UNIVERSALLY DESIGNED LESSON PLAN TEMPLATE
Special Education

Educator Name: Charles Horak	**Date:** 01/29/2019
Grade Level: 11th grade	
Subject Area: Algebra 2	
Unit: Building Functions	**Approximate duration of lesson:** 90 minutes
Lesson Title: Arithmetic and geometric sequences	
Class Constellation: *General education and/or content area classroom distribution.* **Class Constellation:** *Broadly describe the distribution of student ability levels in your classroom. You must include the names and disabilities of **3 students from the Cases posted on Canvas** (not the entire case descriptive). Background knowledge of your target students justifies why you are teaching this lesson.* **Note:** *Do not use students with learning disabilities in lessons for first grade and below. You should use the following numbers of students: K-2: 20 total; 3-5: 24 total; 6-12: 28 total. You will not have a paraprofessional, translator, or other adult present during instruction (except for K) unless you are co-teaching with a special educator and thoroughly describe that in your instructional techniques/activities section.*	[*INSERT GRADE AND SUBJECT AREA*] with a typical distribution of ability levels ranging from 2 grade levels below [*insert 2 grade levels lower*] to two grades above*:[insert 2 grade levels higher]* than the target lesson's specified grade level. ____Tam_____ [*list student case name*] who is an English Language Learner (ELL). ____Sean_____ who has Autism Spectrum Disorder. ____Renaye_____ who (likely) has Emotional Disturbance. My 28 student, 11th Grade Algebra II Class will consist of students ranging in abilities from ninth to twelfth grade, including gifted and talented students, students with behavior issues, like Tam (a junior with other more undefined special needs), Sean (a senior struggling in general education classroom, has Autism Spectrum Disorder), and Renaye (a Freshman struggling with Emotional Disturbance). I will construct and execute a lesson plan which allows students to build functions from arithmetic and geometric sequences. Students will do this by determining an explicit expression, a recursive process, or steps for calculation from a context. Building the function also includes combining standard function types using arithmetic operations.
Standard(s) addressed: *State the long-range TNcore curriculum standard, the Or, provide the ACT College Readiness Standard, etc., if applicable.* http://www.tncore.org/about_tn_standards.aspx	**Insert 1 standard:** Write a function that describes a relationship between two quantities.

 **Big Idea:** *The critical content concept for all students, the main focus of the lesson; all of the students should be assessed on their acquisition of this big idea; it's the forest- not the trees.* **Essential Question (EQ):**  *What is the broad, real world question the students should be able to answer after walking away from the lesson. List 1 question that helps students probe for deeper meaning. Essential questions relate to major issues, problems, concerns, interests, or themes relevant to students' lives and set the stage for further questioning.*	**Big Idea: (1 - 3 sentences)** Students will be able to determine an explicit expression, a recursive process, or steps for calculation from a context. They will also be able to combine standard function types using arithmetic operations. **EQ: (1 question- usually a "why" question, e.g. Why do students need to know this? How does this lesson broaden the student's understanding of the concept(s)?)** What opportunities offered to you now would allow you to create a profit function from cost and revenue functions?
Primary Lesson Objective: *State what students will be able to do as a result of this lesson.* *Write your objective(s) in measureable terms (who, what, how well, and under what conditions).* **Secondary Literacy Objective** *Students will be expected to demonstrate knowledge and understanding of the lesson activities by reading and/or writing their responses. Your lesson should address strategies that support student opportunities to read for information & write for expression in the lesson's content area. Write your objective in measurable terms into this lesson (all subject areas lessons must include a literacy objective)* *State **specific accommodations** for each student with exceptional learning needs as identified in the class constellation. Students reading below grade level will experience success with texts at their readability levels. Write the text and/or source & the readability level you plan to use to provide access and understanding of the lesson content for students with exceptionalities* *(Peer assistance, teacher and/or teaching assistant help are not appropriate for designing an adaptation for the lesson. Think proactively about the strategies that change how you present the task and/or vary the way you ask the child to respond.)* **http://www.udlcenter.org/implementation/examples** **http://www.udlcenter.org/resource_library/videos/udlcenter/udl#video0**	**Primary Lesson Objective:** Given slope and a y-intercept the 11th grade Algebra II student will be able to create 10 functions with 80% accuracy. **Secondary Literacy Objective:** Given two functions the student will be able to combine them with 75% accuracy. **Write the name of the text and/or source & the readability level you plan to use for students with exceptionalities HERE.**

