

KENTUCKY PARAEDUCATOR ASSESSMENT



STUDY GUIDE

REVISED 2nd EDITION

KENTUCKY DEPARTMENT OF EDUCATION

October 2009



ACKNOWLEDGMENTS

The Paraeducators of Kentucky (PEK) Project at the Human Development Institute, University of Kentucky, would like to express its gratitude to the following individuals for their continual support of the PEK Project:

Dr. Johnnie Grissom, Associate Commissioner
Office of Special Instructional Services
Kentucky Department of Education

Larry Taylor, Director
Division of Exceptional Children Services
Kentucky Department of Education

Debbie Hicks, Director
Division of Federal Programs & Instructional Equity
Kentucky Department of Education

The Kentucky Department of Education (KDE) would like to express its gratitude to the following individuals for their valuable insight, experience, feedback, and dedication that made this guide possible:

Amy Humphrey, Kentucky Department of Education
Ava Taylor, Kentucky Department of Education
Barbara Locker, Human Development Institute, University of Kentucky
Candace James, Woodford County Public Schools
Charma Linville, Kentucky Department of Education
Deborah Jackson, Jefferson County Public Schools
Deborah Waggoner, Woodford County Public Schools
Denise Bailey, Kentucky Department of Education
Jaynae Laine, Kentucky Department of Education
Landrea Miriti, Bluegrass Community & Technical College
Linda Montgomery, Kentucky Department of Education
Dr. Mary Persley, Jefferson County Public Schools
Mina Hammons, Owen County Public Schools
Dr. Pat Lefler, Bluegrass Community & Technical College
Robin Hebert, Kentucky Department of Education
Shelda Hale, Kentucky Department of Education
Vanessa Hale, Fayette County Public Schools

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INSTRUCTIONS FOR *KENTUCKY PARAEDUCATOR ASSESSMENT STUDY GUIDE*

This booklet is designed as a study guide for the *Kentucky Paraeducator Assessment* (KPA). It also will provide the applicant or existing paraeducator with information about the role of the paraeducator and strategies for assisting with student instruction in reading, writing, and mathematics. In addition, the Study Guide is designed as an initial step in a paraeducator's professional development and will provide strategies for working with teachers and students in the instructional setting.

Review of the guide will prepare you for taking the KPA. The KPA will cover material contained in the following sections of the KPA Study Guide: Literacy (Reading and Writing), Mathematics, Paraeducator Roles and Responsibilities, and Instructional Strategies. Information noted in the appendices also is covered in appropriate sections of the assessment.

INFORMATION ABOUT THE KENTUCKY PARAEDUCATOR ASSESSMENT

Check with the local school district to see where and when the KPA will be administered. Also, check to see if training will be provided using the KPA Study Guide. You should be prepared for the following when you go to take the KPA. A trained proctor will assist you.

1. You must provide a picture ID for the proctor to verify the identity of the test-taker.
2. The KPA will be administered at the local school district or adult education center. Contact the district or center in your area. For locations of adult education centers, see <http://www.kyae.ky.gov/programs/>.
3. All questions are multiple-choice or true/false. There are three sections of the assessment: Literacy, Mathematics, and Instructional Strategies (including Paraeducator Roles & Responsibilities).
4. There are 20 questions in each section of the assessment for a total of 60 questions. You must correctly answer 48 out of 60 questions to pass the KPA.
5. Remember that there may be no undue assistance during the assessment – no talking, no calculator, no web browsing, no use of a phone, and no use of the Study Guide. You may have blank paper and pencil/pen for scratch work.
6. The test is not timed. However, the district or center may place consistent guidelines on time to complete the assessment.
7. If you do not correctly answer 48 out of 60 questions, then you may retake the entire assessment two additional times (for a total of three). There may be reasons for which a district makes an exception and allows the test-taker to take the test more than three times. The reason must be documented at the local level. The district or center may provide additional training if you do not pass the KPA.



REQUIREMENTS FOR PARAEducATORS IN KENTUCKY

The *Elementary and Secondary Education Act (ESEA)* addresses educational qualifying factors for paraeducators. Specifically, all paraeducators working in a program supported with Title I, Part A funds must have a secondary school diploma or its recognized equivalent.

New employees must meet the ESEA educational requirement before they are hired to provide instructional support in a program supported with Title I, Part A funds.

To provide consistency and ensure that all paraeducators are highly qualified, districts may choose to develop a policy in which **all** paraeducators with instructional duties are required to meet the ESEA educational requirement.

Paraeducators whose duties include instructional support and who work in a program supported with Title I, Part A funds must meet the ESEA educational requirement through **one** of the following:

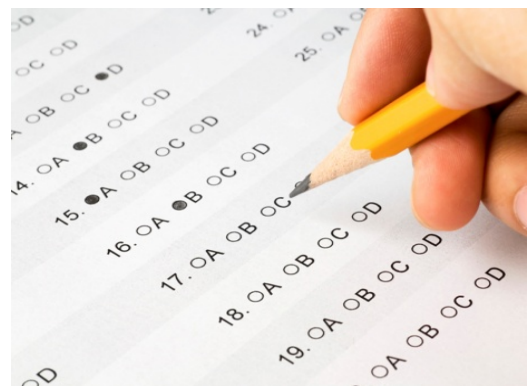
1. completed two years of study at an institution of higher education (“Two years of study” means the equivalent of two years of full-time study as defined by the institution. For some institutions that may mean 12 credit hours per semester, requiring a total of 48 credit hours, while in others it may mean 15 credit hours a semester, requiring a total of 60 credit hours.); **or**
2. obtained an associate (or higher) degree; **or**
3. met a rigorous standard of quality and be able to demonstrate, through a formal state or local academic assessment, knowledge of and the ability to assist in the instruction of reading, writing, and mathematics (or as appropriate, reading readiness, writing readiness, and mathematics readiness).

Properly trained paraeducators play important roles in schools where they can magnify and reinforce instruction in the classroom. Unfortunately, studies often show that paraeducators are used to assist in teaching although their educational backgrounds may not qualify them for such responsibilities. ESEA includes higher standards to ensure that students who need the most help are assisted by highly qualified paraeducators. The law also requires that high-quality and ongoing professional development is provided for paraeducators working in programs supported by Title I, Part A funds. The training should enable paraeducators to assist children to meet the state’s student academic achievement standards.

