CHAPTER 9

Teaching Academic Skills to Elementary-Age Students With Intellectual Disability

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Learning Objectives

After reading Chapter 9, you should be able to:

- Understand how standards guide educational planning for elementary-aged students with intellectual disability.
- Identify academic instructional procedures across content areas.
- Summarize instructional prompting procedures.
- Discuss evidence-based practice for teaching academics to elementary-aged students with intellectual disability.

Elementary School

For children with intellectual disability, the elementary school years are critical for developing a variety of skills including academic, social, and functional life skills. The years spent in elementary school allow children to connect with others, learn about the world, and imagine possibilities for the future. For the

purposes of this chapter, we will define elementary school as kindergarten through eighth grade. Although instructional strategies and content presented will differ across grade levels, elementary school is a time in the life of each child that is highlighted by opportunities to learn, grow, and develop lifelong skills. Unique to elementary school are opportunities for students with intellectual disability to learn a variety of skills across different settings, such as team building during physical education, choice making in the cafeteria, and developing social skills in the general education classroom and during recess.

Access to the General Education Curriculum and Environment

The Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004, PL 108–446) mandates participation in the general education curriculum for all students with disabilities. While exposure to this curriculum is required, regardless of where services are provided, there are at least two specific reasons for considering the extent to which students with intellectual disability participate in general education classes. Participation in general education classes is an evidence-based practice directly related to academic outcomes for elementary students with disabilities. Students with intellectual disability who are educated in inclusive settings perform much better on measures of both social and adaptive behavior than similar students in self-contained settings (that is, separate classes or special schools). Students with mild, moderate, and even severe intellectual disability should be educated with peers without disabilities, to some extent, in order to access a teacher with expertise in the academic core content subject, learning materials and tools specific to that subject, and opportunities for learning alongside typical peers who can provide natural supports (Carter, Sisco, Brown, Brickham, & Al-Khabbaz, 2009; Hunt, McDonnell, & Crockett, 2012; Jimenez, Browder, Spooner, & DiBiase, 2012; Ryndak, Jackson, & White, 2013).

The general education classroom provides specific contextual factors, including "features of the physical setting, the activities, roles and contributions of the participants, the timing of events, and the interpersonal relationships" not often present or easily replicated in more segregated settings (Jackson, Ryndak, & Wehmeyer, 2009, p. 179). Moreover, Jackson and his colleagues (2009) observed increased opportunities for incidental and imitative learning as well as the inherent difficulties of providing general education curriculum

instruction explicitly linked to grade-level academic content standards in self-contained classrooms, where special educators typically have simultaneous teaching responsibilities for students across multiple grades or age levels.

The importance of access to general education classrooms for elementary students with intellectual disability was also accentuated by the earlier work of Fisher and Meyer (2002). Fisher and Meyer found significantly higher gains for students in inclusive settings in both adaptive behavior and social competence than for their counterparts in self-contained settings. Although this study did not target academic achievement per se, the social competence measure included skills such as initiating interactions, self-managing one's own behavior, making choices among alternatives, and obtaining relevant cues—all essential skills for accessing the general education curriculum, regardless of the setting in which that curriculum is taught.

Overview of Academic Skills for Elementary-Age Students

When determining which academic skills are important for elementary students with intellectual disability, there are several factors to consider. First, the individualized education program (IEP) outlines the specific long-term goals and short-term objectives for each child who receives special education services. (Note, under IDEA 2004, short-term objectives are only required in an IEP for students who take alternate assessments aligned with alternate achievement standards.) Created by a collaborative team of stakeholders, the IEP is reflective of all skill areas, including academics, needed for the learner to be successful and receive a free appropriate public education. After considering the unique needs of the student, the IEP team should recommend the programmatic inclusion of relevant and important academic skills for the individual child. These academic skills include those appropriate for both current and future settings. It is important for IEP teams to think about possible future environments and careers for the elementary student with intellectual disability in order to fill any gaps that may be present in his or her education. It is with the future in mind that special educators design and develop programming to reflect independent living and adult life goals for all children with intellectual disability.

In addition to the IEP goals and objectives, there are other considerations when choosing academic skills and content. Specifically, academic content for

all students must relate to general education content standards. The **Common Core State Standards (CCSS)** are standards that outline the English/language arts and mathematics skills that all children in kindergarten through twelfth grade should know at the end of each grade level, for states that adopted these standards (refer to Chapter 3 for additional information regarding the CCSS as well as www.corestandards.org). Note many states also have implemented content standards in other areas such as science and social studies. Students in kindergarten through eighth grade in general education classes work toward these grade-by-grade content standards. Content standards—including the CCSS—are critical for students in elementary settings with intellectual disability, as they serve as indicators of developmentally appropriate content. Teachers of individuals with intellectual disability should refer to the CCSS when adapting content to meet the unique needs of each learner. Once special educators have analyzed the CCSS—or appropriate state standards for those states that did not adopt the CCSS—to determine age- and grade-level-appropriate standards, the IEP team can determine which standards are important to include for the individual learner. It is also noteworthy that IEP goals should reflect back to a grade-level-appropriate content standard (Yell, 2016).

The CCSS were designed to facilitate consistency for students across schools nationwide regardless of factors such as socioeconomic status or school system resources. There are advantages and disadvantages to implementing the CCSS or other standards-based curricula for all children, including those with intellectual disability (see Table 9.1 for some of the advantages and disadvantages). In spite of the disadvantages, the majority of states require all students to have access to the content of the CCSS, regardless of ability or disability.

In order to provide access to grade-level content for students with intellectual disability, teachers have access to alternative and extended standards. All states have alternate assessments based on alternate achievement standards for students with the most significant disabilities (Browder & Spooner, 2011). Most students with moderate to severe intellectual disability (up to 1% of the students in a school district according to federal law) will qualify for an alternate assessment (Yell, 2016). Refer to Chapter 4 for a more in-depth discussion of assessments for students with intellectual disability. However, even students who complete an alternate assessment must have access to the general education curriculum.

TABLE 9.1 Advantages and Disadvantages of the Common Core State Standards

ADVANTAGES	DISADVANTAGES
• Evidence and research based	• Do not match developmental or cognitive abilities of all students
• Based on rigorous content that holds schools and teachers accountable	• Do not address the functional/adaptive skill areas of need
• Assume all students are competent and able to learn	• Cannot meet the individualized needs of all students
• Allow special educators access to grade- and age-appropriate content and standards	• May cause stress for students and teachers
• Prepare students for college and career readiness	• Are unrealistic for some students with severe or profound disabilities

It is important for educators of students with intellectual disability to be familiar with standards—state general standards (for example, the CCSS) and/or alternate (or extended) standards, as appropriate. Teachers are often tasked with creating IEP goals relative to content standards, which can be referred to as a standards-based IEP approach. Part of the challenge of providing access to the general education curriculum for students with intellectual disability is determining how to make it meaningful. Students may need reduced breadth (number of topics or objectives to learn), depth (the levels of understanding expected for each topic/objective), or complexity (the time, steps, and memory involved) compared to peers without disabilities. In addition to planning for inclusion of standards-based content, there are critical curricular components that must be included in a well-rounded academic curriculum. The following sections outline the literacy, mathematics, science, and social studies skills needed for all elementary students with intellectual disability.

LITERACY

Literacy may be defined as the ability to read, write, and communicate (Armbruster, Lehr, & Osborn, 2003). It is critical to teach literacy skills to elementary students with intellectual disability for a variety of reasons. First, literacy provides opportunities to have the same life experiences as peers without disabilities. Second, literacy allows these students to access a larger sphere of life including social relationships, employment, and recreation activities. A third

justification is that literacy improves the quality of life for every literate individual. As educators of elementary students with intellectual disability, it is imperative to focus on literacy instruction for these and other reasons.