Academic language  ***List prior*** *language concepts that are necessary for the child to acquire understanding of this lesson objective AND list* ***new*** *academic language that will be taught in this lesson. Plan to pre-teach these language concepts.*	**List vocabulary & the definition/concept.** Function: a relation between a set of inputs and a set of permissible outputs with the property that each input is related to exactly one output. A relationship or expression involving one or more variables. Arithmetic Sequences: A sequence is an ordered list of numbers and the sum of the terms of a sequence is a series. In an arithmetic sequence, each term is equal to the previous term, plus (or minus) a constant. The constant is called the common difference (d). Geometric Sequence: a sequence of numbers where each term after the first is found by multiplying the previous one by a fixed, non-zero number called the common ratio. Explicit Expression: a formula we can use to find the nth term of a sequence. (Explicit means exact or definite). Recursive Process: pertaining to or using a rule or procedure that can be applied repeatedly. Arithmetic Operations: mathematical functions that take two operands and performs a calculation on them. They are used in common arithmetic and most computer languages contain a set of such operators that can be used within equations to perform a number of types of sequential calculation.

Anticipatory Set/Activating Strategy: *Specify a motivator or hook, such as an essential question, or a problem that needs solving, to encourage student engagement when faced with complex and challenging questions which are meaningful and relevant to students.*	Begin class by playing Khan Academy video: https://www.khanacademy.org/math/algebra2/manipulating-functions/function-composition/v/function-composition Before the video starts, I will ask students to think about what the parts of a function are. *Motivating Question 1:* What are the parts of any type of function? Right before the video begins, I will ask students to write down some notes about what they have already learned about building functions. I will then play the video. Later, asking them to revise what they have written down already and discuss with classmates around them. *Motivating Question 2*: What techniques does this teacher use to build functions? After listening to different answers, I will bring up the subject of arithmetic sequences which end up becoming functions, a key part of the development of the students' mathematical knowledge. I will then go through a question about the video: how did the teacher solve the problem where the answer that was wanted included using h(2)? The answer being substituting h(2) into the original function of f(x)=x^2-1. To finish this you must look at the graph to the right on the screen and figure out what y equals when x=2 on the graph of h(x). I will then tell the students that we are focusing on building functions today.

Materials: Provide a **specific list of *everything*** needed to conduct this lesson.

- *Include published materials, teacher-made materials, technology, and websites needed to plan for and implement for this lesson. Include weblinks here.*
- *Specify any materials needed for modifications and/or accommodations needed for specific students.*

UDL Examples:

Choose 1 alternative means of representation & 1 alternative means of expression & 2 or more means of engagement for the lesson. *1. Describe types of representation, types of expression, & engagement you plan to teach this objective.* **https://sites.google.com/site/udlguidelinesexamples/**

From principle to action: Make strategic changes in materials, work areas,

– *Alternative means of representation: photographs, art work, charts, graphs, print segments from text, digitized text, cartoon, picture books, KWL charts, portfolio, graphic organizers, adapted text other supporting materials. (e.g. using pictures to adapt text book to teach democracy in 6th grade; using a graphic organizers to teach insect reproductive processes in 10th grade; using active reading strategies to complete a module on the elements of poetry in 4th grade; using an interactive group project to teach quadratic equations to 12th grade; using shared reading to teach reading comprehension to 2nd grade; using graphic organizers & questioning strategies to teach language to PreK, etc.)*

– *Alternative means of expression: oral expression; shared reading & writing; select from an array of choices; augment writing component; (e.g., student responses to questioning can be one of, or a combination of verbal, written, demonstration, drawing, video, posters, collage, electronic presentation, cooperative, small group discussion, gestures such as thumbs up/down/sideways)*

– *Alternative means of engagement: How are you keeping children's interest, self-management and/or autonomy Be sure you give students choices on how to **express what they learned** & **model** those choices (e.g. writing, speaking, constructing objects, posters, skits, graphic organizers, etc. (providing choices, personal interest theme, expand to authentic experiences, innovative use, novel applications of concepts; self-monitoring; play a game)*

List of Materials:

