



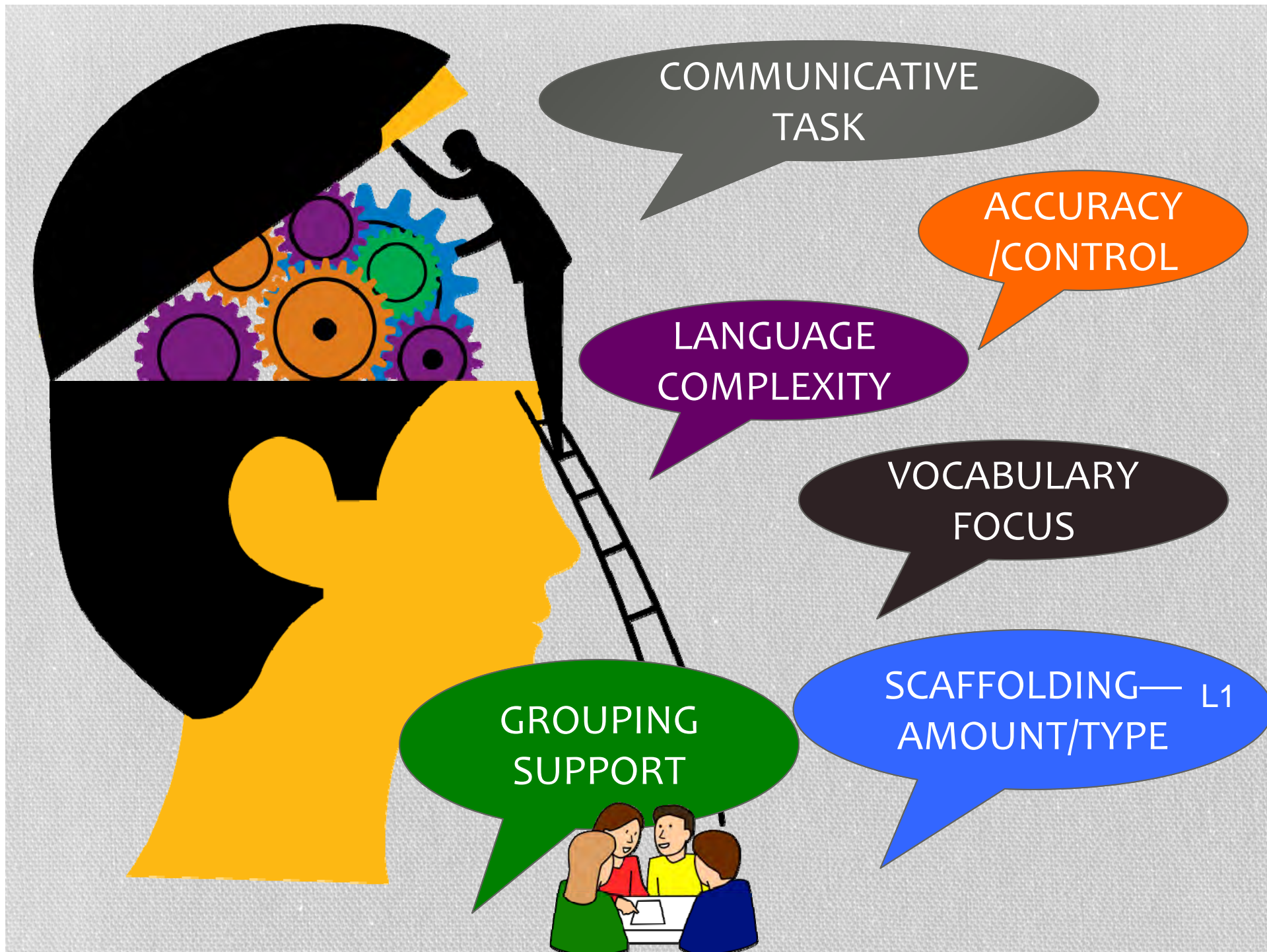
What Do They Tell Us About What Students at Each Proficiency Level Can/Should Be Asked to Do ?

Understanding the 5 Proficiency Levels



Dimensions of Performance:

- **Communicative task**—What the student is asked to do/performance task (identify, determine, organize, evaluate, integrate *information/ideas*)
- **Linguistic Complexity/Language Expectation**- the amount and nature of spoken or written output expected; coherence/cohesion of ideas, sentence types (few words, short phrases, predictable sentences, simple sentences, expanded, complex or variety of sentence types)
- **Level of Accuracy/Language Control** (*expressive*): numerous-to frequent,-to occasional-to infrequent errors; errors totally-mostly-partially-minimally obscure meaning
- **Level of Support:** Substantial, moderate, limited, high level of independence, no support
- **Type of Support/Scaffolds:** use of instructional strategies or tools used to assist students in accessing content necessary for classroom understanding or communication and to help construct meaning from language (e.g. graphic organizers, pre-taught, pre-identified words and phrases), L1/L2
- **Teaching Arrangements:** read alouds, partnerships, teacher-led, small groups, whole class, independent learning arrangements
- **Vocabulary** – the amount of and precision of words or phrases expected; Focus on Tier 1, 2 (3) words (few, some, many)



