

# Biology

## 7-12 Science Constructing Meaning Functions Scope and Sequence

*This chart reflects the dominant and supportive language functions for production*




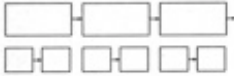
	Elaboration/ Description*	Compare and Contrast*	Sequencing*	Proposition and Support* (Problem/Solution)	Cause and Effect*
7 Life Science	<b>Introduced</b> Q1 & 3, Q2 & 4	<b>Introduced</b> Q 1 & 3, Q2 & 4	<b>Introduced</b> Q1 & 3, Q2 & 4	<b>Introduced</b> Q2 & 4	<b>Introduced</b> Q2 & 4
8 Physical Science	<b>Continued Practice</b> Q1, Q2, Q3, Q4	<b>Continued Practice</b> Q1, Q2, Q4	<b>Continued Practice</b> Q1	<b>Continued Practice</b> Q1	<b>Continued Practice</b> Q1, Q2, Q3, Q4
Biology	<b>Mastery</b> Q1, Q2, Q3, Q4	<b>Continued Practice</b> Q1, Q2	<b>Continued Practice</b> Q1, Q2, Q3	<b>Continued Practice</b> Q1, Q3	<b>Continued Practice</b> Q1, Q3, Q4
Physical Science (Earth)	<b>Mastery</b> Q1, Q2, Q3, Q4	<b>Mastery</b> Q1, Q2, Q3, Q4	<b>Mastery</b> Q2, Q3, Q4	<b>Continued Practice</b> Q2, Q3	<b>Mastery</b> Q1, Q2, Q3, Q4
Chemistry	<b>Mastery</b> Q1, Q2, Q3, Q4	<b>Mastery</b> Q1, Q2, Q3, Q4	<b>Mastery</b> Q1, Q2, Q3, Q4	<b>Continued Practice</b> Q2, Q3	<b>Mastery</b> Q1, Q3, Q4
Physics	<b>Mastery</b> Q1, Q2, Q3, Q4	<b>Mastery</b> Q1, Q2, Q3	<b>Mastery</b> Q1, Q2, Q3, Q4	<b>Mastery</b> Q1, Q2, Q3	<b>Mastery</b> Q1, Q2, Q3, Q4

\* The language function of summarizing is to be used throughout the curriculum in conjunction with the other language functions.




Garden Grove Unified School District  
 Office of Secondary Education  
 Department of 7-12 Instructional Services  
 CM Functions - Year At-A-Glance

<h1>Biology</h1>	
Quarter	Dominant and Supportive Functions
1	Elaboration/Description Compare and Contrast Sequencing Cause and Effect Proposition and Support
2	Elaboration/Description Sequencing Compare and Contrast
3	Elaboration/Description Cause and Effect Sequencing Proposition and Support
4	Elaboration/Description Cause and Effect



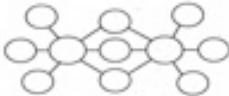
## Biology: English Learner Support Supplement to Pacing

Quarter 1 Standards	Functions for Production (Bold denotes dominant function)		Sample Products <small>(Items with a double asterisk are accessible on SharePoint with "EL Support." 7-12 Instruction SharePoint Site <a href="http://k12sp.ggusd.us">http://k12sp.ggusd.us</a>)</small>	Sentence Frames	Structured Oral Language Practice Routine(s) <small>(CM Binder Tab 3)</small>	Correlating Thinking Map(s)
1a - Students know cells are enclosed within semipermeable membranes that regulate their interaction with their surroundings.	Does the textbook provide language of dominant function for production?  <input checked="" type="radio"/> YES or NO	Elaboration/Description	<ul style="list-style-type: none"> <li>• <b>3-d Model</b> of Phospholipid bilayer (materials variable)</li> <li>• <b>Cornell Notes</b></li> <li>• <b>Dialectical Journal **</b></li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• A phospholipid bilayer consists of _____.</li> <li>• The membrane can be described as semi-permeable because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Talking Chips</b></li> </ul>	<b>Circle Map</b> 
	Does the textbook provide language of dominant function for production?  YES or <input checked="" type="radio"/> NO	<b>Compare and Contrast</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Maps</b> – Double Bubble - Compare and contrast active transport Vs. Passive transport</li> </ul>	<u><b>Compare and Contrast</b></u> <ul style="list-style-type: none"> <li>• The differences between ___ and ___ are _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Give One, Get One</b></li> </ul>	<b>Double Bubble Map</b> 
1b. - Students know enzymes are proteins that catalyze biochemical reactions without altering the reaction equilibrium and the activities of enzymes depend on the temperature, ionic conditions, and the pH of the surroundings.	Does the textbook provide language of dominant function for production?  <input checked="" type="radio"/> YES or NO	Elaboration/Description	<ul style="list-style-type: none"> <li>• <b>Lab demo/ Report</b> (liver, apple)</li> <li>• <b>Cornell Notes</b></li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• Enzymes can be described as _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Whip Around</b></li> <li>• <b>Think, Pair, Share</b></li> </ul>	<b>Circle Map</b> 
	Does the textbook provide language of dominant function for production?  <input checked="" type="radio"/> YES or NO	<b>Sequencing</b>	<ul style="list-style-type: none"> <li>• <b>Foldable</b> (Substrate Enzyme)</li> <li>• <b>Complex</b> – lock &amp; key model)</li> </ul>	<u><b>Sequencing</b></u> <ul style="list-style-type: none"> <li>• First, the enzyme ____.</li> <li>Then, _____. Next, _____.</li> <li>Initially, _____.</li> <li>Subsequently, _____.</li> <li>Preceding, _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Clock Partners **</b></li> </ul>	<b>Flow Map</b> 