For practical purposes, literacy involves reading and writing to understand and communicate ideas in order to participate in society. In order to learn literacy skills, students must first demonstrate early skills known as **emergent literacy skills** (Browder, Ahlgrim-Delzell, Flowers, & Baker, 2012; Browder & Spooner, 2011). Emergent literacy skills include language awareness and understanding the conventions, functions, and purpose of print, in addition to phonological awareness. Language awareness encompasses not only oral language, but also a general understanding or awareness of written language (Browder, Hudson, & Wood, 2013). In order to understand the conventions of print, students must know that the presentation of the print (left to right, top to bottom) follows the same structure regardless of where the print appears. Functions of print involve awareness of the multiple uses of print (such as newspapers, menus, web pages, signs). Purpose of print refers to the fact that words have meaning and are used for multiple reasons. Finally, phonological awareness encompasses the broad skills needed to learn the sound structure of language including phonemic awareness by hearing and manipulating individual phonemes, rhyming, syllabication, onset (beginning sound), and rime (ending sound). Children with phonological awareness skills are able to identify oral rhymes, clap out syllables in words, and recognize initial and ending sounds. Many students without disabilities will enter school demonstrating some emergent literacy skills; however, most students with intellectual disability will not (Browder, Gibbs, Ahlgrim-Delzell, Courtade, & Lee, 2007). However, each child—including those with intellectual disability—may not follow the same sequential path of skill acquisition and may create his or her own path to literacy. One such literacy path was suggested by Chall (1996), which starts with emergent literacy and goes through reading to learn; reading to learn is typically a skill developed in later elementary school and focuses on content-area learning. See Table 9.2 for the stages and corresponding skills that develop within each stage.

One challenge with teaching literacy skills to elementary students with intellectual disability is the lack of books that are appropriate and engaging. Most traditional books are too difficult for learners with intellectual disability to read independently. Although some teachers choose to read these texts aloud to their students, this is not always an appropriate accommodation as many

TABLE 9.2 Stages of Literacy Skill Development

STAGE	SKILLS DEVELOPED IN THIS STAGE	HOW TO TEACH THESE SKILLS
Prereading	Emergent literacy skills	Discuss conventions of print such as reading left to right and top to bottom when reading a new book
Stage 1: Learning to Read	Initial reading skills including relationship between letters and sounds	Use word-building cards to allow students to combine beginning and ending sounds to make words
Stage 2: Learning to Read	Basic decoding skills and use of sight vocabulary	Play a sight word game where students read as many sight word cards as possible in 30 seconds
Stage 3: Reading to Learn	Reading to gain new ideas and knowledge	Allow students to choose their own book based on a favorite topic and read aloud together
Stage 4: Reading to Learn	Reading to understand multiple viewpoints	Provide books from different viewpoints in classroom library and read aloud together
Stage 5: Reading to Learn	Reading for construction and reconstruction of knowledge	Incorporate a variety of nonfiction books in classroom library to assist students with research projects

SOURCE: Adapted from J. Chall, *Stages of Reading Development* (New York, NY: Harcourt Brace, 1996).

children are still unable to comprehend the text when presented orally (Mims, Hudson, & Browder, 2012). Instead, teachers need to provide access to engaging and appropriate books for students with intellectual disability.

In order to provide access, special educators must provide physical and cognitive access to appropriate books. Providing physical access to books means that students must be able to hold and physically manipulate the book and pages. Books must be in an accessible place with time each day for reading. Classroom libraries must include a variety of genres and themes that are engaging for all students in the classroom. Books should also reflect the students in the class by including relevant family-, culture-, and disability-related themes. Children should be able to identify elements of their own lives in their classroom books. The books may be adapted to provide access for students with physical disabilities or fine motor impairments. Page fluffers (that is, low-tech devices designed by attaching a small object to the side of the page) may be added to the pages to allow students to turn the pages more easily (Bryant & Bryant,

2012). Page fluffers may be made of paper clips, Velcro, Popsicle sticks, or other materials and are attached to the edges of each page to allow students to grasp and turn individual pages.

In addition to physical access to books, students must have cognitive access to the books they read. The most important consideration in providing cognitive access is readability of the text. Many books for young children feature colorful pictures that represent key concepts and illustrate repeated story lines and thematic sentences that explain the theme (for example, *Brown Bear, Brown Bear, What Do You See?* by Bill Martin). Special educators can capitalize on these engaging features by using strategies such as repeated story lines, pictures, and main idea identification to support comprehension in elementary students with intellectual disability. For example, when reading *Brown Bear*, teachers can point to the colorful illustrations, read the words aloud, and allow students to turn the pages independently using tools such as page fluffers.

In addition to these strategies, there are other ways to adapt books to make them easier to understand for children with intellectual disability. Strategies such as adding picture symbol cards or three-dimensional objects for key words to each page help to enhance comprehension of main themes. For books with no thematic sentence (one that describes the main idea), teachers can create their own and place it in the book. For example, in *The Cat in the Hat* by Dr. Seuss, teachers could write the sentence "The cat is playing games and making a mess" and add it to each page. Seeing this repeated thematic sentence will help students understand there is a recurring theme of a mischievous and messy cat. Of course, educators can use alternative means to provide access to books, such as using books on tape or e-books to be played on a computer or tablet device (for example, an iPad). See Chapter 6 for additional examples of technology to support literacy for students with intellectual disability.

After adapting books, there are many approaches to teaching associated content. One approach to consider is the **story-based lesson** (Browder, Gibbs et al., 2007). Derived from shared story experiences known as read-alouds, story-based lessons use a structured process to deliver important literacy skills and content to elementary students with intellectual disability. This approach incorporates the use of engaging, grade-level picture books or adapted chapter books that have already been modified to provide physical access. Next, up to five key vocabulary terms are identified from the text using paired pictures when possible. Highlight the words in the text if needed. After identifying

vocabulary, a repeated main thematic sentence is created to represent the main idea. Table 9.3 features the stage and corresponding implementation steps. Through incorporating strategies such as the story-based lesson, book adaptations for physical access, and creating cognitive access, educators of elementary students with intellectual disability can provide a meaningful and engaging reading curriculum.

MATHEMATICS

In addition to literacy skills, elementary students with intellectual disability must have access to high-quality mathematics instruction. To choose appropriate math skills for instruction, educators must consider the unique needs of the child, recommendations of the IEP team, and the mathematics content standards for the specific state. The National Council of Teachers of Mathematics (2000) believes all students should be held to high expectations, individuals with disabilities should have opportunities to learn new skills across their time in school, and learning experiences should be personally relevant and important

TABLE 9.3 Story-Based Lesson Format

STAGE	STEPS OF EACH STAGE
1. Anticipatory set	Offer student a picture or object to connect to content of book
2. Read title	Point to book title and read aloud
3. Identify author	Point to author and read aloud; discuss the author is the person who wrote the book
4. Prediction	Ask student to look at pictures or cover and predict the topic or content of the book
5. Open book	Model opening the book; allow student to open the book
6. Point to text	Allow student to point to words as you read aloud
7. Identify vocabulary	Identify five preselected vocabulary words
8. Repeated story line	Identify the repeated story line (either teacher created or embedded within text)
9. Turn page	Let student turn pages
10. Comprehension question/ review prediction	During or after reading the book, ask comprehension questions; review the prediction made by the student earlier

SOURCE: D. Browder, S. Gibbs, L. Ahlgrim-Delzell, G. Courtade, and A. Lee, *Early Literacy Skills Builder* (Verona, WI: Attainment Co., 2007).

to the student. According to the National Council of Teachers of Mathematics, there are five content areas that must be included in math instruction for all students. These five areas along with a sample skill and related activity are identified in Table 9.4.

