

# THE PIXON PROJECT KIT: A LANGUAGE DEVELOPMENT CURRICULUM

THE PIXON LANGUAGE AND  
LEARNING ACTIVITY  
NOTEBOOK

THE PIXON PICTURE SET

THE PIXON MANUAL  
COMMUNICATION BOARDS  
AND DISPLAYS

THE PIXON EDUCATIONAL  
AND ENVIRONMENTAL  
MATERIALS



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**Pixon Language  
and Learning  
Activity Notebook**

**The PLLAN**

# The Pixon Language and Learning Activity Notebook

Prentke Romich Company  
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# Introduction

Welcome to the Pixon Language and Learning Activity Notebook (PLLAN).

The Pixon Language and Learning Activity Notebook provides teaching teams with ideas and suggestions for introducing products and materials from your Pixon Project Kit. The PLLAN is like your manual or “plan” for developing a language development program for the person you are supporting with complex communication needs.

For organizational purposes, the PLLAN is divided into 5 parts:

1. General Intervention Principles
2. Selection and Use of the Pixon Manual Communication Boards and Displays
3. Educational and Environmental Materials
4. Pixon Language Learning Modules
5. Implementation Q & A

The PLLAN is intended to provide structure to the initial teaching of language with children and adults with limited and/or emerging language skills. It provides a base for creating an intervention plan with children and adults who are learning how to generate language with their personal AAC systems.

The PLLAN is NOT intended to provide a comprehensive AAC curriculum; rather, it offers guidelines for teachers, families, and therapists to begin systematic language instruction using Pixon Project Kit materials. (See Part 1 of the PLLAN).

The PLLAN addresses three simple implementation questions:

1. What words should I provide to ensure that I am giving the child or adult with disabilities access to a solid and appropriate vocabulary of high frequency, re-usable words and word variations?
2. How should I organize these words on personal manual communication boards?
3. What strategies should I use to teach the high frequency, re-usable words and support development of language and interaction skills?

## ***Question 1: Select the Words***

The words selected for the Pixon Project Kit are based on the following three criteria.

- ❖ **Frequency of Use:** Does the word fall into the top 300 words used by normally speaking children and adults?

## Introduction

- ❖ Best Practices in AAC: Is the word frequently placed on personal, manual communication boards because of its usefulness and application in classroom and language therapy environments?
- ❖ Descriptive Talking: Will this word help provide “substance” to what the child or adult is trying to communicate because of the limitations of the vocabulary set provided/available on his/her AAC system? (See Part 1: General Intervention Principles, Descriptive Talking).

Based on a balance between these factors, 200 +/- words were selected for the permanently available vocabulary set for the Pixon Project Kit. (See References for a listing of sources for vocabulary selection). The Pixon Picture CD/DVD you received in your Kit has many more than 200 words; however, all products pre-made with Pixons are geared to support the use and teaching of this set of 200 +/- words.

### ***Question 2: Organize the Words***

A range of pre-made Pixon Manual Communication Boards and Supplemental Displays have been developed. The most robust, laptray-style personal communication board has 216, 3/4 inch targets that provides access to 212 different words (some pictures have 2 or more words written above them). This board serves as the “blueprint” for other boards developed in the Pixon Project Kit. Many children and adults who are introduced to Pixons are not “ready” for a personal, manual communication board with 216 targets and 212 words. However, to ensure continuity in the development of boards with fewer targets and words, this “blueprint board” was created. Each board developed in the Pixon Project Kit is a step on the path toward having access a larger body of permanently available, high frequency words. (See Part 2 of the PLLAN).

### ***Question 3: Teach the Words and Develop Interactive Language***

The PLLAN provides guidelines for teaching 150 words of these 212 core words in interactive teaching routines. (See Part 3 of the PLLAN). The 150 words are introduced by “modules,” with each module focused on a specific reason (i.e., pragmatic function) for talking. The intent of the modules is to help intervention teams develop strategies for teaching core vocabulary that can be applied to the teaching of any words available on the individual’s personalized Pixon communication board.

\* NOTE: On boards with less than 150 words, the modules can still be used because most boards contain 1 or 2 words from each module. The intent of the modules is to teach pragmatic development and interaction skills, not just word acquisition.

# Part 1: General Intervention Principles

Some teachers or therapists using Pixon-based materials will have many years of experience working with children and adults using picture communication boards and other augmentative and alternative communication (AAC) strategies. Other teachers or therapists will be beginners in the field of AAC. For those beginning their AAC journey, the following simple intervention principles will point you in the right direction. For seasoned veterans, they are a good refresher course on “best practices” in AAC.

## *Readiness to Learn*

Many children and adults with complex communication needs (CCN) also have a range of other neurological, sensory, and physical challenges. It is not the intent of the Pixon Project Kit and the PLLAN to try and address the full range of characteristics of individuals who might be using Pixons and the PLLAN. However, it is recognized the people must be “ready to learn” before learning can occur. Readiness to learn includes the following points:

- **Sensory Integration:** Some children and adults with CCN will have been identified as having “sensory integration” problems. These individuals often need to have sensory activities completed prior to attempting to engage in other learning activities. AAC intervention should coordinate with any sensory integration intervention that is occurring.
- **Visual and Hearing:** Vision and hearing challenges often are present in children and adults with CCN. The PLLAN is not intended to address specifically the instruction of children with recognized single or dual sensory impairments. Intervention teams will need to modify materials and activities to support individuals with vision or hearing impairments.
- **Positioning:** Many children and adults with CCN have significant physical challenges and require consideration of their physical positioning in relation to their readiness to learn. The person should be properly positioned in a chair, wheelchair, or other type of support system so that he/she can adequately see and access the learning materials provided.

## *Fun and Functional*

Teaching children and adults with disabilities how to communicate should be fun for both the teacher and the child or adult with disabilities. Communication is not something that you can force a person do; rather, it is something people do because it serves a purpose or function. In this context, functional does not mean that it allows someone to communicate those things related to basic human needs. Rather, communication that is functional means it helps the person achieve their own purpose or function, which could be to (1) connect with other people by making a joke, (2) get something you want, (3) avoid something negative, or (4) express an opinion.

## Part 1: General Intervention Principles

Fun and functional intervention usually results in learning.

### *Person-Directed*

One way to make learning fun and functional is to give the child or adult opportunity to feel “in control” of the learning activity. This approach is referred to as “person-directed” intervention. Person-directed intervention helps build a sense of personal power and control critical to becoming an independent, internally motivated communicator. This includes the power to:

- control what and when activities occur;
- control the pace of an activity;
- express both positive and negative opinions;
- question others and build personal curiosity by asking questions; and
- evaluate yourself and others.

When the child or adult with disabilities has control over an activity, then that person is more motivated and more likely to put forth the effort needed to learn something new and potentially difficult and/or stressful. Person-directed intervention encourages the child or adult with disabilities to assume responsibility and decide how learning is going to occur. This type of active participation is important to reduce or prevent “learned helplessness” and to help the child or adult see him/herself in relationship to others, including learning that his/her opinions and ideas are respected and valued.

Person-directed intervention does not imply that the teacher has no goals or lesson plans. Good teaching is a constant shifting between being prepared with a lesson, goals, and the necessary materials, while being able to “go with the flow” when the child or adult is completely interested in something else that day or in taking the lesson in new, unplanned directions. The following points are generally accepted tenets of person-directed teaching.

- Follow the person’s lead: Watch for what interests the individual and use those interests to create meaningful learning experiences.
- Build on the person’s interests: Once you know what interests the person, build on those interests and find ways to expand the child's or adult’s communication. For example, the child might have been interested in swinging. You join in the swinging by pushing him/her after he/she asked for “more” with his/her Pixon board. Build up the interaction by showing the child how to say “fast” or “slow” and then adjust the tempo of the swinging accordingly. Or perhaps a child is very interested in a currently popular movie. Develop materials around that movie, visit the website devoted to the movie, or act out bits of the movie.
- Carefully use barriers: The use of barriers can be an effective way to help the child or adult use communication to solve problems. Barriers could involve “gentle obstruction” when you block his/her way or put something in the way of whatever it is he/she wants. It could also involve

## Part 1: General Intervention Principles

- intentionally acting stupid or doing something the wrong way so that he/she has to correct it.
- Be surprising and novel: When engaged with the individual, do something surprising and novel. The person may be more compelled to engage in learning because you are not acting in normal ways. Think about what you tend to do over and over again, and do it differently once in a while.
  - React naturally: The activities and words used in the intervention should result in natural consequences. If the person says “stop,” then stop. Modeling with natural consequences might require the support from at least 2 instructors. One instructor works directly with the person with CCN, providing the model to the person along with any necessary hand-over-hand assistance (e.g., to say the word “stop” to make someone stop doing something). The second person is the “reactor” and responds to the person’s communication (e.g., stops his/her activity).
  - Be honest about the person’s communication attempts: Many children and adults who are learning to use an AAC system will have a range of multi-modal communication strategies which they have used with varying degrees of success. Most individuals using AAC strategies also communicate with vocalizations, gestures, and facial expressions. Acknowledge the person’s use of these strategies (e.g., I hear you using your voice, so I know you are talking to me), but also tell him/her what is and is not being understood (e.g., I hear you using your voice, so I know you are talking to me, but I don’t know what you are saying) and then direct him/her to use the AAC system because of the power it gives him/her (e.g., I hear you using your voice, so I know you are talking to me, but I don’t know what you are saying. Use the words on your board so ANYONE can understand what you are saying and you can get what you want).

### *Model Language*

When interacting with a child or adult with disabilities who is using an AAC system, verbal and visual language models are critical for language and AAC learning.

- Provide short, but complete verbal models: Speak to the child or adult with disabilities with short, but complete sentences.
- Provide aided language stimulation: Aided Language Stimulation (ALgS) is a strategy whereby the communication partner talks TO the child or adult by using the person’s AAC system. This strategy has been shown to help in picture comprehension and learning simple language structure.
- Use ALgS to prompt expressive language output: Talking with someone using a Pixon board is a natural strategy for prompting them to talk back with the board. For example, if you are drinking juice and the person’s juice is “all gone,” you verbally say “Your drink is all gone. Maybe you

## Part 1: General Intervention Principles

want more to drink." While speaking, point to these pictures on the Pixon board: "drink" "all gone" "want" "more" "drink."

Many teachers use an ENLARGED Pixon Communication Board Wall Chart to provide the necessary Aided Language Stimulation (see the Communication Board Wall Chart from the Educational and Environmental Materials). They CIRCLE the words on the enlarged board with an erasable marker to help the person focus on target words or they REMOVE the word cards (which were attached with Velcro® to the wall chart) and show it to the person, holding up the targeted words. Other teachers prefer to use the individual's own Pixon board because they believe it provides a more "repeatable" model. There is no "right" or "wrong" strategy, but variations – all which are necessary strategies to provide a maximum amount of expressive language modeling.

- Respond and keep responding: No matter what the child selects on the Pixon board, the rule for communication partners is: RESPOND, RESPOND, RESPOND. Provide natural consequences to whatever the person said, even if it seems like a mistake. If the child or adult meant to say "drink," but instead said "eat" and there is no food available, then pretend to "eat" the juice, trying to chew on the glass or straw. Be animated and fun. Then say, "I can not eat this. I have to drink it" and use ALgS to say "not" "eat" "drink" "this." Or, if acting silly in this way does not suit the situation, say "you pointed at eat, but we are not eating. We are drinking this." Use ALgS to say "not" "eat" "drink" "this."
- Expand the language: After the person communicates something, expand upon it. For example, if the child says "more" as a request for more juice, using their Pixon board, you verbally say "You want more to drink" while pointing at "want" "more" or "more" "drink."
- Model ALgS incrementally: You do not have to model everything you are saying using ALgS. When using ALgS, model the type of language you hope the child or adult will produce. Determine the person's current expressive language abilities and model 1 or 2 words beyond that level. Keep trying to move the person one step forward in the amount and kind of language he/she can produce independently.
- Use Descriptive Talking: Model "definitions" and "word altering" strategies as part of your on-going process of ALgS. (See below).

### *Descriptive Talking*

Descriptive Talking is the process of "defining" a concept or word NOT on your board with words that you DO HAVE on your board. Individuals who are literate can use spelling to express words that are not currently represented on their AAC systems. However, pre-literate or non-literate children and adults can usually only communicate those words that are represented on their AAC boards, displays, or devices, unless they are taught to use those words in descriptive, creative ways (Baker, Anderson & Hurd, 2007; Baker & Anderson, 2008, Van Tatenhove & Arrington, 2008; Van Tatenhove & Madeya, 2008). For example, when doing a cooking activity, "stirring" and/or "beating" are

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common physical actions. These words are not currently on any Pixon manual communication board. However, that does not mean that the child or adult cannot communicate those ideas. These ideas can be communicated when “stir” is defined descriptively as “go around” and “beat” as “go around fast.”

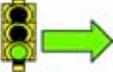
Descriptive talking also includes the use of special “word altering” strategies. These strategies have historically been used in the field of AAC to support the maximum usefulness of the words that the child / adult has on his / her AAC board. Blissymbolics Communication International introduced special symbols in the early 1970’s as a means to expand the communication power of the limited set of words represented on the person’s communication board. Strategies such as “same as,” “opposite of,” or “part of” are three examples. These strategies have been incorporated into the Pixon materials. For example, if a child / adult has an “opposite of” Pixon Special Symbol placed on his / her communication board, then a range of new action and descriptive concepts can be expressed, without having those words taking up space on the board (e.g., “opposite of” “sleep” = wake, “opposite of” “sick” = healthy).

### *Context to De-Contextualization*

One of the great wonders of language is that a word can be used in multiple contexts with a variety of meanings. A simple word like “go” can mean many things. When a normally developing child is learning words, he / she learns that word in a single context. “Go” might mean he / she is going to be placed in a stroller and “go.” New experiences teach the child that “go” also means to be pushed in a swing, that daddy will “go” to work and be “gone” all day, that you “go” when you get in your car seat, or you learn “to go” on the potty.

The multiple meanings of the word “go” is a wonderful and efficient thing, but it is also a challenge when trying to represent the word “go” with a picture on a communication board. Which meaning do you draw? How many pictures do you use on the AAC system for the word? How much “real estate” can you afford to use on your board for 1 word with many meanings?

When developing an AAC system, whether a picture communication board or a speech generating device, one picture needs to be used consistently to represent a word, regardless of how the meanings of that word varies. One picture is used to represent a word and that picture, regardless of the variations of meaning of that word, must cover all the uses of that word. For example, with Pixons, the

picture for “go” is . The metaphor or “story” for this picture involves the traffic light and the idea of “going” when the light turns green. The green arrow is added for the idea of moving forward in space. This picture is used for all the meanings of the word “go.”

Some children and adults with disabilities have rich life experiences and good language understanding. They are able to understand the metaphor of the pictures with explanations. However, other children and adults with severe language disabilities and limited life experiences need to be shown how to use the Pixons, which involves teaching the location of the Pixon on the

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communication board and teaching them to use the Pixons across a range of contexts.