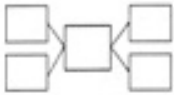

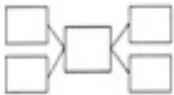
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1c - Students know how prokaryotic cells, eukaryotic cells (including those from plants and animals), and viruses differ in complexity and general structure.	Does the textbook provide language of dominant function for production?  <input type="radio"/> YES or NO	<b>Compare and Contrast</b>	<b>Thinking Maps</b> <ul style="list-style-type: none"> <li>• <b>Double Bubble</b></li> <li>• <b>Summary Template – Prok vs Euk**</b></li> <li>• <b>Summary Template- Levels of Organization**</b></li> <li>• <b>Dialectical Journal **</b></li> </ul>	<b>Compare and Contrast</b> <ul style="list-style-type: none"> <li>• Both are/ are able to/ have/ can _____.</li> <li>• While ___ and ___ are both ____, there are several major differences between them.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Talking Stick</b></li> <li>• <b>Talking Chips</b></li> </ul>	<b>Double Bubble Map</b> 
	Does the textbook provide language of dominant function for production?  <input type="radio"/> YES or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Expository writing template</b> (using thinking maps)</li> <li>• <b>Organelle Table/ Chart</b></li> <li>• <b>Build model</b> (plant, animal, virus)</li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• Characteristics of ___ include ___ and ___.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Numbered Heads</b></li> </ul>	<b>Circle Map</b> 
1e - Students know the role of the endoplasmic reticulum and Golgi apparatus in the secretion of proteins.	Does the textbook provide language of dominant function for production?  <input type="radio"/> YES or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Foldable</b></li> <li>• <b>Organelle Table/ Chart</b></li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• The function of ER and the Golgi are ___.</li> <li>• The ER works with the Golgi to _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Stick</b></li> <li>• <b>Think, Pair, Share within Powerpoint**</b></li> </ul>	<b>Circle Map</b> 


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1h - Students know most macromolecules (polysaccharides, nucleic acids, proteins, lipids) in cells and organisms are synthesized from a small collection of simple precursors.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Build a 3-D model</b></li> <li>• <b>Thinking Maps</b> – Tree Map/ Brace Map</li> <li>• <b>Summary Template**</b></li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• Macromolecules are composed of _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Whip Around</b></li> <li>• <b>Talking Stick</b></li> <li>• <b>Think, Pair, Share</b></li> </ul>	<b>Circle Map</b> 
10a - Students know the role of the skin in providing nonspecific defenses against infection.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Cornell Notes</b></li> <li>• <b>Thinking Maps</b> - Circle Map</li> <li>• <b>Vocabulary word analysis**</b></li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• The skin can be described as _____.</li> <li>• The skin functions to _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> </ul>	<b>Circle Map</b> 
10b - Students know the role of antibodies in the body's response to infection.	Does the textbook provide language of dominant function for production?  YES or <b>NO</b>	<b>Compare and Contrast</b>	<ul style="list-style-type: none"> <li>• <b>Analogy Paper Lab</b> – Compare immune system to real life scenarios</li> <li>• <b>Tree Map</b></li> <li>• <b>Sentence Frames for Tree Map **</b></li> <li>• <b>Summary Template **</b></li> </ul>	<b>Compare and Contrast</b> <ul style="list-style-type: none"> <li>• The macrophages are like _____ because they _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Lines of Communication</b></li> <li>• <b>Clock Partners</b></li> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Numbered Heads</b></li> </ul>	<b>Double Bubble Map</b> 





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10c - Students know how vaccination protects an individual from infectious diseases.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Foldable</b> (4 types of vaccines)</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• A vaccine consists of _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Give One, Get One</b></li> <li>• <b>Think, Pair, Share</b></li> </ul>	<b>Circle Map</b> 
	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Cause and Effect</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Map</b> – Cause &amp; Effect – Multi-flow Map</li> <li>• <b>Cause and Effect Sentence Frames</b> **</li> </ul>	<u><b>Cause and Effect</b></u> <ul style="list-style-type: none"> <li>• If a vaccine is introduced to the body, it results in _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Lines of Communication</b></li> </ul>	<b>Multi-Flow Map</b> 
10e - Students know why an individual with a compromised immune system (for example, a person with AIDS) may be unable to fight off and survive infections by microorganisms that are usually benign.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Cornell Notes</b></li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• HIV can be described as _____.</li> <li>• Microorganisms can affect a person with HIV because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Chips</b></li> <li>• <b>Think, Pair, Share</b></li> </ul>	<b>Circle Map</b> 
	Provide own text from the internet that supports new HIV research & immune system response	<b>Proposition and Support</b>	<ul style="list-style-type: none"> <li>• <b>Summary template**</b></li> <li>• <b>Debate/ Socratic Seminar</b></li> </ul>	<u><b>Proposition and Support</b></u> <ul style="list-style-type: none"> <li>• The evidence from new research suggests that _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Three Step Interview</b></li> <li>• <b>Lines of Communication</b></li> </ul>	<b>Multi-Flow Map</b> 