The Kentucky Department of Education (KDE) has chosen the *Kentucky Paraeducator Assessment (KPA)* as a means of assessing paraeducators who do not meet the higher education requirements stipulated in ESEA.

Candidates should check with the local school district in which they might be seeking employment to verify the acceptance of scores from the KPA or if the district is using a KDE-approved alternative assessment. A district may, at its discretion, determine that a paraeducator meets the ESEA educational requirement if the individual was previously determined to meet the requirement when employed by another district.

Content found throughout the Study Guide, including information noted in the appendices, may appear on the KPA.

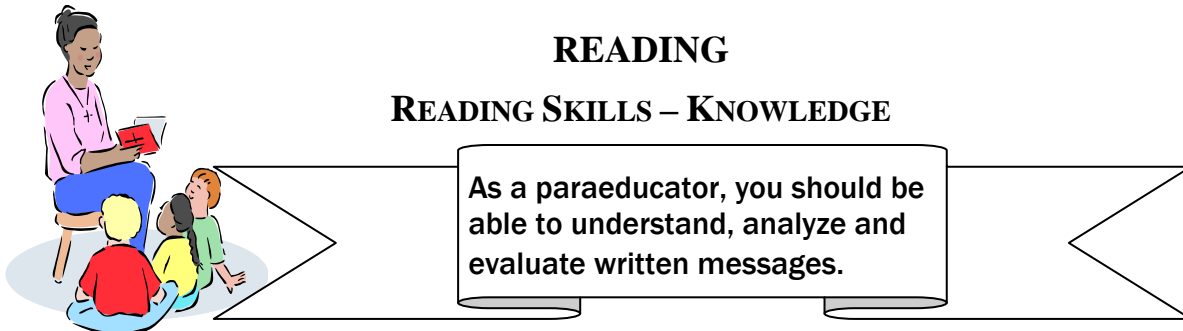


INTRODUCTION TO ASSESSMENT CONTENT

Just as it is important to assess a paraeducator's abilities to instruct students in the areas of literacy (reading and writing), and mathematics, it is also important to assess his/her knowledge in these key areas of education. The KPA is designed to assess the paraeducator candidate's abilities to provide instruction as well as his/her knowledge of reading, writing, and mathematics.

LITERACY

Before beginning, take a moment to review a term frequently used by educators. **Literacy** is the ability to read, write, listen, speak, and observe to a competent level in all content areas. Thus, in instruction, all components should be integrated. The skills found in reading and writing are separated in this guide as a way to prepare you for the KPA.



The following reading skills may be evaluated in the KPA.

1. **Literal Comprehension.** Questions focus on the content of the text or passage that is directly stated or implied. Questions may be asked about the main idea of the passage, supporting details or ideas, the organization of the passage or statement, the use of language in the passage or statement, and the meanings of words presented in the passage or statement.
2. **Critical and Inferential Comprehension.** These questions will ask you to go beyond the explicit content to the implied meanings or underlying reasons for the statements. You will need to make careful judgments about the quality of the passage content. Questions may focus on strengths or weaknesses of the author's argument, relevance or appropriateness of the evidence the author presented to support the argument, the difference between fact and opinion, inferences that can be drawn from the passage or statement, the attitude of the author toward the subject matter discussed (tone), extensions or analysis of the ideas in the passage, or conclusions that can be drawn from the passage.

Guidelines for Preparing for Reading Comprehension and Analytical Reasoning

The following guidelines may assist you in preparing for reading comprehension and analytical reasoning questions. The questions contained in this section of the KPA are based solely on the passage provided and do not require a paraeducator to have outside knowledge of the material presented. The following techniques and strategies were adapted from Barron's *How to Prepare for the GRE – Graduate Record Examination* (1999).

1. **Read the passage**, and then **read the answers**. The following five-step technique might assist you in successfully completing the reading section:

- a. **Read as fast as you can with understanding.** Do not force yourself to be a speed-reader, but instead focus on the information the passage is relaying to you.
 - b. When you read opening sentences, try to **anticipate the passage's discussion points**. Whom or what is the author discussing? Look carefully at titles and subtitles of the passage for clues.
 - c. Attempt to identify the kind of writing utilized as you continue to read. **Identify techniques used, intended audience, and the author's feeling (if any) regarding the subject area.** Try to remember names, dates, and places for quick reference, along with where the author makes major points in the passage.
 - d. Your first reading of the passage should provide you the **general theme** of the passage as well as the location of its major subdivisions. You are strongly encouraged to refer back to the passage when answering the subsequent questions to verify your answer. It is not wise to rely upon your memory or knowledge gained from other sources to respond to the questions.
 - e. Now you are ready to read the first question. If you remember where to find the answer, go directly to that section of the passage. If you don't remember, **read the passage again**. It is not recommended that you jump around anticipating you will encounter the answer by chance. Decide on your answer, or, if you are indecisive about your choice, guess and proceed to the next question.
2. Learn to **recognize the major types of reading questions**. The following categories of reading questions may be encountered on the KPA.

- a. **Main Idea.** Questions about the main idea assess your ability to find the central theme of the passage or to judge its significance.

Example of a question about the main idea:

The author's primary purpose in this passage from the Nutrition Action Health Letter is to

- A. calculate calories from fat.
 - B. choose foods that promote good health.
 - C. determine fat content of food.
 - D. determine serving size.
- b. **Locating Specific Details.** Questions about locating specific details are designed to assess your ability to understand what the author explicitly states.

Example of a question about locating specific details:

According to the article, if a food contains 25% of the recommended daily value (DV), it is considered to be

- A. high in the nutrient.
 - B. low in the nutrient.
 - C. average in that nutrient.
 - D. lacking in that nutrient.
- c. **Drawing Inferences.** Inference questions assess your ability to look beyond what the author explicitly states in the passage and see what the author is implying in the passage.

Example of an inference question:

Under what conditions could one infer that a food would not be considered high in fat?

- A. if a food contains between 25% and 30% fat
- B. if a food contains 55 fat grams
- C. if a food contains 12% of the DV for fat
- D. if a food provided 56% of its calories from fat

**Categories of
Reading Questions**

- a. *Main Idea*
- b. *Specific Details*
- c. *Inference*
- d. *Tone & Attitude*
- e. *Technique*
- f. *Context Clues*

- d. **Tone and/or Attitude.** Questions about tone are designed to assess your ability to sense the author’s or a character’s emotional state.

