

Module: Visual Supports

Evidence-Based Practice Brief: Visual Supports

This evidence-based practice brief on visual supports includes the following components:

1. **Overview, which gives a quick summary of salient features of the practice, including what it is, who it can be used with, what skills it has been used with, settings for instruction, and additional literature documenting its use in practice**
2. **Steps for Implementation, detailing how to implement the practice in a practitioner-friendly, step-by-step process**
3. **Implementation Checklist, to be used to monitor fidelity of the use of the practice**
4. **Evidence Base Summary, which details the NPDC-ASD criteria for inclusion as an evidence-based practice and the specific studies that meet the criteria for this practice**

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Overview of Visual Supports

Hume, K. (2008). *Overview of visual supports*. Chapel Hill, NC: National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, The University of North Carolina.

Visual supports are any tool presented visually that supports an individual as he or she moves through the day. Visual supports might include, but are not limited to, pictures, written words, objects within the environment, arrangement of the environment or visual boundaries, schedules, maps, labels, organization systems, timelines, and scripts. They are used across settings to support individuals with ASD (National Research Council, 2001).

Evidence

Visual supports meet the evidence-based practice criteria within the early childhood, elementary, and middle school age groups.

With what ages are visual supports effective?

Visual supports can be implemented with individuals across the age range, beginning in preschool and extending through middle school age. Effective visual supports in early childhood settings include visual schedules to increase task engagement, visual scripts to encourage social interaction, and picture cues to support play skill development (Krantz & McClannahan, 1998; Massey & Wheeler, 2000; Morrison, Sainato, BenChaaban, & Endo, 2002). In elementary and middle school, visual supports such as schedules and picture cues have proven effective in reducing transition time, increasing on-task behavior, and in completing self-help in the home (Bryan & Gast, 2000; Dettmer, Simpson, Myles, & Ganz, 2000; MacDuff, Krantz, & McClannahan, 1993).

What skills or intervention goals can be addressed by visual supports?

Visual supports target a number of adaptive behavior skills, including task engagement, independent performance, transitions across activities, and increasing response chain length. Visual supports have also proven effective in increasing skills across curriculum areas, including the demonstration of play skills, social interaction skills, and social initiation. In addition, visual supports have been beneficial in reducing self-injurious behavior.

In what settings can visual supports be effectively used?

Visual supports have been used effectively in classroom settings and home settings. Visual supports are intended to be used as one component of comprehensive programming for individuals with ASD.

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Evidence Base

The studies cited in this section provide the basis upon which this practice was determined to meet the NPDC on ASD's criteria as an evidence-based practice. This list is not exhaustive and other quality studies may exist but were not found in our search.

Preschool

Dauphin, M., Kinney, E. M., & Stromer, R. (2004). Using video enhanced activity schedules and matrix training to teach sociodramatic play to a child with autism. *Journal of Positive Behavior Interventions, 6*, 238–250.

Johnston, S., Nelson, C., Evans, J., & Palazolo, K. (2003). The use of visual supports in teaching young children with autism spectrum disorder to initiate interactions. *AAC: Augmentative & Alternative Communication, 19*, 86-104.

Krantz, P. J., & McClannahan, L. E. (1998). Social interaction skills for children with autism: A script-fading procedure for beginning readers. *Journal of Applied Behavior Analysis, 31*, 191-202.

Massey, G., & Wheeler, J. (2000). Acquisition and generalization of activity schedules and their effects on task engagement in a young child with autism in an inclusive preschool classroom. *Education and Training in Mental Retardation and Developmental Disabilities, 35*, 326-335.

Morrison, R., Sainato, D., BenChaaban, D., & Endo, S. (2002). Increasing play skills of children with autism using activity schedules and correspondence training. *Journal of Early Intervention, 25*, 58-72.

Elementary and Middle School Age

Bryan, L., & Gast, D. (2000). Teaching on-task and on-schedule behaviors to high functioning children with autism via picture activity schedules. *Journal of Autism and Developmental Disorders, 30*, 553-567.

Dettmer, S., Simpson, R., Myles, B., & Ganz, J. (2000). The use of visual supports to facilitate transitions of students with autism. *Focus on Autism and Other Developmental Disabilities, 15*, 163-170.

Krantz, P., MacDuff, M., & McClannahan, L. (1993). Programming participation in family activities for children with autism: Parent's use photographic activity schedules. *Journal of Applied Behavior Analysis, 26*, 137-138.

MacDuff, G., Krantz, P., & McClannahan, L. (1993). Teaching children with autism to use photographic activity schedules: Maintenance and generalization of complex response chains. *Journal of Applied Behavior Analysis, 26*, 89-97.

O'Reilly, M., Sigafos, J., Lancioni, G., Edrisinha, C., & Andrews, A. (2005). An
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examination of the effects of a classroom activity schedule on levels of self-injury and engagement for a child with severe autism. *Journal of Autism & Developmental Disorders*, 35, 305-311.

Pierce, K., & Schreibman, L. (1994). Teaching daily living skills to children with autism in unsupervised settings through pictorial self-management. *Journal of Applied Behavior Analysis*, 27, 471-481.

Schmit, J., Alper, S., Raschke, D., & Ryndak, D. (2000). Effects of using a photographic cueing package during routine school transitions with a child who has autism. *Mental Retardation*, 38, 131–137.

Vaughn, B., & Horner, H. (1995). Effects of concrete versus verbal choice systems on problem behavior. *Augmentative and Alternative Communication*, 11, 89-92.

Selected Additional References

Cohen, M. J., & Sloan, D. L. (2007). *Visual supports for people with autism: A guide for parents and professionals*. Bethesda, MD: Woodbine House.

Mesibov, G., Shea, V., & Schopler, E. (2005). *The TEACCH approach to autism spectrum disorders*. New York: Plenum Press.