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10d - Students know there are important differences between bacteria and viruses with respect to their requirements for growth and replication, the body's primary defenses against bacterial and viral infections, and effective treatments of these infections.	Does the textbook provide language of dominant function for production?  YES or <input type="radio"/> NO	<b>Compare and Contrast</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Maps</b> - Double Bubble</li> <li>• <b>Foldable/ Comparison Chart</b> (growth, replication, treatment, defense)</li> <li>• <b>Summary Template **</b></li> </ul>	<b>Compare and Contrast</b> <ul style="list-style-type: none"> <li>• One key characteristic of ___ is _____. A secondary characteristic is _____.</li> <li>• By comparing __ and _____, it became clear that _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Numbered Heads</b></li> <li>• <b>Talking Chips</b></li> </ul>	<b>Double Bubble Map</b> 

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1f - Students know usable energy is captured from sunlight by chloroplasts and is stored through the synthesis of sugar from carbon dioxide.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Summary Template **</b></li> <li>• <b>Photosynthesis Lab</b> <ul style="list-style-type: none"> <li>- Measuring how light affect growth)</li> <li>- Measuring quantity of each gas during respiration (CO<sub>2</sub> &amp; O<sub>2</sub>)</li> </ul> </li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• I predict that ____ because _____.</li> <li>• My hypothesis was correct/ incorrect because _____.</li> <li>• As a result of _____, the data shows that _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Clock Partners</b></li> </ul> <p style="text-align: center;"><b>Circle Map</b></p> 
1g. Students know the role of the mitochondria in making stored chemical-bond energy available to cells by completing the breakdown of glucose to carbon dioxide.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Sequencing</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Map</b> – Flow Map           <ol style="list-style-type: none"> <li>1. Glycolysis</li> <li>2. Electron Transport Chain</li> <li>3. Kreb Cycle</li> </ol> </li> <li>• <b>Summary Template**</b></li> <li>• <b>Dialectical Journal **</b></li> </ul>	<b>Sequencing</b> <ul style="list-style-type: none"> <li>• Before glycolysis occurs, _____. Next, _____. Following, _____. Subsequently, _____. In the end, _____.</li> <li>• This process produces _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Numbered Heads</b></li> <li>• <b>Think, Pair, Share</b></li> </ul> <p style="text-align: center;"><b>Flow Map</b></p> 
2a - Students know meiosis is an early step in sexual reproduction in which the pairs of chromosomes separate and segregate randomly during cell division to produce gametes containing one chromosome of each type.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO  Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>  <b>Sequencing</b>	<ul style="list-style-type: none"> <li>• <b>KWL on Mitosis</b></li> <li>• <b>Thinking Map</b> – Flow Map**</li> <li>• Paper Lab – Group Poster           <ul style="list-style-type: none"> <li>- Students fill in diagram with pipe cleaners to represent chromosomes</li> </ul> </li> <li>• <b>Summary Template **</b></li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• I know _____.</li> <li>• I want to learn _____.</li> <li>• I have learned _____.</li> </ul> <b>Sequencing</b> <ul style="list-style-type: none"> <li>• Initially, _____.</li> <li>• Then, _____. During, _____. Following, _____.</li> <li>• Meanwhile _____, was taking place/ occurring/ happening.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Sticks</b></li> <li>• <b>Think, Pair, Share</b></li> </ul> <p style="text-align: center;"><b>Circle Map</b></p>   <p style="text-align: center;"><b>Flow Map</b></p> 