There are basic concepts and skills within each of the five areas that must be included for fundamental understanding of mathematical concepts. Critical skills include counting words in sequence, demonstrating one-to-one correspondence, understanding the order irrelevance principle (the order in which objects are counted is unimportant), comparing quantities of objects, and basic addition and subtraction skills (Browder & Spooner, 2011). In addition to these basic skills, students must learn basic number sense and functional mathematics skills for independence. Basic number sense skills include understanding the meaning and relationship of numbers and understanding symbolic relationships (National Council of Teachers of Mathematics, 2000).

TABLE 9.4 National Council of Teachers of Mathematics Content Areas of Mathematics

CONTENT AREA	SAMPLE SKILL	RELATED ACTIVITY FOR ELEMENTARY STUDENT WITH INTELLECTUAL DISABILITY
Algebra: the study of patterns and relationships	Identify and create patterns (e.g., blue, blue, red)	Use counting manipulatives (concrete or virtual) to allow for pattern creation
Geometry: understanding spatial organizations	Match and identify shapes in the environment	Provide shape manipulatives for students to compare against objects in the environment
Data analysis: organizing and interpreting facts and data	Record observations on a chart	Ask classmates to vote for favorite meal and record answers on table
Measurement: defining attributes in standard format	Record volume, weight, and size of different objects	Use different-shaped objects and measurement tools such as scales, graduated cylinder, and ruler to compare
Number and operations: understanding quantity and number sense	Represent greater than, less than	Illustrate these concepts using objects or picture symbols that first are obviously different from one another and then have more subtle differences

SOURCE: National Council of Teachers of Mathematics, *Principles and Standards for School Mathematics* (Reston, VA: Author, 2000).

To improve number sense skills in elementary students with intellectual disability, teachers can solve mathematics problems together and then discuss the answer. Asking students if an answer "makes sense" encourages them to evaluate the answer and determine if the calculations were correct, or if the student should try to solve the problem again. For example, when adding 20 + 10, if the student solves for a sum of 400, the teacher should ask the student if the sum "makes sense" followed by a discussion. Mathematics skills that are both academic and functional, meaning they impact one's daily life, include money and purchasing skills, time management, and using a schedule or planner for task completion. Functional mathematics skills should be incorporated in daily instruction to assist elementary students with intellectual disability with generalization and maintenance of skills. To incorporate functional mathematics skills, special educators can implement daily practices such as reviewing a whole-class picture schedule each morning at group time, allowing students to pay for purchases in the cafeteria using coins and bills, and providing opportunities for students to use the calendar to identify important dates. (See Chapter 10 for further discussion of functional skills for elementary-aged students with intellectual disability.)

A key mathematical skill for all students, particularly as they increase in their elementary career, is problem solving—the goal of mathematics education. Browder, Trela et al. (2012) indicated the usefulness of incorporating story-based problems during mathematics instruction for students with intellectual disability. When designing a story-based problem, one strategy is to use the actual name of the student along with details from his or her life such as the name of a favorite cartoon character or pet. For example, when writing a math addition problem for a student named Kai, you may write the story-based problem as follows: "Kai is ready to go to the movies with his best friend Seth. It costs $9.25 to get into the movie. Kai has $7.00. How much more money does Kai need to go to the movie?" By incorporating a literacy-based approach, such as story-based problems, and using real elements such as names and favorite activities, students will have a personal context to understand and apply math facts and problems to real-life situations (Pugalee, 2004).

One of the most beneficial mathematics strategies for many elementary students with intellectual disability is using visual prompts and/or concrete objects. Potential visual prompts and/or concrete objects to teach math include manipulatives, picture cards, TouchMath (2015), number lines, and multiplication charts. TouchMath incorporates a series of "TouchPoints" that are

added to corresponding numerals 1–9. For example, the number 1 features one TouchPoint at the top of the line. The number 2 features two TouchPoints (one at each end of the number). Numbers 6 through 9 feature double TouchPoints. **Manipulatives** are easy to purchase or create and are used to represent numbers of objects in a set or alone to represent one-to-one correspondence. Manipulatives may be any small (safe) objects that the child can use to count. Ideas include counting bears, Popsicle sticks, cardboard dice, or buttons. Again, objects should be chosen with the individual student in mind and be safe and age appropriate. Other useful tools include five and ten frames to represent numbers in a visual format and number lines to provide support for students.

SCIENCE

In addition to fundamental literacy and mathematics skills, elementary students with intellectual disability must have access to science concepts and skill development. Science concepts are often more difficult for students with intellectual disability as they require abstract thinking and skills such as hypothesizing, theorizing, and predicting. Previously, science instruction for students with intellectual disability focused on identifying plants or animals or other less functionally relevant academic skills (Browder & Spooner, 2011). Recently, educators have taken a different approach to teaching science. Instead of focusing on memorizing terms or identifying features of plants and animals, science instruction should focus on teaching students to be aware of their surroundings, develop their own methods of problem solving, and apply science concepts to their own lives. Additionally, science curriculum for students with intellectual disability should include functional academic skills such as personal hygiene, health and safety, and nutrition. (See Chapter 10 for further discussion of functional skills for elementary-aged students with intellectual disability.)

According to the Next Generation Science Standards (2013), the current science standards are for all students, including students with disabilities. The Next Generation Science Standards' motto is "All Standards, All Students"; these standards focus on performance expectations for all students. The performance expectations connect to scientific and engineering practices (for example, using mathematics and computational thinking, engaging in argument from evidence), crosscutting concepts (for example, cause and effect, systems and system models), and disciplinary core ideas (that is, physical science [for example, energy]; life sciences [for example, biological evolution]; earth and

space sciences [for example, earth's system]; and engineering, technology, and applications of science [for example, engineering design]; National Research Council, 2012). Table 9.5 provides representative examples of performance expectations and related activities when considering elementary students with intellectual disability.

To assist students in developing science concepts and skills, special educators can choose from a variety of evidence-based practices and supports. For students learning basic vocabulary and concepts, texts should first be adapted (see the "Literacy" section on page 235). After adapting texts, teachers can incorporate the use of visual aids including picture symbols, models, and demonstration of concepts or scientific processes (for example, the water cycle or seasonal weather). In laboratory settings, teachers can combine instructional methods such as systematic instruction and task analysis along with visual aids to provide access to higher-order thinking skills such as predicting and analyzing results. For example, when teaching students about the chemical reaction between two elements, teachers can create a task analysis of each step of the experiment accompanied by a picture of each step (Courtade, Browder, Spooner, & DiBiase, 2010). To provide further opportunities for practice or review, teachers can use virtual experiment software applications (apps) for

TABLE 9.5 Next Generation Science Standards and Related Activities

PERFORMANCE EXPECTATIONS	RELATED ACTIVITY FOR ELEMENTARY STUDENT WITH INTELLECTUAL DISABILITY
• Use and share observations of local weather conditions to describe patterns over time (K-ESS2-1)	Record temperatures over a two-week period using an outdoor thermometer; compare and look for changes
• Make observations of plants and animals to compare the diversity of life in different habitats (2-LS4-1)	Examine the classification system used for plants and animals with visual aid
• Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing (2-LS4-2)	Compare features of organisms such as body parts, function, and environment
• Use observations to describe patterns of what plants and animals need to survive (K-LS1-1)	Create model of Monarch butterfly life cycle

SOURCE: Adapted from the National Research Council, *A Framework for K-12 Science Education* (Washington, DC: National Academies Press, 2012).

tablet computers, online video demonstrations, or web-based modules. (Refer to Chapter 6 for a discussion on assistive technology to support students with intellectual disability.)

SOCIAL STUDIES

Social studies is the fourth major curricular area in which elementary students with intellectual disability, like all pupils, must have access to content from the general education curriculum. Social studies curriculum includes five discipline areas: history, geography, civics and government, economics, and psychology. According to the National Council for the Social Studies (2002), there are ten themes that should be addressed in the instruction of social studies. Table 9.6 depicts the themes, a sample skill, and a related activity for each area.