- Use motor skills to learn the location and language: Children and adults with severe language and cognitive disabilities DO NOT have to be able to identify Pixons by label in order to use them to communicate. In fact, many children and adults with severe disabilities are functionally using Pixons without being able to identify them by label. They have learned to use them meaningfully because they have learned a “motor pattern” for talking. By using the Pixons over and over, their bodies have learned where different Pixons are located on their communication boards (motor pattern) and they use them without really thinking (motor automaticity) about what each individual metaphor means. The two keys to learning motor patterns and building motor automaticity are REPETITION and CONSISTENT LOCATION of the Pixon. The Pixon stays in the same place on the Pixon board and the person learns to use it. Hopefully, as these individuals use the Pixons with people, they begin to develop more and more language understanding.
- Teach language and pictures in context: As part of teaching the metaphor behind the Pixon, initially teach the word and picture in the context shown in the picture. Re-enact the story behind the Pixon in order to help build life experience, language understanding, and picture association.
- Use supportive visual props: Make visual props based on the Pixon pictures and use them to help teach the ideas behind the Pixons. For example, you can make a “traffic light” without the “green” light. Then make a green “dot” that can be attached to the light. Whenever the child attaches the green dot to the traffic light, he/she can “go” or something/someone else can “go.” (Note\*: Some visual props have been pre-made as examples and are on the set of Pixon CD/DVDs).
- Expand contexts: Language learning is a continual process of de-contextualization. That means that the child or adult knows what words mean when different people use them in different contexts. Rather than doing the same activity over and over, there needs to be a conscious effort to build flexibility in language meaning to prevent the child or adult with disabilities from thinking that a word can only be used in a specific setting to mean just one thing. Involve a range of communication partners (parents, friends, siblings, aides) and a variety of settings (home, school, outside) to support the de-contextualization process.

### *Visual Masking*

The Pixon Project has produced a variety of personal communication boards that can be used “out-of-the-box” and others which are on the CD/DVD. The most simple, laptray-style, stationary board has 20, 2 inch locations, while the most robust laptray-style, stationary board has 216, ¾ inch locations. For many children and adults with disabilities who are using Pixons, these boards will have more vocabulary than they are currently able to use and/or can process visually. The board may be considered to be more “robust” than the child or

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adult can currently handle, but you hope that the child/adult can grow into the board. You could make your own boards with fewer targets or implement visual masking.

Visual masking is an approach that allows the child and/or adult to be gradually introduced to vocabulary on communication boards. Generally, when using visual masking, a “mask” is created out of dark-colored, heavyweight paper. This paper masks or blocks some of the words from the child or adult. Holes are cut out of the paper to reveal selected words.

There are many practical advantages for using visual masking with manual communication boards.

- Focus on target words: Visual masking allows the teacher to focus on target words. The mask can remain over the board after that teaching session is completed, if deemed appropriate, in order to promote success outside of the activity. Special “masks” can be made for each “module” in the PLLAN or for specific activities.
- Reduce random word selections: For many children and adults with severe disabilities, learning how to be an “intentional communicator” is a significant issue. Some seem to point randomly at pictures without intention, and they have to learn that their communication has consequences. A visual mask can help reduce a person’s random selection of non-target words on the board and help the communication partner provide appropriate consequences.
- Support person-directed therapy: Using a robust communication with a visual mask supports person-directed learning. When a child or adult takes the learning in a new direction, it is relatively easy to “reveal” new words that are hidden under the mask. A quick snip with a scissors on the paper “mask” and a new word is available.
- Reduces construction and development time: Time is money and every teacher’s time is limited. By using visual masks with “robust” communication boards, the teacher or therapist does not have to be continually making new boards. A single board can be used and simple masks created for individual learning activities or settings.
- Support long-range language planning: By providing the person with a “robust” board, you have created a long-range plan for the layout of words. The many words on the board represent the long-range vocabulary and syntax/morphology plan for the child or adult. This helps guarantee that words are represented consistently and stay in consistent locations as vocabulary develops. Too often, new boards are constantly being made and vocabulary is not always represented the same or in the same location, thus inhibiting learning and communication output through motor patterns.

There are also some disadvantages to Visual Masking.

- Limits aided language stimulation: When only a small number of words are available, the communication partner can MODEL the target language,

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- but it limits the opportunity of the communication partner to expand the person's expressive language through aided language stimulation.
- Limits person-directed interaction: When only a small number of words are available, the interaction is being controlled by the communication partner. The communication partner created the mask and is the person who is determining WHAT words can and can not be communicated by the individual with CCN. This level of external control can inhibit the spontaneous nature of the interaction and may be inadvertently teaching "compliance to the teacher," rather than personal control of communication.
  - Practicality in a personal system: Outside of a teaching activity, many people question the practicality of visual masks on a person's permanent Pixon board. Children and adults with disabilities tend to significantly damage visual masks that are left on a display. A messy, torn-up visual mask is a distraction and annoyance.

Clinical judgment is necessary to determine the balance needed between the use and non-use of visual masking. A compromise is to use visual masking that provides access to the target words, while also providing access to a limited number of additional words that the communication partner can use in ALgS. A general rule of thumb applied by many individuals participating in this project was to provide at least 10 additional non-target words beyond the available target words and to be ready to "unmask" a new word, as the situation required (by having a tool ready to cut a new hole in the mask). As a personal system for use outside of therapy, manual boards were created that grew gradually, based on the "blueprint" board that was created. It required continually updating of boards, but ensured consistency in selection and positioning of Pixon.

### *Measure and Document Outcomes*

Evidence-based practice (EPB) is an important issue in the field of AAC. Teachers and therapists need to be collecting, measuring, and analyzing the communication performance of the children and adults whom they support. There are tools available, related specifically to the field of AAC, which can help teams evaluate the progress of the individuals they support. Appendix A provides simple checklists for documenting progress in the use of communication functions, vocabulary acquisition, and simple syntax and morphology. Other resources are listed in Appendix B.

One of the most effective strategies to measure and document outcomes is to collect language samples. Taking language samples is a well-established method used by speech-language pathologists to measure vocabulary and language output. It is beyond the scope of the PLLAN to describe the process for collecting and analyzing a language sample. However, the following recommendations are made in regards to measuring and documenting outcomes:

1. Every 2 to 3 months, collect a language sample. Videotape several sessions, across different activities and communication partners to obtain a balanced picture of the person's abilities. Use the checklists from Appendix A to document the person's progress.

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2. Collect information on these objective and subjective areas of language development.
  - Semantics
    - How many words are currently available on the person's personal AAC system?
    - What is the person's current expressive vocabulary?
    - What new words is he/she using that he/she wasn't using before?
  - Pragmatics
    - Why is he/she communicating? What is the range of communication functions being produced?
    - How is he/she more in control of his/her own choices and environment?
  - Syntax & Morphology
    - What is the average length of utterance that the person is producing?
    - What "endings" are you modeling?
    - What "endings" is he/she starting to use?
  - Social/Environmental factors
    - Who are the person's communicator partners? Is he/she communicating independently with more people?
    - What is the effect of the use of Aided Language Stimulation? Does the person communicate more and better with people who use ALgS than with partners who do not use it?
    - How are important communication partners viewing the person's progress?

# Part 2: Manual Communication Boards

Designing a manual communication board for a person with CCN involves consideration of a range of issues related to the person's abilities. Generally, key factors to be considered when designing a manual communication board focus around mobility, vision, access, and cognition/language.

Area	Person-Centered Questions	Design Considerations
mobility	Does the person walk independently, with assistance/equipment, or sit in a wheelchair?	Consult with a physical therapist (PT). Design a portable board for ambulatory people and stationary boards for non-ambulatory people. Consider "back-up" stationary boards in locations for ambulatory and non-ambulatory people (e.g., at work area, by bathtub, etc.).
	If he/she walks, how would he/she transport a MCB?	Design a portable board that could be carried (lightweight, sturdy, durable, folded-up, in notebook, strap or case to carry it).
	If he/she is in a wheelchair, is there a laptray? What is the size of the working space on the tray?	Design a system to be placed on the laptray, maximizing the available working space.
vision skills	What size target can the person see? How do access (motor skills) and vision relate to each other?	Consult with an occupational (OT) or vision specialist. Design a system to match both vision and access skills. Consider use of background colors, textures, and shapes to maximize vision.
access skills	Can the person use Direct Selection to access targets? If so, what size target? What is his/her range of motion and reach? Does the person need to use Partner Assisted Scanning or Encoding to	Consider how to maximize the person's ability to use Direct Selection as the fastest way to pick targets. Consider use of an incline to extend the person's reach range. Consider simple "encoding" strategies to maximize direct selection (e.g., 4 small targets inside of

## Part 2: Manual Communication Boards

	access targets? What size targets are necessary?	1 large BLOCK the person can fist point to, followed by giving a “code” as to which word in that block he/she wants). Consider how partners can help access (part Direct Selection, part Partner Assisted Scanning).
cognition	How many targets and/or words are appropriate for the person? What is the balance between what the person can handle cognitively, physically, and/or visually? Which takes priority?	Design a system that provides the MOST number of words that the person can see, access, and handle. Consider a range of strategies to maximize cognitive, visual, or motor skills.
language	How much language does the person need to access? Can all the language he/she needs be placed on a single sheet display (where he/she can see all the core words at once)? Will any multiple displays need to be made (where you flip a section or whole page to get more words)? What “Word Altering” strategies could be used to expand the vocabulary set? Is spelling an option for expanding the vocabulary set?	Emphasize Single Sheet Designs because they are the most “language-friendly” design because have present the least cognitive, memory, and motor challenges to use them. Consider multiple displays for infrequently used, extended vocabulary. Consider activity-based displays to supplement the main permanently available, personal Pixon board. Consider including some basic word altering strategies (e.g., same as, opposite of) to expand vocabulary and language development. Consider providing a supplemental spelling display and/or the “starts with” strategy for emerging spellers.

The Pixon Project Kit contains a set of three (3) pre-constructed Pixon personal manual communication boards. These boards are a sample set of boards that are available that use Pixons and can be used out-of-the-box, if appropriate. They provide a set of high frequency, re-usable words and a limited amount of supplemental and extended vocabulary. Templates are provided to develop additional customized, extended vocabulary.

## Part 2: Manual Communication Boards

The three pre-constructed boards in the kit were selected for construction because they represent the 3 main groups of boards developed: (1) for individuals in wheelchairs with laptrays who can use direct selection, (2) for individuals in wheelchairs using eye pointing, and (3) for individuals who can walk and use direct selection. These boards serve as “models” for how to make a new board. Perhaps one of these boards, with some customizations (e.g., addition of the person’s photograph and name, altering of the personal pronouns from “white female” to male and/or alternate background) will be a good match for the person you are supporting.

Other boards are designed with more/less words and for individuals with a range of sensory and motor skills. They are contained on one of the CD/DVDs in your Pixon Project Kit. Hopefully, one of these boards will be a good match, with minor adjustments, for the person you are supporting. You will need to construct these boards yourself.

Some of the laptray-style boards may be a bit too big for the person’s current laptray, especially with the addition of the section on the top for supplemental and extended vocabulary. In the project, inclines were added to the laptray to extend the available space and increase the person’s forward reach range. Consider this option before using a board with fewer or smaller targets.

It is also quite likely that no board developed in this project is a good match for the individuals you are supporting. In that case, you must design a board that is a better fit.

*On the Pixon CD/DVD set, there is a document that describes the Pixon boards pre-developed in this project. Refer to this document as you review the available boards. This document is also in Appendix D.*

The following types of communication boards and displays have been developed in the Pixon Project Kit:

1. Personal “Core Word” Communication Boards
2. Supplemental “Core” Displays
3. Personal “Extended Vocabulary” Displays
4. Activity-Based Displays

### ***Personal “Core Word” Communication Board***

Each person needs to have his/her own personal communication board that provides an appropriate body of core words. This board must be available to the person in all his/her environments – home, school, and community. This board provides re-usable, high frequency words that promote mediation and interaction about any topic or in any environment. While the Pixon Project Kit provides some “starter” boards, it may be necessary, based on the characteristics of the individual with CCN, to make a board “from scratch.”

## Part 2: Manual Communication Boards

### Options for Individuals who are in non-Ambulatory

1. Stationary, laptray-style personal core word communication boards are Single Sheet Design (SSD) boards. Extended vocabulary is provided and organized with a Multiple, Sequential Design (MSD). These words are placed in a tabbed, “flip” holder attached to the top edge of the board. Extended vocabulary has NOT been pre-selected for the majority of these boards.
2. Stationary, eye point frame-style personal core word communication boards are also Single Sheet Design (SSD) board. These boards are designed to be accessed with eye pointing and partner assisted scanning or encoding. Extended vocabulary is provided and organized with a Multiple, Sequential Design (MSD). These words are placed in a tabbed, “flip” holder on the top edge of the eye point frame or hand-held, as appropriate. Extended vocabulary has NOT been pre-selected for the majority of these boards.

### Options for Individuals who are Ambulatory

1. Portable personal core word communication boards are designed with displays placed in a lightweight, washable, cloth carrier. This carrier is designed as a Multiple Simultaneous Category Design (MSCD). They provide “re-sealable pockets” in which you can place displays of both core and extended vocabulary. Extended vocabulary has NOT been pre-selected for the majority of these boards.
2. If the cloth carrier is NOT appropriate for the person you are supporting, you will need to create your own portable system.

### **TO DO:**

1. Review the pre-made boards that are available “out-of-the-box” to determine if any of them are appropriate, with minor adaptations, for the person you are supporting. If so, manually make the adaptations for the individual.
2. Review the core word communication boards on the CD/DVD to determine if any of them are appropriate, with adaptations, for the person you are supporting.
3. Custom the Pixon board selected by adding the person’s name and adjusting the Pixons of pronouns to match gender and race. Also add other pictures/ names of critical people in the person’s life.
4. Print and construct the board. Place the board on a heavy backing, allowing space for the supplemental and extended displays. Protect with laminate or clear contact paper.

### *Supplemental “Core” Displays*

When designing a personal, manual communication board, adequate space on the board for frequently used vocabulary is always a challenge. Creating boards in the Pixon Project Kit attempts to address this challenge by providing supplemental displays that contain words that are frequently used in conversation (e.g., polite words) and early academic activities (e.g., colors, numbers, letters, shapes). These displays are designed as multiple sequential displays and are placed in the same area as the extended vocabulary. The following displays are provided: polite words, colors, numbers 0-9, shapes, and alphabet. The tabs on the multiple sequential displays include a printed word for the category name and a Pixon.

The “polite words” display was created because many parents wanted their children to be able to use these words and have them available in any activity or setting. The spelling displays that are formatted as multiple sequential displays are arranged in alphabetical order. However, there are additional, single sheet spelling displays arranged in Alphabetical and QWERTY layout. You will also need to create other supplemental “core” displays for names of people (e.g., family, classmates, neighborhood friends).

These supplemental displays are placed with the core word board in the same area as the extended vocabulary. For the smaller laptray-style boards (e.g., SLT-20, SLT-30) these displays are usually organized together with the extended vocabulary with the supplemental vocabulary in front. However, for the larger boards (e.g., SLT-50, SLT-77, SLT-112, SLT-198, SLT-216) many people do NOT want long flip-style displays running the width of the board. Instead, the supplemental core displays are placed on the LEFT side of the board and the extended vocabulary displays on the RIGHT side. It is a personal choice as to how to organize the supplemental displays with the extended vocabulary displays.

\*Note: On the SLT-198 and SEP-147 boards, the supplemental core and extended vocabulary displays are organized together and contain additional adjective and verb core vocabulary. The SLT-216 also contains additional adjectives and verbs.

#### **TO DO:**

1. Create any additional displays for names of people.
2. Review the currently available supplemental displays and decide whether or not they are appropriate and necessary for the person you are supporting.
3. Print out the displays. Consider using card stock paper to add extra firmness to the display. Trim each display and protect with clear contact paper or laminate.
4. Add a heavy backing to the display before binding.

## Part 2: Manual Communication Boards

5. Decide how to store and make available the free-standing single sheet spelling display, if it is used instead of the multiple sequential displays.
6. Add comb binding or spiral binding to the customized and blanks displays. (NOTE: See the section on Supplemental Core Displays. Add any of these displays BEFORE binding the extended vocabulary).
7. Attach the supplemental display to the personal core word board.