NYS Proficiency Definitions



READ

LISTEN

VIEW

SPEAKWRITE

Receptive

Expressive

Listening

2016%ISTENING%performance%level%Descriptions%Grade					
GENERAL%CLAIM%% Students%can%etermine% information%in%gradeRevel% spoken%discourse.%	Entering(Emerging(Transitioning(Expanding(Commanding(
Anchor(1(Students%can%identify%key%narrative% elements%and%central%ideas%in%gradeRevel% spoken%discourse.% Target%of%(Measurement(1(Students%can%identify%words,%phrases,%or% sentences%that%signal%important%aspects%of% individuals%or%events,%claims%or% counterclaims,%evidence,%multiple%points% of%view,%rhetorical%devices,%and/or%the% message%or%theme%in%gradeRevel%spoken% discourse.%	Student%may,%with% substantial%support,%identify% a%few%words,%short%phrases,% or%predictable%sentences% that%signal%important% aspects%of%individuals%or% events,%claims%or% counterclaims,%evidence,% multiple%points%of%view,% rhetorical%devices,%and/or% the%message%or%theme%in% gradeRevel%spoken% discourse.%	Student%can,%with%moderate% support,%identify%some% words,%phrases,%or%a%few% simple%sentences%that% signal%important%aspects%of% individuals%or%events,% claims%or%counterclaims,% evidence,%multiple%points% of%view,%rhetorical%devices,% and/or%the%message%or% theme%in%gradeRevel% spoken%discourse.%	Student%can,%with%limited% support,%identify%most% phrases,%simple%sentences,% or%a%few%expanded%or% complex%sentences%that% signal%important%aspects%of% individuals%or%events,% claims%or%counterclaims,% evidence,%multiple%points% of%view,%rhetorical%devices,% and/or%the%message%or% theme%in%gradeRevel% spoken%discourse.%	Student%can%identify%most% simple%or%some%expanded% or%complex%sentences%that% signal%important%aspects%of% individuals%or%events,% claims%or%counterclaims,% evidence,%multiple%points% of%view,%rhetorical%devices,% and/or%the%message%or% theme%in%gradeRevel% spoken%discourse.%	Student%can%identify%a% variety%of%simple,% expanded,%or%complex% sentences%that%signal% important%aspects%of% individuals%or%events,% claims%or%counterclaims,% evidence,%multiple%points% of%view,%rhetorical%devices,% and/or%the%message%or% theme%in%gradeRevel% spoken%discourse.%
Anchor(2(Students%can%identify%words,%phrases,%and% sentences%used%to%elaborate%on%and% connect%ideas%in%gradeRevel%spoken% discourse.% Target%of%(Measurement(2(Students%can%identify%words,%phrases,%or% sentences%that%signal%or%convey%key% details,%sequence,%connections,%relationships,% conclusions,%and/or%interactions%that% develop%or%refine%gradeRevel%spoken% discourse.%	Student%may,%with% substantial%support,%identify% a%few%words,%short%phrases,% or%predictable%sentences% that%signal%or%convey%key% details,%sequence,% connections,%relationships,% conclusions,%and/or% interactions%that%develop%or% refine%gradeRevel%spoken% discourse.%	Student%can,%with%moderate% support,%identify%some% words,%phrases,%or%a%few% simple%sentences%that% signal%or%convey%key% details,%sequence,% connections,%relationships,% conclusions,%and/or% interactions%that%develop%or% refine%gradeRevel%spoken% discourse.%	Student%can,%with%limited% support,%identify%most% phrases,%simple%sentences,% or%a%few%expanded%or% complex%sentences%that% signal%or%convey%key% details,%sequence,% connections,%relationships,% conclusions,%and/or% interactions%that%develop%or% refine%gradeRevel%spoken% discourse.%	Student%can%identify%most% simple%or%some%expanded% or%complex%sentences%that% signal%or%convey%key% details,%sequence,% connections,%relationships,% conclusions,%and/or% interactions%that%develop%or% refine%gradeRevel%spoken% discourse.%	Student%can%identify%a% variety%of%simple,% expanded,%or%complex% sentences%that%signal%or% convey%key%details,% sequence,%connections,% relationships,%conclusions,% and/or%interactions%that% develop%or%refine%gradeRevel% spoken%discourse.%
Anchor(3(Students%can%determine%the%meaning%of% vocabulary%in%gradeRevel%spoken%discourse.% Target%of%(Measurement(3(Students%can%determine%the%literal,% figurative,%or%connotative%meaning%of%Tier% 1%and%Tier%2%vocabulary,%including%the% cumulative%meaning%of%words%and%phrases,% and%their%impact%in%gradeRevel%spoken% discourse.%	Student%may%determine% the%literal%meaning%of% Tier%1%words,%and% impact%in%gradeRevel% spoken%discourse.%	Student%can%determine% the%literal%and%some% figurative%meanings%of% Tier%1%and%Tier%2%words,% including%the%cumulative% meaning%of%words%and% phrases,%and%their%impact% in%gradeRevel%spoken% discourse.%	Student%can%determine% most%of%the%literal%and% some%of%the%figurative% connotative%meanings%of% Tier%1%and%Tier%2%words,% including%the%cumulative% meaning%of%words%and% phrases,%and%their%impact% in%gradeRevel%spoken% discourse.%	Student%can%determine% most%of%the%literal%and% some%of%the%figurative% connotative%meanings%of% Tier%1%and%Tier%2%words,% including%the%cumulative% meaning%of%words%and% phrases,%and%their%impact% in%gradeRevel%spoken% discourse.%	Student%can%determine% most%of%the%literal,% figurative,%or%connotative% meanings%of%Tier%1%and%Tier% 2%words,%including%the% cumulative%meaning%of% words%and%phrases,%and% their%impact%in%gradeRevel% spoken%discourse.%

Language Output
Expectations;
Control

Speaking
Reading
Writing

New Language Progressions-Listening

NEW LANGUAGE ACQUISITION PROGRESSIONS (SL/New Language)

