



Case Study: Evan and Kayla, Grade 5

Students' Backgrounds: Evan is a 12-year old boy in the fall semester of his fifth-grade year. Evan has Cornelia de Lange Syndrome, impairing his communication skills which consist mostly of facial expressions and unintelligible vocalizations. Evan uses a single switch device and individual symbols or objects which he activates both independently and with appropriate verbal and physical supports. Evan is missing the lower portion of both arms, though he is able to use his arms, feet, and mouth to explore objects. He participates in academic instruction by exploring real objects used in the lesson and by choosing from an array of objects or symbols to respond when given verbal and physical prompts. Although he uses a switch and symbols to communicate, he is eager to 'talk' with his peers, participate in class discussions and answer questions posed by his teacher. He is also most communicative when he is engaged in opportunities to explore his environment through tactile learning opportunities.

Evan's classmate, Kayla, is a 12-year old, fifth-grade girl. Kayla has been diagnosed with cerebral palsy, seizures, cortical visual impairment, and severe cognitive impairments. Like Evan, she is non-verbal and communicates through facial expressions and vocalizations and uses adaptive switches to activate cause/effect activities that give strong sensory feedback. Because she has no vision in the left eye and limited, fluctuating vision in the right eye, for instruction Kayla requires large, brightly-colored objects and tactile graphics paired with pictures. For Kayla, all visuals are presented to the right of mid-line at a distance of 10-12 inches on a high contrast background without glare. Kayla responds to all types of vocal interaction with others by smiling and making cooing sounds; she also has a penchant for music which seems to put her in a contented mood.

High-Quality Planning and Instruction: Fifth-grade students in the general education classroom are learning how to use the scientific method for investigations. Their self-contained teacher, Ms. Smith, reviews the lesson in advance and determines that Evan and Kayla will both require extensive, additional supports to meet the expectations, specifically in accessing materials and communication icons. This requires multiple adaptations to the general education teacher's lesson plan. Ms. Smith consults with the speech therapist and the [Adapting Lesson Plans](#) resource document on the Louisiana Believes website. Having identified the standard and lesson of the class, Ms. Smith and the speech therapist determine the Louisiana Connector for Louisiana Student Standard by consulting the [Louisiana Connectors](#) document.

Grade 5 Science MATTER AND ITS INTERACTIONS	
Louisiana Student Standards	Louisiana Connectors (LC)
5-PS1-4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	LC-5-PS1-4b Identify the changes that occur when two or more substances are mixed using evidence provided from data.

Together, they determine the visual supports needed for their students and the background knowledge for the materials they will use: water, Gummy Worms, plastic cups, salt, vinegar and sugar. The speech therapist works with both students to develop their language in preparation for the lesson and previews the visuals during the time she has with them prior to the classroom lesson. Photographs of items are provided for Evan and used in combination with his single voice output switch while Kayla is provided with visual symbols that are 3-4", colored icons on a pale blue background. Real, tactile objects are paired with the visual supports for both students. The speech therapist also reinforces the vocabulary symbols that will be used, including "more", "help", "stop", "like it", and "don't like it" whereas fringe vocabulary includes: "water", "Gummy Worms", "cup", "salt", "vinegar", "sugar", "bigger", "smaller" and "same".



Case Study: Evan and Kayla, Grade 5

Though Evan has limited ability to manipulate items, he uses his nubs to activate a single switch and grasp an object. Kayla requires physical assistance to locate and manipulate objects and symbols. The teacher, Ms. Smith, and the speech therapist work closely together, with the teacher conducting the lesson and the speech therapist assisting Evan and Kayla with appropriate verbal prompts and visual cues. The speech therapist has used all these symbols during previous therapy sessions to “prime” Kayla and Evan since communication is the main goal for any activity they participate in during their educational day. The materials are presented one at a time and paired with the appropriate visual for each student. Kayla and Evan are both given the opportunity to touch, taste and/or smell the water, vinegar, salt and sugar as the teacher discusses each item and refers to the visual representation. Symbols for their core vocabulary terms are available to allow them to comment on the taste and smell. The teacher asks, “Did you like the sugar water?” Kayla does not respond but Evan attempts to taste it again by thrusting his head toward the spoon. The teacher then narrates, “Oh, you want more sugar water,” as she points to the picture of “more”.

Four solutions - water, salt water, vinegar and sugar water - are prepared with the students using an adapted measuring cup and spoons to make the solutions. Each is then labeled with the visual representation. The students are provided with physical assistance to put a Gummy worm in each of the four solutions. Verbal descriptions are provided as the students wait to see if any physical changes are taking place. Given physical assistance, the students remove the worms from the solutions and with the use of adapted rulers and scales, the students measure and weigh the worms. Mrs. Smith has prepared a vertical chart with the visual of the four solutions across the top. A strip of soft Velcro is placed vertically under each symbol providing the students with the opportunity to place the symbol “bigger”, “smaller” or “same”, under each icon as they compare and contrast the Gummy Worms they take out of the solution. The teacher asks Kayla, “Is this worm bigger or smaller?” as she points to the symbols on the trifold board. With an elbow prompt, Kayla points to a symbol and puts it on the chart. Evan is asked the same question and responds by activating his voice output switch and says “bigger”. Evan cannot hold a symbol so the teacher uses partner-assisted scanning as she points to each picture on the chart. She gives Evan time to respond with a smile to indicate his choice, and the teacher responds in kind, “That’s right, the worm is bigger,” as she places the symbol on the chart. Each student is asked additional questions, “Is this worm the same?” and “Is this worm different?” which gives the students multiple communication opportunities during the activity. The speech therapist gives verbal cues so that Evan makes comments during the experiment. “Tell Ms. Smith you like it,” she reminds him as she gives Evan an elbow prompt to activate his communication device.

Symbols are placed on Evan’s communication device and Kayla is given the symbols in an array of two on a tri-fold board. These adaptations allow these two students to appropriately participate in an age-appropriate science project as well as have multiple opportunities to use their communication systems and demonstrate their understandings. For a coming lesson, their teacher considers combining today’s standard with a more functional lesson, substituting Gummy Worms and water with two substances that will be important to recognize in everyday life such as common cooking ingredients.