### *Personal “Extended Vocabulary” Displays*

The emphasis in the pre-made Pixon materials is on the use of core vocabulary; however, every person needs extended vocabulary for their unique needs. These words are often highly personal and vary significantly from person to person. A small set of extended vocabulary has been provided for common classroom activities. For the Pixon boards that were pre-made in the kit, there are sample displays for the following categories of nouns: time words (day, month, season, telling time), weather, numbers (10-31, 40, 50, 60, 70, 80, 90,100), music, reading, art, cooking, and body parts. The tabs on the multiple sequential displays include a printed word for the category name and a Pixon

Extended vocabulary display templates have been pre-made for each of the manual board designs. You can add vocabulary to them electronically or manually. They provide targets that are 2 inch, 1 ¾ inch, 1 ½ inch, 1 ¼ inch, 1 inch, and ¾ inches.

When making the extended vocabulary displays, pictures for words that are picture producers are represented with pictures from a variety of picture sources. If a Pixon does not exist for one of the nouns needed by an individual person, a photograph or drawing may be harvested from the Internet. This is a very useful strategy for representing things familiar to the person using the Pixon board. Other pictures can be used from available clipart, AAC graphic pictures sets (e.g., PRC Picture CD®) or AAC authoring programs (e.g., Boardmaker®, Picture Master Language Software). These other pictures should only be used for words that are picture producers.

#### **TO DO:**

1. Develop extended vocabulary displays to support the person’s personal “core word” board by reviewing the specific words needed by the person.
2. If using a stationary, laptray-style board, use the available SLT templates, adding vocabulary to these multiple sequential “flip” displays.
  - a. Place the appropriate picture/label on the tab to help in locating the appropriate display of vocabulary. Laminate the displays.
  - b. Print out the displays. Consider using card stock paper to add extra firmness to the display. Trim each display and protect with clear contact paper or laminate.

## Part 2: Manual Communication Boards

- c. Create extra “blank” extended vocabulary displays. Trim each display and protect with clear contact paper or laminate. When later adding vocabulary to these displays, print out pictures/ words onto full sheet or individual gummed labels. Stick on the empty displays.
  - d. Add a heavy backing to the display before binding.
  - e. Add comb binding or spiral binding to the customized and blanks displays. (NOTE: See the section on Supplemental Core Displays. Add any of these displays BEFORE binding the extended vocabulary).
  - f. Attach the extended vocabulary display to the top of the personal core word board.
3. If using a stationary, eye point frame-style board, use the available SEP templates, adding vocabulary to these displays. Before placing the pictures onto the displays, consider whether the displays will be placed on the top, bottom, left, or right side of the frame – or whether they will be placed in a hand-held binder. Also, you will need to put the words on the back of the PREVIOUS display so you can more easily name the picture when doing Partner Assisted Scanning (when positioned across from the person reading their eye point).
- a. Follow the same basic instructions as above for creating the displays.
  - b. Attach the extended vocabulary display to the eye point frame or into a hand-held binder. Investigate various options for attaching the displays to the eye point frame.
4. If using a portable board, use the available PCC templates, adding extended vocabulary onto the displays.
- a. Laminate the pages.
  - b. Insert the pages into the pockets.

### *Activity-Based Displays*

Activity-based displays are limited displays that are used in conjunction with the person’s personal communication board. They are used to focus on specific, limited set of vocabulary during an activity.

#### **TO DO:**

1. Print out the sample activity-based displays in the starter set.
2. Modify the displays as necessary to accommodate vision and access needs. This might require a complete re-doing of the display.

## Part 2: Manual Communication Boards

3. Post or place each display at the area where it is most likely to be used, or create a system to “store” that display with the individual using the AAC system.
4. Use the displays to supplement the vocabulary on the person’s personal Pixon communication board. The words on these activity-based displays might also be on the person’s Pixon board and/or extended vocabulary displays. However, they are also placed on these activity-based displays in approximately the same relative location they are on any of the pre-made Pixon boards. Nouns on the music, cooking, and reading displays include a Pixon that shows a recommended category (with category picture) where this word can be found in the extended vocabulary section of the board. This is to help locate that word when using the extended vocabulary displays with the person’s personal core board.
  - ❖ Calendar Time – State the day, month, and/or weather. It is commonly used during morning circle time.
  - ❖ Time Concepts – Use to work on time concept development and telling time.
  - ❖ Money Words – Use to work on money concepts (USA).
  - ❖ Music Time – Use this 20 location board to focus on core words useful in music activities, while also having easy access to some music specific words useful to request specific musical instrument to play during music class.
  - ❖ Cooking Time – Use this 20 location board to focus on core words useful in cooking activities, while also having easy access to some cooking specific words.
  - ❖ Reading & Story Time – Use this 20 location board to focus on core words useful in reading activities, while also having easy access to some reading specific words.
5. Create additional activity-specific displays, as needed, to supplement the person’s personal communication board. Use the examples provided as a model for additional boards. Use the same Pixons to represent similar concepts. Also, maintain as closely as possible the same word layout as the person’s personal core communication board.

# Part 3: Educational and Environmental Materials

The educational and environmental materials provided in the Kit are used with the Pixon manual communication boards. They are NOT intended to be a person's only means of communication. Each child or adult should have his/her own Pixon personal communication board. The following Pixon educational and environmental materials are currently available in the Pixon Project Kit.

## *Picture Props*

Many of the earliest and most frequently used words are NOT picture producers. These words are challenging to represent with a graphic of any kind. To support hands-on learning of the metaphor of these words, a sample set of picture props was developed for the 10 words in module 1.

### **TO DO:**

1. Print out the props (a PDF and/or PowerPoint document).
2. Assemble the bits and pieces of the props to use in hands-on learning activities, following the directions included with the props.
3. Make additional props, as necessary, to support Pixon vocabulary and concept learning.

## *Object Labels*

Labeling objects in the room has been an educational practice in classrooms since the first kindergarten teacher placed printed words on cards around her room by the objects they labeled. The word "clock" was by the "clock," the word "desk" was on the teacher's desk, etc. The AAC application of this has been to add the symbol with the printed word. The intent of object labeling, when originally done only with printed words, was to promote print awareness, object-print associations, and, hopefully, sight-word reading. The addition of the picture was to assist in picture-object association and AAC picture learning.

The "picture-word" label placed on objects around a room is rarely used in engineered classrooms for functional communication purposes. Teachers do not expect a child to go over to the bookshelf and point at the symbol of "book" on the bookshelf to communicate "book." The child going over to the bookshelf is enough of a message to communicate that he/she wants to read. Nonetheless, there is still value in labeling objects in the environment with the Word + Pixon to develop object-picture association and to promote print awareness.

They object labels in the starter set are in 2 formats: (1) the picture of the object and (2) the picture of the object with a category picture in the lower left hand corner. Some words do not have a category picture in the lower left hand corner

## Part 3: Educational and Environmental Materials

because they are not currently part of the Unity program, on which these categories were based, or the word (e.g., game) is a word coded with the picture + noun.

### **TO DO:**

1. Decide which starter set of object labels to use and print it out on card stock paper.
2. Create additional object labels, as needed.
3. Protect the labels with laminate or clear contact paper.
4. Post the object labels on the appropriate objects throughout the environment.
5. Use these labels to help build naming, noun categorization skills, and print awareness.

### ***Descriptive Labels***

Descriptive labels generally are 2 or 3 words that describe the action or activity that is done with the object. Descriptive labels serve a functional purpose because they provide a visual prompt or clue as to what the person might say when using or looking at that object. For example, by the clock might be the descriptive label of “what time.” When looking at the clock, the child or adult with disabilities does not need to say “clock,” rather, he/she needs to ask “what time.”

The descriptive labels are visual reminders to use the core vocabulary in simple, everyday routines that don't involve “planned” talking. Encourage multiple communication partners (e.g., peers, aides, teachers) to point to descriptive labels as a strategy for prompting simple multiple word utterances from the child or adult with disabilities. The descriptive labels in the Pixon kit are all 2 word combinations.

Here are a dozen ideas for how to use some of these labels. Use your creativity to think of ways to apply each of the pre-made labels.

1. turn on/turn off = by things in the room that turn on/off
2. get down = by the coat rack, wherever things are put up out of the reach of the person
3. sit down = on the chair or rug
4. get this/get that = in places where there are multiple items to choose from (e.g., pencils, books, games)
5. work here = on the table, desk, or computer station
6. help do = at places where the person can not do something independently
7. what time = by the clock
8. come in/go out = on the door

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9. put in/take out = by a cupboard or drawer
10. give out = by things that are handed out in class
11. where go = on the door
12. look out = on the window

#### **TO DO:**

1. Print out multiple copies of the starter set of descriptive labels so you can use some of the labels in several locations (e.g., turn on/turn off by the sink, tape recorder, TV, computer, etc). This encourages generalization and de-contextualization of the phrase.
2. Make additional descriptive labels, as needed.
3. Post the descriptive labels in appropriate locations around the person's environment.

#### ***Communication Board Wall Chart***

There is a wall chart for the SLT-198 and SLT-216 laptray-style boards. They have the SAME words on each board, but in different configurations. The last 2 columns of each board shows "filler words" (see below.) One or the other can be posted in the classroom and represents the "Word Wall" of the ultimate target vocabulary of the classroom. It can be used to support literary, language development, and classroom activities. Plus, it is a reminder to teachers to focus on these frequently used words when interacting in a range of classroom activities. The wall chart can be displayed as a "solid" chart, with or without remove-able Pixon flashcards attached to the chart. Having remove-able flashcards is an option. By tacking the loose Pixon flashcards to the wall chart, you are ensured of always putting the picture back in the right place and maintaining consistency in location.

This Communication Board Wall Chart is also a good resource to use with children and adults who have limited vision and cognitive skills. Individual Pixon pictures can be removed from the chart and hand-held for the child to signal his/her communication message. This purpose was NOT the original intent of this wall chart, but was a modification used in classroom and therapy settings to develop emerging communication skills with children with significant cognitive and visual challenges.

#### **TO DO:**

1. Print out 2 copies of the wall chart.
2. Laminate BOTH copies.
3. Using 1 of the laminated charts, display it somewhere in your classroom. Add a hard "backing" to it if you want it to be free standing or moveable in the classroom.

## Part 3: Educational and Environmental Materials

4. Use the second laminated chart and cut each target into an individual flashcard.
5. Decide how you are going to “tack up” the flashcards to the wall chart, (e.g., Velcro®, tacky tape, etc).

### *“Filler Word” Learning Chart*

Many highly frequently used words (by normally speaking children and adults) are “filler words.” They are very important in language development because they fill-in critical places in the phrase/sentence and connect key “substantive” words. For example, in the phrase “some of that” the word “of” is a filler word. Many filler words are prepositions (of, with, for, by, at); conjunctions (and, because, if); or articles (a, an, the). These kinds of words are very HIGH on the frequency of use word lists, but are often omitted from manual communication boards because of space limitations. Nonetheless, they are very important in language learning for individuals developing multiple word combinations. The SLT-198 and SLT-216 Pixon boards have the filler words “and” and “because.” To introduce additional filler words, flashcards were developed for a small set of filler words. They can be used in therapy and classroom settings with the person’s personal communication board to build sentences. Also, the last 2 columns of each wall chart include these Pixons.

#### **TO DO:**

1. Print out the “filler words” chart on card stock paper. You can also print it on “Velcro®-backed” paper if available.
2. Protect with laminate or clear contact paper.
3. Laminate and use with the person’s personal communication board.

### *Vocabulary Building Charts*

Vocabulary Building Charts are supportive educational materials that can be posted around the classrooms. They are similar to the types of charts that a teacher might display for showing Opposites or Word Groups. The Vocabulary Building Charts are meant to visually display Pixon word groups, so that the person can more easily see and learn how Pixons relate to each other. The

#### **TO DO:**

1. Print out the starter set of charts. The following charts print on a single sheet of standard US Portrait paper: Family Tree, Personal Pronouns (“self” and the full pronoun paradigm), Prepositions, and Special Symbols. The Opposites Chart prints with small targets on a single sheet of paper or with larger targets on multiple sheets of US letter paper.
2. Post the charts around the room, as necessary, or use them in specific teaching activities.
3. Use the displays to teach Pixon word groups.

### Part 3: Educational and Environmental Materials

- ❖ Family Trees – These charts show the relationship between the Pixons and the people in the family. There are chart versions for White/European and Black/African families.
- ❖ Personal Pronouns – These charts compare the personal pronouns with the metaphors of each personal pronoun (e.g., I, me, myself, my, mine). There are chart versions for White/European, Black/African, and Asian people.
- ❖ Opposites – This chart show the metaphors and drawing conventions of the opposite concepts for descriptive words in opposite pairs.
- ❖ Prepositions - This chart show the metaphors and drawing conventions in preposition concepts (and 1 set of adverbs) in opposite pairs.
- ❖ Special Symbols – This chart shows the special Pixons developed for Word Altering Strategies.

# Part 4: Pixon Language Learning Modules

The Pixon Language and Learning Modules are designed to help teach a “starter set” of words from the Pixon manual communication boards. The modules are based on principles of early language development, particularly in the area of early emerging pragmatic functions and semantic relationships typically mastered by normally developing children during the first 2 to 3 years of life. These skills are the basis for later language development in the areas of combining words into sentences (syntax) and altering words (morphology).

The modules introduce a set of 150 words. These words include pronouns, negation, verbs, adjectives, adverbs, conjunctions, prepositions, interrogatives, and nouns. Some children, based on the content and design of their personal manual communication boards, will have access to all 150 of these words (and even more). Others, due to constraints in access or vision, will not have access to all 150 words. However, it is hoped that all children using Pixon-based personal communication boards and other multi-modal means of communication, will have access to as many of these core words as possible.

Modules 1 through 6 teach critical words for early emerging language functions and semantic relationships. Modules 7 through 12 introduce words that expand the child’s options for communicating language functions and semantic relationships. It is not necessary to teach these modules in a linear order. Rather, teach the modules simultaneously, using the modules as a guideline for ensuring that you are targeting a range of communication functions.

For example, read the book “The Three Billy Goats Gruff.” In the first reading of the book, use the words in Module 1, encouraging the person to mediate the reading process (e.g., again, different, more, stop, look). In the second reading of the book, emphasize words from Module 2 (e.g., “he” – he goes over the bridge, “I” – I eat you, “me” – don’t eat me, “you” – you can go). In another reading, emphasize the negative words from Module 3 (e.g., “don’t” – don’t eat me, “problem” – the goats had a problem, “trouble” – the troll is trouble). In yet another reading, focus on the words from Module 4 and/or 5 (e.g., “hurry” “go” – the goats wanted to hurry and go across the bridge; “stop” = the troll told them to stop; “wait” “eat” “come” “later” – the little goat told the troll to wait and eat his brother who was coming later). Nearly any activity can be adjusted to target words from any of the 12 modules.

Generally, a rule of thumb for teaching the 150 words is “Teach all of the words at the same time, but not all at the same time.” This is what is meant when the teaching process is referred to as being simultaneous and not linear.

The more robust Pixon personal manual communication boards contain additional words that are NOT included in these modules. These words were NOT included in the modules simply because of a decision to choose selectively only 150 words for specific instructional purposes (see color coded chart below). The words that were NOT included in the Modules (non-color coded words on



## Part 4: Language and Learning Modules

### *Summary of the Functions and Vocabulary in the Modules*

<b>Module #</b>	<b>Function</b>	<b># of Words</b>	<b>Color Code on Visual Chart</b>
#1	Initial Mediating/Regulating of Activities	10	brown
#2:	Expressing Self, Others, and Possession	19	yellow
#3	Expressing Negation and Negatives	6	red
#4	Regulating Time Aspects of an Activity	6	light aqua blue
#5	Requesting and Directing Actions	14	light green
#6	Describing and Commenting on an Activity	20	medium blue
#7	Requesting Objects and Stating Existence	10	orange
#8	Stating and Directing Locations	11	purple
#9	Requesting Information	6	pink
#10	Stating Personal Attributes and Feelings	19	dark blue
#11	Stating and Directing Specific Actions	21	dark green
#12	Stating Additional Time Concepts	8	pale blue

TOTAL WORDS TARGETED IN PLLAN 150

***Module #1: Initial Mediating and Regulating of Activities***

**Purpose:** To encourage the person to direct the behavior of others and the course of any activity with words instead of behavior.