In the past, typical instruction in the areas of social studies for elementary students with intellectual disability focused on tasks such as reading simple maps or understanding the purpose of agencies such as the post office (Browder & Spooner, 2011). Students had access to basic social studies concepts, but were unable to apply this knowledge to their own lives. However, educators are now making academic social studies content more relevant and meaningful to elementary students with intellectual disability by helping them connect to their home, school, and communities.

To support social studies skill development, there are a variety of strategies and supports. Again, texts must first be adapted using the strategies mentioned in the preceding "Literacy" section. Once texts are adapted, educators should focus on making the content meaningful for individual students by examining their needs and areas of strength. Tools such as visual supports and technology should be used to teach critical skills to students. Social studies content allows students to engage with their communities and environments and provides numerous opportunities for community-based instruction. Community-based instruction involves creating learning and skill practice opportunities in locations within the community for students with disabilities (McDonnell, 2011). Community-based instruction is different from a field trip in that the desired outcome is providing students with an opportunity to practice and apply the same skills (academic and/or functional) from the classroom in a community setting, whereas a field trip is designed to provide a fun and engaging activity for students. Researchers indicate it is best to transfer academic skills to real-world skills in actual community locations. (Refer to Chapter 10 for additional

TABLE 9.6 National Council for Social Studies Instructional Themes

THEME	SAMPLE SKILL	RELATED ACTIVITY FOR ELEMENTARY STUDENT WITH INTELLECTUAL DISABILITY
1. Culture	Identify one's own culture	Create a poster of holidays that are unique to the American culture
2. Time, continuity, and change	Understand changes in one's community over time	Interview a community member who has lived in the area for many years and ask about changes
3. People, places, and environments	Understand the roles of community members	Create a graphic organizer that shows the duties of five community members
4. Individual development and identity	Understand how identity is developed	Create a drawing showing what is important to the individual student
5. Individuals, groups, and institutions	Understand the development of individual responsibilities	Read a story about a child who took responsibility in an emergency
6. Power, authority, and governance	Know the roles of authority figures	Visit a law enforcement agency and ask questions about law enforcement
7. Production, distribution, and consumption	Describe the consumption of goods and services	Take a trip to a local store or distribution plant to discover how goods are provided to others
8. Science, technology, and society	Understand advances in technology	Use the smartboard in a lesson
9. Global connections	Connect to other cultures worldwide	Call students in another country on Skype
10. Civic ideals and practices	Understand civic ideals	Ask students to draw a picture of "freedom" and explain their design

SOURCE: National Council for the Social Studies, *National Standards for Social Studies* Teachers (Washington, DC: Author, 2002). Available at http://www.socialstudies.org/standards/teacherstandards

information regarding life skills for elementary students with intellectual disability.)

Academic Instruction

In order to maximize learning opportunities with their peers without disabilities, it is important for students with intellectual disability to be provided with access to grade-level content, needed accommodations (see Table 9.7 for sample instructional accommodations for students with intellectual disability across academic areas), and systematic evidence-based instruction. Elementary students with intellectual disability need access to instructional materials and activities that are age appropriate and that allow them to progress with their peers. Shared learning experiences with same-age peers provide opportunities to develop necessary social skills and to practice essential communication skills. The principles of **universal design for learning (UDL)** provide a framework for educators to (1) use multiple approaches to teach the content, (2) allow students to demonstrate knowledge in a variety of ways, and (3) use multiple techniques to engage all learners (CAST, 2015). Individualization, including any additional accommodations, is built into grade-level lessons. Adopting the principles of UDL is one way for teachers to individualize learning as well as

TABLE 9.7 Example of Common Instructional Accommodations

ACCOMMODATION TYPE	ACCOMMODATION
Presentation	• Guided notes or recorded notes • Larger print/font • Fewer items on a page
Response	• Scribe • Responding orally, as opposed to in writing • Calculators
Setting	• Preferential seating • Taking tests in another room
Timing	• Frequent breaks • Extended time

SOURCE: Adapted from E. Strom, *Common Modifications and Accommodations*. Available at https://www.understood.org/en/learning-attention-issues/treatments-approaches/educational-strategies/common-modifications-and-accommodations

maximize learning opportunities for elementary students with intellectual disability (Gargiulo & Metcalf, 2017). See Chapter 3 for a more in-depth discussion regarding UDL.

Individualized curricula should reflect the individual needs of the student, functional skills, age and grade appropriateness, and access to the general content standards. The current literature regarding best practices for teaching academic content to students with intellectual disability include systematic instruction, task analysis, providing opportunities for student response, in vivo instruction, adapted text, graphic organizers, and peer-mediated supports (Browder, Spooner, Ahlgrim-Delzell, Harris, & Wakeman, 2008; Courtade, Test, & Cook, 2015; Hudson, Browder, & Jimenez, 2014; Hudson, Browder, & Wood, 2013; Knight, Spooner, Browder, Smith, & Wood, 2013; Spooner, Knight, Browder, Jimenez, & DiBiase, 2011; Spooner, Knight, Browder, & Smith, 2012). Table 9.8 displays these best practices for teaching students with intellectual disability and examples of how they might be applied across specific content areas.

SYSTEMATIC DIRECT INSTRUCTION

In order for elementary students with intellectual disability to be most successful at learning, teachers must use **systematic instruction** (Collins, 2012). This is a very structured form of instruction that incorporates prompting systems that ensure a high level of success for the student. Systematic instruction often leads to **errorless learning** because the prompts that are used increase the likelihood of student success. Errorless learning refers to the design of the instruction in order to allow the learner to succeed at the task without error. As students become more successful in their responding, prompts are gradually faded so the student demonstrates the skill as independently as possible.

Critical features of systematic **direct instruction (DI)** lessons include highly sequenced instruction, clear and concise directions, teacher guidance, active student participation, and assessment probes in order to practice and master new knowledge and skills (Carnine, Silbert, Kame´enui, Traver, & Juongjohann, 2006). There are seven sequential parts to a DI lesson: (a) gain learner's attention, (b) review prerequisites, (c) present new content, (d) probe learning, (e) provide independent practice, (f) assess performance and provide feedback, and (g) provide distributed practice and review. Further explanations for each

TABLE 9.8 Evidence-Based Practices for Teaching Elementary Students With Intellectual Disability

PRACTICE	PROCEDURE	MATHEMATICS EXAMPLE	LITERACY EXAMPLE	SCIENCE EXAMPLE	SOCIAL STUDIES EXAMPLE
Systematic Instruction (Browder, Spooner et al., 2008; Courtade et al., 2015; Hudson et al., 2013; Knight et al., 2013; Spooner et al., 2011; Spooner et al., 2012)	Using defined, explicit, consistent prompting and feedback with fading to teach a defined academic response	Using time-delay or hierarchical prompts to teach math facts	Using time-delay or hierarchical prompts to teach academic language and vocabulary	Using time-delay or hierarchical prompts to teach parts of the body	Using time-delay or hierarchical prompts to teach map components
Task Analysis (Browder, Spooner et al., 2008; Courtade et al., 2015; Hudson et al., 2013; Knight et al., 2013; Spooner et al., 2011; Spooner et al., 2012)	The process of breaking a skill down into smaller, more manageable components	1. Use objects/pictures to add within 20. 2. Use symbols (+, =) to add within 20. 3. Solve addition/word problems using objects/pictures for sums within 20. 4. Solve addition word problems using symbols (+, =). 5. Solve addition word problems with an unknown number in any position using a symbol.	1. Define concept of main idea. 2. Identify main idea in text. 3. Define concept of detail. 4. Identify details in text. 5. Explain how details support the main idea. 6. Explain in writing how details support the main idea.	1. Communicate a scientifically oriented question. 2. Review evidence when responding. 3. Communicate explanation using evidence. 4. Connect explanations to scientific evidence. 5. Communicate and justify explanation using the evidence.	1. Identify the purpose of the map. 2. Identify the symbols used in the legend. 3. Use the grid to find examples of absolute location (latitude and longitude). 4. Determine the purpose or use for this map.