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2b - Students know only certain cells in a multicellular organism undergo meiosis.	Does the textbook provide language of dominant function for production? <b>YES</b> or NO	<b>Elaboration/Description</b>	• <b>Cornell Notes</b>	<b>Elaboration/Description</b> • Meiosis only occurs in _____.	• <b>Think, Pair, Share**</b>  • <b>Whip Around</b>	<b>Circle Map</b> 
2c - Students know how random chromosome segregation explains the probability that a particular allele will be in a gamete.	Does the textbook provide language of dominant function for production? <b>YES</b> or NO	<b>Elaboration/Description</b>	• <b>Quick Draw</b> – 1 Genetic Practice Problem in each box	<b>Elaboration/Description</b> • The probability of inheriting a particular trait can be explained by _____.	• <b>Lines of Communication</b>  • <b>Think, Pair, Share</b>	<b>Circle Map</b> 
2d - Students know new combinations of alleles may be generated in a zygote through the fusion of male and female gametes (fertilization).	Does the textbook provide language of dominant function for production? <b>YES</b> or NO	<b>Elaboration/Description</b>	• <b>Draw a Figure of Fertilization</b>	<b>Elaboration/Description</b> • During fertilization, _____.  • The new combination of alleles are created when _____.  • The fusion of _____ and _____ can lead to _____.	• <b>Talking Chips</b>  • <b>Think, Pair, Share</b>	<b>Circle Map</b> 
2e - Students know why approximately half of an individual's DNA sequence comes from each parent.	Does the textbook provide language of dominant function for production? <b>YES</b> or NO	<b>Elaboration/Description</b>	• <b>Cornell Notes</b>	<b>Elaboration/Description</b> • _____ contains _____ chromosomes because _____.  • Each parent donates _____.	• <b>Think, Pair, Share</b>	<b>Circle Map</b> 


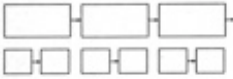
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2f. Students know the role of chromosomes in determining an individual's sex.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Cut &amp; put together a karyotype**</b></li> <li>• <b>Ticket out the door</b> <ul style="list-style-type: none"> <li>- What are your sex chromosomes?</li> <li>- Who determines the sex of an offspring and why?</li> </ul> </li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• My sex chromosomes are _____.</li> <li>• The _____ determines the sex because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Give One, Get One**</b></li> </ul>	<b>Circle Map</b> 
2g. Students know how to predict possible combinations of alleles in a zygote from the genetic makeup of the parents.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Genetic Baby Lab</b></li> <li>• <b>Punnett Square Quick Draw</b> <ul style="list-style-type: none"> <li>- 4 problems with varying levels of difficulty</li> <li>- included with problems are student explanations of how they arrived at the answer.</li> </ul> </li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• The possible combination of alleles are _____.</li> <li>• The answer can be found by _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Talking Chips</b></li> </ul>	<b>Circle Map</b> 
3a - Students know how to predict the probable outcome of phenotypes in a genetic cross from the genotypes of the parents and mode of inheritance (autosomal or X-linked, dominant or recessive).	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Punnett Square Problems</b></li> <li>• <b>Vocabulary Matrix</b> <ul style="list-style-type: none"> <li>* compare main concepts</li> <li>- phenotype vs genotype</li> <li>- autosomal vs X-linked</li> <li>- dominant vs recessive</li> </ul> </li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• The probability of ___ offspring is ___ and ___.</li> <li>• The difference between ___ and ___ are _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b></li> <li>• <b>Clock Partners</b></li> </ul>	<b>Circle Map</b> 



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Quarter 2 Standards	Functions for Production (Bold denotes dominant function)		Sample Products <small>(Items with a double asterisk are accessible on SharePoint with "EL Support." 7-12 Instruction SharePoint Site <a href="http://k12sp.ggusd.us">http://k12sp.ggusd.us</a>)</small>	Sentence Frames	Structured Oral Language Practice Routine(s) (CM Binder Tab 3)	Correlating Thinking Map(s)
3b - Students know the genetic basis for Mendel's laws of segregation and independent assortment.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>Reciprocal teaching (both laws)               <ul style="list-style-type: none"> <li>- summarizer, clarifier, predictor, questioner</li> <li>- summarize concepts on poster</li> </ul> </li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>Mendel's Law of Segregation can be illustrated by ____.</li> <li>The law of independent assortment explains ____.</li> <li>This law is important because ____.</li> </ul>	<ul style="list-style-type: none"> <li>Whip Around</li> <li>Lines of Communication</li> </ul>	<b>Circle Map</b> 
5a - Students know the general structures and functions of DNA, RNA, and protein.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li><b>Summary Template **</b></li> <li><b>Build a DNA model</b> (materials may vary)</li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>DNA is composed of ____.</li> </ul>	<ul style="list-style-type: none"> <li>Think, Pair Share</li> </ul>	<b>Circle Map</b> 
	Does the textbook provide language of dominant function for production?  YES or <b>NO</b>	<b>Compare and Contrast</b>	<ul style="list-style-type: none"> <li><b>Thinking Map</b> – Double Bubble               <ul style="list-style-type: none"> <li>- DNA &amp; RNA</li> </ul> </li> </ul>	<b>Compare and Contrast</b> <ul style="list-style-type: none"> <li>The differences / similarities between ____ and ____ are ____.</li> </ul>		<b>Double Bubble Map</b> 





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5b - Students know how to apply base-pairing rules to explain precise copying of DNA during semiconservative replication and transcription of information from DNA into mRNA.	Does the textbook provide language of dominant function for production?  <div style="text-align: center;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">YES</span> or NO         </div>	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Base Pairing Practice Activity</b></li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• ___ pairs with ___ because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Chips</b></li> </ul>	<b>Circle Map</b> 
	Does the textbook provide language of dominant function for production?  <div style="text-align: center;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">YES</span> or NO         </div>	<b>Sequencing</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Map</b> – Flow Chart</li> </ul>	<b>Sequencing</b> <ul style="list-style-type: none"> <li>• First, ____. Next ____.</li> <li>Finally, ____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Three Step Interview</b></li> </ul>	<b>Flow Map</b> 