Grades 9–10: Speaking and Listening 3

Common Core Anchor Standard (SL.3): Evaluate a speaker's point of view, reasoning and use of evidence and rhetoric.		MAIN ACADEMIC DEMAND <i>Evaluate a Speaker's Point of View</i>				
Common Core Grade 9–10 Standard (SL.9–10.3): Evaluate a speaker's point of view, reasoning and use of evidence and rhetoric, identifying fallacious reasoning or exaggerated or distorted evidence.		GRADE LEVEL ACADEMIC DEMAND <i>Evaluate a Speaker's Point of View, Evidence and Rhetoric Identify Distorted Evidence</i>				
5 Levels of Language Development		Entering (Beginner)	Emerging (Low Intermediate)	Transitioning (High Intermediate)	Expanding (Advanced)	Commanding (Proficient)
When acquiring a new language, using grade level texts and appropriate supports, students are able to:						
RECEPTIVE	Oracy and Literacy Links	Listening-Centered Activity: Organize <i>pretaught words and phrases on a T-chart</i> that compares and contrasts sound reasoning and evidence with fallacious reasoning and distorted evidence, to evaluate a speaker's point of view, as an audio recording is played in <i>partnership and/or teacher-led small groups</i>	Listening-Centered Activity: Organize <i>preidentified words and phrases on a T-chart</i> that compares and contrasts sound reasoning and evidence with fallacious reasoning and distorted evidence, to evaluate a speaker's point of view, as an audio recording is played in <i>partnership and/or small groups</i>	Listening-Centered Activity: Organize <i>phrases and sentences on a partially completed T-chart</i> that compares and contrasts sound reasoning and evidence with fallacious reasoning and distorted evidence, to evaluate a speaker's point of view, as an audio recording is played in <i>partnership, small group and/or whole class settings</i>	Listening-Centered Activity: Organize <i>information on a T-chart</i> that compares and contrasts sound reasoning and evidence with fallacious reasoning and distorted evidence, to evaluate a speaker's point of view, as an audio recording is played in <i>partnership, small group and/or whole class settings</i>	Listening-Centered Activity: Organize <i>information</i> when taking notes independently, to compare and contrast sound reasoning and evidence with fallacious reasoning and distorted evidence, to evaluate a speaker's point of view, as an audio recording is played in <i>partnership, small group and/or whole class settings</i>
		Reading-Centered Activity: Organize <i>pretaught words and phrases on a T-chart</i> that identifies the speaker's main idea(s), sound reasoning and evidence, to identify and evaluate evidence used by the speaker, when reading a speech or position paper	Reading-Centered Activity: Organize <i>preidentified words and phrases on a T-chart</i> that identifies the speaker's main idea(s), sound reasoning and evidence, to identify and evaluate evidence used by the speaker, when reading a speech or position paper	Reading-Centered Activity: Organize <i>phrases and sentences on a partially completed T-chart</i> that identifies the speaker's main idea(s), sound reasoning and evidence, to identify and evaluate evidence used by the speaker, when reading a speech or position paper	Reading-Centered Activity: Organize <i>information on a T-chart</i> that identifies the speaker's main idea(s), sound reasoning and evidence, to identify and evaluate evidence used by the speaker, when reading a speech or position paper	Reading-Centered Activity: Organize <i>information in a note-taking guide</i> , independently, to identify and evaluate the speaker's main idea(s), sound reasoning and evidence
		<i>in the new and/or the home language.</i>	<i>in the new and/or the home language.</i>	<i>in the new and, occasionally, in the home language.</i>	<i>in the new language.</i>	

Scaffolds; Supports;
Grouping
Arrangements

Draft

NLAP Speaking and Listening (SL)
SL.3: SL.9–10.3

English

Support Examples

Sensory Supports	Graphic Supports	Interactive Supports
<ul style="list-style-type: none">• Real-life objects (realia)• Manipulatives• Pictures & photographs• Illustrations, diagrams & drawings• Magazines & newspapers• Physical activities• Videos & Films• Broadcasts• Models & figures	<ul style="list-style-type: none">• Charts• Graphic organizers• Tables• Graphs• Timelines• Number lines	<ul style="list-style-type: none">• In pairs or partners• In triads or small groups• In a whole group• Using cooperative group structures• With the Internet (Web sites) or software programs• In the native language (L1)• With mentors


Targets of Measurement: Writing

Communicative
Functions

Claim	Anchor	Target of Measurement	Language Purpose/Function/Characteristics
GENERAL CLAIM 1 Students can structure thoughts and ideas in writing.	ANCHOR 1 Students can create and structure a written text.	TOM.W.9–12.1 Students can use grade-appropriate language to orient the reader, logically organize and connect ideas, and provide closure in a written text.	produce: a clear introduction or orientation ideas presented and connected in an organized manner concluding words or phrases
GENERAL CLAIM 2 Students can write about literary and informational texts and topics.	ANCHOR 2 Students can adapt vocabulary appropriately when writing.	TOM.W.9–12.2 Students can use grade-appropriate words and phrases, including grade-level Tier 2 and Tier 3 words, to precisely describe detailed ideas and facts in a written text.	provide or describe: an individual, an event, a place, or an idea precisely precise, relevant details precise, relevant facts, claims, or evidence grade-level Tier 2 and Tier 3 words to explain ideas, claims, or evidence
	ANCHOR 3 Students can create a narrative written text.	TOM.W.9–12.3 Students can use grade-appropriate language to provide or refer to multiple characters, well-chosen details, sequenced events, and closure to develop a narrative text.	establish or develop: narrative elements (a narrator, characters, setting, events, situation) well-chosen descriptive details to create precise images a well-sequenced, cohesive narrative closure to a narrative
	ANCHOR 4 Students can create an informational written text.	TOM.W.9–12.4 Students can use grade-appropriate language to provide precise, well-chosen, cohesive claims and evidence; a variety of support; and closure to develop an informational text.	produce or develop: a topic with claims and evidence well-chosen evidence (facts and details) to support a claim or an opinion logical transitions and connections between ideas to create cohesion closure to a topic

How do language expectations change for Listening?

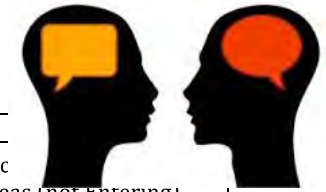
Listening (9-12)	
Integrate...narrative elements, key details, characteristics, facts, descriptors, claims, evidence, and.../solution; cause/effect, argument and support, theme or message; provide information;	
Determine.../solution; cause/effect, argument and support, theme or message; provide information;	