Example of a question about tone:

When the British army marched into Washington, D.C., the mood of the citizenry changed to that of

- A. confidence.
- B. panic.
- C. joy.
- D. frustration.

- e. **Technique.** Questions about technique assess your ability to recognize a method or organization of an argument.

Example of a question about technique:

What purpose does repeating the phrase, “and Brutus is an honorable man,” serve in Marc Antony’s first speech?

- A. to raise doubt about whether Brutus is an honorable man
- B. to emphasize that Marc Antony agrees with Brutus
- C. to express Marc Antony’s grief over Caesar’s death
- D. to praise Caesar’s life and accomplishments

- f. **Determining the Meaning of Words from their Context.** Questions about context clues assess your ability to determine the meaning of an unfamiliar word from the words, phrases, or passages that come before and after the word and help to explain its full meaning.

Example of a question about using context clues:

In the beginning of the story the author writes, “the bear cuffed him . . .”
What does the word cuffed mean?

- A. bit
- B. turned
- C. hit
- D. carried



3. **Check the opening and summary sentences** of each paragraph to **locate the main idea**. The opening and summary sentences serve as indicators of the author’s main idea. Generally, authors provide readers with a sentence that expresses the paragraph’s main idea. Although the topic sentence may be located anywhere in the paragraph, it is typically located in the opening or closing sentence. However, in some instances the topic sentence may be implied.

If you are unable to identify the topic sentence, use these two questions to guide you:

- a. “Who or what is this passage about?” The subject may be a person, place, thing, idea, a process, or something in motion.
- b. “What is the author trying to get across about this perspective?” This requires you to decide the most important thing the author is saying about the subject, and implies the subject is doing something or something is being done to the subject.

4. **Look for words that convey emotion, paint pictures, or express values** when determining questions of **tone, attitude, or mood**. When determining the tone, attitude, and/or mood, look at the terms being used to describe the subject. Does the author use positive words or negative words to describe the subject? Remember, when we speak, our tone of voice conveys our emotion/mood. When we write, we must use descriptive phrases and images to inform the reader of our tone, attitudes, and mood.

5. **Spot key words** in the question and **scan the passage to find the key words or their synonyms** when answering questions about **specific details** in the passage. Authors will make statements to support their points when developing the main idea. When answering questions about supporting detail, you must find a word or group of words from the passage to support your answer choice. The use of phrases such as “according to the passage,” or “according to the author,” should help you to focus your attention on what the passage explicitly states.

Questions regarding details of a passage often ask about a particular phrase or line. It might be helpful to use the following techniques:

- a. Search for key words in the answer choices. These will generally be nouns or verbs.
 - b. Scan down the passage searching for these key words or their synonyms. Remember that the technique of scanning is similar to what you do when looking up someone’s number in the phone book.
 - c. Reread the sentence or passage when you locate the key words or its synonyms to determine if you have made the correct choice.
6. When you **make inferences**, remember to **base your answers on what the passage implies** and not what is explicitly stated. Inference questions require you to use your judgment and not rely upon direct statements made by the author. You must search for clues in the passage that may be used to derive your conclusion. Review the answer choices and eliminate those that obviously contradict what is stated or implied in the passage. When you make inferences, you must go beyond the obvious to look for logical implications.
7. **Search for context clues** when asked to give the **meaning of an unfamiliar word**. In reading comprehension, a question asking for the meaning of a word can usually be gotten from the word’s context. This type of question is not meant to assess your general vocabulary, but rather your ability to extract meaning from the text. You must look for clues within the passage to determine the meaning of a word. An unfamiliar word contained in a part of a sentence may be defined or clarified in another part of the sentence.
8. **Pay close attention** to the presence of **signal words** in the question and in the argument. When reviewing the questions and passages, you should be aware of signal words that clarify the situation. Below are types and examples of typical signal words.

Cause & effect signal words . . .

Cause and effect signal words often indicate the conclusion of an argument. These words include:

- accordingly
- consequently
- hence
- therefore
- thus

Contrast signal words . . .

Contrast signal words often indicate a reversal of thought within an argument or within the question asked. These words or phrases include:

- although
- but
- despite
- even though
- except
- however
- in contrast
- instead
- nevertheless
- not
- on the contrary
- on the other hand
- rather than
- unlike

Here is a shortened version of the guidelines to help you prepare for reading comprehension questions on the KPA. Try the tips out on the Sample Reading Questions.

*Quick Tips for Reading
A Passage and Question*

Read fast with understanding

Anticipate discussion points

*Identify techniques, audience,
and feelings*

Identify general theme

Re-read as needed

SAMPLE READING QUESTIONS

The following are sample test questions similar to those on the *Kentucky Paraeducator Assessment* (KPA). The passage and explanation are adapted from the *Pre-Professional Skills Test (PPST) Guide* (2002).



Lyndon Johnson's father once told him that he did not belong in politics unless he could walk into a roomful of people and tell immediately who was for him and who was against him. In fact, even the shrewd Johnson had not quite such occult power, but his liking for this story tells us something useful about him: he set much store by instinct. No wonder, then, that it would be to his instincts – honed in the Texas hill country, sharpened in a life of politics, confirmed in a long and respected congressional career – that he would often turn while in the White House.

This reliance on instinct enabled Johnson to put on the presidency like a suit of comfortable old clothes. John Kennedy, on the other hand, came to it with a historical, nearly theoretical view of what was required of a strong President – he knew exactly what Woodrow Wilson had said about the office and he had read Corwin and Neustadt. With eager confidence, Kennedy acquired a presidential suit off the rack and put on a little weight to make himself fit it.