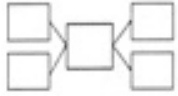


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1d - Students know the central dogma of molecular biology outlines the flow of information from transcription of ribonucleic acid (RNA) in the nucleus to translation of proteins on ribosomes in the cytoplasm.	Does the textbook provide language of dominant function for production?  <div style="text-align: center;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">YES</span> or NO         </div>	<b>Sequencing</b>	<ul style="list-style-type: none"> <li>• <b>Decoding Worksheet</b> of choice               <ul style="list-style-type: none"> <li>- students practice how to decode DNA to mRNA</li> </ul> </li> <li>• <b>Begin Protein Synthesis Project</b> <ul style="list-style-type: none"> <li>- Give students DNA strand → students are supposed to transcribe to RNA strand</li> </ul> </li> </ul>	<b>Sequencing</b> <ul style="list-style-type: none"> <li>• See standard 4a sentence frames</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b> <ul style="list-style-type: none"> <li>- discuss central dogma</li> </ul> </li> </ul>	<b>Flow Map</b> 
4a - Students know the general pathway by which ribosomes synthesize proteins, using tRNAs to translate genetic information in mRNA.  4b - Students know how to apply the genetic coding rules to predict the sequence of amino acids from a sequence of codons in RNA	Does the textbook provide language of dominant function for production?  <div style="text-align: center;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">YES</span> or NO         </div>	<b>Sequencing</b>	<ul style="list-style-type: none"> <li>• <b>Codon Worksheet</b> of choice               <ul style="list-style-type: none"> <li>- students practice mRNA into A.A.</li> </ul> </li> <li>• <b>Continue Protein Synthesis Project</b> <ul style="list-style-type: none"> <li>- Students translate mRNA into amino acids.</li> <li>- In the back of the project, students would summarize regarding the protein synthesis process.</li> </ul> </li> </ul>	<b>Sequencing</b> <ul style="list-style-type: none"> <li>• In the beginning ____.</li> <li>In the middle ____.</li> <li>In the end ____.</li> <li>• First ____ happened. Then, ____ occurred and ____.</li> <li>Eventually, ____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Numbered Heads</b> <ul style="list-style-type: none"> <li>- How is DNA transcribed and how is mRNA translated.</li> </ul> </li> </ul>	<b>Flow Map</b> 

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4c - Students know how mutations in the DNA sequence of a gene may or may not affect the expression of the gene or the sequence of amino acids in an encoded protein.	Does the textbook provide language of dominant function for production? <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Table Listing</b> - 3 types of mutation - point, frameshift, chromosomal (flexible format)</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• If ____ results in ____, it follows that ____.</li> </ul>	<b>Give One, Get One</b> - Students get information about different types of mutation from each other.	<b>Circle Map</b> 
	Does the textbook provide language of dominant function for production? YES or <b>NO</b>	<b>Cause and Effect</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Map</b> – Multi Flow Map - Event is <i>mutation</i></li> </ul>	<u><b>Cause and Effect</b></u> <ul style="list-style-type: none"> <li>• ____ has been caused by ____, thus ____.</li> </ul>		<b>Multi-Flow Map</b> 
4d - Students know specialization of cells in multicellular organisms is usually due to different patterns of gene expression rather than to differences of the genes themselves.	Does the textbook provide language of dominant function for production? <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Power Notes</b> (<i>Unit Resource Book p. 83</i>)</li> <li>• <b>Cornell Notes</b></li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• Cells differ because _____.</li> <li>• Gene expression can be understood as ____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Stick</b> - Students discuss the differences between specialized cells.</li> </ul>	<b>Circle Map</b> 
4e - Students know proteins can differ from one another in the number and sequence of amino acids.	Does the textbook provide language of dominant function for production? <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Maps</b> – Circle Map - “Protein” as topic in the primary circle - Frame of reference optional and will differ for each teacher</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• Characteristics of proteins include ____, ____, and _____.</li> <li>• Proteins can differ because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Whip Around</b> - Students discuss what makes one protein unique from another.</li> </ul>	<b>Circle Map</b> 