Proficiency Levels	Language Expectations	Vocabulary Targets	Type of Support Scaffolds	Teaching Arrangements	Level of Support
Entering <i>Some ToMs don't apply</i>	Identify a few words Short phrases Predictable sentences (that... [*] signal/refer to/convey information, a claim, evidence, a message, theme, key detail, sequence, connections, relationships, conclusions. opinion and reasons)	Determine the literal meaning of some Tier 1 words and their impact 	Organize pre-taught words in a main idea web In new or home language	Read aloud Partnerships Teacher-led groups	Substantial support
Emerging	Identify some words, phrases Few simple sentences (that...)	Determine the literal meaning of some Tier 1 and a few Tier 2 words and their impact	Organize pre-identified words in main idea web In new or home language	Read Aloud Partnerships Teacher-led groups	Moderate Support
Transitioning	Identify most phrases, simple sentences and a few expanded or complex sentences (that...)	Determine most of the literal and a few of the figurative or connotative meanings of Tier 1 and Tier 2 words and phrases and their impact	Organize phrases and sentences on partially completed main idea web In new or home language	Read Aloud Partnerships Teacher-led groups Whole class	Limited Support
Expanding	Identify most simple or some expanded or complex sentences (that...)	Determine most of the literal and some of the figurative or connotative meanings of Tier 1 and 2 words and phrases and their impact	Complete a main idea web In new language	Small group Whole class After teacher modeling	Largely Independent
Commanding	Identify a variety of simple, expanded and complex sentences (that...)	Determine most of the literal, figurative or connotative meanings of Tier 1 and 2 words and phrases and their impact	Create or complete a main idea web In new language	Small group Whole class Individually	No Support Needed

* Shaded columns come from the Progressions; Rest from the Performance Level Descriptions and Targets of Measurement

How do vocabulary targets change for Reading?

Reading (9-12)



sequence, and refer to information, key details, point of view, a claim, evidence, cause-effect, problem-solution, opinion-reasons; development of ideas (not Entering)

Proficiency Level	Language Features	Vocabulary Targets	Type of Support	Teaching Strategies	Level of Support
Entering Anchor 4 and 5 don't apply to Entering involve text structures	A few words Short phrases Predictable sentences that <u>indicate, signal, refer to information, a claim, evidence, a message, theme, etc.</u>	Determine the literal meaning of some Tier 1 words and their impact in text	Organize pre-taught words in a main idea web; graphic organizer In new or home language	Read aloud Partnerships Teacher-led groups	Substantial support
Emerging	Some words, phrases Few simple sentences that...	Determine the literal meaning of some Tier 1 and a few Tier 2 words and their impact in text	Organize pre-identified words in main idea web; graphic organizer In new or home lang.	Read Aloud Partnerships Small groups	Moderate Support
Transitioning	Most phrases, simple sentences and a few expanded or complex sentences that...	Determine most of the literal and a few of the figurative or connotative meanings of Tier 1 and Tier 2 words and phrases and their impact in text; use context clues & textual information to determine meaning	Organize phrases and sentences on partially completed main idea web; graphic organizer In new or home language	Read Aloud Partnerships Small groups Whole class	Limited Support
Expanding	Most simple or some expanded or complex sentences that...	Determine most of the literal and some of the figurative or connotative meanings of Tier 1 & 2 words and phrases and their impact in text; use imagery to find meaning	Organize main idea and supportive details after teacher modeling; with a glossary In new language	Partnership Small group Whole Class	Largely Independent
Commanding	A variety of simple, expanded and complex sentences that...	Determine most of the literal, figurative or connotative meanings of Tier 1 & 2 words and phrases and their impact in text	Organize information on a note taking guide In new language	Partnership Small Group Whole Class Individually	No Support Needed

* Shaded columns come from the Progressions: Rest from the Performance Level Descriptions and Targets of Measurement



How do the scaffolds and supports change for Speaking?

Speaking (9-12)

Communicative Function: contributes to a conversation, conveys relevant details, describes phenomena, contributes to a conversation/discussion, paraphrases information, main points in a coherent manner, expresses an opinion or claim supported by reasons, co-justifies response, analyzes a topic or evaluates evidence

Proficiency Levels	Language Expectations	Errors	Vocabulary Targets	Type of Support Scaffolds	Teaching Arrangements	Level of Support
Entering <i>Some ToMs not applicable</i>	<i>Uses a few words Short phrases Predictable sentences</i>	<i>Response may contain errors that totally obscure meaning</i>	<i>Use common Tier 1 and grade level Tier 2 words and short phrases</i>	<i>Use sentence starters with or without graphics; New and home language</i>	<i>Partnerships Teacher-led groups</i>	<i>Substantial support</i>
Emerging	<i>Uses phrases and simple sentences</i>	<i>Response may contain errors in words and structure that mostly obscure meaning</i>	<i>Use words and short phrases including common grade level Tier 2 words; Describe ideas and facts</i>	<i>Use sentence starters with or without graphics; New and home language</i>	<i>Partnerships Small groups Whole class</i>	<i>Moderate Support</i>
Transitioning	<i>Uses simple sentences and expanded sentences</i>	<i>Response may contain errors in words and structure that partially obscure meaning</i>	<i>Use words and phrases including a few grade level Tier 2 & 3 words; Describe detailed ideas and facts</i>	<i>Use word bank; graphics New and home language</i>	<i>Partnerships Small groups Whole class</i>	<i>Limited Support</i>
Expanding	<i>Uses simple, expanded or complex sentences</i>	<i>Response may contain some errors in words and structure that minimally obscure meaning</i>	<i>Use words and phrases including some grade level Tier 2 & 3 words; Describe detailed ideas and facts</i>	<i>Use previously completed graphic organizer, T chart New language</i>	<i>Partnerships Small Groups Whole Class</i>	<i>Largely Independent</i>
Commanding	<i>Uses a variety of simple, expanded and complex sentences and fluid language</i>	<i>Response contains few or no errors in word choice and structure that obscure meaning</i>	<i>Use words and phrases including grade level Tier 2 and 3 words; Offer precisely detailed descriptions</i>	<i>Use knowledge of the topic or text independently; New language</i>	<i>Small groups Whole class</i>	<i>No Support Needed</i>

* Shaded columns come from the Progressions; Rest from the Performance Level Descriptions and Targets of Measurement



How do language expectations, errors, organization, vocabulary change for **Writing**?