**Target Vocabulary:** 10 words

1. again
2. all done
3. all gone/gone
4. different
5. do
6. help
7. look
8. more
9. stop
10. what

**Target Syntax/ Morphology:**

1. AAC User: Produce 1 word utterances.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for a range of semantic relations using the target words and additional available words (e.g., agent-action = "I help," action-object = "do that," action-location = "look there").

**Suggested Long-Range Goals:**

1. The AAC user will ask "what" when he/she doesn't know about an object or activity. (function = request information)
  - a. CP will model "what this," "what is," and/or "what do" in response.
  - b. CP will model "what is that" and/or "what you do" in response
2. The AAC user will say "gone" or "all gone" to show that he/she recognizes that something is missing or depleted. (function = disappearance, nonexistence)
  - a. CP will model "it gone" or "that all gone" in response.
3. The AAC user will call attention to something that is "out of the ordinary" using a word, such as "look." (function = existence, request action, direct attention)
  - a. CP will model "look that" or "look there" in response.

## Part 4: Language and Learning Modules

4. The AAC user will direct actions in the activity using a word, such as “do.” (function = direct or state action)
  - a. CP will model “do that” or “do it” in response.
5. The AAC user will ask for “help” when he/she is unable to do something independently before or during the activity. (function = request assistance)
  - a. CP will model “want help,” “need help,” or “help you” in response.
6. The AAC user will ask for “more” of something during the activity. (function = request recurrence)
  - a. CP will model “more that” or “want more” in response.
  - b. CP will model “give me more” or “get more” in response.
7. The AAC user will request a repetition of the same activity or an aspect of the activity using the word “again” or “more.” (function = request recurrence)
  - a. CP will model “do again,” “look again,” or “get again” in response.
  - b. CP will model “do more” or “get more” in response.
8. The AAC user will request a change in activity, using the word “different.” (function = request action, directive, comment)
  - a. CP will model “do different,” “different thing,” or “different one” in response.
9. The AAC user will request a complete stopping of all activity, using the word “stop” or “all done.” (function = rejection, cessation)
  - a. CP will model “want stop,” “stop now,” or “all done this” in response.
10. The communication partner will model language during the activity that describes, discusses or comments upon the activity and people engaged in the activity. (example words = good, bad, like, silly, big, little, up, down, go, eat, run, open, turn, etc).

### Teaching Suggestions:

1. Nearly any activity can be a starting point for teaching functional use of these words in a meaningful context. The following routine is an example of how all 10 words can be used in 1 activity. Vary your activities to encourage use of these words across a range of contexts. Favorite activities might include the following: stories, music, art, cooking, or dress-up.
  - Provide the “materials” of the activity to the person in such a way that he/she doesn’t know what the activity is all about (e.g., put them in a container, bag, etc). Model and prompt the word “what.”
  - If possible, forget or lose one of the key materials for the activity. Model and prompt the words “all gone” or “look.”

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- Engage with the person and materials of the activity and do something notable with one of the objects (e.g., drop it, turn it upside down). Model and prompt the word “look” or “gone.”
  - During the activity, use obstacles and barriers to prevent the person from independently being able to manipulate the materials. Model and prompt the word “help” or “do.”
  - During the activity, use “moderation” with the materials, encouraging the person to ask for “more” of something. Model and prompt the word “more.”
  - Complete the activity. (NOTE: In later modules, you will expand communication expectations for the child during the activity. But for now, focus on mediating and regulating the activity).
  - Upon completion of the activity, determine whether you are going to do exactly the same activity (e.g., read the same book) or something different (e.g., different book, different activity). Model and prompt the words “again” to do the same thing again or “different” to do something differently.
  - At any point in the activity, the student has the option of asking to “stop” or be “all done” if he/she is bored, irritated, or ready to be left alone. Model and prompt the word “stop” or “all done” when all activity is over.
2. In order to maximize use of these words, use principles of motor learning, motor patterns, and development of motor automaticity. Balance teaching by **location** with teaching by picture **meaning**. For many children and adults with severe disabilities, learning by location occurs before learning by meaning, but over time, learning by location will help support learning by meaning. On the individual’s personal communication board, mask any vocabulary not being targeted or modeled with ALgS to help focus attention on and selection of the targeted words. If all 10 target words and additional modeled words are too distracting or visually confusing for the individual, do not expose additional words beyond the target 10 words. If those 10 words are still too many, mask out additional words, as appropriate.
  3. These words are all non-picture producers, which means the relationship between the word and the Pixon is not obvious or transparent, but it is teachable. To help build the understanding of the concept and the relationship to the Pixon, use visual props for each of these 10 words in separate learning activities. A visual prop with instructions for these 10 words is included on your Pixon CD/DVD set. Each visual prop is designed to teach the metaphor of the concept in context. For example, the visual prop for “all done” is the stop sign made into a puzzle. Put the puzzle together, and when the puzzle is finished, say “all done.” Point to the word “all done” on the manual board, drawing a comparison between the prop and the Pixon on the board.

## ***Module #2: Expressing Self, Others, and Possession***

**Purpose:** To define a sense of self in relationship to others

**Target Vocabulary: 19 words**

1. father
2. he-him-his (3 words in 1 picture)
3. I
4. me-myself (2 words in 1 picture))
5. mother
6. my-mine (2 words in 1 picture)
7. she-her-hers (3 words in 1 picture)
8. they-people (2 words in 1 picture)
9. we-friend (2 words in 1 picture)
10. you-your (2 words in 1 picture)

**Target Syntax/ Morphology:**

1. AAC User: Produce 1 word utterances.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “agent” words.

**Personalization:**

Personalize the Pixon Manual Communication Board developed for the person with a photograph of the person in replacement of the Pixon for I. Write “I” and the person’s name above the picture. Keep the current Pixon for “me-myself” and “my-mine.” Do the same thing with a photograph for family members (i.e., mother, father, sister, brother, grandmother, grandfather). For each of these pictures, include the “family” word above the picture and a specific name, if appropriate (e.g., Sam-brother). Do the same for key people in the person’s life (e.g., teacher, aide, speech therapist, etc.), replacing the Pixon with photographs of these people. Include the “title” and “name” (e.g., teacher-Miss Brown) of each person. Add any additional photographs for important people, pets, to the blank spaces in the yellow PEOPLE section of the board.

**Pixon Explanation:**

The pronouns of me-myself, my-mine, and you-your are single Pixon with 2 words above them. He-him-his and she-her-hers are single Pixon with 3 words above them. Eventually, when the person makes a transition to the Unity® program or any other voice output device, these words are each coded with their

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own unique picture or icon sequence. But, due to space limitations on a manual board, these words are assigned to a single location and picture, but assigned multiple related meanings. In the context of the situation, the communication partner interprets the intended word and speaks it to clarify the intended meaning. Also due to space limitations, all English pronouns are NOT present on the Pixon board. All reflexive pronouns (e.g., yourself, himself) are not included and “we” and “they” are combined with “friend” and “people.” These words are all available in the Unity® program as individual words. Use of the Pixon manual communication board is groundwork for later learning of the full range of English-language pronouns and people words.

### **Suggested Long-Range Goals:**

1. The AAC user will say the person’s name / title when presented with the person or a photograph of the person.
2. The AAC user will use the “I,” “me,” and “myself” pronouns to refer to him/herself.
3. The AAC user will use the “you” pronoun to refer to others who are present.
4. The AAC user will use the “my-mine” and “your” pronouns to mark possession of objects and actions.
5. The AAC user will use “she” and “he” pronouns to identify females and males.
6. The AAC user will use “we” to represent self and 1 or more other people.
7. The AAC user will use “they” to represent others, excluding him/herself.
8. The AAC user will use “mother” and “father” to identify his/her parents and other people’s parents.
9. The AAC user will identify people as “friends.”
10. The communication partner will model people and pronoun words in simple 2 and 3 part messages.
11. The communication partner will model the word “who” to support learning of people concepts.

### **Teaching Suggestions:**

1. Repetitive Routine: Repeat any of the functional activities you did from Module 1, this time focusing on the pronouns and people words. Change your prompt to include the question word “who” and then model / prompt the pronoun words.
  - a. When something is hidden or missing, ask “Who is going to look and see what is in the bag?” Model “who” and say the word “maybe” when pointing at / verbalizing the appropriate pronoun (e.g., “I,” “you,” “we,” “they,” “he,” or “she”).

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- b. When engaging with the materials, ask “who wants to do it first?” Model “who” and prompt the words “I,” “you,” “we,” “they,” “he,” or “she.”
  - c. When engaging with the materials, ask “Whose is this?” Model “who” and prompt the words “my,” “mine,” or “your.” (If working in a group with others, you could also model “his,” “her,” or “hers”).
  - d. When exercising moderation with the materials, ask “who needs more?” Model “who” and prompt the words “I,” “you,” “he,” or “she.”
  - e. When done, ask “who is going to pick what we do next? Model “who” and prompt the words “I,” “you,” “we,” “they,” “he,” or “she.”
2. Teaching People Words
- a. Start by teaching the Pixons for the most critical people in the person’s life. Generally, this is family members, and for children, their parents. In order to be able to use the words “mother” and “father” for any adult in a parent role, do not replace these Pixons with photographs unless you absolutely think it is necessary to do so, due to the person’s age or learning challenges.
  - b. Go visit people important in the person’s life or look at photographs of the people. Model and prompt the person’s name. Define the person as a “he” or “she.” If you have a photograph of that person with the individual, define the group as a “we.”
  - c. Make your own photograph album of important people. Take a photograph of the person with the child or adult with disabilities. Label the people in the photograph with the Pixon/printed word ABOVE their face in the picture.
  - d. Make “name tags” for people to wear that shows their photograph from the manual board.
3. Teaching Self vs. Others (I, me, myself, you)

Teaching the concept of self versus others can be difficult to verbally explain. Many teachers have struggled to model verbally the language they want the child or adult with language disabilities to produce. They might model and prompt the person saying: “I am drinking. Now you say “I am drinking.” And the person responds by saying “you drinking.” This issue is not easily resolved.

- a. Look in a mirror. Use a mirror big enough to see both yourself and the child/adult with disabilities. Say “I see me” and “I see you.” Then ask “who do you see?” and model “who you see?” Use visual prompts (e.g., laser pointer or flashlight) or auditory/visual prompts (e.g., a tap) on the pronoun you want the person to use.
- b. Look at a picture of yourself and model “I” + another word that describes how your look (e.g., pretty, nice, old) or a word that states what you are doing (e.g., eating, looking, sitting). Do the same with photographs of the child/adult with disabilities.

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- c. Wave at yourself in the mirror, saying "I wave at myself" or "I see myself." Model the use of the word me and myself using the same Pixon.
4. Teaching Gender (female vs. male)
    - a. Find pictures of boys and girls. Model "he is boy" and "she is girl."
    - b. Place a single photograph of a boy next to a single photograph of a girl. Model "that boy" or "that girl." Then describe the boy / girl using available action or descriptive words, such as "he big" or "she pretty." Then ask "who big" or "who pretty" to encourage use of the pronouns "he" and "she." Use visual prompts (e.g., laser pointer or flashlight) or auditory / visual prompts (e.g., a tap) on the gender pronoun you want the person to use. If they use the word "boy" or "girl," accept that and model the pronoun "he" or "she."
    - c. Use magazines (e.g., teen magazines, People®, TV Guide®) or download pictures from websites and find pictures of celebrities or characters the person likes to make a homemade "Book of People". Label the pictures you collect with a pronoun and describer word (e.g., he nice, she pretty, he favorite) or action word (he walk, she dress). Look through the book you made and have the person "read" the labels to you.

For example, one 4 year old learning Pixons was very captured by the movie Cars® by Pixar. A homemade book was made, using pictures of all the characters from the movie collected from the website dedicated to that movie. For each page in the book, a character picture from the website was used. The text for each page started with "This is" and a space to write the characters name. Then, the text said "he" or "she" and a space to add something descriptive about the character (is old, goes fast, does scary stuff). The boy helped write his own book and the Pixons were added to the page for him to re-read the book on his own for fun. A similar strategy was used for a 12 year old girl who was fascinated with a current singing group. Magazine pictures were used and she created her own magazine about them.

5. Teaching Object Pronouns (me, you, him, her)
  - a. Wrap a small box in wrapping paper, doing it in a way that you can open it and put things in and out of it. Try and simulate the package that is represented in the Pixons (i.e., yellow box with red ribbon). Say "who is this for?" while modeling "who." Say "it could be for me or you?" while modeling "me" or "you." Give it to the person and let them open it up and see what is inside. Put something inside that the person can keep (e.g., small pieces of candy, pennies). Then have the person hide something in the box and say that it is for "you." You might need the assistance of someone else to help the person with disabilities.
  - b. Gather a small group of people that includes yourself, the child / adult with disabilities, and at least 1 boy and 1 girl. Repeat the above activity to introduce "him" and "her" pronouns. Say "who is this for?" while modeling "who." Say "it could be for me, or you, or him, or her," while

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modeling “me,” “you,” “him,” “her.” Give it to someone and let them open it up and see what is inside.

6. Teaching Possessive-Adjective Pronouns (my, your, his, her)

These pronouns require the use of another word (my car, your idea, his turn). They act like adjectives to describe ownership of the object or action.

  - a. Use the box that was wrapped and used for teaching object pronouns. Borrow something personal from each person. Hide one of the things in the box. Have people guess “whose thing” or “whose stuff” went in the box, was it “my stuff,” “your thing” “his thing” or “her stuff.” Open the box and say “it is her thing” or “it is his stuff.”
  - b. Play a game that involves taking turns to encourage use of the pronoun “my” or “your,” along with the word “turn.”
  - c. Use a range of daily activities, such as lunch time or getting dressed, to define the things being used with the possessive pronouns. For example, at lunch, talk about the food on your plate being “my stuff” and the food on the other plate as “your stuff” to eat.
7. Teaching Possessive Pronouns (mine, yours, his, hers)

These pronouns can “stand alone” and are true possessive pronouns.

  - a. Use the box that was wrapped and used for teaching object pronouns. Borrow something personal from each person. Hide one of the things in the box. Have people guess “whose thing” went in the box by saying/ modeling “was it my thing,” “your thing,” “his thing,” or “her thing.” Open the box and say “it is mine/yours/his/hers.”
  - b. Repeat any of the adjective pronoun activities, this time using only the possessive pronoun words.
8. Use the Pronoun Language Chart from the Educational and Environmental Materials to compare Pixon pictures for the various pronouns.
9. Sing the Pronoun Song from Singing-to-Talking with Minspeak by Van Tatenhove (see Appendix E).
10. Investigate a range of traditional speech-language therapy materials that emphasize the teaching of pronouns. Modify these materials as necessary.