National Research Council (2001). *Educating children with autism*. Washington, DC: National Academy Press.

Quill, K. A. (1997). Instructional considerations for young children with autism: The rationale for visually cued instruction. *Journal of Autism and Other Developmental Disorders*, 27(6), 697-714.

Tissot, C., & Evans, R. (2003). Visual teaching strategies for children with autism. *Early Child Development and Care*, 174(4), 425-433.

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Evidence Base for Visual Supports

The National Professional Development Center on ASD has adopted the following definition of evidence-based practices.

To be considered an evidence-based practice for individuals with ASD, efficacy must be established through peer-reviewed research in scientific journals using:

- *randomized or quasi-experimental design studies*. Two high quality experimental or quasi-experimental group design studies,
- *single-subject design studies*. Three different investigators or research groups must have conducted five high quality single subject design studies, or
- *combination of evidence*. One high quality randomized or quasi-experimental group design study and three high quality single subject design studies conducted by at least three different investigators or research groups (across the group and single subject design studies).

High quality randomized or quasi experimental design studies do not have critical design flaws that create confounds to the studies, and design features allow readers/consumers to rule out competing hypotheses for study findings. High quality in single subject design studies is reflected by a) the absence of critical design flaws that create confounds and b) the demonstration of experimental control at least three times in each study.

Horner, R., Carr, E., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single subject research to identify evidence-based practice in special education. *Exceptional Children, 71*, 165-180.

Nathan, P., & Gorman, J. M. (2002). *A guide to treatments that work*. NY: Oxford University Press.

Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. D., Thompson, B., & Harris, K. (2004). *Quality indicators for research in special education and guidelines for evidence-based practices: Executive summary*. Arlington, VA: Council for Exceptional Children Division for Research.

Rogers, S. J., & Vismara, L. A. (2008). Evidence based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37*(1), 8-38.

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Using these criteria, the empirical studies referenced below provide documentation for supporting peer mediated instruction and intervention as an evidence-based practice. This list is not exhaustive; other quality studies may exist that were not included.

Preschool

Dauphin, M., Kinney, E. M., & Stromer, R. (2004). Using video enhanced activity schedules and matrix training to teach sociodramatic play to a child with autism. *Journal of Positive Behavior Interventions, 6*, 238–250.

Johnston, S., Nelson, C., Evans, J., & Palazolo, K. (2003). The use of visual supports in teaching young children with autism spectrum disorder to initiate interactions. *AAC: Augmentative & Alternative Communication, 19*, 86-104.

Krantz, P. J., & McClannahan, L. E. (1998). Social interaction skills for children with autism: A script-fading procedure for beginning readers. *Journal of Applied Behavior Analysis, 31*, 191-202.

Massey, G., & Wheeler, J. (2000). Acquisition and generalization of activity schedules and their effects on task engagement in a young child with autism in an inclusive preschool classroom. *Education and Training in Mental Retardation and Developmental Disabilities, 35*, 326-335.

Morrison, R., Sainato, D., BenChaaban, D., & Endo, S. (2002). Increasing play skills of children with autism using activity schedules and correspondence training. *Journal of Early Intervention, 25*, 58-72.

Elementary and Middle School

Bryan, L., & Gast, D. (2000). Teaching on-task and on-schedule behaviors to high functioning children with autism via picture activity schedules. *Journal of Autism and Developmental Disorders, 30*, 553-567.

Dettmer, S., Simpson, R., Myles, B., & Ganz, J. (2000). The use of visual supports to facilitate transitions of students with autism. *Focus on Autism and Other Developmental Disabilities, 15*, 163-170.

Krantz, P., MacDuff, M., & McClannahan, L. (1993). Programming participation in family activities for children with autism: Parent's use photographic activity schedules. *Journal of Applied Behavior Analysis, 26*, 137-138.

Elementary and Middle School

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- MacDuff, G., Krantz, P., & McClannahan, L. (1993). Teaching children with autism to use photographic activity schedules: Maintenance and generalization of complex response chains. *Journal of Applied Behavior Analysis, 26*, 89-97.
- O'Reilly, M., Sigafoos, J., Lancioni, G., Edrisinha, C., & Andrews, A. (2005). An examination of the effects of a classroom activity schedule on levels of self-injury and engagement for a child with severe autism. *Journal of Autism & Developmental Disorders, 35*, 305-311.
- Pierce, K., & Schreibman, L. (1994). Teaching daily living skills to children with autism in unsupervised settings through pictorial self-management. *Journal of Applied Behavior Analysis, 27*, 471-481.
- Schmit, J., Alper, S., Raschke, D., & Ryndak, D. (2000). Effects of using a photographic cueing package during routine school transitions with a child who has autism. *Mental Retardation, 38*, 131–137.
- Vaughn, B., & Horner, H. (1995). Effects of concrete versus verbal choice systems on problem behavior. *Augmentative and Alternative Communication, 11*, 89-92.

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Steps for Implementation: Visual Supports

Hume, K., & Smith, S. (2009). *Steps for implementation: Visual supports*. Chapel Hill, NC: The National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, The University of North Carolina.

This document includes steps for implementation for several visual supports including labels, locators, and visuals across the curriculum. To access step-by-step instructions for visual schedules or visual boundaries, please see the related *Steps for Implementation: Visual Schedules* or *Steps for Implementation: Visual Boundaries* in this module.

Step 1. Developing Visual Supports for Individual Learners

1. Teachers/practitioners determine WHAT information should be presented visually for the learner (e.g., upcoming events, location of specific materials, an academic concept).