Opportunities to Respond (Browder, Spooner et al., 2008; Courtade et al., 2015; Hudson et al., 2013; Knight et al., 2013; Spooner et al., 2011; Spooner, et al., 2012)	Providing various opportunities for the student to practice new skills	Teacher identifies a geometric shape, then student identifies a geometric shape, then all students identify geometric shapes in the classroom.	Teacher reads a vocabulary word, then student reads the word, then all students read the word in unison.	Teacher reads a part of the body. Students say the part of the body and then point to it on a figure labeling the body part.	Teacher points to a latitude on the map, then student points to the latitude on the map, then all students point to the latitude on the map in unison.
In Vivo (Browder, Spooner et al., 2008; Courtade et al., 2015; Spooner et al., 2012)	Teaching a real-life application for the concept or skill to be learned; teaching in real-life settings using real-life materials	Using money to make a purchase and comparing prices while shopping	Teaching environment to navigate and make choices while in the community	Using laboratory materials to conduct experiments	Using the school map to identify locations
Adapted Text (Hudson et al., 2013; Knight et al., 2013)	Modifying or augmenting the text for accessibility, such as shortening the text, reducing the number of words, rewriting text to lessen text complexity, adding definitions, adding pictures and visual aids, and adding predictable structure	Teacher inserts pictures within a word problem.	Teacher rewrites a story and inserts the main idea throughout the story.	Teacher rewrites science text to reduce text complexity.	Teacher reduces the amount of text per page.

(*Continued*)

TABLE 9.8 (Continued)

PRACTICE	PROCEDURE	MATHEMATICS EXAMPLE	LITERACY EXAMPLE	SCIENCE EXAMPLE	SOCIAL STUDIES EXAMPLE
Graphic Organizers (Knight et al., 2013; Spooner et al., 2011; Spooner et al., 2012)	Visual representation of knowledge that structures information by arranging important aspects of a concept or topic into a pattern using labels	Student uses a sequential organizer to illustrate a series of steps or events in a chronological order to complete a math word problem.	Student uses a hierarchical organizer to present main ideas and supporting details of a story.	Student uses a two-column graphic organizer to list examples and non-examples of illustrated science concepts.	Student uses a comparative organizer to depict similarities among key concepts.
Peer-Mediated Supports (Courtade et al., 2015; Hudson et al., 2014; Hudson et al., 2013; Jimenez et al., 2008)	One or more trained peers providing assistance to their classmates	Peer reads a math word problem, and the classmate rereads the word problem.	Peer supports the classmate with unknown vocabulary as the student reads a story.	Peer supports the classmate with conducting a science experiment using systematic instruction.	Peer supports the classmate with completing a graphic organizer using systematic instruction.

SOURCE: Adapted from D. Browder, F. Spooner, L. Ahlgrim-Delzell, A. Harris, and S. Wakeman, "A meta-analysis on teaching mathematics to students with significant cognitive disabilities," *Exceptional Children, 74*(4), 2008, pp. 407–432.

step in a systematic lesson are presented within the framework of developing scripted lessons in the following section (Slavin, 1994).

Systematic instruction can also involve **explicit instruction**. Explicit instruction follows a structure of modeling, guiding, and then independent practice (Doabler & Fien, 2013). In the modeling portion of explicit instruction, a teacher demonstrates as well as uses think-alouds. For example, in using explicit instruction to teach subtraction with regrouping, the teacher would model how to solve a problem—such as with the use of base ten blocks and a place value chart—while verbally explaining (i.e., thinking aloud) this process. After the teacher models how to approach a few problems (in math, for example), the teacher moves on to guiding. In the guiding portion, the student is trying to solve or complete the task him- or herself, but the teacher is there to provide prompts and cues; corrective feedback is provided during the guiding portion. Finally, the student moves onto the independent practice phase where he or she does the work independently (Doabler & Fien, 2013).

SCRIPTED LESSONS

Systematic instructional lessons are important for student achievement and teacher accountability. Over the course of the year, teachers engage in a variety of routinized schedules and activities. Frequently, these routines drive the structure of the day regardless of whether students are actively learning new knowledge and skills. Developing "scripted" lessons is a straightforward task that educators can do by themselves and that can apply to virtually all course content, with all levels of students.

Typically, **scripted lessons** are planned for teaching academic skills that comprise a series of chained behaviors (that is, behaviors that have multiple steps to complete) such as spelling words and math computation, as well as discrete behaviors such as sight vocabulary and math facts. (Table 9.9 provides an example of a scripted lesson.) In essence, a teacher would plan a scripted lesson for acquisition of knowledge and skills where there are definitive steps to completing the academic task. Scripted lessons are based on clearly stated objectives that are communicated to students. These objectives specify what the students should be able to do or say after the lesson. However, scripted lessons should not be limited to academic tasks that teach concrete skills. Bloom (1956) identified six levels of learning within a hierarchy beginning with knowledge (basic recall) and progressing through comprehension, application,

TABLE 9.9 A Scripted Lesson for Teaching Two-Digit Addition With and Without Regrouping

STEP	SCRIPT
1	*Up to now we have been adding one number to another. Today we are going to learn how to add two-digit numbers together. Two-digit numbers have two values: a ones value and a tens value. In the number 34, the ones value is 4, and the tens value is 3. What is the ones value in the number 47?* (Choral response followed by praise.) *What is the tens value?* (Choral response.) *Good! The first thing we have to do when adding two 2-digit numbers together is to make sure that the two numbers are arranged so that the ones value of the first number is right above the ones value of the second number, and the tens value of the first is also right above the tens value of the second. When we copy a problem, where should the ones values of the two numbers be? Where should the tens values be?* (Choral response.) *Good.* *After we write the two numbers, we draw a horizontal line under the bottom number. Where does the horizontal line for each addition problem go?* (Choral response.) *That's right, under the bottom number. Copy this problem so the numbers are positioned for us to add them together: 16 + 22.* (Check each student's work.)
2	*Once we have copied the problem, we first add the two ones value numbers. What do we add together first, the ones value numbers or the tens value numbers?* (Choral response.) *Right, we add the ones values first.* *If the sum of the ones values is 9 or less, we write the sum under the ones place below the horizontal line. The sum of 6 plus 2 is . . . ?* (Choral response.) *Correct, it is 8. Write the number 8 below the horizontal line under the 6 and 2.* (Teacher models the step and checks each student's work.)
3	*If the sum of the ones value numbers is more than 10, we have to write the ones value sum below the horizontal line and write the tens value above the two tens value numbers that are above the horizontal line. If the sum of the ones values is more than 9, what do we do? Yes, we write the ones value of the sum below the horizontal line, and carry the tens value to the tens column.*
4	*Once we have added both the ones values together and written their sum below the horizontal line, we add the two tens value numbers together and write their sum below the horizontal line. What is the sum of 1 and 2?* (Choral response.) *Right, it is 3. Watch where I write the sum of the tens values.* (Teacher models.) *Now you write the sum on your paper.* (Teacher checks each student's work.) *Now I am going to write another problem on the board. Copy it and add the values together.* (Teacher gives several problems without regrouping; after checking answers, gives several problems requiring regrouping.)

NOTE: Italics represents teacher voice.

analysis, synthesis, and evaluation. Teachers can prepare scripted lessons that reflect advanced levels of learning. In the following sections, the procedures for scripting will be integrated into an explicit instructional plan.