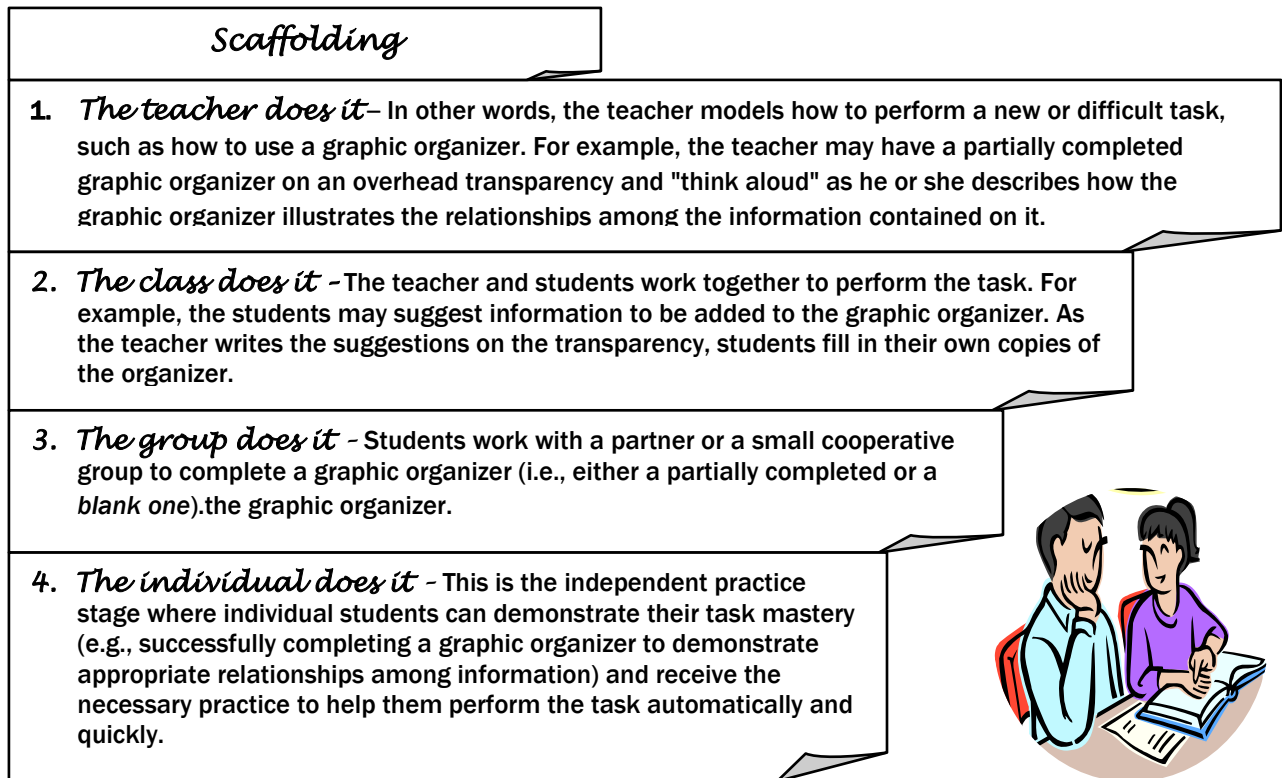


- In the passage, the author is primarily concerned with
 - refuting an argument.
 - listing facts.
 - retelling a story.
 - making a comparison.**

Question 1 asks you to identify the author's **technique** or method. Since the author is comparing the approaches of Johnson and Kennedy in seeking the presidency, **Choice D** is the best answer.

Scaffolding. Struggling students often need some type of support to be successful. Scaffolding is a process in which students are given support until they can apply new skills and strategies independently. Scaffolding is not “watering down” the lesson but using strategies that make the assignment accessible.

In order to incorporate scaffolding throughout the lesson, teachers may find the framework outlined by Ellis & Larkin (1998) helpful.



Corrective Feedback. Feedback is the sharing of specific information about the learner’s performance in order to help him/her either continue or modify a behavior (e.g. perform a particular procedure a certain way). Providing regular feedback to a learner is one of the most powerful teaching tools a paraeducator has. The following are impacts of feedback:

- Effective feedback can accelerate learning.
- Learners want and value feedback.
- Without feedback, learners may discontinue positive behaviors.
- Without feedback, learners may make incorrect assumptions about their performance.

The following are characteristics and tips to ensure that feedback is effective:

- **Self-Assessment:** Before giving feedback, ask the learner to self-assess. The teacher might say, “How do you think you did?”
- **Balanced:** Provide both positive and corrective comments. Begin with positive comments. Then specify needed improvements and end with encouragement.
- **Well-Timed:** Feedback should be given as close as possible to the performance.
- **Based on Observation:** Feedback is often based on inference and hearsay. Feedback is more accurate and valuable if based on direct observation.
- **Descriptive and Specific:** Focus on what the learner did and give a specific description. Generalizations such as, “That was a good presentation,” are nice but not instructive.

Alternatively, the teacher might say, “That was a good case presentation because it was well organized and only essential information was included.”

- **Regularly Provided:** Feedback should not be a surprise. It is often provided only when the learner has done something wrong. Establishing a routine of regular feedback prevents this.^{iv}

Using the ARCH feedback model . . .

By using the ARCH feedback model, paraeducators can support learners and help them strengthen their skills. The model is especially useful for a formal feedback situation.

A = Ask for self-assessment

R = Reinforcement

C = Correct

H = Help learner develop improvement plan

The arch is symbolic of strength and support. The following explains each aspect of the ARCH model:

- **Ask** the learner to self-assess relative to his/her performance facilitates the learner’s development of an important life-long learning skill. A session could start with questions such as, “How do you think you are doing?” or “What do you feel are your strengths and weaknesses at this time?”
- **Reinforcement** is an important feedback skill. Learners often say that the only time they get feedback is when they do something “wrong.” Reinforcement is the provision of feedback when they do something “right.”
- **Corrective** feedback provided by the paraeducator is also critical. Suggestions for improvement need to be specific.
- **Helping** the learner develop a plan for improvement is very important.

Technology Integration. Teachers, along with paraeducators, need to train all students to be comfortable and capable to use all types of technology in the workplace. It is current practice to use computers as an integral part of the learning process. Research in the area of technology-assisted learning revealed the following outcomes of the use of computers in the classroom:^v

- Student enthusiasm and motivation to learn increased dramatically.
- Student productivity in all subject areas increased.
- Spontaneous peer and cooperative learning increased.
- Struggling writers became more proficient on the keyboard.
- Struggling students using technology have demonstrated superior results on standardized tests.
- Graduation and college participation of high school students who routinely use technology increased.



DIFFERENTIATED INSTRUCTION

Differentiated instruction is a process of teaching and learning that begins with the premise that not all students are alike. Based on the readiness, learning preferences and interests of the student, it requires a teacher to vary the approach and presentation of the curriculum and student assessments to provide students access to multiple paths in order to reach the same goals or outcomes.