- **Paper and pencil**
- **Calculator**
- **Graph paper**
- **"Building Equations" – I will create a handout, to be given out at the end of the lesson, which will systematically "walk through" how to build equations to accurately graph and develop functions. The handout will contain a series of steps, described in detail throughout instruction, for developing and graphing functions. These steps will include identifying the different parts to the equation and how they are graphed out. See the next point for modification to this handout.**
- **"Quick List: Building Equations" – I will provide an additional handout to students with disabilities. This handout will contain much of the same information as the class-wide handout, but in a simple and streamlined manner. Rather than describing each step thoroughly, I will provide short bullet points under each step. This handout will be drastically shorter and more condensed than the class-wide information sheet. This miniature handout will serve as a quick reference for my students with disabilities who struggle with reading, analyzing, and attention. I will allow Tam, Sean, and Renaye to utilize this "Quick List" handout as we move through the lesson and complete the formative assessment performance at the end of class.**

List UDL Strategies HERE:

1 alternative mean of representation

1 alternative means of expression

2 or more alternative means of engagement

Materials for modifications or accommodations:

Instructional Input/Modeling: ***I do*:** ***1. Briefly*** *explain in 1 -3 sentences how you will present the concepts & then* ***model*** *the procedures for completing the activities in We do & You Do - what will you do & say?* *2. What is the *grouping strategy & **BRIEF** rational?* **Guided Practice:** ***We do:*** ***1. Briefly*** *explain in 1 -3 sentences your scaffolding strategy. What are you doing to provide a bridge from teacher directed maximum supports, cues, prompts, to a gradual release from supports.* *2.What is the *grouping strategy & **BRIEF** rational?* **Independent Practice:** ***You do****:* 1. ***Briefly*** *describe in 1 -3 sentences what students must do or say. Independent Practice: Describe how students will demonstrate understanding of critical steps within the lesson* *2. What is the *grouping strategy & **BRIEF** rational.* ***Grouping strategies:*** *1:1; partners, small group, large group, heterogeneous, or homogeneous* *NOTE: In a short sentence or 2 explain what you will do to keep students* ***engaged in their groups****? Reinforce* ***effort****. Consider embedding some variety in the guided & independent practice activities. Some children like to work alone & some with a peer; some prefer novelty & some want routine.*	**1. I do:** **Alternative mean of representation** • **Play a Khan Academy video (linked above) of another teacher demonstrating how to build functions given different parts of the function. Point out the different parts of the equation and ask for a response from the class on some different examples.** **2. Grouping strategy: Whole group** **1. We do:** **2 types of engagement: Social engagement (students work alongside one another to develop these equations and also graph some), Intellectual Engagement (students will be challenged to experience and comprehend new material related to building equations and graphing). Students will work together with a partner to develop equations and then work together to graph them. They will be given some parts of the equation while also receiving some equations. The equations already formed are to be graphed and the different parts of the equation should be put into a full equation.** **2. Grouping strategy: Partner work** **1.You do:** **Students will participate in the group activity, thinking on the answer to each question (part of the equation), answering by raising their hand and then verbally expressing the part of the equation that is asked for. Some students will be correct, and others will be incorrect, which is the point of the exercise.** **2. Grouping strategy: Whole group**

Microteaching Role play: Candidates will video 5 min of direct instruction (DI) by explicitly teaching material adaptations to CLG peers who will role play case children with disabilities. (see appendix & class handouts for detailed explanation of the microteaching procedures.)	Candidates will develop and construct an adapted material(s) for use with students with disabilities for this UDLP & demonstrate it in a microteaching video. The material should be developmentally and structurally appropriate for use with the child. A description of the material should include the name of the material or activity, appropriate age of the child for which it is to be used, materials required, and instructions for constructing the material.

Accommodation for_____ [*list student case name*] who is an English Language Learner (ELL)	**Accommodation or modification** for_____ [*list student case name*] who has _____(list disability)	**Accommodation or modification** for_____ [*list student case name*] who has _____(list disability)

Closure/Lesson Closing *Describe how you will wrap-up/summarize and state what the student learned to make explicit connections with prior and future learning.*	

Assessment/Evaluation (Formative & Summative details): *Describe and use a variety of assessment tools to gather evidence of student proficiency. Describe strategies, accommodations, and/or modifications needed during assessment. These should be described in detail and should be appropriate for enabling each student to demonstrate his or her mastery of the specified objectives. Insert or attach all relevant assessment instrument(s) (direct tests of performance, rubrics, checklists, etc.).* ***Formative assessment:** stop & question: give a choice on the type of responses they can use during the lesson (response cards, point to, thumbs up, etc); and at the end of the lesson* ***Summative assessment**: written, typed, or spoken paragraph summary, completed poster, sculpture, skit, outline, etc.* *How will **measure progress** on the objectives of this lesson?*	**Most of the class assessment:** 1. **What accommodations or modifications will be necessary for:** **Student who is an English Language Learner** **Student with a disability** **Student with a disability or giftedness** ***Attach assessment artifact(s) in appendix***