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5c - Students know how genetic engineering (biotechnology) is used to produce novel biomedical and agricultural products.	Does the textbook provide language of dominant function for production?   or NO	<b>Elaboration/Description</b>  <b>Sequencing</b>	<ul style="list-style-type: none"> <li>• <b>Genetic Engineering</b> project (Pairs or groups)               <ul style="list-style-type: none"> <li>- Have students use recombinant DNA to create a new project</li> </ul> </li> <li>• <b>Flow Map with summary**</b></li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• A (student product) can be made by combining _____ and _____.</li> <li>• The process of genetic engineering involves _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Lines of Communication</b> <ul style="list-style-type: none"> <li>- Teacher will ask students questions related to the ethics involved with using new gene technology. Students respond and discuss the uses of genetic engineering.</li> </ul> </li> </ul>	<b>Circle Map</b> 
	Does the textbook provide language of dominant function for production?   or NO	<b>Proposition and Support</b>	<ul style="list-style-type: none"> <li>• Students will pick one side of the <b>stem cell debate</b>, either in support or against using embryonic stem cells in the research of medical cures for diseases.</li> </ul>	<u><b>Proposition and Support</b></u> <ul style="list-style-type: none"> <li>• The use of embryonic stem cells in research is necessary/ important because _____. / Embryonic stem cells should not be used in research because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Lines of Communication</b> <ul style="list-style-type: none"> <li>- Students discuss reasons why they are in favor or against embryonic stem cell research.</li> </ul> </li> </ul>	<b>Multi-Flow Map</b> 
7a - Students know why natural selection acts on the phenotype rather than the genotype of an organism.	Does the textbook provide language of dominant function for production?   or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Natural Selection</b> Activity               <ul style="list-style-type: none"> <li>- use 2 colored toothpick (green &amp; beige on grass)</li> <li>- have students pick up as many as possible during given time</li> <li>- natural selection acts upon phenotype.</li> </ul> </li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• Natural selection acts on _____ because _____.</li> <li>• This activity demonstrates the principles of natural selection by _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair , Share</b> <ul style="list-style-type: none"> <li>- Students write a short summary why natural selection acts on phenotype instead of genotype. They read and discuss their responses to each other.</li> </ul> </li> </ul>	<b>Circle Map</b> 







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7b - Students know why alleles that are lethal in a homozygous individual may be carried in a heterozygote and thus maintained in a gene pool.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Cornell Notes</b> (Combined with Standard 7c/ 7d)</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• Lethal genes exist in _____ individuals because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Clock Appointments</b> <ul style="list-style-type: none"> <li>- Students discuss how heterozygous individuals may appear healthy but can carry a lethal gene and pass on the lethal gene to his/her offspring.</li> </ul> </li> </ul>	<b>Circle Map</b> 
7c - Students know new mutations are constantly being generated in a gene pool.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Maps</b> – Circle Map <ul style="list-style-type: none"> <li>- “Genetic variation” as topic in the primary circle</li> </ul> </li> <li>• <b>Cornell Notes</b> (Combined with Standard 7b/ 7d)</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• Genetic variation comes from _____ and _____.</li> <li>• The main sources of genetic variation are _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b> <ul style="list-style-type: none"> <li>- Students summarize the source of genetic variation then discuss with each other.</li> </ul> </li> </ul>	<b>Circle Map</b> 
7d - Students know variation within a species increases the likelihood that at least some members of a species will survive under changed environmental conditions.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Cornell Notes</b> (Combined with Standard 7b/ 7c)</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• The relationship between genetic variation and the chances of survival are _____.</li> <li>• The greater the variation, the population will _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Chips</b> <ul style="list-style-type: none"> <li>- Students discuss examples of a species with lots of variation and the chances of survival of the species if the environment changes and how a diversity of species makes it more likely that some species will survive great environmental change.</li> </ul> </li> </ul>	<b>Circle Map</b> 
8a - Students know how natural selection determines the differential survival of groups of organisms.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Chapter 11 Investigation</b> on p. 334 of textbook <ul style="list-style-type: none"> <li>- Natural selection in African Swallowtails</li> </ul> </li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• _____ phenotype becomes less common than _____ because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Stick</b> <ul style="list-style-type: none"> <li>- Students discuss how the environment determines which individuals will survive. Sample topics: adaptations and survival of the fittest.</li> </ul> </li> </ul>	<b>Circle Map</b> 






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8b - Students know a great diversity of species increases the chance that at least some organisms survive major changes in the environment.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Cornell Notes</b> (Combined with Standard 7b/ 7c)</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• The relationship between genetic variation and the chances of survival are _____.</li> <li>• The greater the variation, the population will _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Chips</b> <ul style="list-style-type: none"> <li>- Students discuss examples of a species with lots of variation and the chances of survival of the species if the environment changes.</li> <li>- Students talk about how a diversity of species makes it more likely that some species will survive great environmental change.</li> </ul> </li> </ul>	<b>Circle Map</b> 
8c - Students know the effects of genetic drift on the diversity of organisms in a population.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Cause and Effect</b>	<ul style="list-style-type: none"> <li>• <b>Genetic Drift Modeling</b> on p. 337 of Textbook</li> </ul>	<u><b>Cause and Effect</b></u> <ul style="list-style-type: none"> <li>• The effects of genetic drift are _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b> <ul style="list-style-type: none"> <li>- Students summarize and discuss the effects of genetic drift on diversity.</li> </ul> </li> </ul>	<b>Multi-Flow Map</b> 
8d - Students know reproductive or geographic isolation affects speciation.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Cause and Effect</b>	<ul style="list-style-type: none"> <li>• <b>Groupwork</b> - <ul style="list-style-type: none"> <li>- students work in groups to create a new species that has to adapt to new environments.</li> </ul> </li> </ul>	<u><b>Cause and Effect</b></u> <ul style="list-style-type: none"> <li>• Geographic isolation results in _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Give one, Get One</b> <ul style="list-style-type: none"> <li>- Students list reasons why a species might become reproductively isolated and share with each other.</li> </ul> </li> </ul>	<b>Multi-Flow Map</b> 
8e - Students know how to analyze fossil evidence with regard to biological diversity, episodic speciation, and mass extinction.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Hands-On Activity</b> from TE textbook p. 350 <ul style="list-style-type: none"> <li>- have students put together an extinction timeline</li> <li>- students will identify the time of extinction of a particular animal.</li> </ul> </li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• Fossil evidence indicates there have been _____ and _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Numbered Heads Together</b> <ul style="list-style-type: none"> <li>- Students look at different samples of fossil evidence and answer questions regarding how to determine diversity of species or a period of extinction.</li> </ul> </li> </ul>	<b>Circle Map</b> 