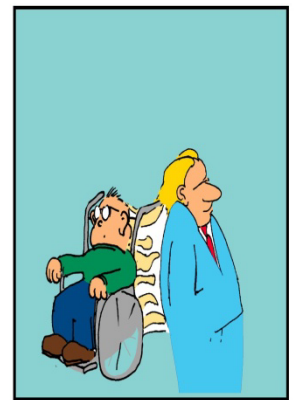
In a differentiated classroom the paraeducator partners with the teacher during the implementation of instruction. This might be accomplished by assisting with the organization of the classroom setting to effectively utilize materials and space for instruction and activities. It may also mean the paraeducator uses the techniques of circulating and visually scanning the classroom to identify students who may be off-task, have questions, or are otherwise unengaged in the lesson. The paraeducator may then use interventions such as close proximity, questioning, or other previously identified strategies to redirect the student(s). The paraeducator observes and reflects on individual and small groups of students and shares these reflections with the teacher as a means of enhancing student achievement.^{vi}



HOVERCRAFT

Giangreco

A paraeducator facilitates student learning by providing opportunities for peer interaction. The paraeducator does not become a "Hovercraft" or appear to be "Velcroed" to the student(s) but, instead, gives the student a voice in the classroom. However, this does not mean the paraeducator does not assist the student. It implies the paraeducator has worked with the teacher to think of what might go wrong in an activity or task and have structured the work to avoid potential problems. This also takes into consideration the paraeducator always seeks clarification for tasks/activities for which they do not know how to implement or have doubt about the implementation process.



STUCK LIKE GLUE

Giangreco

Differentiated Instructional Strategies

The paraeducator is responsible for becoming familiar with the teacher's methods of classroom instruction and seeking clarification or instruction on any strategy he or she does not understand or fully know how to implement. A paraeducator may be asked to implement the following strategies determined by the teacher in a differentiated classroom:

Scaffolding. Scaffolding may be compared to a construction project where supports and frameworks are built so workers can reach the challenging areas to erect brick walls, paint, install windows, etc. Scaffolding provides support needed by the student to succeed in challenging work. Examples of scaffolds include directions that give more structure, re-teaching/extended learning, icons to help interpret print, modeling, use of study guides, and reading buddies.

Independent Projects. Independent projects use a process where the student and teacher identify problems or topics of interest to the student. A plan is devised of how the student will investigate the problem/topic and the type of product the student will develop to demonstrate application of the knowledge and skills associated with the problem/topic. In this setting, the paraeducator will likely assist the student in implementation of the investigative plan and product development. The key word is **assist**.

which means the student completes the work, not the paraeducator. The paraeducator provides support as needed.

Interest Centers/Interest Groups. Interest centers are often used with younger learners (primary/elementary), whereas interest groups are often used with older learners (middle/high school). In either setting, interest centers/groups allow students a choice in the study of topics not in the regular curriculum and helps them to explore the how's and why's of something of interest to them. The role of the paraeducator is to serve as facilitator and assist the teacher in classroom management techniques to ensure the classroom remains a positive learning environment.

Tiered Assignments. Tiered assignments are developed by teachers. These assignments allow students to begin learning from where they are. Students work with appropriately challenging material using a variety of resource materials at differing levels of complexity and learning modes to reinforce or extend learning based on student readiness.

Flexible Grouping. Students are part of many different groups. In the classroom, teachers may use flexible grouping to match the task to student readiness, interest, or learning style. Flexible grouping may be teacher assigned or student selected, depending on the activity and desired outcome proposed by the teacher. The use of flexible grouping allows for both collaborative and independent student work, gives students opportunities to work with a variety of peers, and helps to reduce the labeling of students as those who need help and those who provide help. The role of the paraeducator is to assist the teacher in ensuring all students learn to work cooperatively, collaboratively, and independently.



Varying Questions. In class discussions and on tests, teachers vary the sorts of questions posed to learners based on their readiness, interests, and learning styles. All students need to be accountable for information and thinking at high levels. Appropriately varying questions helps nurture motivation throughout the learning process.

Varying questions . . .

When asking instructional questions, both the teacher and paraeducator should use the following guidelines:

- Target some questions to particular students and “open the floor” to other questions;
- Use open-ended questions whenever possible;
- Use wait time before taking answers;
- When appropriate, allow students the opportunity to talk with thinking partners before giving answers;
- Encourage students to build on one another’s answers;
- Require students to explain and defend their answers.

Sheltered English Instruction. Sheltered English instruction is an instructional approach that engages English language learners (ELLs) above the beginner level in developing grade-level content-area knowledge, academic skills, and increased English proficiency. In sheltered English classes, teachers and paraeducators use clear, direct, simple English and a wide range of scaffolding strategies to communicate meaningful input in the content area to students. Content and language objectives are clear in each lesson. Learning activities that connect new content to students' prior knowledge, that require collaboration among students, and that spiral through curriculum material, offer ELLs the grade-level content instruction of their English-speaking peers, while adapting lesson delivery to suit their English proficiency level.^{vii}



Providing sheltered instruction . . .

Teachers & paraeducators may use the following techniques to provide sheltered instruction:

- Speak clearly and slowly;
- Use pauses, short sentences, simple syntax, few pronouns and idioms;
- Use repetition and discourse markers (first, then, in conclusion);
- Provide keywords and outlines;
- Provide examples and descriptions, not definitions;
- Use visuals, hands-on resources, gestures and graphic organizers;
- Provide content texts at multiple language proficiency levels.

READING – INSTRUCTIONAL SUPPORT

What is reading? As defined by Webster’s dictionary (1984), reading is to “look through and take on the meaning of written or printed words or symbols.”

In the same way that children learn to talk, they also learn to read. They see and hear others reading, they listen as others read to them, they read along with others, and then they read independently and to others (Mooney, 1990). There is no definitive time frame in which children learn to read; however, they may become motivated to increase and improve reading through support and encouragement much like that received when they were learning to talk (Mooney).

When children are learning how to read, adults should not view mistakes as “failures” but as “nearly rights” (Mooney, 1990). The attitudes expressed by adults assisting children in the learning process will have lasting impact upon the student’s desire to learn how to read. Approaches that might be used to guide children through the learning process include reading to children and reading with children.