Classroom Layout:

- *Include a classroom layout designed to help you meet the needs of all learners in your classroom and support instructional activities aligned with lesson objective(s).*
- ***Label where learners with special needs or considerations will be seated.***
- *Show teacher proximity to students within the layout (put yourself in the classroom layout)*
- *Copy and paste a layout at the bottom of this plan.*
- *In the space below, describe the layout (e.g. room organization, student/teacher location),* ***and provide a rationale for how the learning environment structure helps to monitor and support all students and contributes to learners' strengths, increases inclusive experiences, and supports engagement.***

Consider:

Anticipating classroom behavior issues, student energy levels, and engagement barriers you will need to manage by planful grouping and physical arrangement of the furniture and materials.

[Insert classroom layout here]

Classroom Management: *Describe your general classroom management procedures. If your case students have a behavior strategy as an accommodations describe the individualized behavioral supports/strategies to (a) reinforce specific instructional targets, (b) facilitate and maintain task engagement, (c) facilitate and maintain interpersonal skills, or (d) manage problem behaviors*.

General Classroom Management Procedures

UDLP APPENDIX

Appendix A: Activity Materials (photos, videos, scanned items, etc)

Appendix B: Visual System (graphic organizer, photos, videos, pictograms, scan, etc)

Appendix C: Assessment artifacts (organizers, worksheet, photo, etc.) and/or data sheets

Appendix D: Formative-Assessment artifacts (organizers, worksheet, photo, video, etc.) and/or data sheets

Appendix E: Summative-Assessment artifacts (organizers, worksheet, photo, video, etc.) and/or data sheets

Glossary

Academic language is oral and written language used for academic purposes. It is the language necessary for students to learn content in schools. Academic language is the means by which students develop and express content understandings. Academic language includes the "language of the discipline" (vocabulary and functions and forms of language associated with learning outcomes in a particular subject) and the "instructional language" used to engage students' in learning content. If students are using augmentative, alternative, or assistive technology, the academic language used by the student may take the form of other types of communication.

Analytical thinking where students analyze, compare and contrast, and evaluate and explain information. Most teachers focus only on analytical thinking in their classrooms. This type of thinking demands that students analyze, evaluate, and explain phenomena. Analyzing, evaluating, and explaining information is a skill that applies to all disciplines and is critical for an informed and educated society. Example: In language arts a class is reading Charlotte's Web. Through a Venn Diagram, the class compares and contrasts Wilbur's personality traits with those of Charlotte. Next, the teacher asks the students to analyze the text and find specific words that provide evidence of the character traits the student listed. For the final part of this assignment, the teacher asks students to explain why Charlotte chose to help Wilbur and what each child would do if he or she were Charlotte.
Example: Students are studying a specific artist's work. They are asked to observe a painting and identify one thing in the painting or element of the painting that could be removed that would not alter the artist's intent. Students may also be asked to explain what the painting reveals about the artist's attitude towards life, war, nature, etc.

Choice– degree to which the student has the opportunity to make content related choices within activities: (a) materials, (b) reinforcer/reward, (c) who student works with, (d) when student works, (e) where student works.

Communication: For the purposes of this assessment, communication is nonverbal, oral, written, and symbolic language used for specific purposes in instructional or home/community settings, depending on the instructional target. It includes language (vocabulary and functions and forms of language associated with learning outcomes) and other forms of communication (gestures, symbols and other forms associated with augmentative, alternative, or assistive communication) associated with making and demonstrating progress toward instructional objectives and larger learning targets and goals and the "instructional language" used to engage learners' in learning academic or nonacademic content. For academic goals, it is the academic language needed for learners to learn content and demonstrate their learning to meet individualized expectations for particular subjects.

Communication Demands: Specific ways communication (nonverbal signals, symbols, reading, writing, listening and speaking) will need to be used by learners to participate in learning tasks or interventions and to demonstrate their learning. For nonacademic goals, the communication demands may be expressing feelings, negotiating social situations, or, for a learner with severe cognitive limitations, indicating hunger. For academic goals, these should be related to the expected learning outcomes. For example, in mathematics, learners use a mixture of everyday and mathematics-specific language when they use mathematical terms to share their problem solving strategies, participate in discussions to evaluate mathematical ideas, use different representations to explore mathematical relationships, and use conventional forms and notation to demonstrate the ability to apply concepts and procedures to solve problems. Academic language demands vary by discipline and language function/form, and learners' language development.