Presenting new content. A primary defining characteristic of scripted lessons is that new content is presented through a bottom-up approach with new information presented in small steps. Before introducing new content, teachers should revisit pertinent skills and knowledge previously taught through use of a review. Using a review allows teachers to focus learner attention on the task, probe student understanding of content, provide review opportunities for students, and present corrective or positive feedback to students. Formats for reviewing previous content can take many shapes. For example, teachers may plan a series of higher-order thinking questions that are sequenced based on the Bloom (1956) taxonomy in order to review and assess previous learning. Teachers could divide the class into teams, and the students could devise questions for the other team to answer based on previously learned material. A commonly used review strategy is having students check homework assignments. The overall goal is to review previous content, check for student acquisition, and determine whether re-teaching is required for content necessary to work with the new information or procedures to be presented.

Next, instructional objectives should clearly state what the students are to say or do rather than employing ambiguous terms such as *to know* or *to understand*. For example, if a teacher's goal is for students to learn how to add two 2-digit numbers, the objective could be "After the lesson on addition, when given a set of ten problems, students will correctly hand-compute two 2-digit addition problems with regrouping with 90 percent accuracy in thirty minutes or less." This objective follows the format of conditions ("After the lesson on addition, when given a set of ten problems"), behavior ("students will correctly hand-compute two 2-digit addition problems with regrouping"), and criteria ("with 90 percent accuracy in thirty minutes or less").

After developing objectives, the next step is creating an explicit lesson plan that involves identifying the step-by-step progression for successfully completing the academic task. This is formally called a **task analysis** (Browder, Trela, & Jimenez, 2007). A complex activity can be broken down into subcomponent behaviors that are placed within a sequential order. The key is to ensure that each subcomponent identifies an observable action that the students must perform. To create a task analysis, simply list the first step in completing the skill,

the second, the third, and so on until the complex action stated in the objective is completed. Table 9.10 outlines the task-analyzed steps for a special educator to use when teaching a student to write the name *Tyler*. The most common mistakes in creating task analysis activities include (a) skipping steps, (b) not specifying an overt action at each step, and (c) not having sufficient steps. Ideally, each task analysis sequence should have three to fifteen steps.

Teachers generally are masters of their content and have no trouble understanding the concepts. Since it is so easy for teachers to do complex activities, it is a good idea to double-check the sequence of your academic content to ensure that certain steps have not been skipped. Specifying an observable action at each step is critical because it provides the teacher and learner with an objective reference point to monitor progress. No one can objectively "know" if a person has actually acquired a skill until the individual demonstrates it. Teachers should continue breaking down the objective's activity until the first step is a behavior that everyone in the class can do without training. Table 9.11 highlights an example of how to delineate the steps of adding two-digit numbers with and without regrouping. This forms the basis for the scripted lesson that is to be followed to teach students the series of discrete behaviors identified in the complex action specified by an objective.

TABLE 9.10 Task Analysis Example for Writing the Name *Tyler*

STEP	ACTION
1	Pick up pencil
2	Move pencil to paper
3	Draw long vertical line in capital *T*
4	Draw shorter horizontal line for top of capital *T*
5	Draw small slanted line for left side of lowercase *y*
6	Draw longer slanted line for right side of lowercase *y*
7	Draw vertical line for lowercase *l*
8	Draw lowercase *e* in one stroke starting with vertical line in middle of letter and then curving around the top to the bottom to complete the *e*
9	Draw the small vertical line in the lowercase *r*
10	Draw the small curve at the top of the lowercase *r*

TABLE 9.11 Identifying the Subcomponents of Teaching Two-Digit Addition With and Without Regrouping

STEP	SUBCOMPONENT
1	Copy the problem (if not already on a provided sheet), making certain that one of the numbers is above the other, the ones and tens place values for both numbers are aligned, and the bottom number is underlined.
2	Add the ones place values together, and if the sum is less than 10, write the sum below the horizontal line aligned with the ones place of the original numbers.
3	If the sum is greater than 10, write the ones value of the sum below the line and carry the tens value by writing that value above the two-digit numbers of the problem.
4	Add the tens place values including any carryover from the ones sum to the left of the ones sum and below the tens values of the original numbers.

Guided practice. For each step of scripted lessons, the teacher provides clear instruction and explanation and models the step in order to provide guided practice to students. When learning is occurring at an accuracy rate of 80 percent or higher, teachers should transition to providing practice at the independent level.

INSTRUCTIONAL PROMPTING

Instructional prompting procedures are useful for teaching new behaviors. Instructional prompts may be defined as any teacher behaviors that cause the student to know how to do a behavior correctly (Wolery, 1994). Prompting is intended to help the student make correct responses in the presence of a particular discriminative stimulus so that reinforcement can occur. Although several forms of prompts may be used, it is critical to keep in mind that prompts assist the student in initial acquisition of the skill or behavior; they should be faded or reduced to less intrusive or more naturally occurring stimuli as the student's learning improves over time. Educators should choose the level of beginning prompt by collecting baseline data to determine the present level of skill performance for each individual learner. The following sections outline specific examples of prompts.

Modeling. Imitation is a natural form of learning, and using **modeling** allows teachers to capitalize on this natural inclination. For example, a teacher attempting to teach a student to write his or her name might model the behavior at the start of the lesson to show the student a demonstration. Many students easily

imitate the behavior of the model. For example, the teacher asks the student, "Can you write your name?" Contingent on a student's incorrect response or no response, the teacher prompts the student, saying "Do it like this," and models the behavior of writing the student's name. The teacher models/demonstrates the correct sequence of behaviors required for successful completion of the academic task. Teachers should select a model based on the needs of the student and the academic task. Typical models include verbal (verbally stating each letter of a word in sequential order), written (writing steps to complete the problem at the top of the page), pictorial (picture cue demonstrating an action), or physical demonstration (demonstrating the physical actions required to complete the appropriate step). Instructional models should ensure student responding and be individualized to the needs of the student.

Verbal prompts. The use of specific verbal statements or feedback that tells a student what to do and how to do it, as opposed to simply directing the student to do something, is a **verbal prompt**. For example, the teacher may ask, "What comes after Thursday?" Contingent on a student's incorrect response or no response, the teacher verbally prompts the student by stating "Friday." Wolery (1994) noted that there are five types of verbal prompts: (a) those that tell how to do a behavior, (b) those that tell how to do part of a behavior, (c) those that give rules to follow, (d) those that give a hint, and (e) those that provide options. When a verbal prompt is given, it must be clear and effective. That is, the student must be able to respond correctly to the prompt. However, some elementary students with intellectual disability may not have acquired a level of receptive language sufficient to allow them to respond to verbal prompts. Therefore, the teacher must use other forms of prompts with the verbal prompt until the individual responds correctly to the verbal response.

Gesture. Some behaviors may be prompted with hand motions, pointing, head nodding, or another action that students can watch their teacher complete. **Gestures** are intended to provide specific feedback to the students so that they will perform the behavior accurately. For example, the teacher asks, "Who is the main character of the story?" Contingent on a student's incorrect response or no response, the teacher prompts the student by pointing to a picture or to the name of the main character of the story.

Physical prompts. A **physical prompt** is where the teacher provides physical contact to guide the student through the entire requested behavior, skill, or activity. When the student does not respond to less restrictive prompts (for

example, modeling, gesture, verbal), physical prompts may be used to teach the student how to respond. These prompts may be a full physical or partial physical prompt. Full physical prompt is the teacher leading a student through the task by providing full physical assistance (hand-over-hand) to ensure correct use of the target skill. For example, the teacher may place his or her hand over the student's hand and guide the student to grasp a pencil, pick up the pencil, write his or her name, and put the pencil back on the desk. As the student starts to use the skills, the physical prompts are withdrawn but quickly reinstated if the student regresses or stops using the skills. Partial physical prompt is when the teacher provides minimal physical assistance to help the student demonstrate the target skill correctly. Minimal physical prompts might be assisting the student's wrist, arm, or elbow, as well as touching the student's hand to initiate the response and providing minimal physical guidance to achieve the desired response.