This may include providing information about an upcoming event, the location of people or classroom materials, or an academic concept. Staff should consider the following questions when determining what activities, events, or concepts may require the use of a visual support:

- Does the activity, event, or concept cause frustration for the learner?
- Does the activity, event, or concept cause anxiety for the learner?
- Is a great deal of adult support required for the learner to be successful with the activity, event, or concept?
- Is the activity, event, or concept difficult for the learner to understand when only verbal information is provided?

If staff answer yes to any of these questions after assessing the situation, it is likely that the learner would benefit from a visual support.

Once the activity, event, or concept is identified, teachers/practitioners assess the learner's skills to ensure that the appropriate visual support is developed.

2. After selecting the information to be presented visually, teachers/practitioners conduct individualized assessments of learners' comprehension skills to select one of the following **forms of representation**:
 - a. *objects* (e.g., when cleaning up art supplies, an object such as a pair of scissors, an empty glue bottle, or a crayon would be attached to the outside of the container),
 - b. *photographs* (e.g., a photo of the speech therapist is placed on the calendar on days when therapy is to occur),
 - c. *drawing or picture symbols* (e.g., drawings of a home and a school as well as each student in the classroom can let learners know where peers are on a particular day),
 - d. *words* (e.g., one-word written prompts like "Name", "Sees...", "Does...", "Hears...", can be used along with graphics to prompt description of a book character),

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- e. *phrases or sentences* (e.g., written phrases such as “Incoming mail goes here” and “Attendance records go here” to help learner complete tasks), or
- f. combination of the above formats.

Step 2. Organizing Visual Supports for Individual Learners

In Step 2, teachers/practitioners organize the visual supports and related elements for the learner.

1. Teachers/practitioners ensure that all visual supports are gathered and arranged prior to activity/event (e.g., classroom locators/labels are properly positioned, calendars are in place, curriculum supports are paired with academic materials).

Step 3. Implementing Visual Supports for Individual Learners

1. Teachers/practitioners show the learner the visual support (e.g., locator, label, technology support).
2. Teachers/practitioners teach the learner how to use visual supports by:
 - a. showing the learner the visual support (e.g., a graphic organizer, locator, label, technology support);
 - b. standing behind the learner when prompting use of visual support (to ensure learner is looking at visual information, not the staff member);
 - c. using only relevant language while teaching use of visual support (e.g. “Today you have speech” rather than “Today is Thursday, Liz, and this picture of the speech therapist means you have speech today”);
 - d. assisting the learner in participating in activity/event with visual support (e.g., putting items away in labeled containers, completing activity with technology support); and
 - e. fading prompts as quickly as possible.
3. Once the learner has learned how to use the visual support, teachers’/practitioners’ prompts are minimal during support use.
4. Teachers/practitioners use visual supports consistently throughout the day.
5. Teachers/practitioners prepare the learner for changes in activity/event that requires use of visual support (e.g., if speech therapy or field trip is cancelled, if technology is not working correctly).
6. Visual supports move with the learner across settings OR visual supports are located across settings.
7. Teachers/practitioners use a data collection system to record how learners use visual supports. *Level of independence during use should be noted, as well as how learners have progressed through the various forms/types of visual supports throughout the year.*

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Steps for Implementation: Visual Schedules

Hume, K. (2009). *Steps for implementation: Visual schedules*. Chapel Hill, NC: The National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, The University of North Carolina.

Step 1. Overall Classroom/Environment Schedule

1. Teachers/practitioners display an overall classroom/environment schedule that indicates staff and learner assignments.

When developing the overall classroom/environment schedule staff must consider the following:

- the location where the overall schedule will be displayed (e.g., on the whiteboard in the front of the room, on a bulletin board),
- the format of the overall schedule (e.g., pictures, words, a combination or formats), and
- how/when the overall schedule will be used by staff/learners (e.g., Will staff reference it during morning meeting? Will learners manipulate it to indicate when activities are finished?).

Step 2. Developing Visual Schedules for Individual Learners

In Step 2, teachers/practitioners must complete a series of assessments to ensure that the appropriate schedule is developed for individual learners.

1. Teachers/practitioners conduct an individualized assessment of the learner's comprehension level, attention span, and sequencing abilities to select the appropriate **form of representation**.

The goal is for learners to use the schedule independently. Therefore, it is important for staff to choose a form that learners will be able to use independently after the initial teaching. Staff should choose from the following formats:

- a. objects that will be used in an activity (functional objects),
- b. objects that are symbolic of an activity (representational),
- c. photographs,
- d. drawing or picture symbols,
- e. words,
- f. phrases or sentences, or
- g. combination of the above formats.

For example, if a learner is able to understand two-dimensional representations (e.g., pictures in reading activity, matching pictures in an academic activity), staff may determine that photographs are a meaningful format for a visual schedule. If a learner requires three-dimensional representations to gain meaning from activities (e.g., not yet able to match photos in activities or respond to picture cues), staff should select objects as the appropriate format.

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Staff should be aware when choosing written formats that there is often a discrepancy between the decoding skills and the comprehension skills in children with ASD. Schedule format should be selected based on comprehension abilities.

2. Teachers/practitioners conduct an individualized assessment of the learner's comprehension level, attention span, and sequencing abilities to select the appropriate **schedule length and presentation format** (i.e., how much visual information will be visible to the learner at one time).

The goal is for learners to use the schedule independently so it is important for staff to choose a length that the learners will be able to use on his/her own after the initial teaching. Staff should choose from the following lengths and presentation formats:

- a. one item, signifying upcoming transitions;
- b. two items, presented left-to-right or top-to-bottom;
- c. three to four items, presented left-to-right or top-to-bottom;
- d. half-day, presented left-to-right or top-to-bottom; or
- e. full day, presented left-to-right or top-to-bottom.