### ***Module #3: Expressing Negation and Negatives***

**Purpose:** To encourage the person to direct the behaviors of others using negated concepts.

**Target Vocabulary: 6 words**

1. break/broken (1 word in 1 picture)
2. don't
3. not
4. problem
5. trouble
6. wrong (may or may not be combined with "right" on the board in use)

**Target Syntax/ Morphology:**

1. AAC User: Produce 1 word utterances.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use "negative" words.

**Suggested Long-Range Goals:**

1. The AAC user will state the action "break" to describe what happened to something that is broken when presented with something broken or telling what happened.
2. The AAC user will say "don't" to negate an action concept that is not acceptable or desired (e.g., don't want, don't like, don't look).
3. The AAC user will use "not" to negate a range of other language concepts (e.g., not mine, not go, not big).
4. The AAC user will say "problem" or "trouble" to describe a situation or event that is problematic.
5. The AAC user will say "wrong" or "trouble" to describe a situation or event that is not acceptable or problematic to him/her.
6. The communication partner will model "negative" words in simple 2 and 3 part messages.

**Teaching Suggestions:**

1. Repetitive Routine: Repeat any of the functional activities you did from Module 1 and 2, this time focusing on "negative" words. Change the routine by creating problems, making mistakes, and presenting barriers. For example, do a cooking activity making something that person likes.

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Include some ingredients that would NOT be wanted or good on the sandwich.

- a. Lay out the ingredients for the sandwich, including the inappropriate ingredients. Tell the person you are going to be making a sandwich. If possible, forget or lose one of the key ingredients or utensils for the activity. Model and prompt the words "problem" and "don't." For example, say "We have a problem. We don't have all the things we need." This prompt gives the person the opportunity to also ask "what" or say "look," applying words from Module 1.
  - b. Find the missing ingredient and continue with the activity, but make a "mistake." For example, if making a peanut butter sandwich, start to use your fingers to scoop out the peanut butter. Encourage the person to say "not" or "don't" or "wrong."
  - c. Attempt to put a "wrong" ingredient on the sandwich. For example, encouraging the person to say "wrong," "problem," "not," or "don't." Accept use of the word "stop," because that would also be appropriate in this situation.
  - d. Evaluate how the sandwich would taste if you put weird things on it. Encourage the use of the word "not." Ask "should we put bugs on our sandwich? "NOT!" "How would it taste?" "NOT GOOD."
2. When teaching descriptive concepts (good, bad, happy, funny), teach the opposite/negated concept using the word "not" (e.g., bad = not good, sad = not happy).
  3. Have the person "co-read" the books like "Are You My Mommy" and/or "Are You My Daddy" which feature a repeated line with the word "not" in it.
  4. Play games that involve action, like Simon Says (e.g., I say – go. I say – don't go).
  5. Teach the word "break/broken" by investigating objects that are and are not broken. Let the person handle non-dangerous things, cautioning them to be careful and to not break it. Let them give things to you and caution you to "don't break it."
  6. Read Goldilocks and the Three Bears and rephrase the book to describe the porridge, chairs, and bed as "not good" vs. "good." Remember, that Goldilocks "breaks" the baby bear's chair, but did not break papa bear's or mama bear's chairs. These are more opportunities to practice negation.
  7. The field of speech-language pathology offers a range of materials to help language impaired children learn how to use negation. Investigate and modify some of these materials.

### ***Module #4: Regulating Time Aspects of an Activity***

**Purpose:** To encourage the person to communicate time ideas in order to direct activities and the pace of activities.

**Target Vocabulary: 6 words**

1. fast
2. later
3. now
4. slow
5. wait
6. ready

**Target Syntax/ Morphology:**

1. AAC User: Produce 1 word utterances.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “time” words.

**Suggested Long-Range Goals:**

1. The AAC user will use the words “fast” or “slow” to describe the pace of an activity.
2. The AAC user will use the words “now” or “later” or control the order of events in his/her life.
3. The AAC user will use the word “wait” or “ready” to mediate activities being done with or to him/her.
4. The communication partner will model time regulating words in simple 2 and 3 part messages.

**Teaching Suggestions:**

1. Repetitive Routine: Repeat any of the functional activities you did from Module 1, 2 and 3, this time focusing on the time regulating words. Change your prompt to include a time regulator and then model/prompt the time words.
  - a. When deciding on the order to do something, as “when should we do it?” Model “when” and prompt the words “now” or “later.”
  - b. When engaging with the materials, decide “how” to pace yourself. For example, when stirring, or coloring, or dancing, or reading, the person can direct you to do it (or help them do it) “slow” or “fast”. They can tell you to “wait” if you are rushing them or “ready” or “now” when

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they are prepared to do something. Model and prompt use of these words.

2. Make an "agenda" of things to do. Define what to do "now" and what to do "later."
3. Play action or pretend games that involve speed. Encourage the use of the descriptive words (fast, slow, ready, now) or action words (wait). Activities might include playing on a swing, racing in wheelchairs, dancing, eating, drinking, or the game Simon Says.
4. If the word is available, go ahead and model the word "hurry" to add another aspect to the idea of "time" and "speed." (You can communicate the idea of "hurry" with "go" "fast.")

### ***Module #5: Requesting and Directing Actions***

**Purpose:** to expand the person's ability to request and direct action with more specific action words

**Target Vocabulary: 14 words**

1. come
2. get
3. give
4. go
5. have
6. make
7. put
8. say-tell (counted as 2 words)
9. look-see (look introduced in Module 1, counted here again with introduction of "see" concept)
10. take
11. turn
12. want
13. watch

**Target Syntax/ Morphology:**

1. AAC User: Produce 1 word utterances.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use "action" words, including the "ing," "+s," and "+ed" forms.

**Suggested Long-Range Goals:**

1. The AAC user will use action words to direct or describe action in activities.
2. The communication partner will model action words in simple 2 and 3 part messages.

**Teaching Suggestions:**

1. Repetitive Routine: Repeat any of the functional activities you did from Module 1, 2, 3 and 4, this time focusing on the appropriate action words. Change your prompt to include "what" and "do" and then model/prompt the action words.

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2. Some individual with significant cognitive disabilities need to engage in the actual action activities in order to comprehend the concept and draw an association between the concept and the Pixon. Others will be able to simply have the Pixon described to them and they can make the association between the concept and the picture. In either case, it is beneficial to do hands-on and whole-body activities to teach these concepts and Pixon. Teach the words individually and/or in logical “pairs.” It may be necessary to engage another person in the teaching activity when the person with disabilities is directing someone else to do that action. One person can model/assist the person with disabilities and the other person can do the action.
3. Some of the action words are several words written above the pictures. These words are related synonyms (e.g., say-tell, look-see). When teaching these words, use the appropriate word in context, making sure you verbalize the word you are referencing. For example, if playing “Hide and Seek,” you would say “I see you” not “I look you.” However, you might say “I am going to look for you. Where should I look first?” Help the person learn that the Pixon represents both of these action words.
4. To teach individual words, the following activities are starting points.
  - a. come – go = Direct someone to come or go. Model “come here” and “go away.” The person being directed could come/go by walking, using a rolling chair, scooter board, etc.
  - b. get – give = Direct someone to get something and give it to someone. The person being directed could get a range of objects and give them to a variety of people. Model “get that” and “give you/me/him/her.”
  - c. have = Play a game where you pass around an object. When the person gets the object, he/she says “I have it.” Turn it into a question asking game by having the person with disabilities be “it.” The object is passed around a group of people sitting in a circle (with music playing), while the person has his/her eyes covered. The music stops and the object must be hidden by the person who has it. The object remains hidden after the person with disabilities is allowed to open his/her eyes. He/she asks “have” while looking at a person in the circle. Model “do you have it” to expand the message.
  - d. make = Any kind of cooking or art activity can be used to teach the word “make.” Extend the meaning to include making up a story, making a face, and even making friends.
  - e. put = The Pixon for “put” shows something being put into a chest. Start by teaching “put” in this context, and put away toys into a chest. Expand that to putting things away inside cupboards, putting something down that you should not have, and putting something on, as in getting dressed.
  - f. say = The Pixon for “say” shows a “bubble” in which words can be written. Collect photographs of people and add “bubbles” to the photograph. Write what the person might be saying, using words from

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the Pixon board. For example, a picture of a person jumping into a pool was used and the bubble read "I have fun. I like this." Do other "talking" related games, like playing on the phone or Simon Says (I say ..... go fast).

- g. see = The words "look" and "see" are both represented with the same multiple meaning Pixon. Play games that use both of the words, such as a modified game of "I Spy." Say "I am looking for something big" or "I see something big."
  - h. take = The Pixon for "take" shows Mr. Action taking something out of the cookie jar. Start teaching the concept and Pixon in this context, and then expand it to other contexts (take off clothes, take time, take medicines, etc).
  - i. tell = The words "say" and "tell" are both represented with the same multiple meaning Pixon. To differentiate "say" from "tell," create "note cards" that show the bubble. Write a note to someone and model "tell mother this."
  - j. turn = The word "turn" could involve turning around in space, turning something over, or taking a turn in a game. Teach use of the word "turn" in each of these contexts.
  - k. want = The word "want" is one of the most frequently included and taught words on AAC systems. The basic strategies typically used involving request behaviors, where the person tells something or some action they "want."
  - l. watch = The Pixon for "watch" shows an eye "watching" tv. Start in this context, and then expand to "watch me," "watch out," and other uses of the word "watch."
5. Introduce the OPPOSITE OF and SAME AS special symbols to communicate action concepts that are not specifically represented on the Pixon manual board. For example, to say "stay," it is "opposite of" go. To say "leave," it is the "same as" go. Use this strategy to model new words, enriching the person's language, and to expand the words the person can say with their communication board. As the person begins to develop literacy skills, also introduce the STARTS WITH symbol. For example, "same as" + "go" and "starts with" + "I" could mean "leave."
  6. The field of speech-language pathology offers a range of materials to help language impaired children learn how to use action words. Investigate and modify some of these materials.

***Module #6: Describing and Commenting on an Activity***

**Purpose:** to express understanding of descriptive ideas of an activity and express an opinion

**Target Vocabulary: 20 words**

1. big-little
2. clean-dirty (2 words in 1 picture)
3. easy-hard (2 words in 1 picture)
4. empty-full (2 words in 1 picture)
5. good-bad
6. hard-soft
7. hot-cold
8. loud-quiet (2 words in 1 picture)
9. old-new
10. wet-dry (2 words in 1 picture)

**Target Syntax/ Morphology:**

1. AAC User:
  - a. Produce 1 word utterances spontaneously.
  - b. Produce 2 word utterances in response to ALgS strategies.
2. Communication Partner:
  - a. Use Aided Language Stimulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “descriptive” words, including the “+er” and “+est” forms.
  - b. Use Aided Language Stimulation to model the words “like” and “because” when making 3+ word comments (e.g., “I” “like” “it” “because” “funny.”)

**Teaching Suggestions:**

1. Repetitive Routine: Repeat any of the functional activities you did from Modules 1 to 5, focusing on the appropriate descriptive words. Change your prompt to include “how” and “is” and then model/prompt the descriptive words.
2. Teach specific descriptive concepts in activities that would logically use that word. Most of the words are available as the positive and negative aspect of the descriptive term. Some of these words are paired together in the same location on the Pixon board and some are separated. The “rules” for when concepts are “paired” or “separated” are based on early

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developmental use (good-bad), frequency and broadness of use (big-little), and representation in the Unity® program. When a word is used early, broadly, and frequently, it earns its own location on the Pixon board.

3. Descriptive concepts are best taught with a range of hands-on materials that allow the person to experience how things look, feel, sound, smell, and taste. Tap into a range of sensory channels to learn these concepts, as well as the Pixon that represents that concept. Start by teaching the concept in a context the matches the Pixon metaphor and then expand the concepts into next contexts.
4. To teach individual words, the following activities are starting points.
  - a. big-little = Find a picture of a BIG ELEPHANT and a LITTLE DICE. Make sure the relative sizes of these two objects show that one is MUCH bigger than the other. Don't have them the same size. Use a variety of objects and compare them, describing them as either "big" or "little."
  - b. clean-dirty = The boy in the clean-dirty picture is in need of a bath. Collect 2 dolls. Make one dirty and keep the other clean. Then compare other dirty and clean objects.
  - c. easy-hard = The Pixon shows an "easy" and "hard" puzzle. Find a puzzle with only a few pictures and one with very many. Again, compare them and discuss the idea of easy and hard. Expand that to other things that might be easy and hard (e.g., books, worksheets, math problems, etc).
  - d. full-empty = Get 2 glasses and make 1 full and keep 1 empty. Use other objects that can be full and empty (e.g., bowls, boxes, etc). and put things in (until full) and out of them (until empty).
  - e. good-bad = A common gesture in many cultures is a thumb up for "good" and a thumb down for "bad." Evaluate many different things (e.g., foods, clean/dirty things, behaviors, etc). and judge them as "good" or "bad."
  - f. hard-soft = Collect a soft stuff animal of a dog and a hard hammer. Compare how they feel. Then compare other objects and judge them as "hard" or "soft."
  - g. hot-cold = The boy shivering on the mountain can be simulated with some ice or snow (climate permitting). Carefully use a pot of warm/hot water to compare how they feel. If you can use a kitchen, use the burners and freezer as part of the lesson.
  - h. loud-quiet = Listen to different sounds, and discuss whether they are loud or quiet to the ear.
  - i. old-new = Dress up yourself or a doll like an old man with a fake beard. Compare that to a doll of a baby. One is "old" and the other is "new." If anyone familiar to the person has just had a baby, that is a great opportunity to discuss the "new" baby.

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- j. wet-dry = The boy in the “wet-dry” Pixon has hair that is “wet” or “dry.” Use dolls or be brave about getting your or the person’s hair wet. Then get other objects and make them wet/dry.
5. Combine the teaching of “how” from module 9 with the teaching of these descriptive words.
6. There are other descriptive words on the Pixon boards that have not been specifically targeted, such as “favorite” or “busy.” Model and teach these words across a range of contents. Track use of these words for individual students.
7. Use the “opposite of” and “same as” special symbols to communicate descriptive concepts that are not specifically represented on the Pixon manual board. For example, to say “large,” it is the “same as” big; or “less” is the “opposite of” more. Use this strategy to model new words, enriching the person’s language, and to expand the words the person can say with their communication board. As the person begins to develop literacy skills, also introduce the “starts with” Pixon. For example, “same as big” + “starts with” + “h” could mean “huge.”
8. The field of speech-language pathology offers a range of materials to help language impaired children learn how to use descriptive words. Investigate and modify some of these materials.

***Module #7: Requesting Objects and Stating Their Existence***

**Purpose:** to learn how to talk about objects generally without using or needing a specific object word

**Target Vocabulary: 10 words**

1. all
2. it
3. one
4. place
5. some
6. stuff
7. that
8. thing
9. this
10. way

**Target Syntax/ Morphology:**

1. AAC User:
  - a. Produce 1 word utterances.
  - b. Produce 2 word utterances in response to ALgS strategies.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “object” words, including the plural “s” as appropriate.

**Suggested Long-Range Goals:**

1. The AAC user will use general object words to name or request objects in activities.
2. The communication partner will model general object words, as placeholders for a specific noun, in simple 2 and 3 part messages.