Visual prompts. The terms *visual prompts*, *visual supports*, *visual strategies*, and *visual cues* are used synonymously. **Visual prompts** might include, but are not limited to, pictures, photos, graphic representations, written words, schedules, or videos used to prompt a student regarding a specific behavior, rule, routine, task, or social response. Visual prompts are any tools presented visually that support student learning across educational settings (Knight, Sartini, & Spriggs, 2015; National Research Council, 2001).

Many teaching strategies involve some form of visual prompting. Illustrations in children's books are designed to aid students in identifying the printed word. Teachers may give examples of correctly completed math problems or allow a student to use a number line when learning computational skills. Picture prompts include any two-dimensional image (for example, a line drawing or picture of an actual object) that is used to prompt the learner or assist in task completion. Picture prompts have been widely used in teaching sight words to elementary students with intellectual disabilities (Browder & Minarovic, 2000), warning labels (Collins & Stinson, 1994), mathematics (Browder, Spooner et al., 2008), and computer use (Frank, Wacker, Berg, & McMahon, 1985). Several studies have taught students with intellectual disability to independently use picture activity schedules to complete tasks (Hume, Plavnick, & Odom, 2012). A picture activity schedule incorporates pictures (visual representations, line drawings, or photos of actual objects) listed in order of the corresponding schedule for the day. For example, a student who followed a schedule of art class, math, and then lunch may use a picture activity schedule with a photo of

a paintbrush, a calculator, and a lunch tray. Knight et al. (2015) found picture prompts were an evidence-based instructional method for increasing on-task, on-schedule, and transition behaviors in children with intellectual disability.

The use of visual prompts offers some advantages for both teachers and learners. First, this strategy offers the potential for students to exert control over their behavior, diminishing the degree to which direct instructor supervision is needed. In addition, students may be more motivated to perform a task over which they have greater control (Koegel & Koegel, 1995). The transition of elementary students with intellectual disability to less restrictive environments is often hindered by difficulties in managing their behavior in the absence of external controls. Pictures may serve as a form of external control, which can assist students in accessing normalized learning environments.

Time delay. There is a strong evidence base for using **time delay**, a system in which the prompt is concurrently presented with the target stimulus and then faded with small increments of time over successive trials. Time-delay strategies are response-prompting strategies that are considered to be nearly errorless (Doyle, Wolery, Ault, & Gast, 1990; Walker, 2008). In a review of time delay and recognition of it as an evidence-based practice, Browder, Ahlgrim-Delzell et al. (2009) defined the essential features of time delay as

> initial zero-delay trials with an opportunity for the student to make prompted correct responses followed by subsequent trials in which the teacher delays the prompt by a small increment of time (seconds), so that the student may either anticipate the correct answer before the prompt or wait for the prompt. (p. 357)

There are two types of time-delay procedures: progressive and constant. Each of these two types uses a controlling prompt, zero-second trials, and delay trials (Wolery, 1994). A controlling prompt is any type of support provided by the teacher to ensure that the learner consistently produces the correct target behavior (Riesen, McDonnell, Johnson, Polychronis, & Jameson, 2003; Walker, 2008; Wolery, 1994). The controlling prompt will always elicit the correct response from the student and should be chosen by analyzing baseline data. For example, some elementary students with intellectual disability may only require a verbal prompt to complete each step of a task, but others may need a partial physical prompt. Zero-second trials are presented at the beginning sessions during some predetermined number of initial trials. During

zero-second trials, the controlling prompt is delivered immediately after the target stimulus is introduced and task directions have been presented (Neitzel & Wolery, 2009). After the student has consistently demonstrated correct responses with zero-second delays, trials using a fixed delay (three to five seconds) or a progressively increasing delay (from one to two, then two to three seconds) are implemented. During delay trials, the target stimulus and task direction are presented followed by the delay interval (waiting three seconds), the controlling prompt, and another delay interval. While progressive and constant time delays are similar, there are important differences in the two strategies. With progressive time delay, the delay interval between the task direction and the controlling prompt is incrementally increased over a number of trials. For example, the teacher may begin with zero-second-delay trials, followed by one-second-delay trials. After the student has met a criterion for mastery with the one-second-delay trials, the teacher increases the delay to two seconds. The two-second-delay trials would continue until the student has met the criterion, and then the teacher would implement three-second-delay trials. With constant time delay, "the delay interval is increased for a specified and fixed number of seconds and remains at that duration throughout the instructional program" (Wolery et al., 1992, p. 240).

The basic procedure for constant time delay involves gaining the child's attention, presenting the target stimulus and task direction, waiting during the delay interval, and providing the appropriate consequences (Wolery, 1994). The presentation of the target stimulus and task direction indicates to the student that the target behavior should be exhibited. The delay interval allows the individual an opportunity to respond independently before assistance is provided by the teacher. If a student responds correctly after the task direction and before the controlling prompt, then the prompt is not delivered, but positive and descriptive feedback is provided. Use of highly positive and descriptive feedback (for example, "I like how you found the red bird!") is critical because it tells the student exactly what he or she did that was correct, thereby increasing the probability that the pupil will demonstrate the target behavior again. If the student does not respond, or responds incorrectly after the task direction and before the controlling prompt, then the controlling prompt is delivered, and a second delay interval is provided. Table 9.12 displays different student responses and time-delay procedures, according to Wolery, Anthony, Caldwell, Snyder, and Morgante (2002).

The following illustration describes techniques to teach students how to identify key words related to a story, specifically how to identify the title of a book.

TABLE 9.12 Constant Time-Delay Student Responses

STUDENT RESPONSE	DESCRIPTION OF RESPONSE
Unprompted correct response	Student demonstrates the target skill correctly without prompts within the time delay interval.
Prompted correct response	Student demonstrates the target skill correctly after being prompted.
Unprompted incorrect response	Student attempts to demonstrate the target skill without prompts within the time-delay interval, but performs it incorrectly.
Prompted incorrect response	Student attempts to demonstrate the target skill after being prompted, but performs it incorrectly.
No response	Student does not initiate the target skill during the time-delay interval.

The teacher would place the book in front of the student and gain his or her attention by using an attention-getting strategy (for example, saying the child's name or "Look") and presenting the cue or directive, "Find the title of the book." Pupils can respond verbally, gesturally (pointing to the title), or by using an alternative or augmented communication device. The teacher might gesture or point at the book's title and say, "Find the title of the book." When initially teaching the skill, the teacher would provide a series of trials at a fixed zero-second delay in order to ensure that the student demonstrates the correct response or skill (points to or says the book's title). There is no wait time between the cue ("Find the title of the book") and delivery of the controlling prompt (partial physical prompt). (The controlling prompt will be different for each student and is chosen using baseline data.) After the student imitates the correct response consistently, the teacher increases the delay between the cue and controlling prompt. Keep in mind that some individuals may need a more intrusive controlling prompt level (for example, modeling, partial or full physical prompt) in order to imitate the response. Additionally, the teacher should provide descriptive feedback and reinforcement for correct responses.