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6a - Students know biodiversity is the sum total of different kinds of organisms and is affected by alterations of habitats.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Make an aquarium or terrarium</b> and have students identify biotic and abiotic factors</li> <li>• Journal of abiotic and biotic factors that students see during the regular day.</li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• Biodiversity is ___ and examples include ___, ___, ___.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking chips</b> <ul style="list-style-type: none"> <li>- Students discuss how changes in the environment or the habitat can affect diversity.</li> </ul> </li> </ul>	<b>Circle Map</b> 
6b - Students know how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of nonnative species, or changes in population size.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Cause and Effect</b>	<ul style="list-style-type: none"> <li>• <b>Online activity</b> (p. 507 of textbook) <ul style="list-style-type: none"> <li>- Students graph and analyze data to determine how the introduction of trout to lakes affect the lake's frog population.</li> </ul> </li> </ul>	<b>Cause and Effect</b> <ul style="list-style-type: none"> <li>• The addition of a new species into the environment caused _____ to the _____.</li> <li>• Changes in climate can affect the ecosystem by leading to _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Whip Around</b> <ul style="list-style-type: none"> <li>- Students discuss possible effects of climate change, introduction of non-native species, and human activity on the ecosystem.</li> </ul> </li> </ul>	<b>Multi-Flow Map</b> 
6c - Students know how fluctuations in population size in an ecosystem are determined by the relative rates of birth, immigration, emigration, and death.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Cause and Effect</b>	<ul style="list-style-type: none"> <li>• <b>Oh Deer Population Game</b> <ul style="list-style-type: none"> <li>- Students act as either resources or deer to show population fluctuation.</li> <li>- Resources are food, water, shelter, space.</li> <li>- Life cycles of the deer should be monitored by the teacher and graphed later in the activity.</li> </ul> </li> </ul>	<b>Cause and Effect</b> <ul style="list-style-type: none"> <li>• If <u>event</u>, then the population _____.</li> <li>• As a result of ____, the population _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking chips</b> <ul style="list-style-type: none"> <li>- Students discuss how the population will change when there are increases and decreases in birth rates, death rates, immigration and emigration.</li> </ul> </li> </ul>	<b>Multi-Flow Map</b> 



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6d - Students know how water, carbon, and nitrogen cycle between abiotic resources and organic matter in the ecosystem and how oxygen cycles through photosynthesis and respiration.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Whiteboard Activity</b> - Draw the cycles and draw the movement of label the movement of molecules.</li> <li>• <b>Large Poster</b> with students putting components of cycles onto paper.</li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• The water cycle begins _____. Then, _____. Next, _____. Lastly, _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Clock Partners</b> - Students will meet at different times/appointments and discuss the cycling of chemicals, nutrients and water in the ecosystem.</li> </ul>	<b>Circle Map</b> 
6e - Students know a vital part of an ecosystem is the stability of its producers and decomposers.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Thinking Map</b> - Circle Map - Students bring photos of producers and decomposers from internet/ magazines and assemble a circle map.</li> <li>- Frame of reference is the dependency of the producer and decomposers.</li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• Producers and decomposers are connected to the ecosystem because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Stick</b> - Students discuss examples of producers and consumers. Then they list the functions of producers, consumers and decomposers and what will happen to the ecosystem if one group is disrupted.</li> </ul>	<b>Circle Map</b> 
6f - Students know at each link in a food web some energy is stored in newly made structures but much energy is dissipated into the environment as heat. This dissipation may be represented in an energy pyramid.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Create a food web</b> showing the transfer of energy.</li> <li>• <b>Students write a summary</b> - relating their food web to the energy pyramid.</li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• The _____ relates to the _____ by _____.</li> <li>• Transfer of energy is shown when _____.</li> <li>• The energy pyramid becomes _____ because _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b> - Students summarize what happens to energy when it travels from producers to consumers and up the food chain. They explain how much energy is passed along and where it is lost.</li> </ul>	<b>Circle Map</b> 