**Teaching Suggestions:**

1. Repetitive Routine: Repeat any of the functional activities you did in previous modules, focusing on the appropriate “placeholder” object words.
2. To teach individual words, the following activities are starting points.
  - a. all = Collect photographs of people in the person’s family. Put “all” of their pictures inside of a circle. Point at them and talk about having

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- “all” the people in your family in the circle. Compare and contrast with the word “some.”
- b. it = The Pixon for “it” is a stuffed, wind-up animal of a sheep. Getting an object to represent this probably will need to be faked. Either find a simple stuffed animal of a sheep or make one with cardboard and cotton balls. Add a pretend wind-up knob on the top. Simulate it moving around. Find other wind-up animal toys and use them also.
  - c. one = The Pixon for “one” is simply the numeral “one.” Teach the concept of “one” by comparing it to “many” and “more.”
  - d. place = The Pixon for “place” is a map. Get a local map, draw maps, and look for different places on the map. Teach the concept of “place” along with “where.”
  - e. some = Collect photographs of people in the person’s family. Put “some” of their pictures inside of a circle, but not all of them. Point at them and talk about having “some” of the people in your family in the circle. Then replace the photographs of the people with 3 colored letter “s.”
  - f. stuff = The word “stuff” might seem like an odd word to have on an manual communication board, but it is a highly used and valuable word. The Pixon is a trunk with stuff in and around it. Teach in conjunction with “put” that also uses the trunk. Put stuff in and out. Then expand where you “do stuff,” “get stuff,” “my/your stuff,” etc. Using the word stuff can replace many different nouns.
  - g. that – this = Teach “that” as referring to something that is out of reach, while “this” is something close by that can be reached. Make 2 large letter Xs. Place them on objects near and far from the person. Also, make 1 box with “this” on it and one box with “that” on it. Whenever the person is given a choice between 2 objects, put 1 choice in the “this” box and the other choice in the “that” box. The person makes their choice using the words “this” and “that” instead of needing an endless number of pictures for objects.
  - h. thing = The Pixon for “thing” comes from the saying of “look both ways and see if ANYTHING is coming.” There are also “things” in the truck. Get a toy truck and act out these metaphors.
  - i. way = The Pixon for “way” is a traffic sign that points the way to go. Make a paper sign and direct something through a simple maze (go that way, now this way, etc).
3. The field of speech-language pathology offers a range of materials to help language impaired children learn how to use object words. However, most of those materials target specific noun words instead of “placeholder” words, such as this, that, some, all, etc. However, there are materials that focus on determiners (this, that) and indefinite pronouns (any, every, some). Investigate and modify some of these materials.

***Module #8: Stating and Directing Locations***

**Purpose:** to state locations and direct the placement of objects/ actions

**Target Vocabulary: 11 words**

1. on
2. off
3. in
4. out
5. up
6. down
7. over
8. under
9. away
10. here
11. there

**Target Syntax/ Morphology:**

1. AAC User:
  - a. Produce 1 word utterances spontaneously.
  - b. Produce 2 word utterances in responses to ALgS strategies.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “positional” words.

**Suggested Long-Range Goals:**

1. The AAC user will use positional words to state or direct positions in activities.
2. The communication partner will model general positional words in simple 2 and 3 part messages.

**Teaching Suggestions:**

1. Repetitive Routine: Repeat any of the functional activities you did from previous modules, focusing on the appropriate positional words (adverbs and prepositions).
2. To teach individual words, the following activities are starting points.
  - a. on-off = Use a chair to teach about being “on” the chair. Use cookie cutters and take them “off” of different surfaces.

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- b. in-out = Put things “in” and “out” of a small chest or box.
  - c. up-down = Put things “up” and “down,” pairing the thumb up and thumb down.
  - d. over-under = It is quite difficult to physically go “over” a rainbow, unless you have any kind of decorative or recreational equipment that looks like a rainbow. However, something can be simulated with objects you find in the environment. Then sit “under” the umbrella to solidify this concept. Expand the positional idea of “over” to including turning things over and something being “over there.”
  - e. here-there = Point out things that are close by as “here” and further away as “there.” Use props of a black X and a yellow arrow.
  - f. away = The Pixon shows a boat sailing away from an island. Act out this metaphor, using a map and boat. Then expand to the use of putting things away, going away, and getting away.
3. The field of speech-language pathology offers a range of materials to help language impaired children learn how to use positional words, such as adverbs and prepositions. Investigate and modify some of these materials.

### ***Module #9: Requesting Information***

**Purpose:** to ask questions in order to gain information

#### **Target Vocabulary: 6 words**

1. question
2. who
3. what (originally introduced in Module 1 and not counted here)
4. when
5. where
6. why
7. how (combined with “much” to say “how much”)

#### **Target Syntax/ Morphology:**

1. AAC User:
  - a. Produce 1 word utterances spontaneously.
  - b. Produce 2 word utterances in responses to ALgS strategies.
2. Communication Partner: use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “question” words.

#### **Suggested Long-Range Goals:**

1. The AAC user will use question words to request and/or gain information in activities.
2. The communication partner will model question words in simple 2 and 3 part messages.

#### **Teaching Suggestions:**

Many children and adults with language difficulties have trouble knowing the difference between asking and telling. This is most apparent then a teacher or parent asks, “Do you have any questions?” and the person responds by making a comment. In addition, many children and adults with disabilities ask very few questions of others.

1. Repetitive Routine: Repeat any of the functional activities you did from Modules 1 to 8, focusing on the appropriate interrogatives and question concepts.
2. Teaching Concept and Question Word Relationships

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- a. Point out the LOCATION of the question words on the Pixon board, emphasizing that the specific question word is located in the area where possible “answers” are located. This helps the person understand the relationship between the question word (used to ask) and the answer (tell).
  - b. Ask, the following concept questions:
    - i. “When you ask about a person, what question do you use?” = who
    - ii. “When you ask about a place, what question do you use?” = where
    - iii. “When you ask about something you are doing, what question do you use?” = what
    - iv. “When you ask about a thing, what question do you use?” = what
    - v. “When you ask about a time, what question do you use?” = when
    - vi. “When you ask about the size or shape or feel of something, what question do you use?” = how
    - vii. “When you ask about a reason for something, what question do you use?” = why
3. To teach individual words, the following activities are starting points.
- a. question = The Pixon for “question” is a question mark. For pre-literate or non-literate individuals, this question mark is not obvious. Make a red question mark. When the person has a question to ask, he/she hands the other person the question mark. This type of picture exchange helps the person understand his/her role in the question asking process while learning the Pixon. Many times the person will use the word “question” to communicate that what they are saying is a question, not a statement. This is often true when the person lacks syntactical skills to form questions. One adult recently said “book we read question” to ask “Can we read the book?” While the sentence was not syntactically correct, the message and intent was purposeful and, in context, understood by the communication partner.
  - b. who = Make a “mask” that covers over a person’s face. Place a question mark on the mask. Have different people wear the mask and ask “who is it.” This activity helps focus on both the idea of the person and question mark, which is featured in the Pixon. Another activity is to play a sit-down version of the Game of “Hide and Seek using the Pixon board. Mask 3 or 4 “people” words on the person’s Pixon board. Model “who” is under here? Then unmask one of the people words to find out “who” was under the mask.
  - c. what = The Pixon for “what” involves a question mark on the screen of a TV, using the metaphor of “what” is on TV. The PLLAN includes a prop for teaching this Pixon. It can be used while “channel surfing” to see what is on tv. However, the word “what” is also used in a range of other contexts, including asking about actions and things. One school took a large box and made a “tv” that people could stand inside of. The

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person with disabilities asked “what do” and the person inside the box stated the action they intended to do, then did it. Actions that the person could do were selected from the Pixon board based on their ease in being able to act them out (e.g., color, count, dress, drink, eat, hold, look, love, make, open-close, play, read, ride, sing, sit, sleep, talk-call, turn, walk, wash, work, write). The same box was used and objects were hidden in the box. The person with disabilities asked “what in” or “what there” and the other person revealed the object.

- d. when = Take a clock and put a question mark over the face. A homemade paper clock with moveable hands works well, as well as an old wind-up clock with hands or a digital clock. Vary the time shown, cover the time with the question mark. Say “the clock shows ‘when’ we will do it.” Reveal the time after the person asks “when.”
  - e. where = The Pixon for “where” shows a map with the question mark. Get a map of your town or state/province. Look for places on the map, while modeling “where.” Draw a map of your house and hide things around the house or classroom. Prompt the person to ask “where,” and then go search for the object until you find it.
  - f. why = The word “why” is used very early in the language of normally developing children. However, it is not the easiest concept and Pixon to teach because it generally has no concrete referent. The Pixon for “why” shows a woman pointing to her head with a question mark. One teacher made a question mark and attached it to a headband. The person who was wearing the headband would be “it” when playing the “why” game. The “Why” game involves asking a series of questions about a situational picture, much as a little child continually asks “why” when you are explaining something.

*Situation = A girl is crying. A broken vase is on the floor.*

    1. *Why crying = because she is sad*
    2. *Why sad = because she broke something*
    3. *Why break = because she dropped it*
    4. *Why drop = because it was heavy*
    5. *Why heavy = because she is too little to carry it*
  - g. how = The Pixon for “how” is a hammer pounding a nail. The metaphor is both conceptual (how do your work) and auditory (how-pow). Use a hammer to build something and describe how it looks (big, little, silly, good, bad). As you work, describe your actions (busy, hurt) and the process of pounding (fast, slow, hard, soft, all done).
4. The field of speech-language pathology offers a range of materials to help language impaired children learn how to use interrogatives. Investigate and modify some of these materials.

***Module #10: Stating Personal Attributes and Feelings***

**Purpose:** to use descriptive concepts to state personal attributes, such as appearance and feelings

**Target Vocabulary: 19 words**

1. afraid
2. am/is/are\* (1 word with variations in 1 picture – counted as 1)
3. busy
4. confused
5. dumb-smart (counted as 2 words)
6. feel
7. happy
8. hungry
9. hurt
10. mad
11. mean
12. nice
13. pretty
14. sad
15. sick
16. silly
17. thirsty
18. tired

**Target Syntax/ Morphology:**

1. AAC User:
  - a. Produce 1 word utterances spontaneously.
  - b. Produce 2 word utterances in responses to ALgS strategies.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “descriptive” words, including the “+er” and “+est” forms.

**Suggested Long-Range Goals:**

1. The AAC user will use descriptive words to describe attributes in activities.

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2. The communication partner will model general descriptive words in simple 2 and 3 part messages.

### Teaching Suggestions:

1. Repetitive Routine: Repeat any of the functional activities you did from previous modules, focusing on the appropriate descriptive words. Change your prompt to include “how” and “is” or “how” and “feel” and then model/prompt the descriptive words.
2. Combine the teaching of “how” from module 9 with the teaching of these descriptive words that relate to personal attributes.
3. To teach individual words, the following activities are starting points.
  - a. am/is/are = Any picture that represents the forms of “to be” are hard. Sometimes, it just is what it is because you said it is and there it is. Emphasize the “zzzzzz” sound to associate these forms of “to be” with a bee. Then teach by location, location, location.
  - b. feel = Make a variety of different masks for each of the feeling words listed below. Then do different role playing activities to act out those feelings, interchanging the mask, as needed. Point out that facial expressions are a good clue to figure out how someone feels. (Note: some individuals with CCN have a very hard time with facial expressions, reading the feelings of others, and putting words to their own feelings).
  - c. afraid = With caution, do pretend activities with ghosts and other scary things. Don’t unnecessarily frighten the person. Keep it light and have fun.
  - d. busy = Act out being a busy bee, running around.
  - e. confused = Stick question marks on your face and act confused.
  - f. dumb-smart = Get a book and a dunce hat. Pretend to act all smart vs. dumb.
  - g. happy-sad = Focus on the masks for “happy” and “sad,” comparing the shapes of the mouths and the colors of the Pixons.
  - h. hungry = Act out the idea of thinking of food, using an apple, then other foods as props.
  - i. hurt = Pretend to hit yourself with a hammer and act all hurt. Then expand to other things hurting, like your bottom from sitting too long, your head from thinking too much, or your knee from falling down.
  - j. mad = Put on the “mad” mask and stomp around like a maniac.
  - k. mean = The mean person in the picture is pulling someone’s hair. Without hurting anyone, pull some hair. Then do other things that would be considered “mean,” like saying bad things or taking your toy. Contrast with being “nice.”

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- l. nice = Give the person a “cookie” and act nice to them. Contrast with “mean.”
  - m. pretty = Draw a picture of a rainbow with bright colors and talk about it being pretty. Contrast with ugly, by coloring the rainbow in tones of grey and brown. Judge various things as “pretty” and “not pretty/ugly.”
  - n. sick = Get a doctor’s kit and do pretend “sick” activities.
  - o. silly = Make a smiling face mask and dress up in some silly clothes.
  - p. thirsty = Act out the idea of thinking of something to drink, using a glass of juice, then other objects as props (e.g., soft drink can, juice box, sippy cup, etc.).
  - q. tired = Yawn and simulate being tired, laying down on a bed, if one is available.
4. The field of speech-language pathology offers a range of materials to help language impaired children learn how to use descriptive words for feelings and personal attributes. Investigate and modify some of these materials.

***Module #11: Stating and Directing Specific Actions***

**Purpose:** to use a range of words for specific actions

**Target Vocabulary: 21 words**

1. color
2. count
3. dress
4. drink
5. eat
6. hear-listen (counted as 2 words)
7. play
8. read
9. ride
10. share
11. sing
12. sit
13. sleep
14. stand
15. walk
16. wash
17. win/lose (2 words in 1 picture, counted as 2 words)
18. work
19. write

**Target Syntax/ Morphology:**

1. AAC User:
  - a. Produce 1 word utterances spontaneously.
  - b. Produce 2 word utterances in responses to ALgS strategies.
2. Communication Partner: Use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “action” words, including the “ing,” “+s,” and “+ed” forms.

**Suggested Long-Range Goals:**

1. The AAC user will use action words to direct or describe action in activities.

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2. The communication partner will model action words in simple 2 and 3 part messages.

### Teaching Suggestions:

1. Repetitive Routine: Repeat any of the functional activities you did from Modules 1- 11, this time focusing on the appropriate action words. Change your prompt to include “what” and “do” and then model/prompt the action words.
2. To teach individual words, the following activities are starting points.
  - a. color = The Pixon for “color” shows a partially colored rainbow. Use this symbol in a variety of coloring and arts/crafts activities.
  - b. count = The Pixon for “count” is a train with 3 cars. On each car is a number. Start by simulating this picture and expand to the counting of a range of other objects.
  - c. dress = Do dress-up activities, with the person, then with dolls and/or action figures.
  - d. eat – drink = Do a variety of eating activities, modeling and using the Pixons for eat and drink.
  - e. hear – listen = The Pixon for hear and listen is a multiple meaning picture. Use both of these words in a range of auditory activities, such as listening to music with and without headphone. For example, say “I want listen that.” Point at the music player (e.g., iPod, tape player, etc). and headphones. Put on the headphones and say “I hear it.”
  - f. play = The metaphor for the Pixon for “play” is the playing of a board game. Start with this concept, and build up the meanings of the word “play” to include playing card games, playing pretend, playing music, playing a movie, etc.
  - g. read = Do a variety of reading activities with a range of reading materials.
  - h. ride = Go for rides on as many different things as you can and which can be done safely with the person.
  - i. share = Do play activities, sharing different stuff from a toy chest.
  - j. sing = Do a range of singing activities.
  - k. sit = Sit on as many different things as you can and which can be done safely with the person
  - l. sleep = Do pretend sleeping activities.
  - m. stand = Contrast “sit” and “stand.” If the person gets into a stander, this is a good learning opportunity.
  - n. walk = Take walks together, wearing your walking shoes.

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- o. wash = Use the wash picture in different washing activities (e.g., wash yourself, wash things).
  - p. win-lose = Play games with dice, cards, board games, etc. and talk about “winning” and “losing.”
  - q. work = Sit at a desk with a hammer and do some “construction” work. Then do other kinds of work at the desk.
  - r. write = Using a variety of writing tools, write different things, using hand-over-hand assistance, as necessary.
3. There are many other action words on the Pixon boards have not been specifically targeted, such as “like,” “find,” “hold,” or “open-close.” They are also important words. Model and teach these words across a range of contents. Track use of these words for individual students.
  4. Continue to modify any traditional speech-language therapy materials that focus on action words and modifying verb tense.