When assisting students in learning to read, paraeducators should be familiar with the stages of reading development. The familiarity may be beneficial in providing feedback to the teacher or in identifying the student’s progress or lack thereof. Mooney describes the three states of reading development in the following manner:

1. **Emergent.** This is the starting stage and emphasizes reading as something that is enjoyable. During this stage, books may be shared repeatedly with increased exploration of the text each time in an effort to gradually move the student up to independent reading.
2. **Early.** At this stage children are becoming readers. The children and the paraeducator discuss the story’s background to reveal the story’s theme and plot. The children are learning to search out the structure and meaning of sentences. During this stage, the following skills emerge and should be reinforced: reading for meaning (comprehension), taking risks, making predictions, confirming the use of letter-sound associations, self-correcting when reading, and re-reading when the meaning has been lost or not established.
3. **Fluency.** The fluency stage implies the children are ready to read by themselves. During this stage, teachers emphasize the child’s development of confidence and competence in the integration of cues, maintenance of the meaning through lengthy and complex structures, and the adjustment of the reading rate with each change of purpose. The paraeducator boosts the child’s confidence and competency using such techniques as the integration of cues and adjusting reading rates to complement the purpose of the reading exercise.



Encouraging comments . . .

Routman provides the following examples of comments that may encourage a student:

- I like the way you tried to help yourself.
- Good for you. I saw you checking the word with the picture to see if you were right.
- I like the way you worked out the hard part.
- I noticed you tried....when you had trouble. Good for you. That's what good readers do.

The paraeducator's attitude toward reading is as important as the decision of which approach to use with a student. The idea of reading needs to be presented as something that is enjoyable, satisfying, and rewarding. In this instance, the paraeducator becomes the reader's voice, the listener, and the author; he or she demonstrates to children how they can also assume the three roles with enthusiasm (Mooney, 1990). The paraeducator's role in assisting the student in developing good reading and writing habits may be the student's motivating factor in wanting to learn. Therefore, it is important to acknowledge what the child knows, the strategies used by the child when reading, and praising and building the self-esteem and confidence of the student, especially in utilization of strategies in reading (Routman, 1994).

WRITING SKILLS – INSTRUCTIONAL SUPPORT

An important communication tool is the written message. Thoughts, ideas and important information are generally put into a written format in order to preserve them. Writing is something that is incorporated in all content areas through the use of symbols, letters and words.

Paraeducators may find themselves working with a range of students who are just learning the concepts of writing to those who are distinguished writers. While there are varying approaches to enhance a student's mastery of writing, the paraeducator must have the ability to perform writing tasks or learn new strategies to improve the quality of services provided to students. Although the paraeducator will rely upon the supervising teacher to develop a classroom system, the paraeducator may also need to use some (or all) of the following strategies during the school year with individual or small groups of students.



A modeling strategy that may be used at any grade level is writing aloud. This technique gets the students' attention and demonstrates various aspects of writing at the same time. The paraeducator writes in front of the students while verbalizing what he or she is thinking and writing. Students observe the paraeducator in the act of writing while the paraeducator explicitly talks through the process – covering the components of thinking, format, spacing, layout, spelling, punctuation, handwriting, and vocabulary. This approach may take many formats; however, it is known to increase student interest and motivation in writing as well as improve the quality of writing. (Routman, 1994)

A second approach to writing is the "Morning Message." Generally written by the teacher to the students, the message may provide details of the day's events, classroom news about topics of study, or even events that have happened or about to happen in a teacher's life. This gives the students an opportunity to problem-solve and figure out the answers instead of the explanation and answers being given to them. (Routman, 1994)

Morning Message . . .

The message may be tied to writing activities through questions about the conventions of writing such as the following:

- Why did I capitalize.....?
- Why did I begin a new paragraph here?
- Why did I use a comma....?

Another approach to writing is the shared writing method. This approach places the paraeducator and the student(s) composing written work collaboratively, with the paraeducator serving as a scribe and expert.

The topics, meanings, and word choices are discussed and agreed upon by the students and paraeducators. The role of the paraeducator is to be a supportive one that enables, encourages, and invites students to participate in the process. This method often comes as a natural response to shared reading and is a way to reinforce and support the reading process. (Routman, 1994).

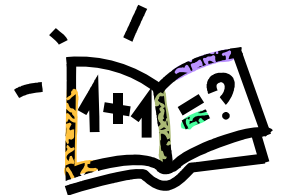
The approach of guided writing places the paraeducator in the role of facilitator, a guide in assisting the students in the process of discovery of what they want to say and how to meaningfully say it with “clarity, coherence, interest, style, form, and individual voice (Routman, 1994, p 66).”

MATHEMATICS SKILLS – INSTRUCTIONAL SUPPORT

The language of mathematics is just as symbolic as the language of reading. Some students have difficulty with symbolic language. Students struggling in mathematics may exhibit the following characteristics:

- They may be able to recite numbers fairly well, but they lack understanding about numbers and what they represent. They have very little “number sense.”
- They have difficulty remembering number facts or vocabulary, problem-solving procedures or previously learned materials.
- Word problems are particularly difficult because they include three layers of symbols: numbers, words and operations. Students lose their train of thought in the problem-solving process.
- They do the same problem over and over or use only one problem-solving method repeatedly.

The paraeducator should stay with hands-on learning until understanding is achieved and then help students “discover” the skills they need to solve the same problem. In other words, students should see and manipulate the problem first with concrete objects. They can then “translate” the information into the symbolic language of numbers.



Strategies to differentiate instruction . . .

Strategies to differentiate instruction to meet the needs of all students include the following:

- modeling, demonstrating the process for completing a problem or task;
- working backwards, starting with the solution or end result to understand the relationships and pattern;
- using estimation to determine the reasonableness of answers;
- reviewing ideas, revisiting previously taught content and re-teaching if necessary (i.e. flashbacks);
- thinking aloud, verbalizing the thought processes for attacking the problem;
- demonstrating multiple strategies, using more than one way to solve a problem;
- representing answers in multiple ways, showing work in words, numbers, pictures, diagrams, charts; and
- using technology, computer lab, calculators, interactive boards, laptops, software programs.

SAMPLE INSTRUCTIONAL STRATEGIES QUESTIONS

The following are examples of questions that might be asked on the Kentucky Paraeducator Assessment related to Paraeducator Roles and Responsibilities and Instructional Strategies. An explanation is given for each question.

Select the **best** answer for each of the following questions.