## Biology: English Learner Support Supplement to Pacing

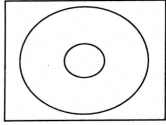
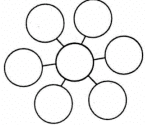
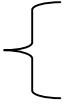
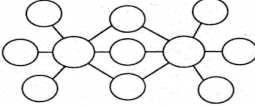
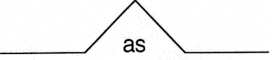
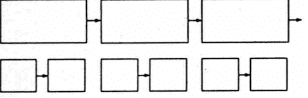
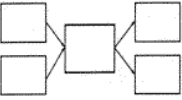
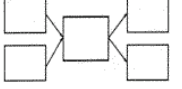
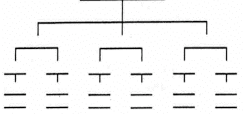
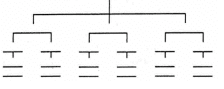

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9a. Students know how the complementary activity of major body systems provides cells with oxygen and nutrients and removes toxic waste products such as carbon dioxide.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Drawing Activity</b> <ul style="list-style-type: none"> <li>- Students will draw the lungs and the site of gas exchange</li> <li>- Students will label the movement of oxygen and carbon dioxide.</li> </ul> </li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• Components of this system include ____.</li> <li>• The ____ and ____ system work together to _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Numbered Heads</b> <ul style="list-style-type: none"> <li>- Students discuss and explain which two systems work together to deliver oxygen, nutrients and get rid of wastes.</li> </ul> </li> </ul>	<b>Circle Map</b> 
9b - Students know how the nervous system mediates communication between different parts of the body and the body's interactions with the environment.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Summary Paragraph</b> <ul style="list-style-type: none"> <li>- Summarize how the nervous system communicates with different body parts.</li> </ul> </li> <li>• <b>Color code</b> nervous system</li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• The nervous system communicates with ____ by _____.</li> </ul> <p>The nervous system controls ____ by ____.</p>	<ul style="list-style-type: none"> <li>• <b>Give One, Get One</b> <ul style="list-style-type: none"> <li>- Students write down and then share information regarding the roles of the different divisions of the nervous system.</li> </ul> </li> </ul>	<b>Circle Map</b> 
9c - Students know how feedback loops in the nervous and endocrine systems regulate conditions in the body.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Quick Lab – Modeling</b> (p. 861 of textbook) <ul style="list-style-type: none"> <li>- Students summarize how feedback loops regulate body.</li> </ul> </li> </ul>	<b>Elaboration/Description</b> <ul style="list-style-type: none"> <li>• In negative/ positive feedback, _____.</li> <li>• The regulation of the body is controlled by _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Chips</b> <ul style="list-style-type: none"> <li>- Students discuss examples of positive and negative controls in the environment.</li> </ul> </li> </ul>	<b>Circle Map</b> 

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9d - Students know the functions of the nervous system and the role of neurons in transmitting electrochemical impulses.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Color/ label</b> neuron and describe an action potential.</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• Neurons communicate by ___ and ____.</li> <li>• The process of neuron transmission involves _____.</li> <li>• Messages are transmitted when _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Think, Pair, Share</b> - Students summarize how a neuron uses an action potential to send messages and communicate with other neurons.</li> </ul>	<b>Circle Map</b> 
9e - Students know the roles of sensory neurons, interneurons, and motor neurons in sensation, thought, and response.	Does the textbook provide language of dominant function for production?  <b>YES</b> or NO	<b>Elaboration/Description</b>	<ul style="list-style-type: none"> <li>• <b>Foldable</b> 3 types of neurons</li> </ul>	<u><b>Elaboration/Description</b></u> <ul style="list-style-type: none"> <li>• The _____ neuron functions to _____.</li> <li>• _____ and _____ neurons work together to _____.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Talking Chips</b> - Students discuss the function of the sensory, motor and interneurons and how they facilitate communication.</li> </ul>	<b>Circle Map</b> 

Garden Grove Unified School District  
Office of Secondary Education  
Department of 7-12 Instructional Services  
**Constructing Meaning Functions and Thinking Maps**

The chart below shows the alignment between the dominant language functions (Systematic ELD and Constructing Meaning) and the eight Thinking maps. Aligning the two will support English Learners in their receptive and expressive language acquisition.

Language Function	Language Function	Thinking Map
Elaboration/ Description	Defining content and text Describes attributes, qualities, characteristics and properties Explain relationships of objects in space Comparing whole to parts Analysis of text	Circle Map  Bubble Map  Brace Map 
Compare/ Contrast	Compare and Contrast Understand and express how two or more things are similar and how they are different Understand and express the relationship between two ideas, concepts, or things	Double-Bubble Map  Bridge Map 
Sequencing	Sequencing and ordering Relate steps in a process Express time relationships and actions within a larger event	Flow- Map 
Cause-Effect	Cause and Effect Explain the cause of an outcome Explain why something occurred	Multi-Flow Map 
Proposition and Support	Defend an opinion Explain reasoning, or justify a position Classifying and sorting	Multi-Flow Map  Tree Map 
Summarizing	Express main ideas and significant details	Tree Map  Brace Map  Circle Map 