**Module #12: Stating Additional Time Concepts**

**Purpose:** to use specific time words

**Target Vocabulary: 8 words**

1. morning
2. afternoon
3. night
4. before
5. after
6. yesterday
7. today
8. tomorrow

**Target Syntax/ Morphology:**

1. AAC User:
  - a. Produce 1 word utterances spontaneously.
  - b. Produce 2 word utterances in responses to ALgS strategies.
2. Communication Partner: use Aided Language Simulation with 2 and 3 word utterances as prompting and response strategies for semantic relations that use “time” words.

**Suggested Long-Range Goals:**

1. The AAC user will use the word “morning,” “afternoon,” or “night” to state or describe the time of an event or activity.
2. The AAC user will use the word “before” or “after” to control the order of events in his/her life.
3. The AAC user will use the word “yesterday,” “today,” or “tomorrow” to state or describe the time of an event or activity.
4. The communication partner will model time regulating words in simple 2 and 3 part messages.

**Teaching Suggestions:**

1. Repetitive Routine: Repeat any of the functional activities you did from Module 1- 11, this time focusing on the time regulating words. Change your prompt to include a time regulator and then model/prompt the time words.
2. To teach individual words, the following activities are starting points.

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- a. morning-afternoon = The Pixons for morning and afternoon are very similar. Make three props: a picture of a landscape, a sun, and a watch. Show how the sun comes UP in the morning (while raising the sun up by the landscape picture). Adjust the watch to show 6:00 a.m. For afternoon, hold the sun over the landscape picture. Adjust the watch to show 2:00 p.m. Talk about things that you do in the morning vs. afternoon. Make a list of those things, under a columns pictured with the “morning” and “afternoon” pictures. Ask questions that can be answered with the words “morning” or “afternoon” (e.g., When do you eat breakfast? When do you have PT?).
  - b. night = While working on “morning” and “afternoon,” introduce the Pixon for “night.” Emphasize the “darkness” of the night Pixon to differentiate it from morning and afternoon.
  - c. before-after = The concepts of “before” and “after” are challenging to teach because these words communicate relative ideas of time (e.g., “you have to pick up your toys before you get your snack.”) Yet, these words are prepositions and the Pixons contain the picture of a bridge, which in the Unity® program codes all prepositions. A “timeline” is drawn and the sun is placed “before” the bridge and the “moon” is placed “after” the bridge. Create additional “timelines,” showing a blank space, the bridge, and another blank space. Add pictures into the blank spaces to show things that the person does before and after each other. For example, you brush your teeth BEFORE going to bed; you put on your shoes AFTER your socks.
  - d. yesterday-today-tomorrow = The Pixons for yesterday, today, and tomorrow show another relative timeline, with “today” as the midpoint and arrows pointing back to “yesterday” and “tomorrow.” Create timelines for events that the person does today, did yesterday, and will do tomorrow.
3. Use the supplemental “Time Concepts” display during “clock” activities.
  4. The field of speech-language pathology offers a range of materials to help language impaired children learn how to use specific time words. Investigate and modify some of these materials.

# Part 5: Implementation Q & A

**What if I am using a Pixon board that doesn't have all 150 words from the curriculum? Can I still use the curriculum?**

Yes. The most basic pre-made Pixon board (only 20 words) has the vocabulary from Module (10 words) and one or more words from many of the other modules. Follow the guidelines from Module 1 for teaching these words, and then refer to the teaching guidelines from the other modules to get suggestions for teaching the words that are available on the board you are using.

**Am I supposed to follow the modules in order?**

No. The modules are a guide to the systematic teaching of core vocabulary based on REASONS for talking. They are not a linear, step-by-step curriculum, rather they are a means of "Quality Control" for the intervention plan. The modules guide your implementation to ensure that you are teaching a diverse vocabulary that promotes language development for a full range of reasons for talking. You could select a single activity and, on Day 1, emphasize Module 1 words. On day two, you could repeat the exact same activity, but emphasize Module 2 words, while on day 3, you emphasize Module 3 words. The modules provide the architecture for helping intervention teams develop their skills in teaching language through AAC.

**Should I only teach the 150 words from the modules? What about the other words on the Pixon Communication Boards?**

The words chosen in the modules are NOT the only words you can or should be teaching. The modules only provide a structure for teaching a "starter" set of words. If other words are important in the activities you are completing, you can add those words to the set of words you are teaching.

**Do I have to wait to teach all 150 words from the 12 modules before I add anything new to the board?**

No. A communication board is a PERSONAL system and each of us has unique activities, people, and things in our lives. At any time in your instruction, teach the personalized nouns and any words that you added into the blank spaces on the person's personal Pixon communication board.

**What do you teach after the person has learned and is using the 150 words included in the 12 language learning modules?**

## Part 5: Implementation Q & A

As a rule of thumb, focus on teaching additional words for verbs and adjectives. These are large categories of words and generally are assigned significant space on a person's personal communication system.

### **How do I use the manual communication board with other technology?**

The person can use their Pixon communication board with simple digital voice output technology, such as a single message device. The power of a speech generating device, even a single message device, is that it makes a sound and provides voice output. The child or adult could have a single message device with the following message recorded: "I have something to say." He/She could speak this message by activating the single message device to get the teacher's attention and signal that he/she wants to take a turn to talk. Then the teacher can come over to the child and together they can chat using the child's communication display.

Single message and multiple message devices can be used for a variety of purposes, such as singing a song or repeating a line from a story book. By pairing the power of voice output with the power of core vocabulary, the child or adult with disabilities is learning how to use words and language to control his/her own life.

At some time, it is hoped that the child or adult with disabilities will acquire a speech generating device that is more powerful than single message or limited message devices. This more powerful device could provide, with voice output, all the words currently available to him/her on the person's communication board.

### **How do I know when it is time to consider use of a more powerful communication device?**

This is a very challenging question to answer because of the diversity of abilities and needs of people using Pixons. Generally, when a person has learned to communicate with a manual communication board of 100 – 150 words, it is time that he/she be assessed for a more powerful voice output AAC device. The assessment process for a device should ensure that the person has access to as many words as he/she had with the Pixon manual communication board without taxing his/her ability to physically retrieve the words. Remember, the primary goal is to give the person access to LANGUAGE, not just technology.

### **What kind of communication devices should be considered?**

Pixons pictures were drawn to prepare a person to use the Unity program available in devices manufactured by Prentke Romich Company. These are the devices that should be considered FIRST. There are a range of Unity programs available in these devices, based on the number of keys (i.e., 8, 15, 32, 45, 60, 84, 128, 144) that are available on the main display. These programs are continually being revised and/or improved and there is no guarantee that all words in the Unity Minspeak Application Programs are represented with exact same metaphor used with Pixons.

## Part 5: Implementation Q & A

The Unity84 program provides the closest “match” to the Pixon pictures. Unity128 and Unity144 are nearly equally good choices. Unity32 or Unity45 have many similar pictures, but Pixons were not developed to coordinate specifically with these two versions of the Unity program.

### **How do I help the person make the transition to one of these Unity programs?**

The Pixons were originally developed based on a version of Unity84 available as of January 2008. Since then, there have been additional changes to the Unity programs, in the Unity84 version and other versions. Although there are some differences, the similarities between Pixons and Unity programs greatly outweigh these differences.

The transition from Pixons to using the Unity program should involve any or all of the following activities:

- Pixon to Unity Icon Comparisons: Use the person’s Pixon board and the main overlay from the PRC device to compare Pixon pictures to the available Unity icons.
  - Help the person see how the Pixons are similar to the Unity icons. Point out conceptual similarities, emphasizing that “Mr. Action Man” in the Pixons for verbs is now the “verb” key in the Unity program. Also, show how the color coding of Parts of Speech on the Unity overlay matches the color coding on the Pixon board (e.g., verbs = green, adjectives = blue).
  - Model some of the words that can be said with the PRC device to show the person that he/she can say the same words as can be said on the Pixon board.
  - Make Pixon picture to Unity icon comparisons into a game to see if the person can “discover” how to say the words from his/her Pixon display with the AAC device.
- Unity Icons as Multiple Meaning Icons: A significant difference between Pixons and Unity icons is that Pixons are single meaning pictures while Unity icons are multiple meaning icons.
  - Select a Unity icon as a “root” icon. Then find as many Pixons as you can that uses that “root” icon. For example, on the Unity overlay, there is a symbol of an “apple.” In Unity, that symbol is used to say “eat” and “hungry.” The Pixons for these 2 words feature the “apple” in the picture.
  - Continue to model how to say multiple meaning words by selecting a “root” icon and then selecting the verb or adjective key on the device. The icon prediction lights assist in reminding you to select another picture to make the device talk.
- Using Supportive Visual Materials: Develop a variety of visual support materials to aid in the transition from using single-meaning Pixons to multiple meaning Unity programs. There are a variety of free and commercially available support materials currently under development. They are listed in Appendix E.

## Part 5: Implementation Q & A

- Investigate using the free PASS software from PRC to make visual support materials.
- Re-engineer the environment, replacing Pixon-based materials with Unity-based materials.

As the person makes the transition to use of the Unity-based device, his/her Pixon manual communication board should remain available as either a primary AAC system or a back-up AAC system. It is up to the team and the individual using the device to decide when he/she is ready to make the complete transition.

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- Blissymbolics Communication International, Suite 104 1630 Lawrence Ave. West, Toronto, Ontario, Canada M6L 1C5; Phone 416-242-9114 Fax 416-244 6543 Email: [bci@blissymbolics.org](mailto:bci@blissymbolics.org)
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# APPENDICES

## Appendices

### *Appendix A: Pixon Communication Profile*

Name: \_\_\_\_\_

	Date:	Setting:	Communication Partner(s)	Activity	# of Utterances in Sample
Sample 1:					
Sample 2:					
Sample 3:					
Sample 4:					
Sample 5:					
Sample 6:					

Define the setting, communication partner(s), and activity for the samples selected. Use traditional language sampling techniques (audio taping, videotape, live transcription) and try to collect at least 100 total number of utterances across six samples. Complete each section of the Communication Profile, as appropriate, based on these samples. Attach transcripts of the sample to this document.

Section 1: Communication Functions

Section 2: Vocabulary Acquisition

Section 3: Syntax and Sentence Production

Section 4: Morphology and MLU-M

Comments:

NOTE: The checklists for Communication Functions, Vocabulary Selection, Syntax, and Morphology, are based on what is possible with the words and grammatical markers on the most robust Pixon board. The checklists do not reflect ALL possible grammatical variations (e.g., regular and irregular verbs, single and plural irregular nouns, etc.).

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### Section 1: Communication Functions

Check communication functions present in each sample. Base decisions on observation of the person, familiarity with the daily routine, and information recorded in the journal. List additional functions, as appropriate. Add comments as needed.

<b>Communicative Functions</b>	<b>S1</b>	<b>S2</b>	<b>S3</b>	<b>S4</b>	<b>S5</b>	<b>S6</b>
request attention						
request for object						
request for action						
request for assistance						
request for recurrence						
request affection						
greet-part						
affirm-deny						
cessation						
rejection/refusal						
negation						
request information						
comment: object						
comment: action						
comment: time						
express emotion						
non-interactive selections						

Comments:

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### Section 2: Vocabulary Acquisition

Check off vocabulary selection characteristics present in the sample. Then count the number of words in the sample and calculate the % of words used. Add comments as needed.

<b>Vocabulary Acquisition</b>	<b>S1</b>	<b>S2</b>	<b>S3</b>	<b>S4</b>	<b>S5</b>	<b>S6</b>
Use of pronouns						
Use of people words						
Use of negation (not, don't)						
Use of verbs						
Use of question words						
Use of place holders for nouns (that, this, some, all, it)						
Use of specific nouns						
Use of time words (now, again, later)						
Use of place words (prepositions, place adverbs)						
Use of conjunctions (and, because)						
Use of interjection (be careful)						
Use of adjectives (good, bad, different)						
Use of special symbols (opposite, same)						
Use of spelling						

Comments:

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### Section 3: Syntax and Sentence Development

For items 1-3, note what percentage (%) of the sample contains these types of utterances. For the remaining items on the list, check the variations that are used. List additional types of utterance created. Add comments, as needed.

<b>Syntax and Sentence Development</b>	<b>S1</b>	<b>S2</b>	<b>S3</b>	<b>S4</b>	<b>S5</b>	<b>S6</b>
1. Single word utterances						
2. Word strings or Topic-Comment						
3. Emerging Traditional Syntax						
Two word utterances						
Agent + Action (I go)						
Action + Object (get that)						
Object + Possessive (that mine)						
Question + X (what that, where go, who help)						
Action + Descriptor (go fast, help now)						
Three word utterances						
Four word utterances						
Five word utterances						
Showing verb phrase development						
Showing noun phrase development						

Comments:

## Appendices

### Section 4: Morphology Development

Check features present in each sample. They are not arranged developmentally. Add comments, as necessary, to accurately reflect morphology production. Make NA if the morphology cannot currently be communicated on the person's board.

Morphology	S1	S2	S3	S4	S5	S6
plural "s"						
first/second person subject pronoun (I, you, it)						
third person subject pronoun (he, she)						
plural subject pronoun (we, they)						
object pronoun (me, him, her, us, them)						
possessive pronoun (his, hers, ours, theirs)						
reflexive pronoun (myself, yourself, itself)						
present tense (go)						
3rd person singular present tense (goes)						
present progressive verb tense (+ing)						
regular past tense (+ed)						
infinitive verb tense (to+ verb)						
future tense (will + verb, going to + verb)						
auxiliary verbs (is, was/were, be, have/has)						
modal verbs (can/have)						
question words (who, what, when, where, why)						
S-V inversion (are you, is he, can they)						
comparative forms (big/bigger)						
superlative forms (biggest)						
MLU-Words						
MLU-Morphemes						

Comments:

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### ***Appendix B: Other Resources for Documenting Progress***

These resources are a limited list of tools you can use to document progress with your clients. Inclusion on this list does not equal an endorsement of this product; however, the “A Continuum of Learning” by Tracy Kovach, Ph.D. most closely coordinates with the Pixon Project.

An internet search in the areas of AAC Assessment Tools, Evidence-Based Practice, and Outcome Measures will yield more possible resources, based on your needs.

Beukelman, David & Mirenda, Pat. (2005). *Augmentative and Alternative Communication: Supporting Children and Adults with Complex Communication Needs* (3rd ed.). Baltimore: Paul H. Brookes Publishing Company.

Blackstone, S. (2002). Evidence-Based Practice: A Next Step For AAC Clinicians? *Augmentative Communication News*, 14, 5 & 6.

Dowden, Patricia A. (1997). Augmentative And Alternative Communication Decision Making For Children With Severely Unintelligible Speech. *Augmentative and Alternative Communication*, 13, 48-59.

Gillette, Yvonne (2003). *Achieving Communication Independence: A Comprehensive Guide To Assessment And Intervention*. Greenville: South Carolina: Super Duper Publications.

Kovach, Tracy (2008). *The AAC Profile. A Continuum Of Learning For Children Using AAC*. East Moline, Illinois: LinguiSystems.

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Quattlebaum, Patricia & Nalty, Lily (1998). *A Practical Guide To Augmentative & Alternative Communication: Assessment & Intervention Strategies*. Greenville: South Carolina: Super Duper Publications.

***Appendix C: Products That Use Pixons***

Semantic Compaction Systems licenses individuals and companies to develop, produce, and commercially distribute materials that use Minspeak® symbols and Pixons®. Contact Semantic Compaction Systems ([www.minspeak.com](http://www.minspeak.com)) for a current listing of authors and companies who provide educational and support materials for the Unity® program and the Pixon Project.

Currently, the following Pixon-based products are under development (as of January 2009). Contact the authors for current information on availability.