Staff should keep in mind that if learners are not yet able to sequence, then presenting one piece of schedule information at a time is the appropriate length for initial implementation. In addition, many learners with ASD have anxiety about upcoming activities. The assessment process helps staff determine whether that anxiety is alleviated or exacerbated by the information on the schedule. Some learners benefit from seeing the sequence of activities that will occur throughout the day, while others benefit from seeing only several activities on their schedule at one time (too much visual information may be overwhelming).

3. Teachers/practitioners conduct an individualized assessment of the learner's comprehension level, attention span, and sequencing abilities to select the appropriate **method of manipulating the schedule**.

Staff should choose from the following:

- a. the learner carries an object that will be used in the upcoming activity,
- b. the learner carries an object/visual cue that represents an upcoming area. This object or visual cue is matched in the corresponding location (e.g., pocket, basket, envelope),
- c. the learner turns over the visual schedule cue/puts cue in a "Finished" location when activity is completed, or
- d. the learner marks off visual cue on schedule as completed.

If teachers/practitioners select functional objects as the appropriate schedule format for learners, learners will carry the object and use it in the next activity. For any other format (e.g., pictures, drawings, words), learners may manipulate the schedule cues in several different ways. Many learners benefit from carrying the schedule cue with them to the designated location and then matching the cue to a pocket or basket with the identical cue. Carrying the cue helps remind learners where they are going as they transition. Also, matching the item to an

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identical item lets learners know they have arrived in the correct location. If learners are able to remember where they are going without carrying the schedule information with them, they may instead indicate that the activity is finished before moving on to the next location. Learners may take off a visual cue and place it in a “Finished” pocket, move schedule cues into a “Finished” column, cross off items on a written schedule, or place a checkmark (✓) next to items when completed.

4. Teachers/practitioners conduct an individualized assessment of the learner’s comprehension level, attention span, and sequencing abilities to select the appropriate **location of the schedule**.

Staff should choose from the following:

- a. teachers/practitioners bring schedule information to the learner,
- b. a stationary schedule is placed in a central location (e.g., wall, shelf, desk), or
- c. the learner carries a portable schedule across locations (e.g., clipboard, notebook).

Learners who are new to schedule use, have difficulty with transitions, and/or have a limited attention span will likely be more successful if staff members bring schedule information to them. For example, if it is time for a learner to transition to the book center, staff would bring the schedule cue or the entire schedule to the learner. The learner would then carry that schedule cue with them to the book area. This is often most appropriate when initially teaching learners how to move through the designated spaces with the schedule cues. As learners become more adept in their transitions, staff may decide to place the schedule in a central location. When it is time to transition learners would go to the central location, get the schedule information, and then move to the assigned location. Finally, some learners may be capable of carrying their schedule with them from location to location. This requires a great deal of responsibility and organization as learners are required to keep up with the schedule at each location. This is often most appropriate for learners who are served in several locations (e.g. general education classes, resource classes).

5. Teachers/practitioners conduct an individualized assessment of the learner’s comprehension level, attention span, and sequencing abilities to select the appropriate **method to initiate schedule use** (e.g., transition from one activity to the next).

Staff should choose from the following:

- a. teachers/practitioners bring schedule information to the learner (as described above),
or
- b. the learner moves to the schedule using a visual transition cue.

When it is time for learners to transition, teachers/practitioners determine how learners will initiate use of their schedules. When teachers/practitioners bring the schedule information to the learner, it is a clear cue that it is time to transition. If the schedule is placed in a central location or if it is portable, a visual cue is required to let learners know it is time to use their schedules and move to a different location. A visual transition cue should be developed and used with learners. This visual cue can be an index card with the learner’s name on it, a photo of the

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learner, the words “Check Schedule” typed on a small card, or any other cue the staff and learners find meaningful. Along with the cue, staff should make a pocket or envelope to hang next to the learner’s schedule or to place on the schedule binder/clipboard. When the visual cue to transition is given, learners carry the visual cue to their schedule, place it in the matching pocket, get the next visual cue, and then move on to the next scheduled location.

6. Additional elements are added to visual schedules as necessary:
 - a. color coding,
 - b. times,
 - c. alignment with school bells,
 - d. motivational components (e.g., pictures of favorite characters), or
 - e. behavioral cues (e.g., reminders about specific expectations).

Step 3. Organizing Visual Schedules for Individual Learners

In Step 3, teachers/practitioners organize the visual schedule and related elements for the learner. This is accomplished by completing the following tasks:

1. Teachers/practitioners arrange the learner’s daily schedule prior to the learner’s arrival OR with the learner if the team deems appropriate. *For example, all materials needed for schedule use are ready and organized across settings (e.g., all objects/drawings/photos/written schedule items are gathered and presented appropriately).*

If objects are used it is helpful to organize these in a bin/basket. Alternatively, staff can wear an apron so the necessary objects are within close reach. If pictures/photos/written schedule cards are used it is helpful to gather all of the cards needed for the learner’s day and place them in a central location. Then as the learner needs them, they are readily available to place on the schedule or to give to learners. If schedules are written, it is helpful to have them written and ready before learners arrive.

Note: In some cases it may be appropriate for learners to organize their own schedules. For example, learners may review a master classroom schedule when they arrive and then write/type their individual schedule for the day.

2. Teachers/practitioners ensure that visual transition cues are in place, if appropriate.
3. Teachers/practitioners ensure that classroom/school areas are visually labeled with matching schedule components if appropriate (e.g., pocket with matching photo, object, icon).