Writing (9-12)

provide an orientation or an idea; express opinions, sequence, describe, detail ideas, facts, provide closure, explain, develop a narrative; development of claims and evidence;

Proficiency Levels	Language Expectations	Errors	Organization	Vocabulary Targets	Type of Support Scaffolds	Teaching Arrangements	Level of Support
Entering <i>Some ToMs not applicable</i>	<i>A few words Short phrases Predictable sentences</i>	<i>Writing includes numerous errors; errors may totally obscure meaning</i>	<i>Writing lacks orientation, organized or connected ideas or closure; lacks development</i>	<i>Use common Tier 1 and grade level Tier 2 words and short phrases; Give ideas and facts</i>	<i>Structure thoughts and ideas; Cloze paragraph New or home language</i>	<i>Partnerships Teacher-led groups</i>	<i>Substantial support</i>
Emerging	<i>Some words, phrases Few simple sentences</i>	<i>Writing includes frequent errors; errors may obscure meaning</i>	<i>Writing includes basic orientation, organized or connected ideas or closure; basic development</i>	<i>Use words and short phrases including common grade level Tier 2 words; Describe ideas and facts</i>	<i>Write one to two paragraphs; New or home language</i>	<i>Partnerships Small groups</i>	<i>Moderate Support</i>
Transitioning	<i>Most phrases, simple sentences and a few expanded or complex sentences</i>	<i>Writing includes frequent errors; errors may obscure meaning</i>	<i>Writing includes limited orientation, logically organized or connected ideas, and/or closure; limited development</i>	<i>Use words and phrases including a few grade level Tier 2 & 3 words; Describe detailed ideas and facts</i>	<i>Use a word bank or graphic organizer to write a short essay; New or home language</i>	<i>Partnerships Small groups Whole class</i>	<i>Limited Support</i>
Expanding	<i>Most simple or some expanded or complex sentences</i>	<i>Writing includes occasional errors; errors do not obscure meaning</i>	<i>Writing includes partial orientation, logically organized and connected ideas and closure, partial development</i>	<i>Include some grade level Tier 2 & 3 words; Describe detailed ideas and facts</i>	<i>Use a teacher-provided model and graphic organizers to write an essay; New language</i>	<i>Partnerships Small groups</i>	<i>Largely Independent</i>
Commanding	<i>A variety of simple, expanded and complex sentences</i>	<i>Writing includes infrequent errors; errors do not obscure meaning</i>	<i>Writing includes sufficient orientation, logically organized and connected ideas and closure</i>	<i>Use words and phrases including grade level Tier 2 & 3 words; Give precisely detailed descriptions</i>	<i>Use knowledge of the topic independently to write a multiple-page essay; New language</i>	<i>Partnerships Small groups Independently</i>	<i>No Support Needed</i>

Have Same Charts for Grades 5-6

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What Did You Notice: Planning for a Multi-Level Class

Differentiated Assignment/Assessment Template

Assignment: _____

Level 1	Level 2	Level 3	Level 4	Level 5	Fully English Proficient
Language-Based Expectations:	Language-Based Expectations:	Language-Based Expectations:	Language-Based Expectations:	Language-Based Expectations:	Language-Based Expectations:

Standards-Based Content or Topic (from the curriculum):

Scaffolding and Support:	Scaffolding and Support:	Scaffolding and Support:	Scaffolding and Support:	Scaffolding and Support:	Scaffolding and Support:

Scaffolding

Figure 3G: Examples of Sensory, Graphic and Interactive Supports

Sensory Supports	Graphic Supports	Interactive Supports
<ul style="list-style-type: none">• Real-life objects (realia)• Manipulatives• Pictures & photographs• Illustrations, diagrams & drawings• Magazines & newspapers• Physical activities• Videos & Films• Broadcasts• Models & figures	<ul style="list-style-type: none">• Charts• Graphic organizers• Tables• Graphs• Timelines• Number lines	<ul style="list-style-type: none">• In pairs or partners• In triads or small groups• In a whole group• Using cooperative group structures• With the Internet (Web sites) or software programs• In the native language (L1)• With mentors



+ Tie Instruction to City and
State Standards



Department of
Education

Carmen Fariña, Chancellor



New York City

9-12

Social Studies Scope & Sequence

2014-2015



11

Grade Eleven: United States History and Government

1	2	3	4	5	6	7
UNIT 1: Forming a Union: Colonial and Constitutional Foundations (1607 – ca. 1800)	UNIT 2: Expansion, Nationalism, and Sectionalism (1800 – 1865)	UNIT 3: Post-Civil War America Industrialization, Urbanization and the Progressive Movement (1865 – ca. 1900)	UNIT 4: Prosperity and Depression: At Home and Abroad (ca. 1890 – 1941)	UNIT 5: World War II and the Cold War (1935 – 1990)	UNIT 6: Social and Economic Change: Domestic Issues (1945 – present)	UNIT 7: The United States and Globalization (1990 – present)
SEPTEMBER – OCTOBER	NOVEMBER	DECEMBER – JANUARY	FEBRUARY – MID-MARCH	MID-MARCH – APRIL	MAY	JUNE
Essential Question: What are American foundations for liberty and freedom?	Essential Question: Was the Civil War inevitable?	Essential Question: How was America's response to the challenges of growth & progress aligned to its ideals of democracy?	Essential Question: How does a nation balance its own needs and interests with that of other nations?	Essential Question: To what extent have America's responses to foreign policy challenges been successful?	Essential Question: Is there one America or many?	Essential Question: Is the United States moving toward or away from its foundational ideals?
Inquiries <ol style="list-style-type: none"> How did Native Americans of the Atlantic coast resist European settlement? How did the geographic location of colonial cities influence their development? What demographic forces contributed to the emergence of slavery? What factors led English men and women to move to the 13 colonies? What factors led the Irish to move (or be deported) to the 13 colonies? What factors led the Dutch to immigrate to Colonial NY, NJ, and DE? Was the Declaration of Independence a revolutionary document? What role did compromise play in creating the U.S. Constitution? 	Inquiries <ol style="list-style-type: none"> Would the Civil War have occurred without the invention of the Cotton Gin? Why or Why not? Why did legislative compromises dealing with slavery and expansion fail to avoid a constitutional crisis? Was the treatment of Native Americans by the U.S. government inconsistent with fundamental American values? In what ways was the United States becoming a nation of two economic systems during 1800-1861? 	Inquiries <ol style="list-style-type: none"> How did Reconstruction affect the lives of all southerners? Should Reconstruction be considered a success or failure? Did Westward Expansion nurture or restrict democracy? For Native Americans? For slaves? For the environment? How did the Industrial Revolution transform American society? What were the greatest challenges that immigrants faced in the United States? What political, social, and economic problems led to the demand for reforms? 	Inquiries <ol style="list-style-type: none"> What were the economic, political and social causes of American imperialism? Did the United States become an empire in the years 1890-1940? Why or Why not? How did WWI and WWII benefit the U.S. economy? What important social changes took place in America during and after WWI? Why was the KKK able to become a national organization during the 1920s? Which groups suffered the most from the Stock Market Crash of 1929 and the Great Depression? Why? Did the New Deal alleviate their suffering? 	Inquiries <ol style="list-style-type: none"> Are some wars more just than others? How and Why? What was the rationale for wartime internment of Americans? Could another wartime internment occur today? Why or Why not? What factors led to the Cold War? Was it inevitable? Was the threat of global communism genuine? Why or Why not? Following WWII, was the U.S. an effective mediator in the conflicts in the Middle East? Why or Why not? Did President Reagan "win the Cold War"? Why or Why not? 	Inquiries <ol style="list-style-type: none"> How did the H-bomb and threat of nuclear annihilation affect American society? How did the Interstate Highway Act transform American society? Why weren't Jim Crow laws affected after the <i>Brown v. Board of Education</i> decision? Has America lived up to the vision of Dr. Martin Luther King, Jr.? What were the actions and values of the American counterculture and New Left in the 1960s? How do Federal, state and local legislation affect de jure and de facto discrimination? 	Inquiries <ol style="list-style-type: none"> What is globalization and why does it matter? How did the strengths and weakness of the U.S. economy shape foreign and domestic policy? How did Clinton's foreign policy differ from the policies of Reagan/Bush? What led to the invasion of Afghanistan and the 2nd Iraq War? What were the consequences? How does the War on Terror compare to earlier U.S. military operations in Panama, Vietnam, and/or Korea? Are we a nation of haves and have-nots? Why is it so difficult to discuss class in the U.S.?