1. General job descriptions convey the paraeducator's primary responsibility is to
 - A. provide instructional or other support services to students.
 - B. maintain a position that requires them to be solely responsible for an entire classroom.
 - C. work under the supervision of a certified/licensed staff member who is responsible for the design, implementation, assessment, and evaluation of student progress and instructional programs.
 - D. **both A and C**

The paraeducator is responsible for **assisting** the teacher and should **not** be put in a position that requires the paraeducator to be solely responsible for an entire classroom. The **best** answer for question 1 is **Choice D** since it covers both A and C.

2. Which of these are ways we communicate with others?
 - A. speaking with one another
 - B. body language
 - C. written messages
 - D. **all of the above**

The paraeducator should keep in mind how he or she communicates with others throughout the day. Since a paraeducator may use all three methods in a day, **Choice D** is the correct response.

3. Culturally responsive teaching focuses on
 - A. Assessment.
 - B. Title I.
 - C. **students' backgrounds.**
 - D. writing across the curriculum.

Students' backgrounds are used to inform and design instruction that meets individual student academic and behavioral needs. Therefore, **Choice C** is correct.

4. Approximately _____% of all students will respond with success to core instruction.
 - A. 5%
 - B. **80%**
 - C. 15%
 - D. 75%

Choice B is correct based on the System of Intervention Pyramid.

5. Carla is a paraeducator who works with children with disabilities. She meets the aunt of one of her students in the local grocery store. Carla knows there is an on-going family dispute with the aunt and she has been specifically instructed by her supervising teacher not to discuss the student's progress with anyone. The aunt asks for an update on the student's progress. How should Carla respond?

- A. tell the aunt the latest events of the classroom
- B. change the subject immediately
- C. **advise the aunt she can't answer her questions and refer her to the teacher**
- D. ignore the aunt

Carla is bound by rules of confidentiality that have been further emphasized by her supervising teacher. This prevents her from discussing any of her students with others, regardless of the person's relationship to the student, especially in public settings. Therefore, **Choice C** is the best response to this question.

6. The paraeducator may use the technique of circulating and visually scanning the classroom to identify students who may

- A. be off task.
- B. have questions.
- C. **both A and B**
- D. none of the above

By circulating and visually scanning the room, the paraeducator could identify students who may be off task or have questions. Therefore, **Choice C** is correct since it contains both correct choices.

7. Directions that give more structure, icons to help interpret print, and the use of study guides are all examples of which strategy used in differentiated instruction?

- A. independent projects
- B. interest centers
- C. tiered assignments
- D. scaffolding

All of the choices are strategies used in differentiated instruction. However, the examples listed are scaffolding, so **Choice D** is correct.

8. Differentiated instruction offers a range of learning options and support systems through the use of

- A. one technique for all students.
- B. **a variety of teaching and learning strategies.**
- C. a variety of materials only for gifted students.
- D. none of the above

Choice B is correct because a variety of teaching and learning strategies is an element of differentiated instruction.

9. Josh is learning how to better control his temper. Nancy, the paraeducator who assists in Josh's room has been using different techniques developed by the teacher to assist Josh with anger management. She notices Andrew trying to start an argument with Josh, who is trying to remember how to not respond in anger. What should be her response?
- A. separate Josh and Andrew and reprimand both of them
 - B. separate Josh and Andrew and only speak to Andrew about his behavior
 - C. **separate Josh and Andrew, reprimand Andrew for his behavior, and provide reinforcement to Josh for not acting out in anger**
 - D. let Josh and Andrew work out their disagreement

Choice C is the most appropriate response. Not only is Andrew reprimanded appropriately, but Josh is given some necessary reinforcement in his response to the situation.

10. Sheltered instruction is a strategy used in a differentiated classroom to assist
- A. students with autism.
 - B. **English language learners.**
 - C. students in learning technology.
 - D. none of the above

According to information provided in the section on differentiated instructional strategies, sheltered instruction assists English language learners. Therefore, **Choice B** is the correct response.

APPENDIX A

LITERACY

TERMINOLOGY

KEY TERMS IN LITERACY

This appendix contains a glossary of literacy terms that you should be familiar with as a paraeducator. The terms may assist you in preparing for the KPA.

- **analogy** – comparison of two or more similar objects so as to suggest that if they are alike in certain respects, they will probably be alike in other ways as well
- **argumentation** – writing or speaking in which reasons or arguments are presented in a logical way
- **association** – connection between words to help explain the meaning
- **audience** – those people who read or hear what you have written
- **body** – paragraphs between introduction and conclusion that develop the main idea(s) of writing
- **cause and effect** – connections between events and their causes
- **central idea** – main point or purpose, often stated in thesis statement or topic sentence
- **character** – a person in a story or poem
- **characterization** – method an author uses to reveal or describe his characters and their various personalities
- **classify** – places persons or things together in a group because they are alike or similar
- **climax** – the high point or turning point in a work, usually the most intense point
- **coherence** – arrangement of ideas in such a way that the reader can easily follow from one point to the next
- **compare and contrast** – brings both points of similarity and differences
- **conclusion** – judgment or opinion based on information an author provides
- **conflict** – “problem” of a story which triggers the action
- **connotation** – all the emotions or feelings a word can arouse, such as the negative or bad feeling associated with the word *hate* or the positive or good feeling associated with the word *love*
- **context** – environment of a word; that is, the words, sentences, and paragraphs which surround a particular word and help to determine or deepen its meaning
- **criticize** – point out the good points and the bad points of a situation or idea
- **define** – give a clear, concise meaning for a term; generally consists of identifying the class to which a term belongs and how it differs from other things in that class
- **denotation** – literal or dictionary meaning of a word
- **describe** – recount, sketch, or relate something in sequence or story form
- **discuss** – examine and talk about an issue from all sides
- **emphasis** – placing greater stress on the most important idea in a piece of writing by giving it special treatment; emphasis can be achieved by placing the important idea in a special position, by repeating a key word or phrase, or by simply writing more about this idea than the others
- **evaluate** – make a value judgment, a statement of negative and/or positive worth
- **explain** – to make clear, to analyze, and to clarify; implies more of an emphasis on cause-effect relationships or step-by-step sequences
- **figurative language** – imaginative words and phrases that create a vivid image; language which cannot be taken literally since it was written to create a special effect or feeling
- **figure of speech** – literary device used to create a special meaning through emotional use of words
 - hyperbole – exaggeration or overstatement