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Step 4. Implementing Visual Schedules for Individual Learners

1. Teachers/practitioners give the learner a visual cue to transition the learner to the schedule OR bring schedule information to the learner.
2. Teachers/practitioners teach the learner how to transition to the schedule with a visual cue AND/OR how to transition to a location with schedule information by:
 - a. standing behind learner when prompting use of visual schedule (to ensure learner is looking at schedule information, not the staff member);
 - b. placing schedule information in the learner's hand;
 - c. using only relevant language, identifying the location where the learner is going (i.e., "Play area" instead of "Come on, Steve, we're going over to the play area. I think you are going to love it!");
 - d. assisting the learner in getting to designated activity/location, and prompting learner to place schedule materials in appropriate location (e.g., to use the material if it is a functional object, or to match the material if appropriate);
 - e. ensuring that the learner remains in scheduled activity/location until next transition cue is given;
 - f. repeating steps "a" through "e" above until learner is able to complete this sequence independently across activities/locations; and
 - g. fading prompts as quickly as possible.
3. Once the learner has learned how to use the visual schedule, teachers'/practitioners' prompts are minimal during schedule use.
4. Individual learner's schedule use is consistent throughout the day.
5. Visual transition cue use is consistent throughout the day if appropriate.
6. Teachers/practitioners prepare the learner for changes in scheduled activities (e.g., visual cue to indicate a cancelled/new activity).
7. Individual learner schedules move with learners across settings OR elements of visual schedules are located across settings.

When information is presented to learners on their visual schedules, teachers/practitioners do their best to ensure that the activities will occur. Consider a visual schedule a "visual promise" to the learners. Sometimes, however, the unforeseen occurs and an activity that has been placed on a learner's schedule cannot occur due to a change in plans, staff absence, or weather changes (e.g., indoor recess, cancellations). When this happens, it is important that staff implement a procedure to teach their learners about the upcoming change. It is best to explicitly teach this process; in essence, to practice several "planned" changes before an unexpected change occurs. For example, learners may have a visual cue that indicates that math group is coming next on their schedule. The teacher/practitioner places a "CHANGE" card on top of the math cue and places a new schedule card on the schedule. When initially teaching this concept, it is helpful to remove a non-preferred item from the schedule and replace it with a preferred

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activity, such as computer. Next, teachers/practitioners change from a neutral activity to another neutral activity, and finally remove a preferred activity (such as recess) and replace it with a non-preferred activity (staying indoors).

8. Teachers/practitioners use a data collection system to record how learners use visual schedules. *Level of independence during use should be noted, as well as how learners have progressed through the various forms/lengths of visual schedules throughout the year (e.g., learners may use a short sequence of photographs at the beginning of the year, but as skills are gained, they may use a partial-day written schedule later in the year).*

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Steps for Implementation: Visual Boundaries

Smith, S., & Collet-Klingenberg, L. (2009). *Steps for implementation: Visual boundaries*. Madison, WI: The National Professional Development Center on Autism Spectrum Disorders, Waisman Center, University of Wisconsin.

Visual boundaries are a specific type of visual support that use furniture arrangement, labeling, and color coding to make the use of a particular space more obvious. For specific steps for implementation for visual schedules or visual supports, please see the related Steps for Implementation: Visual Schedules or Steps for Implementation: Visual Supports in this module.

Step 1. Defining the Need

1. Teachers/practitioners identify visual supports required by learners to acquire or maintain target skills.

Some questions to ask in determining and defining the need for visual boundaries include:

- Is there a safety concern?
- Does the learner have difficulty staying in one place?
- Does the learner know what s/he is to be working on in an area?
- Does the learner have trouble staying in one place?
- Does the learner ever leave a location because of frustration?
- Does the learner ever have difficulty with entering others' work space and or making use of others' work or personal materials?

Answers to these, and other questions, will lead teachers/practitioners to prioritize the need for visual boundaries and make clear the settings in which boundaries will be useful.

Step 2. Defining the Boundary

1. Teachers/practitioners define or establish where the visual boundary is or should be, if it does not yet exist.

Establishing the visual boundary will support learners so that they know where things begin and end, where they should be during a specific time of day, and what tasks or activities to do in a specific area or setting.

2. Teachers/practitioners use natural physical boundaries, objects, and furniture to clearly designate the boundary area

Some ways to do this include using furniture (e.g., tables, chairs, cubicles, wall partitions) to block off a particular area. When furniture is not available or it is not convenient to rearrange,

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you may use tape on the floor and wall to designate an area. Another strategy is to get a section of carpet in the size of the area you want to designate and use it to mark the boundaries. Labels may be used to individualize an area as well. For instance, in classrooms that have desks and cubicles for students to use for independent work time, the teacher may allow students to make a name sign to hang on their desks or on the wall over their desks. In some situations, it is appropriate to allow learners to decorate their own area, another way to define a boundary.

Step 3. Teaching the Boundary

Some important points to remember when helping learners recognize and use their own visual boundaries include the following:

- it is only through use of boundaries that learners will find them meaningful;
- it may take time for learners to incorporate appropriate use of visual boundaries into their ongoing routines;
- some visual boundaries will be temporary, others may be used indefinitely; and
- pairing obvious aspects of the boundary with language or aspects of the activity done in that area will help learners make meaningful connections between the space and their own actions.

1. Teachers/practitioners introduce the learner to established boundaries.

Once the boundary has been defined and visual supports have been put in place, it is important to introduce the learner to the boundaries (even if the learner is not new to the setting or the required activities of that setting). Teachers/practitioners may walk with the learner into the boundary area, pointing out the more salient aspects of the boundary and linking them verbally to activities done in that area. For example, Mr. Davis may walk with Bob as he enters the classroom to his desk and cubicle area and say, "Look, Bob. We hung your nameplate on the wall over your desk. This is where you sit to read during silent reading time." Another example might be a class-related boundary. Ms. Roark may point out to an entire class, "These black tables are where we do experiments in science. When we do experiments, it is important to stay at the black table until I check you out for the day."