1	UNIT 1: Forming a Union: Colonial and Constitutional Foundations (1607 – ca. 1800)		3	UNIT 3: Post-Civil War America Industrialization, Urbanization and the Progressive Movement (1865 – ca. 1900)	4	UNIT 4: Prosperity and Depression: At Home and Abroad (ca. 1890 – 1941)	5	UNIT 5: World War II and the Cold War (1935 – 1990)	6	UNIT 6: Social and Economic Change: Domestic Issues (1945 – present)	
SEPTEMBER – OCTOBER			DECEMBER – JANUARY		FEBRUARY – MID-MARCH		MID-MARCH – APRIL		MAY		
Essential Question: What are American foundations for liberty and freedom?			Essential Question: How was America's response to the challenges of growth & progress aligned to its ideals of democracy?		Essential Question: How does a nation balance its own needs and interests with that of other nations?		Essential Question: To what extent have America's responses to foreign policy challenges been successful?		Essential Question: Is there one America or many?		
<ul style="list-style-type: none"> Executive Cabinet Washington's advice to avoid political parties Neutrality, Election of 1800 Thomas Jefferson's election <ul style="list-style-type: none"> Tradition of peaceful transfer of power Presidential election of 2000 <p><i>The Marshall Court (1801 – 1835)</i></p> <ul style="list-style-type: none"> John Marshall, Federalist, strengthening of the Federal government and the Judicial Branch <i>Marbury v. Madison</i> (1803) <i>McCulloch v. Maryland</i> (1819) <i>Gibbons v. Ogden</i> (1824) 			<ul style="list-style-type: none"> Mergers and trusts – <i>United States v. E.C. Knight</i> (1895) Strengthening railroad regulation and consumer protection (Commerce Act, Sherman Antitrust Act) Trust-busting (<i>Northern Securities Co. v. United States</i> (1904), Standard Oil) <p>Rapid Industrialization and Urbanization Leads to New Reforms 11.5b</p> <ul style="list-style-type: none"> New sources of labor/immigrants (eastern/southern Europe and Asia) Demographic trends 1840 – 1920 (Irish, Italian, Russian, Jewish, Polish immigration) Push factors leading to immigration (political unrest, famine, unemployment, war, religious persecution) <p style="text-align: right;"><i>cont.</i></p>		<p>Onset of the Great Depression</p> <ul style="list-style-type: none"> Weakness in the economy Overproduction/under consumption The Dust Bowl Overexpansion of credit The stock market crash, Black Tuesday, Black Thursday Worldwide effects Interdependent banking systems Political repercussions Culture (Langston Hughes and John Steinbeck, WPA, Hollywood, comic books and superheroes) <p>Herbert H. Hoover</p> <ul style="list-style-type: none"> Rugged individualism, trickle-down economics Reconstruction Finance Corporation Boulder Dam (Hoover Dam), public works jobs Unemployment, Bonus Army, General MacArthur, Hoovervilles <p style="text-align: right;"><i>cont.</i></p>		<p>Foreign Policy 11.9c</p> <ul style="list-style-type: none"> The U.S. and the Middle East during the Cold War The U.S. after Vietnam Embargo against Cuba Fall of South Vietnam U.S. support for the State of Israel Camp David Accords Oil crisis Middle East mediation The Afghanistan invasion by Russia U.S. boycotts Olympics and grain SALT II Iranian hostage crisis Falling popularity of Carter <p>The Cold War Ends 11.9d</p> <ul style="list-style-type: none"> Reagan Doctrine Evil empire speech Russian invasion of Afghanistan, U.S. support for Afghanistan Iran-Contra (1985 –1986) <p style="text-align: right;"><i>cont.</i></p>		<p>Environmental problems</p> <ul style="list-style-type: none"> Oil crisis, shifting energy priorities Environmental Protection Agency Environmental concerns, Three Mile Island, toxic waste, acid rain Silent Spring Clean Air Acts, Clean Water Act, Endangered Species Act, Environmental Protection Agency Modifications to Great Society programs <p>New approaches to old and new problems</p> <ul style="list-style-type: none"> Modifications to the DEA, food stamps, revenue sharing Ratification of the 16th Amendment Feast and famine The problems of poverty in an affluent society Immigration Debate, Immigration Act of 1965 <p style="text-align: right;"><i>cont.</i></p>		