Communication Development: Learners' communication abilities in terms of speaking, listening, reading, and writing skills OR using nonverbal or symbolic means, including those associated with augmentative, alternative, or assistive communication to communicate with others. For academic communications this includes more precise language choices, more clear and/or complex communication, and greater fluency with discipline-specific language.

Communication Forms: Structures or ways of organizing nonverbal signals/symbols or oral or written language to serve a particular function. Communication forms follow from functions and contexts. Communications forms to manage social situations include such things as "Hello", "I don't agree with what you said because….", or "I'm sorry I…." Learners with cognitive limitations may use specific gestures or uses a selection device (switch, keyboard, etc.) to indicate choice or needs. In academic settings, learners use developmentally appropriate language forms that are often subject specific, such as mathematical symbols and equations, sentences with subject-verb agreement and appropriate tense, pattern sentences such as "The _____ is longer/larger/heavier than the _____."; paragraphs with topic sentences and supporting details, and longer forms such as science lab reports. Augmentative, alternative, or assistive communication devices can carry their own expected forms for particular functions.

Expressive Communication Forms Examples: (a) Verbal; (b) Sign language; (c) Pictures; (d) Gestures; (e) Augmentative and alternative communication (AAC); (f) Voice output communication aid (VOCA); specifically, (a) Complex speech (sentences); (b) Multiple-word phrases; (c) One-word utterances; (d) Echolalia; (f) Other vocalizing; (g) Complex signing; (h) Single signing; (i) Picture exchange system (from an array of 4+ pictures to communicate); (j) Picture exchange system (from an array 2-3 pictures to communicate); (k) Picture exchange system (from an array of only 1 picture to communicate); (l) Pointing; (m) Leading; (n) Shakes hands; (o) Grabs/reaches; (p) Gives objects; (q) Increased movement; (r) Moves close to you; (t) Moves away or leaves; (u) Fixed gaze; (v) Facial expression; (w) Single message; (x)Phrase-based messages

Expressive Communicative expressive intentions: (a) Request attention; (b) Request preferred food/ objects/ activities; (c) Express wants and needs; (d) Request assistance; (e) Indicate finished; (f) Express choices; (g) Make comments; (h) Express greetings and farewells; (i) Show you something or someplace; (j) Respond to questions; (k) Protest or reject a situation or activity; (l) Indicate physical pain (headache, illness); (m) Indicate confusion or unhappiness

Communication Functions: The function is the purpose the communication is intended to achieve. Functions are associated with verbs found in learning outcome statements. Communication functions for academic instructional targets include describing scientific observations, explaining a mathematics problem solution, classifying historical documents by the author's social role, analyzing how supporting details elaborate a topic sentence in a paragraph. Communication functions for learning strategies instructional targets include taking notes, using mnemonics, paraphrasing what was just said, demonstrating a strategy (verbally or nonverbally). Communications functions for physical instructional targets include describing body positions or requesting particular movements. Communication functions for social-emotional learning targets might include describing feelings, expressing disagreement in a nonaggressive manner, analyzing the source of frustration. Communication functions for independence (functional) instructional targets include identifying a store where you can buy a toy, asking for a toothbrush, asking the bus driver if the bus goes to a certain stop, clarifying instructions for a job-related task.

Creative thinking, where students create, design, imagine, and suppose. Children have wonderful imaginations and love to create, design, and invent. In school, however, they are often told to follow strict rules, adhere to criteria, and provide the one correct answer, not necessarily the most creative one. By teaching students to create, design, and imagine, teachers prepare students for the flexible and creative thinking they will need to exercise later in life. Examples: (a) Design a food chain with imaginary animals. Provide a rationale for where each animal fits; (b) Create a survey to determine the favorite food of students in your school; (c) Design a new playground for the school and make sure your drawing is to scale; (d) Rewrite the Bill of Rights; (e) Create a classroom constitution; (f) Create a three-dimensional map of your state; (g) Suppose George Washington was never born. Write about what America might be like today without him; (h) Create a song or develop new words for an existing melody; (i) Create a football or basketball play during a physical education class.

Expressive communication demand: Where the learner is expected to provide a communication for a particular purpose (function) in a particular context.