2. Teachers/practitioners use modeling to teach the learner to stay within the boundary.

Teachers and other learners can model the appropriate use of boundaries. In a preschool or elementary classroom, the teacher might say aloud, "When I want to play with trains, I use the train table. The trains and tracks have to stay on the table until I am finished playing. Then they go back in their box." Video modeling may be an effective method for demonstrating and providing mental rehearsal of the use of a specific area. For instance, older learners who work in a cafeteria might prepare for work by watching videos of themselves using the automatic conveyer belt and hand sprayer to wash dishes in one section of the kitchen. A voiceover can be added that points out the appropriate behaviors for that area.

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3. Teachers/practitioners model and use reinforcement when learners stay within the boundary.

Just as it is appropriate to model the correct behavior and use of a specific area with visual boundaries, it is good practice to also model the reinforcement that goes along with it. For learners who may use a special piece of furniture such as a train table, the teacher can provide verbal praise for use of the equipment and for cleaning up afterward. In a work setting, the supervisor can model verbal praise and point out the aspects of the job well done in a certain area. For example, "Joe, you stayed at the dishwasher for half an hour and now you are caught up on the dishes. Good work!"

4. Teachers/practitioners model and use corrective feedback when learners do not stay within the boundary.

When learners do not use designated areas appropriately (e.g., sleeps instead of reading at his desk) or does not stay in the designated area (e.g., leaves the group table before group time is finished), it is important for the adult in charge to give calm and specific correction. In the first example, the teacher might wake up the learner and remind him, "Your cubicle is not to sleep in, go get a drink of water and then come back and read." For a learner who has previously demonstrated the correct use of the visual boundary, the teacher might give a more indirect prompt by asking, "What are you supposed to be doing at your cubicle during this time?"

An important part of corrective feedback is to follow through with directions and expectations. For instance, if the learner is sleeping at his cubicle, where he was sent to read, it is not enough to wake him up and ask him what he should be doing. Even if he gives the right answer, be sure to stay there or pay attention long enough to ensure that he turns his attention toward the appropriate activity. When he does, be sure to praise him for doing the right thing. If he does not, you may have to repeat the correction. *Hint: For some learners with ASD, breaking up the routine they are stuck in may help get them back to the correct behavior. So, sending the sleepy student for a drink or having him complete a short moving task may be enough to redirect him. Just be sure to not let learners get distracted and not follow through with the appropriate use of the space.*

5. Teachers/practitioners are consistent with boundary settings.

This may seem straightforward, but it can sometimes be tempting to allow learners to waver "just this once." For many learners with ASD, consistency is an important part of their organizational structure. It can become confusing to them if an area that has a designated use and clear visual boundaries is allowed to be used for too many activities. Therefore, it is important for staff to remain consistent in expectations, reinforcement, correction, and follow-through of the use of visual boundaries.

Step 4. Evaluating Success

Module: Visual Supports

1. Teachers/practitioners collect data on learners' use of boundaries.

Data should be collected on the learner's use of visual boundaries. Information can be gathered on how much time a learner spends in an area, how much of that time is spent engaged in the designated activity for that area, and how much support (e.g., prompts, reminders) the learner needs.

2. Teachers/practitioners collect data on learners' related target behaviors.

Data should also be collected on the learner's target behaviors that are related to the use of visual boundaries. This may include time on-task (or off-task), time spent in the area and on appropriate activities, the amount of self-stimulation in which a learner engages, the amount of work completed, etc. This information will be helpful in determining the effectiveness of the visual boundary as it relates to learner behaviors and goals.

3. Teachers/practitioners make data-based decisions regarding the effectiveness of established boundaries.

Data gathered on the use of boundaries and their impact on learner behaviors or goals can be utilized by case managers and other staff to determine frequency, type, and amount of instruction a learner needs to meet goals. These data may also be used to make instructional decisions related to the use, discontinued use, or expansion of visual boundaries to support the learner across the day, tasks, and settings.

4. Teachers/practitioners monitor on-going effectiveness of boundaries and their impact on learner behaviors.

Long-term monitoring of the effectiveness of visual boundaries is an important part of the successful use of this evidence-based practice. Often, we use techniques or strategies because they have always been there, regardless of how effective they are. By collecting and using data to inform instructional decision-making, we can make the best use of our time and the time of our learners and their families, as well as capitalizing on strategies and supports that promote success. Sometimes visual boundaries have positive effects on learners who were not being targeted by the intervention. For example, for a specific learner, we may use visual boundaries to highlight that a specific table is used for group time and find that other learners catch on and model the appropriate use of the table for the learner and for one another.

Module: Visual Supports

Implementation Checklist for Visual Supports

Note: Implementation guidelines for visual schedules, to-do lists, transition supports, community supports, and supports outside the classroom can be found on the *Implementation Checklist for Visual Schedules*. Implementation guidelines for visual boundaries can be found on the *Implementation Checklist for Visual Boundaries*.

Hume, K., & Smith, S. (2009). *Implementation checklist for visual supports*. Chapel Hill, NC: The National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, The University of North Carolina.

Instructions: The Implementation Checklist includes steps for the development and implementation of visual supports. Please complete all of the requested information including the site and state, individual being observed/interviewed, and the learner’s initials. To assure that a practice is being implemented as intended, an observation is *always* preferable. This may not always be possible. Thus, items may be scored based on observations with the implementer, discussions and/or record review as appropriate. Within the table, record a 2 (implemented), 1 (partially implemented), 0 (did not implement), or NA (not applicable) next to each step observed to indicate to what extent the step was implemented/addressed during your observation. Use the last page of the checklist to record the target skill, your comments, whether others were present, and plans for next steps for each observation.