2	UNIT 2: A Changing Society and The Progressive Era		4 UNIT 4: WWI and The United States between Wars	5 UNIT 5: The United States Assumes Worldwide Responsibilities	6 UNIT 6: The Changing Nature of the American People
	OCT. – NOV.		JAN. – FEB.	MARCH – APRIL	MAY – JUNE
	<p>Essential Question: How do people, policies and technological advances shape a nation?</p> <ul style="list-style-type: none"> Key events (Haymarket Affair, Pullman and International Ladies Garment Workers' Union Strikes) Rise of civil service <p>The Progressive Era 8.2e</p> <ul style="list-style-type: none"> Populist Party Key figures (Teddy Roosevelt, Jacob Riis, W.E.B. Dubois, John Muir, Marcus Garvey, Ida Tarbell, Eugene V. Debs, Booker T. Washington, Upton Sinclair, and Lillian Wald) Muckrakers NAACP and civil rights movements Temperance and prohibition Settlement houses Growth of the women's suffrage movement The 19th Amendment (1920) Rise of the Socialist Movement 		<p>Essential Question: How does a nation respond to economic, political and social challenges?</p> <ul style="list-style-type: none"> New production methods (assembly lines) Bank failures Stock Market crash 'Black Tuesday' <p>The Great Depression 8.5b</p> <ul style="list-style-type: none"> Government regulation of social problems Government response to economic crisis Loss of jobs, wealth, and homes Impact based on class, race, and gender Conditions in NYC <p>The Dust Bowl</p> <ul style="list-style-type: none"> Man-made and environmental conditions Federal assistance, Farm Security Act (1937) Changes in family structure, cultural consequences Migrant workers 	<p>Essential Question: How do competing views of power and morality lead to global conflict?</p> <ul style="list-style-type: none"> NATO/Warsaw Pact Hungarian uprising Superpower rivalry (arms race, threat of nuclear weapons, space race) Detente/arms control (SALT treaties) Peace talks (1980s) Fall of Berlin Wall End of Cold War <p>United States Post-War Foreign and Domestic Policy 8.7b</p> <ul style="list-style-type: none"> Communist expansion McCarthyism and the second Red Scare U.S. policy of containment Truman Doctrine Marshall Plan Korean War Cuban Missile Crisis Vietnam War Dominio Theory 	<p>Essential Question: Has the United States of America lived up to the promise and potential of its history and status?</p> <ul style="list-style-type: none"> Oil crisis/inflation <p>The Vietnam War and the War on Poverty 8.9c</p> <ul style="list-style-type: none"> Medicare and Medicaid The Great Society 1960s counterculture The draft Peace movement <p>Civil Liberties Debates: 8.9e</p> <ul style="list-style-type: none"> <i>Miranda v. Arizona</i> (1966) <i>Tinker v. Des Moines School District</i> (1969) Gun violence and Second Amendment Cyber-bullying Electronic surveillance

2	UNIT 2: A Changing Society and The Progressive Era	4	UNIT 4: WWI and The United States between Wars	5	UNIT 5: The United States Assumes Worldwide Responsibilities	6	UNIT 6: From World War II to the Present: The Changing Nature of the American People
OCT. – NOV.		JAN. – FEB.		MARCH – APRIL		MAY – JUNE	
<p>Essential Question: How do people, policies and technological advances shape a nation?</p> <ul style="list-style-type: none"> Industrial technology Rise of banking and financial institutions Labor force Growth of industrial urban centers Economic concepts (capitalism, mixed economy, scarcity) <p>Government and Business 8.2c, 8.2d, 8.2e</p> <p>Relationships between government and business</p> <ul style="list-style-type: none"> Political parties Laissez faire government Era of Boss Tweed and Tammany Hall Early attempts to unionize: goals and tactics of labor unions Knights of Labor, American Federation of Labor, and International Workers of the World 		<p>Essential Question: How does a nation respond to economic, political and social challenges?</p> <p>8.5 GREAT DEPRESSION: Economic and environmental disasters in the 1930s created hardships for many Americans. Amidst much debate about the appropriate role of government, President Franklin D. Roosevelt helped create intensive government interventions in the United States economy and society. (Standards 1, 3, 5)</p> <p>Economic Practices of the 1920s 8.5a</p> <ul style="list-style-type: none"> Government protection of business Tariffs and international trade Consumer economy Increase in the use of credit Agrarian to industrial Disparity of wealth; rise of poor and unemployed 		<p>Essential Question: How do competing views of power and morality lead to global conflict?</p> <p>Reparations for human rights violations The United Nations The United States as a world power</p> <p>8.7 FOREIGN POLICY: The period after World War II has been characterized by an ideological and political struggle, first between the United States and communism during the Cold War, then between the United States and forces of instability in the Middle East. Increased economic interdependence and competition, as well as environmental concerns, are challenges faced by the United States. (Standards 1, 2, 4, 5)</p> <p>Competing superpowers 8.7a The Cold War Soviet Bloc Berlin Wall</p>		<p>Essential Question: Has the United States of America lived up to the promise and potential of its history and status?</p> <ul style="list-style-type: none"> Assassination of major leaders (1960s) Key events and legislation (Military desegregation, <i>Brown v. Board of Education</i> (1954), March on Washington for Jobs and Freedom (1963), 16th Street Baptist Church Bombing (1963), Civil Rights Act (1964), the Voting Rights Act (1965), March on Fear (1966) incident at Wounded Knee (1973), ERA, Education for All Handicapped Children Act (1975), IDEA (1990), Americans with Disabilities Act (1990)) The feminist movement (1970s) American Indian Movement <p>Political Challenges (1960's – present)</p> <ul style="list-style-type: none"> Watergate Scandal Nixon's resignation Economic recession Presidential cuts to social programs and taxes 	