1. "Stories and Strategies for Language Development" by Tracy Kovach, Ph.D., CCC-SLP and Gail Van Tatenhove, MS, CCC-SLP. This product is a language development program that focuses on the use of children's literature as the foundation for language and narrative development. Contact person in the USA: Gail M. Van Tatenhove, Orlando, Florida; Email Contact: [gvantatenhove@cfl.rr.com](mailto:gvantatenhove@cfl.rr.com)
2. "Bridge to Literacy" by Maureen Casey, MS, Educator. This product is a literacy program that coordinates literacy learning with AAC system learning, using both Pixons and materials from the Unity® program. It has been developed in South Africa and used extensively for the teaching of reading with children with disabilities who live in poverty conditions and who are exposed to multiple languages. Contact person in the USA: Gail M. Van Tatenhove, Orlando, Florida, USA; Email Contact: [gvantatenhove@cfl.rr.com](mailto:gvantatenhove@cfl.rr.com); International Contact Person: Maureen Casey, Durban, South Africa; Email Contact: [makc@mobileemail.vodafonesa.co.za](mailto:makc@mobileemail.vodafonesa.co.za)

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### *Appendix D: Description of Manual Communication Boards*

The following charts describe the pre-designed Pixon core word boards, supplemental displays, and extended vocabulary displays.

CODE	CODE
<p><b>Type of Display Designs for Personal Core Board and Extended Vocabulary Displays:</b>  <b>SSD</b> = Single Sheet Design  <b>MSD</b> = Multiple Sequential Design  <b>MSCD</b> = Multiple Simultaneous Category Design</p> <p><b>Type of Access Methods:</b>  <b>DS</b> = Direct Selection  <b>EP</b> = Eye Point  <b>EP-PAS</b> = Eye Point &amp; Partner Assisted Scanning  <b>PAS</b> = Partner Assisted Scanning Only</p>	<p><b>Type of Display Designs for Personal Core Board and Extended Vocabulary Displays:</b>  <b>SSD</b> = Single Sheet Design  <b>MSD</b> = Multiple Sequential Design  <b>MSCD</b> = Multiple Simultaneous Category Design</p> <p><b>Type of Vocabulary</b>  <b>A</b> = Alphabet  <b>S</b> = Supplemental  <b>EV</b> = Extended Vocabulary  <b>ASE</b> = Alphabet, Supplemental, and Extended vocabulary combined</p>

### Stationary, Laptray Boards

	<b>Board 1</b>	<b>Board 2</b>	<b>Board 3</b>	<b>Board 4</b>	<b>Board 5</b>	<b>Board 6</b>
<b>File Name for Core Word Board</b>	SLT-20	SLT-30	SLT-50	SLT-77	SLT-112	SLT-198
<b># of Targets</b>	20	30	50	77	112	198
<b># of Words</b>	25	35	57	91	140	213
<b>Target Size</b>	2 inch	1 ¾ inch	1 1/2 inch	1 ½ inch	1 ¼ inch	1 inch
<b>Final Board Size (in inches) with space for extra displays</b>	11.0 H x 10.5 W	11.5 H x 10.5 W	10.0 H x 15.0 W	13.0 H x 16.5 W	12.25 H x 17.5 W	13.0 H x 18.0 W
<b>File Names of Alphabet and Supplemental Displays</b>	•SLT-20-A •SLT-20-S	•SLT-30-A •SLT-30-S	•SLT-50-A-1Piece •SLT-50 -A-2Piece •SLT-50-SL-1Piece •SLPT-50 -S-2Piece	•SLT-A-1Piece •SLT-77-S-1Piece •SLT-77-A-2PieceLeft •SLT-77-S-2PieceLeft	•SLT-112-A-1Piece •SLT-112-A-2Piece •SLT-112-S-1Piece •SLT-112-S-2Piece	•SLT-198-ASE-1Piece •SLT-198 ASE-2Piece •SLT-198 Template-1Piece •SLT-198 Template-2Piece
<b>File Names of Extended Vocabulary Displays</b>	•EV-20 Template •EV-20-1 •EV-20-2 •EV-20-3 •EV-20-4 •EV-20-5 •EV-20-6	•EV-30 Template •EV-30-1 •EV-30-2 •EV-30-3	•EV-50 Template-1Piece •EV-50 Template-2Piece •EV-50-1Piece •EV-50-2Piece	•EV-77 Template-1Piece •EV-77 Template-2 Piece-Left •EV-77 Template-2PieceRight •EV-77-1Piece-1 •EV-77-1Piece-2 •EV-77-1Piece-3 •EV-77-2Piece-Right-1 •EV-77-2Piece-Right-2 •EV-77-2Piece-Right-3	•EV-112 Template-1 Piece •EV-112 Template-2 Piece •EV-112-1Piece-1 •EV-112-2Piece-1	•EV-198 Template-1 Piece •EV-198 Template-2 Piece •SLT-198-ASE-1Piece •SLT-198-ASE-2Piece

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	<b>Board 1</b>	<b>Board 2</b>	<b>Board 3</b>	<b>Board 4</b>	<b>Board 5</b>	<b>Board 6</b>
<b>Mounting or Transport Design</b>	SLT	SLT	SLT	SLT	SLT	SLT
<b>Core Vocabulary Display Design</b>	SSD	SSD	SSD	SSD	SSD	SSD
<b>Supplemental &amp; Extended Vocabulary Display Design</b>	MSD	MSD	MSD	MSD	MSD	MSD
<b>Suggested Access Method</b>	DS	DS	DS	DS	DS	DS

**IMPORTANT NOTE:** All of the pre-made boards represent the individual (i.e., I, me-myself, and my-mine) with Pixons for a white female. Customize the board to match the person's gender and background. There are Pixons for males and females with African, Asian, and Caucasian backgrounds.

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### Stationary, Eye Point Boards and the Portable, Carrying Case Board

	Board 7	Board 8	Board 9	Board 10
<b>File Name for Core Word Board</b>	SLT-216	SEP-75-Picture Side SEP-75-Word Side	SEP-147-Picture Side SEP-147-Word Side	PCC-1
<b># of Targets</b>	216	75	147	357
<b># of Words</b>	198	93	181	284
<b>Target Size</b>	¾ inch	1 ½ inch	1 inch	¾ to 1 inch
<b>Final Board Size (in inches) with space for extra displays</b>	10.00 x 21.00	18.0 x 18.0 frame	18.0 x 18.0 frame	8.0 W x 20.0 (case size)
<b>File Names of Supplemental Displays</b>	<ul style="list-style-type: none"> <li>•SLT-216-A-2Piece</li> <li>•SLT-216-S-2Piece</li> <li>•SLT-216 Template-2Piece</li> </ul>	<ul style="list-style-type: none"> <li>•SEP-75-A-1 Piece</li> <li>•SEP-75-A-2Piece</li> <li>•SEP-75-S-1 Piece</li> <li>•SEP75-S-2 Piece</li> </ul>	<ul style="list-style-type: none"> <li>•SEP-147 ASE-1Piece</li> <li>•SEP-147 ASE-2Piece (-A, supplemental, and extended all together)</li> <li>•SEP-147 Template-1Piece</li> <li>•SEP-14 Template-2Piece</li> </ul>	(integrated with core displays)  Template = PCC-1 Grids
<b>File Names of Extended Vocabulary Displays</b>	<ul style="list-style-type: none"> <li>•EV-216 Template-2 Piece</li> <li>•EV-216-2Piece</li> </ul>	<ul style="list-style-type: none"> <li>•EV-75 Template-1Piece</li> <li>•EV-75 Template-2Piece</li> <li>•EV-75-2Piece-1</li> <li>•EV-75-2Piece-2</li> <li>•EV-75-2Piece-3</li> </ul>	<ul style="list-style-type: none"> <li>•EV-147 Template-1Piece</li> <li>•EV-147 Template-2Piece</li> <li>•SEP-147 ASE-1Piece</li> <li>•SEP-147 ASE-2Piece</li> </ul>	<ul style="list-style-type: none"> <li>•PCC-Activity Grids</li> <li>•PCC-Top Flip Grids</li> <li>EV-PCC-1 Activities</li> </ul>
<b>Mounting or Transport Design</b>	SLT	SEP	SEP	PCC
<b>Core Vocabulary Display Design</b>	SSD	SEP	SEP	MSCD
<b>Supplemental &amp; Extended Vocabulary Display Design</b>	MSD	MSD	MSD	MSD
<b>Suggested Access Method</b>	DS	EP-PAS	EP-PAS	DS

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### **GENERAL GUIDELINES FOR PRINTING DISPLAYS:**

The computer you are using to interface with the printer must have the necessary software to open the file. All personal “core” boards are made with Boardmaker and Microsoft Word. These boards are saved as Boardmaker and Microsoft Word files, then saved as PDF files.

The supplemental and extended vocabulary displays are made in Boardmaker only and saved as Boardmaker and PDF files. There are Microsoft Word Templates for making customized supplemental and extended displays. They are saved only as Microsoft Word files so they can be customized.

The boards were generally designed and formatted to print on one (1) or more sheets of US Letter or US Legal sized paper in Portrait or Landscape configuration. The different sections of the laytray-style boards have to be “put together” to make the board. Sometimes, A4 was a better option as paper size selection because the full display or row fit better on the page and saved paper (and it would still print correctly on US Portrait). The boards are placed in a folder called “STANDARD PRINTER & PAPER.” NOTE: (The boards authored with Microsoft Word are only formatted to print on standard paper.)

If you don’t want to print the laytray-style boards in multiple sections on multiple pieces of paper, the Boardmaker versions of the boards have been formatted to print on larger paper. They are placed in a folder called “LARGE PRINTER & PAPER.” You will have to work with your printer (machine and/or person) and printer settings to adjust the sizes. The following chart shows the paper size for the PDF files to print on a single piece of paper. All measurements are in inches. Margins are set at .25 inches.

SLT-20 = A3 or Tabloid in Portrait

SLT-30 = A3 or Tabloid in Portrait

SLT-50 = Tabloid in Portrait

SLT-77 = Custom 17.5 W x 14.0 H

SLT-112 = Super B / A3 in Landscape

SLT-198 = Custom 19.0 W x 14.0 H

SLT-216 = Custom 22.0 W x 11.0 H

SEP-75 = Custom 18.0 W x 18.0 H

SEP-147 = Custom 18.0 W x 18.0 H

PCC-1 = US Letter

#### 1. OPTION 1: LARGE PRINTER & PAPER

- a. Investigate local sources that have larger-scale printers and paper, such as an educational resource center or commercial printer.
- b. Determine what larger sized paper is available.
- c. Open the appropriate file and adjust the file for the available paper sizes. Generally, using the PDF file is the best choice. However, if

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you choose to use the Boardmaker or Word files, you will have to experiment with the different Page Set-Ups to figure out which of the three used works with the board you've chosen.

- d. Print the boards on a printer that can handle larger sized paper.
- e. Have the resource center or commercial printer put a "finish" on the board to protect it.

### 2. OPTION 2: STANDARD PRINTER & PAPER

- a. Get the appropriate sized papers your printer can handle.
- b. Open the appropriate file and re-adjust the locations of the targets to accommodate the printing of the board (in several segments) on paper sizes that your printer can handle. You may have to try several formats to get it to fit appropriately.
- c. Print the board segments. "Finish" the segments with laminate or clear contact paper.
- d. Re-assemble the segments to make the final Pixon board.

- For the boards that are designed as EYE POINT displays, you need to print the Picture / Word on 1 side of the CORE BOARD and just the word on the reverse side of the board. For the words on the SUPPLEMENTAL and EXTENDED DISPLAYS, you need to put the words on the back of the PREVIOUSLY FLIPPED display so you can more easily name the picture when doing Partner Assisted Scanning (when positioned across from the person reading their eye point). Most people find the easiest way to do this is to handprint directly only to the back of the displays or print the words on small gummed labels and add them to the backside of the displays.

### **GENERAL GUIDELINES FOR CONSTRUCTING PERSONAL CORE BOARDS and EXTENDED VOCABULARY DISPLAYS:**

It is beyond the scope of the Pixon Project Kit to outline all the principles and methods for developing manual communication boards. Investigate other resources within in the field of AAC that provide guidance in the development of manual communication boards, eye point frames, and mounting strategies. Consult with experts in the general "construction industry" for help finding and using unfamiliar materials (e.g., PVC® piping, Lexan®).

The following general guidelines (along with the samples provided) are recommended strategies for constructing personal manual communication boards.

#### Laptray-style Design

1. Confirm that the displays fit appropriately on the person's laptray. Make adjustments to the board to accommodate laptray "lips" or cut-outs. Make other adjustments to accommodate the person's reach and range of motion.

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2. If necessary, attach the displays to a backing, such as poster or tag board to add extra substance and durability to the board.
3. Protect the board by covering it with clear contact paper or laminate. Use non-glare materials, if available.
4. Attach the board to the person's laptray in such a way that it can be removed (when necessary to be replaced), but not easily taken off by the person.

### Eye Point Frame Design

1. The basic process for making an eye point frame is to (1) print out the picture quadrants (Picture/Word side, then the Word side) making sure the word(s) are printed on the backside of the pictures, (2) protect each picture quadrant with clear contact paper or laminate, (3) attach the pictures to a Lexan® or non-scratch plastic panel, leaving 2 to 3 inches of space between each quadrant, then (4) attach the panel to an eye point frame made out of PVC piping.
2. The size of an eye point panel and frame is customized based on the person's eye pointing abilities, size of the wheelchair, and style of the wheelchair. Eye point frames are generally made to match the width of the person's wheelchair tubing, but it can be wider or narrower, based on the individual's eye pointing abilities and head control. Purchase PVC piping at local hardware stores, including all the connector/joint pieces needed to attach pieces of the frame together. After cutting and assembling the frame, test out the size with the person in his/her wheelchair. Make any necessary adjustments before using PVC pipe glue to secure the joints.
3. The mounting of the eye point frame is customized based on whether or not the person has a laptray attached to the chair and the size/style of the chair. Consider attaching it to the laptray and/or wheelchair frame. Free-standing frames are also possible, as long as there is a strategy for ensuring that the frame is consistently provided and available to the person.

You will need the help of your wheelchair vendor if you need to make any changes to the wheelchair for the eye point frame. For example, an eye point frame for Jennifer was attached to her wheelchair on the tubing of the footrests. Holes were drilled into the "feet" of the eye point frame and the wheelchair frame. "Pins" slipped into the holes secured the frame to the chair, but could be removed when Jennifer was taken in and out of her chair and when by transported in vehicles (for safety purposes).

4. Once the eye point frame is made, paint the frame in a color selected by the individual using it. The PVC piping usually needs to be primed in order to hold the paint over time.

## Appendices

5. Attach the picture panel to the eye point frame. Velcro® is usually the best option. Make sure it is secure and can not fall off onto the person.

### Portable Carrying Case Design

1. The portable carrying case that came in the Pixon Project Kit can hold displays with targets of various sizes. There are pockets in which communication displays are inserted.
2. Print out the displays and protect them by covering them with clear contact paper or laminate.
3. Insert into the appropriate pockets and re-seal the pockets.
4. Create a “name tag” to add to the handles in case the case is lost or misplaced.

***Appendix E: Visual Support Materials to Assist in Transition***

- The Prentke Romich Company lists a range of free and commercially available therapy and teaching support materials that can assist in transition from Pixon manual communication boards to the use of a Unity® program. Go to [www.prentrom.com](http://www.prentrom.com) to review currently available materials.
- Gail M. Van Tatenhove, PA offers a range of free and commercially available therapy and teaching support materials that can assist in transition from Pixon manual communication boards to the use of a Unity® program. Go to [www.vantatenhove.com](http://www.vantatenhove.com) to review currently available materials. The following materials are recommended as the best choices to support transition: Natural Aided Language Boards and Minspeak Activity Scripts.