When the student has imitated accurately and consistently the correct response at the zero-second delay, the teacher increases the delay of time between the cue and the controlling prompt, allowing the individual to respond with greater independence. In most cases, the teacher implements a constant delay of four seconds between the cue and controlling prompt, if needed. The delay is dependent on the amount of time the student needs to process the teacher's cue and demonstrate the expected response. While some students may only require

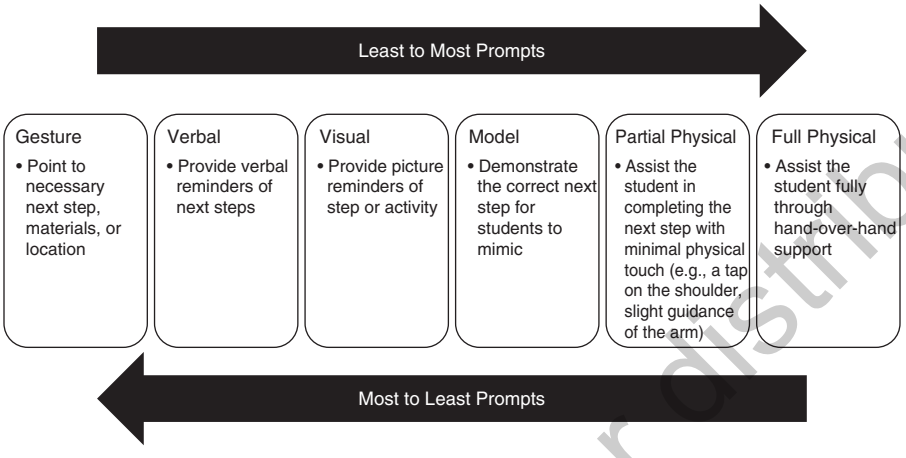
a short delay of four seconds, others may require a longer delay to process and respond to the teacher's instruction. The delay provides an opportunity for the student to perform the target skill independently before being offered the controlling prompt or support from the teacher. For example, the teacher may present the cue to the student ("Find the title of the book") and wait four seconds for the child to perform the target skill (student says or points to book's title). If the student's response is correct, then the teacher provides immediate positive feedback or reinforcement stating what the student did ("Good! The book's title is . . ."). However, if the response is incorrect, or if the student does not respond to the cue, then the teacher can provide the cue again and wait four seconds, or implement the controlling prompt (the prompt that will always elicit the correct response) to help the student perform the target skill.

Systems of hierarchical prompts. Another prompting alternative with a strong evidence base is the **system of least prompts**—an instructional strategy that delivers prompts only as needed to teach discrete or chained tasks. In a system of least prompts, the teacher may begin with a verbal prompt, followed by a gesture, a model, and then a physical prompt (Aykut, 2012; Neitzel & Wolery, 2009). In this system, the teacher only provides the prompt needed for the student to produce the response. Sometimes, however, the safety or motoric demands of a task suggest the need to begin with a more intrusive prompt such as physical guidance (Aykut, 2012; Neitzel & Wolery, 2009). An example of this is teaching handwriting. In this case, the instructor initially uses physical guidance and then fades the physical prompts over time to less intrusive prompts such as partial physical, modeling, gesturing, or verbal. Figure 9.1 identifies the types of hierarchical prompts from least to most and most to least supportive.

MONITORING LEARNING

Monitoring student progress is essential because it allows the teacher to adapt instructional procedures as the learner becomes more proficient or if the student needs assistance at using target skills. Teachers typically begin data collection as the teaching activity is implemented. Many of the practice opportunities provided to students involve questions that require either choral answers (probes) or individual answers (checks). Because content and skills are taught in small steps, student responses are almost always correct and can trigger positive feedback from the teacher. Incorrect responses trigger nonpunitive corrective feedback and are easier to rectify because the "failure" is associated

FIGURE 9.1 Systems of Hierarchical Prompts



with the most recently modeled step. After the choral response, the teacher can either model the next step or probe with a check by asking an individual student a follow-up question related to the step to ensure that all students are engaged with the material. After presenting the first two steps, it facilitates the learning process to model these steps together, and as additional steps are modeled, teachers should precede each new step by modeling and probing the previous steps done in series. One technique is to place clipboards with data collection sheets near the activity so teachers can easily record learner responses. Table 9.13 illustrates a data sheet for monitoring students' performance. Teachers should record the number of correct and incorrect student responses during the teaching activity.

GUIDED AND INDEPENDENT PRACTICE

After modeling/prompting/probing/checking all the steps in the lesson, the teacher should provide opportunities for guided and independent practice on previously acquired knowledge. These practice opportunities can be done individually or in small groups. In guided practice opportunities, the teacher monitors the work as it is being done in order to provide prompts to ensure success. In independent practice, the students work independently to practice the skills as the teacher observes and records data. Written exercises and cooperative

TABLE 9.13 Sample Data Sheet Recording Students' Performance Adding Two-Digit Addition With and Without Regrouping

Directions: Next to each step, record if the student performed the step independently and correctly (I) or with an instructional prompt: V = verbal, G = gesture, M = modeling, PP = partial physical assistance, FP = full physical assistance.

	STUDENT PERFORMANCE				
STEP	MON	TUES	WED	THURS	FRI
1. Copy the problem.	I	I	I	I	I
2. Ensure one of the numbers is above the other, the ones and tens place values for both numbers are aligned, and the bottom number is underlined.	I	I	I	I	I
3. Add the ones place values together, and if the sum is less than 10, write the sum below the horizontal line aligned with the ones place of the original numbers.	V	I	I	I	I
4. If the sum is greater than 10, write the ones value of the sum below the line and carry the tens value by writing that value above the two-digit numbers of the problem.	V	V	I	I	I
5. Add the tens place values including any carryover from the ones sum to the left of the ones sum and below the tens values of the original numbers.	M	M	V	I	I
Number of steps completed independently and correctly	2/5	3/5	4/5	5/5	5/5

learning activities are designed to help students review previously learned content and may be used in guided or independent practice.

Conclusion

IDEA 2004 calls for students with disabilities to have access to language arts, mathematics, science, and social studies content. Across the nation, many states are adopting the Common Core State Standards or standards promoted by professional associations. By giving elementary students with intellectual disability access to general education content, settings, and educators, we are providing the best learning experience for our students. It is crucial to continue advocating for these opportunities. In conjunction with the teaching methods and strategies explored in this chapter, special educators can provide access to rigorous content for all students regardless of disability. The ultimate goal for teachers is to target academic skills that will decrease dependency, increase independence, and improve the student's quality of life.

Chapter Summary

- The Common Core State Standards (CCSS) assist special educators in choosing, adapting, and delivering content to elementary students with intellectual disability.
- All students regardless of disability must have access to the general education curriculum.
- Academic instruction for elementary students should be designed with long-term outcomes such as employability and independence in mind and include academic and functional skill components.
- Using a standards-based individualized education program (IEP) approach helps ensure students have access to general education content.
- There are critical curricular components that must be included in curriculum for elementary students with intellectual disability including literacy, mathematics, science, and social studies skills.
- There are a variety of evidence-based teaching methods available for delivering content to students with intellectual disability. Systematic instruction, for example, featuring the use of direct instruction is a research-based method appropriate for these learners. Likewise, scripted lessons are another effective planning and instructional approach.
- Instructional prompting allows teachers of students with intellectual disability to offer the customized level of prompting and support needed for each individual student. Time delay is another research-based method to deliver instruction.

Review Questions

1. How can educators of elementary students with intellectual disability provide access to general education content and standards for their students?
2. What academic content should be included in a well-rounded curriculum for learners with intellectual disability?
3. What is a scripted lesson?

4. How would you design a task analysis for an academic skill such as adding one-digit numbers or writing a first name?
5. What are three evidence-based approaches for delivering instruction to students with intellectual disability?

Key Terms

Common Core State Standards (CCSS) (page 234)
literacy (page 235)
emergent literacy skills (page 236)
story-based lesson (page 238)
manipulatives (page 242)
universal design for learning (UDL) (page 246)
systematic instruction (page 247)
errorless learning (page 247)
direct instruction (DI) (page 247)
explicit instruction (page 251)
scripted lessons (page 251)
task analysis (page 253)
modeling (page 255)
verbal prompt (page 256)
gestures (page 256)
physical prompt (page 256)
visual prompt (page 257)
time delay (page 258)
system of least prompts (page 261)

Organizations Concerned With Curriculum Standards

Common Core State Standards

www.corestandards.org

National Council for the Social Studies

www.socialstudies.org

National Council of Teachers of Mathematics

www.nctm.org

Next Generation Science Standards

www.nextgenscience.org