Site: _____ State: _____

Individual observed: _____ Learner’s Initials: _____

Skills below can be implemented by a practitioner, parent, or other team member

	Observation	1	2	3	4	5	6	7	8	
	Date									
	Observer’s Initials									
Planning (Steps 1 – 2)										
Step 1. Developing Visual Supports for Individual Learners					Score**					
1. Determine WHAT information should be presented visually for the learner (e.g., upcoming events, location of specific materials, an academic concept). <i>Note: Look for activities/events across environments that are causing frustration/anxiety for learners, that require a great deal of adult support, and/or that learners’ comprehension of expectations may be compromised.</i>										
**Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable										

Module: Visual Supports

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 1. Developing Visual Supports for Individual Learners (Cont.)	Score**								
<p>2. After selecting the information to be presented visually, conduct individualized assessments of the learner's comprehension levels to select one of the following forms of representation:</p> <p>a. object (e.g., furniture provides the most meaningful visual boundary, a piece of an activity such as a peg or puzzle piece attached to the outside of a container is the most meaningful label),</p> <p>b. photograph (e.g., photo of the speech therapist lets the learner identify days for therapy, photo of learner's shirt is on outside of drawer so learner can get appropriate clothing),</p> <p>c. drawing or picture symbol (e.g., stop sign used in classroom areas to designate boundaries, calendar with icons that represent upcoming field trips),</p> <p>d. word (e.g., learner's desk and chair labeled with learner's name, graphic organizer used when writing a story with learner),</p> <p>e. phrase or sentence (e.g., learners read notes on PDA from teacher that describes who they will be working with that day, office area labeled with "Incoming mail goes here," "Attendance records go here"), or</p> <p>f. combination of the above formats.</p>									

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Module: Visual Supports

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 2. Organizing Visual Supports for Individual Learners (cont.)	Score**								
1. Ensure that all visual supports are gathered and arranged prior to activity/event (e.g., classroom locators/labels properly positioned, curriculum supports paired with academic materials).									
<i>Intervention & Monitoring (Step 3)</i>									
Step 3. Implementing Visual Supports for Individual Learners									
1. Show the learner the visual support (e.g., locator, label, technology support).									
2. Teachers/practitioners teach the learner how to use the visual support by:									
a. showing the learner the visual support (e.g., a graphic organizer, locator, label);									
b. standing behind the learner when prompting use of visual support (to ensure learner is looking at visual information, not the staff member);									
c. using only relevant language while teaching use of visual support (e.g., "Today you have speech" rather than "Today is Thursday, Liz, and this picture of the speech therapist means you have speech today");									
d. assisting the learner in participating in activity/event with visual support (e.g., staying in location with visual boundaries, putting items away in labeled containers); and									
e. fading prompts as quickly as possible.									
3. Once the learner has learned how to use the visual support, prompts are minimal during support use.									
4. Use visual support consistently throughout the day.									

Module: Visual Supports

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 3. Implementing Visual Supports for Individual Learners (cont.)	Score**								
5. Teachers/practitioners prepare the learner for changes in activity/event that requires use of visual support (e.g., speech therapy or field trip is cancelled, technology is not working correctly).									
6. Visual supports move with the learner across settings, OR visual supports are located across settings.									
7. Teachers/practitioners use a data collection system to record how learners use visual supports.									

***Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable*

Module: Visual Supports

Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps

Module: Visual Supports

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Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
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Module: Visual Supports

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Module: Visual Supports

Implementation Checklist for Visual Schedules

Adapted from the "Checklist for Individualization of Visual Schedules" by Division TEACCH

Hume, K. (2009). *Implementation checklist for visual schedules*. Chapel Hill, NC: The National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, The University of North Carolina.

Instructions: The Implementation Checklist includes steps for the development and implementation of visual schedules. Please complete all of the requested information including the site and state, individual being observed/interviewed, and the learner's initials. To assure that a practice is being implemented as intended, an observation is *always* preferable. This may not always be possible. Thus, items may be scored based on observations with the implementer, discussions and/or record review as appropriate. Within the table, record a 2 (implemented), 1 (partially implemented), 0 (did not implement), or NA (not applicable) next to each step observed to indicate to what extent the step was implemented/addressed during your observation. Use the last page of the checklist to record the target skill, your comments, whether others were present, and plans for next steps for each observation.

Site: _____ State: _____
Individual(s) Observed: _____ Learner's Initials: _____

Skills below can be implemented by a practitioner, parent, or other team member

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Planning (Steps 1 – 3)									
Step 1. Implementing Overall Classroom/Environment Schedule					Score**				
1. Prominently display an overall classroom/environment schedule that indicates staff and learner assignments.									
Step 2. Developing Visual Schedules for Individual Learners									
1. Conduct an individualized assessment of the learner's comprehension level, attention span, and sequencing abilities to select the appropriate form of representation :									
<ul style="list-style-type: none"> a. functional object that is used in an activity, b. object that is symbolic of an activity, c. photograph, d. drawing or picture symbol, e. word, f. phrase or sentence, or g. combination of "a" through "f" above. 									

** Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable

Module: Visual Supports

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 2. Developing Visual Schedules for Individual Learners (cont).	Score**								
<p>2. Conduct an individualized assessment of the learner's comprehension level, attention span, and sequencing abilities to select the appropriate schedule length and presentation format (i.e., how much visual information will be visible to the learner at one time).</p> <p>a. one item, signifying upcoming transition; b. two items, presented left-to-right or top-to-bottom; c. three to four items, presented left-to-right or top-to-bottom; d. half day, presented left-to-right or top-to-bottom; or e. full day, presented left-to-right or top-to-bottom.</p>									
<p>3. Conduct an individualized assessment of the learner's comprehension level, attention span, and sequencing abilities to select the appropriate method of manipulating the schedule.</p> <p>a. the learner carries an object to use, b. the learner carries an object/visual cue to match in corresponding location, c. the learner turns over visual cue/puts visual cue in a "Finished" pocket as completed, or d. the learner marks off visual cue on schedule as completed.</p>									
<p>4. Conduct an individualized assessment of the learner's comprehension level, attention span, and sequencing abilities to select the appropriate location of the schedule.</p> <p>a. teachers/practitioners bring schedule information to the learner, b. a stationary schedule is in a central location (e.g., wall, shelf, table), or c. the learner carries a portable schedule (e.g., clipboard, notebook).</p>									