Grade 8

New York State P-12 Science Learning Standards

MS. Structure, Function, and Information Processing		
Students who demonstrate understanding can:		
MS-LS1-1. Plan and conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. [Clarification Statement: Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells.]		
MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. [Clarification Statement: Emphasis is on the cell functioning as a whole system and the primary role of identified parts of the cell, specifically the nucleus, chloroplasts, mitochondria, cell membrane, and cell wall.] [Assessment Boundary: Assessment of a general structure/function relationship is limited to the cell wall and cell membrane. Assessment of the function of the other organelles listed is limited to their relationship to the whole cell. Assessment does not include the biochemical details related to the functions of cells or cell parts.]		
MS-LS1-3. Construct an explanation supported by evidence for how the body is composed of interacting systems consisting of cells, tissues, and organs working together to maintain homeostasis. [Clarification Statement: Emphasis should be on the function and interactions of the major body systems (e.g., circulatory, respiratory, nervous, musculoskeletal.)] [Assessment Boundary: Assessment is focused on the interactions between systems not on the functions of individual systems.]		
MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli, resulting in immediate behavior and/or storage as memories. [Assessment Boundary: Assessment does not include mechanisms for the transmission of this information.]		
The performance expectations above were developed using the following elements from the NYC document, <i>A Framework for K-12 Science Education</i> :		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models Modeling in 6-8 builds on K-5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. <ul style="list-style-type: none">Develop and use a model to describe phenomena. (MS-LS1-2) Planning and Carrying Out Investigations Planning and carrying out investigations in 6-8 builds on K-5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or solutions. <ul style="list-style-type: none">Conduct an investigation to produce data to serve as the basis for evidence that meets the goals of an investigation. (MS-LS1-1) Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 6-8 builds on K-5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific knowledge, principles, and theories. <ul style="list-style-type: none">Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (MS-LS1-3) Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 6-8 builds on K-5 experiences and progresses to evaluating the merit and validity of ideas and methods. <ul style="list-style-type: none">Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence. (MS-LS1-8)	LS1.A: Structure and Function <ul style="list-style-type: none">All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1)Within cells, specialized structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2)In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions. (MS-LS1-3) LS1.B: Information Processing <ul style="list-style-type: none">Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. (MS-LS1-8)(MYSD) Plants respond to stimuli such as gravity (geotropism) and light (phototropism). (MS-LS1-8)	Cause and Effect <ul style="list-style-type: none">Cause and effect relationships may be used to predict phenomena in natural systems. (MS-LS1-8) Scale, Proportion, and Quantity <ul style="list-style-type: none">Phenomena that can be observed at one scale may not be observable at another scale. (MS-LS1-1) Systems and System Models <ul style="list-style-type: none">Systems may interact with other systems; they may have subsystems and be a part of larger complex systems. (MS-LS1-3) Structure and Function <ul style="list-style-type: none">Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts. Therefore complex natural structures/systems can be analyzed to determine how they function. (MS-LS1-2) <hr/> Connections to Engineering, Technology, and Applications of Science <hr/> Interdependence of Science, Engineering, and Technology <ul style="list-style-type: none">Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems. (MS-LS1-1) <hr/> Connections to Nature of Science <hr/> Science is a Human Endeavor <ul style="list-style-type: none">Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas. (MS-LS1-3)
Connections to other DCIs in this grade-band: MS-LS3.A (MS-LS1-2)		
Connections to DCIs across grade-bands: 4-LS1.A (MS-LS1-2); 4-LS1.D (MS-LS1-8); HS-LS1.A (MS-LS1-1)/(MS-LS1-2)/(MS-LS1-3)/(MS-LS1-8)		
Common Core State Standards Connections:		
ELA/Literacy—		
RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts. (MS-LS1-1)	
RI.6.8	Trace and evaluate the argument and specific claims in a text, assessing claims that are supported by reasons and evidence from claims that are not. (MS-LS1-3)	
WHST.6-8.1	Write arguments focused on discipline content. (MS-LS1-3)	
WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-LS1-1)	
WHST.6-8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-LS1-8)	
SL.8.5	Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-LS1-2)	
Mathematics—		
6.EE.C.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS1-1)/(MS-LS1-2)/(MS-LS1-3)	

New York State
P-12 Science
Learning
Standards

New York State P-12 Science Learning Standards

HS. Structure and Function

Students who demonstrate understanding can:

- HS-LS1-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.** (Clarification Statement: Emphasis should be on how the DNA code is transcribed and translated in the synthesis of proteins. Types of proteins involved in performing life functions include enzymes, structural proteins, cell receptors, hormones, and antibodies.) (Assessment Boundary: Assessment does not include identification of specific cell or tissue types; whole-body systems; specific protein structures and functions; or the detailed biochemistry of protein synthesis.)
- HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.** (Clarification Statement: Emphasis is on functions at the organism's system level such as nutrient uptake, water balance, immune response, and organism response to stimuli. An example of an interacting system could be an artery depending on the proper function of elastic tissue and smooth muscle in vessels and deliver the proper amount of blood within the circulatory system.) (Assessment Boundary: Assessment does not include interactions and functions at the molecular or chemical reaction level.)
- HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.** (Clarification Statement: Examples of investigations could include heart rate response to exercise, stomata response to moisture and temperature, and root development in response to water levels.) (Assessment Boundary: Assessment does not include the cellular processes involved in the feedback mechanism.)

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Developing and Using Models

Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world.

- Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-2)

Planning and Carrying Out Investigations

Planning and carrying out in 9–12 builds on K–8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

- Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. (HS-LS1-3)

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

- Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (HS-LS1-1)

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Scientific inquiry is characterized by a common set of values that include: logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings. (HS-LS1-3)

Connections to other GCs in this grade-band: **HS-LS1.A** (HS-LS1-1)

Articulation across grade-bands: **MS-LS1.A** (HS-LS1-1), (HS-LS1-2), (HS-LS1-3); **MS-LS3.A** (HS-LS1-1); **MS-LS3.B** (HS-LS1-1)

Connects Core State Standards Connections:

ELA/Literacy –

RSF.11–12.1

Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account. (HS-LS1-1)

WHST.9–12.2

Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (HS-LS1-1)

WHST.9–12.7

Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. (HS-LS1-3)

WHST.11–12.8

Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. (HS-LS1-3)

WHST.9–12.9

Draw evidence from informational texts to support analysis, reflection, and research. (HS-LS1-1)

SL.11–12.5

Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest. (HS-LS1-2)

New York State P-12 Science Learning Standards



New York City
Science Standards