Independence curricula: Individualized independence curricula provide individuals with exceptionalities with the skills and knowledge for everyday living, including the knowledge and skills for personal life, home life, work life, recreation and leisure, and participation in their communities through intensive special education interventions. These curricula enhance learner abilities in diverse areas, e.g., to interact with peers and adults, develop self-help skills in daily activities such as eating, dressing, toileting, etc.; function appropriately for their age and culture in community settings such as stores, public transportation; adapt to new situations and develop and respond to the behavioral patterns.

Language Demands: Specific ways language (reading, writing, listening and speaking or parallel processes in augmentative, alternative, or assistive communication) will need to be used by students to participate in learning tasks and demonstrate their learning. For example, students need to comprehend textbooks and instructional materials, describe problem solving processes in mathematics, create and interpret timelines and maps in social studies, and use conventional forms and notation to demonstrate knowledge on different types of subject-specific assessments. Academic language also includes instructional language needed to understand directions (e.g., explain, analyze, prove, talk with a partner) and language need to work effectively with other students in learning tasks (e.g., ask questions, respond to ideas). Language demands vary by discipline and language function/form, and students' language development.

Language Development: Students' language abilities in terms of speaking, listening, reading, and writing skills or parallel processes in augmentative, alternative, or assistive communication. All students, including high performing students, can improve their academic language proficiency in terms of precise language choices, more clear and/or complex communication, and greater fluency with discipline-specific language.

Language Forms: Structures or ways of organizing oral or written language to serve a particular function within each subject area. Students use developmentally appropriate language forms such as sentences with subject-verb agreement and appropriate tense, paragraphs with topic sentences and supporting details, and subject specific forms such as mathematical symbols and equations or longer forms such as science lab reports or literary essays. Functions that are common across subjects such as discuss, interpret, or analyze, often have subject-specific forms that become more specialized as grade levels increase. It is important to make expectations for these forms explicit when students are to use them to demonstrate their learning, so students are aware what they need to do. Students using augmentative, alternative, or assistive communication may use different forms to receive or produce communications.

Language Functions: For oral and written language in classrooms, the function is the purpose the language is intended to achieve. Functions are associated with verbs found in learning outcome statements. Examples of common language functions in different subject areas include using descriptive language to convey precise meaning; describing mathematical phenomena, comparing based on common attributes; using presentation skills to present a play, a speech, or do a dramatic reading; reading scientific investigative procedures, diagrams, figures, tables, graphs, and dense authoritative text; and evaluating evidence an author/presenter/historian uses to support claims.

Natural Support – assistance provided for all students (disabled and non-disabled) by adults in inclusive settings (e.g., assistance provided by the librarian in the school library, and/or assistance provided by a general education teacher)

Practical thinking, where students use, apply, and implement what they learn in real-world scenarios. Many students often do not see the connections between what they learn in school and how they can use this knowledge in the real world. Teachers who integrate practical thinking into their teaching design learning activities where students are forced to use and apply concepts and ideas that they learn. In this way, this descriptor connects to the descriptor, "the teacher consistently organizes the content so that it is personally meaningful and relevant to students.

Example: A class is working on measurement. Often teachers have students measure various objects in the room. While this has students apply the concept of measurement, the utility and relevance of how measurement works in the real world is not clear. Instead, the teacher informs students that they will be building tree and plant boxes throughout the school. These planters will be various shapes and sizes and will require students to not only measure and cut different pieces of wood to build them, but also to estimate the sizes of the correct plants and bushes to put in them.
Example: A group of students is fed up with the cafeteria food and they have decided to do something about it. First, they research what the necessary requirements are for a healthy lunch. Next, they design a menu for two weeks. Finally, they create the shopping list and pricing list to ensure that the lunches they are requesting are affordable. After working through each of these issues, the students present their menu, shopping list, and pricing list to the school board. Their proposal is negotiated and some items on the menu change.

Receptive communication demand: Where the learner is expected to understand a communication from others and react appropriately.

Research-based thinking, where students explore and review a variety of ideas, models, and solutions to problems. In the midst of the information age, students need to know not only how to research to and information, but also how to review a variety of ideas and come to solutions that are well-supported and make sense. Examples: (a) Research six different professions and describe the benefits and pitfalls of each; (b) Research three sources of alternative energy and, based on your analysis of each, recommend the most fruitful source; (c) Research the staple foods from countries in three different continents, and describe why those foods are so pervasive.