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Module: Visual Supports

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 2. Developing Visual Schedules for Individual Learners (cont).	Score**								
5. Conduct an individualized assessment of the learner's comprehension level, attention span, and sequencing abilities to select the appropriate method to initiate schedule use (e.g., transition from one activity to the next). a. teachers/practitioners bring schedule information to the learner or b. the learner moves to the schedule using a visual transition cue.									
6. Additional elements are added to visual schedules as necessary: a. color coding, b. times, c. alignment with school bells, d. motivational components (e.g., pictures of favorite characters), or e. behavioral cues (e.g., reminders about specific expectations).									
Step 3. Organizing Visual Schedules for Individual Learners									
1. Arrange the learner's daily schedule prior to the learner's arrival OR with the learner if the team deems appropriate. <i>For example, all materials needed for schedule use are ready and organized across settings (e.g., all objects/drawings/photos/written schedule items are gathered and presented appropriately).</i>									
2. Ensure that visual transition cues are in place, if appropriate.									
3. Ensure that classroom/school areas are visually labeled with matching schedule components if appropriate (e.g., pocket with matching photo, object, icon).									

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Module: Visual Supports

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Intervention and Monitoring (Step 4)									
Step 4. Implementing Visual Schedules for Individual Learners	Score**								
1. Give the learner a visual cue to transition the learner to the schedule OR bring schedule information to the learner.									
2. Teach the learner how to transition to the schedule with a visual cue AND/OR how to transition to a location with schedule information by:									
a. standing behind the learner when prompting use of visual schedule (to ensure learner is looking at schedule information, not the staff member),									
b. placing schedule information in the learner's hand,									
c. using only relevant language, identifying the location where the learner is going (i.e., "Play area," NOT "Come on, Steve, we're going over to the play area. I think you are going to love it!"),									
d. assisting the learner in getting to the designated activity/location, and prompt the learner to place schedule materials in the appropriate location,									
e. ensuring that the learner remains in schedule activity/location until next transition cue is given,									
f. repeating steps "a" through "e" above until learner is able to complete this sequence independently across activities/locations, and									
g. fading prompts as quickly as possible.									

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Module: Visual Supports

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 4. Implementing Visual Schedules for Individual Learners (cont.)	Score**								
3. Once the learner has learned how to use the visual schedule, prompts are minimal during schedule use.									
4. Individual learner's schedule use is consistent throughout the day.									
5. Visual transition cue use is consistent throughout the day if appropriate.									
6. Prepare the learner for changes in scheduled activities (e.g., visual cue to indicate a cancelled/new activity).									
7. Individual learner schedules move with the learner across settings OR elements of visual schedules are located across settings.									
8. Use a data collection system to record how learners use visual schedules. <i>Level of independence during use should be noted, as well as how learners have progressed through the various forms/lengths of visual schedules throughout the year (e.g., learners may use a short sequence of photographs at the beginning of the year, but as skills are gained, they may use a partial-day written schedule later in the year).</i>									

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Module: Visual Supports

Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
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Module: Visual Supports

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Module: Visual Supports

Implementation Checklist for Visual Boundaries

Smith, S., & Collet-Klingenberg, L. (2009). *Implementation checklist for visual boundaries*.
Madison, WI: The National Professional Development Center on Autism Spectrum
Disorders, Waisman Center, University of Wisconsin.

Instructions: The Implementation Checklist includes steps for the development and implementation of visual schedules. Please complete all of the requested information including the site and state, individual being observed/interviewed, and the learner's initials. To assure that a practice is being implemented as intended, an observation is *always* preferable. This may not always be possible. Thus, items may be scored based on observations with the implementer, discussions and/or record review as appropriate. Within the table, record a 2 (implemented), 1 (partially implemented), 0 (did not implement), or NA (not applicable) next to each step observed to indicate to what extent the step was implemented/addressed during your observation. Use the last page of the checklist to record the target skill, your comments, whether others were present, and plans for next steps for each observation.

Site: _____ State: _____

Individual(s) Observed: _____ Learner's Initials: _____

Skills below can be implemented by a practitioner, parent, or other team member

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
<i>Planning (Steps 1 – 2)</i>									
Step 1. Defining the Need	Score**								
1. Identify visual supports required by learners to acquire or maintain skills.									
Step 2. Defining the Boundary									
1. Define or establish where the visual boundary is or should be, if it does not yet exist.									
2. Use natural physical boundaries, objects, and furniture to clearly designate the boundary.									
<i>Intervention (Step 3)</i>									
Step 3. Teaching the Boundary									
1. Introduce the learner to established boundaries.									

Module: Visual Supports

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 3. Teaching the Boundary (cont.)	Score**								
2. Use modeling to teach the learner to stay within the boundary.									
3. Model and use corrective feedback when learners do not stay within the boundary.									
4. Teachers/practitioners are consistent with boundary settings.									
<i>Progress Monitoring (Step 4)</i>									
Step 4. Evaluating Success									
1. Teachers/practitioners collect data on learners' use of boundaries.									
2. Teachers/practitioners collect data on learners' related target behaviors.									
3. Teachers/practitioners make data-based decisions regarding the effectiveness of established boundaries.									
4. Teachers/practitioners monitor on-going effectiveness of boundaries and their impact on learner behaviors.									

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Module: Visual Supports

Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
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Module: Visual Supports

Date	Observer Initials	Targeted Skill/Behavior, Comments, and Plans for Next Steps
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