- metaphor – comparison of two unlike things in which no words of comparison are used
- simile – comparison of two unlike things in which a word of comparison such as *like* or *as* is used
- symbol – a concrete object used to represent an idea
- **focus** – concentrating on a specific subject to give it emphasis or clarity
- **generalization** – idea or statement that emphasizes the general characteristics rather than the specific details of a subject
- **genre** – French word often used as a synonym for *form* or *type* when referring to literature; the novel, essay, and poem are three of the many genres or forms of literature
- **idiom (idiomatic expression)** – fixed expression with non-literal meaning; natural way of using language
- **illustrate** – show by means of a picture, a diagram, or some other graphic aid
- **image** – mental picture created for the reader by a skillful choice of words
- **interpret** – explain, translate, or show a specific application of a given fact or principle
- **irony** – using a word or phrase to mean the exact opposite of its literal or normal meaning
- **justify** – tell why a position or point of view is good, right, or proper
- **list** – formal numbering or sequencing
- **logic** – science of correct reasoning, correctly using facts, examples, and reasons to support your point
- **modifier** – word, phrase, or clause that limits or describes another word or group of words
- **narrator** – person or character who tells the story
- **narration** – writing that tells a story or recounts an event
- **objective** – relating information in an impersonal manner; without feelings or opinions
- **observation** – paying close attention to people, places, things, and events to collect details for later use
- **overview** – general idea of what is to be covered in a piece of writing
- **paradox** – statement that is seemingly contrary to common sense; yet the statement is, in fact, true
- **parts of speech** – grammatical category or word group in a language to which words may be assigned on the basis of how they are used in sentences; the traditional main parts of speech in English are
 - **noun** – naming word; a word or group of words used as the name of a class of people, places, or things, or of a specific person, place, or thing, e.g. *president, White House, inauguration*
Example of a noun used in a sentence: The *president* walked into the *White House*.
 - **verb** – word indicating action or state; a word used to show that an action is taking place or to indicate the existence of a state or condition, e.g. *walked, is*
 Example of a verb used in a sentence: The president *walked* into the White House.
 - **adjective** – word describing noun; a word that describes or qualifies a noun or pronoun, e.g. *key, this*
Example of an adjective used in a sentence: Students are able to quickly identify *key* information in texts.
 - **adverb** – word modifying a verb or adjective; a word that modifies a verb, an adjective, another adverb, or a sentence, e.g. *quickly, very*
Example of an adverb used in a sentence: Students are able to *quickly* identify key information in texts.
 - **pronoun** – word replacing noun; a word that substitutes for a noun or a noun phrase, e.g. *I, you, them, it, ours, who, which, myself, and anybody*; English pronouns differ from nouns in sometimes having an objective form, e.g. *her* for *she* and *me* for *I*
Example of pronouns used in a sentence: *She* made sure to tell *him* the best directions.

- **preposition** – word used before noun; a member of a set of words used in close connection with, and usually before, nouns and pronouns to show their relation to another part of a clause, e.g., *in, on, off, to, under*
Example of a preposition used in a sentence: The boy fell *off* his bike, but he was not hurt.
- **conjunction** – connecting word; a word that is used to link sentences, clauses, phrases, or words, e.g. *and, but, if*
Example of a conjunction used in a sentence: The boy fell off his bike, *but* he was not hurt.
- **interjection** – exclamation expressing emotion; a sound, word, or phrase that expresses a strong emotion such as pain or surprise but otherwise has no meaning, e.g. *wow*
Example of an interjection used in a sentence: *Gosh*, that dog looks hungry.
- **persuasion** – writing that is meant to change the way the reader thinks or acts
- **point of view** – perspective of the narrator; the vantage point from which the story is told:
 - first-person point of view – the story is told by one of the characters and will include the pronoun *I*
 - third-person point of view – the story is told by someone outside the story and will include the pronoun, *he, she, or they*
- **prove** – give evidence, to present facts, to use logic as a base for clear, forthright argumentation
- **purpose** – specific reason a person has for writing; the goal of writing
- **relate** – show how two or more things are connected or similar
- **setting** – time and place in which the action of a literary work occurs
- **state** – to say; to present a brief, concise statement of a position, fact, or point of view
- **structure** – form or organization a writer uses for his literary work
- **style** – how the author writes, rather than what the author writes
- **subjective** – thinking or writing that includes personal feelings, attitudes, and opinions
- **summarize** – present the main points of an issue in condensed, shortened form; details, illustrations, and examples are not given
- **supporting idea** – a fact that provides more information about a main idea
- **symbol** – something used to represent something else
- **symbolism** – figurative language in which an object, person, or event represents a larger, more abstract idea
- **synonym** – one of two or more words or expressions that have the same or similar meaning
- **theme** – central idea in a piece of writing (lengthy writings may have several themes); a term used to describe a short essay
- **time order** – explaining the order of events
- **tone** – attitude or feeling that a piece of writing conveys; the attitude of the author toward his audience and characters; a writer’s tone can be serious, sarcastic, tongue-in-cheek, solemn, objective, etc.
- **transitions** – words or phrases that help the ideas together

APPENDIX B

MATHEMATICAL

GLOSSARY

&

REVIEW

MATHEMATICAL GLOSSARY & REVIEW

This appendix contains a glossary of mathematical topics, terms, phrases and symbols that you should be familiar with as a paraeducator. The terms may assist you in preparing for the KPA.

Acute Angle – an angle that has less than 90 degrees

Adding Decimal Numbers – add a collection of decimal numbers

1. Write the decimal numbers in a column with the decimal points vertically aligned.
2. Add enough zeroes to the right of the decimal point so that every number has a place holder in each column to the right of the decimal point.
3. Add the numbers the same way as whole numbers.
4. Place a decimal point in the sum so that it is directly beneath the decimal points in the decimal numbers added.

Adding Fractions – with fractions that have the same denominator, the denominator is known as the *common denominator*

Add the numerators, and use this sum as the new numerator, retaining the common denominator as the denominator of the new fraction. Simplify the new fraction to lowest terms using the technique outlined in **Simplifying Fractions to Lowest Terms**.

If the fractions do not have the same denominator, you must find a common denominator. One method is to multiply the denominators together. Once you have found a common denominator, then express each fraction as an equivalent fraction with the common denominator, and add as you did when the fractions had the same denominator.

$$\begin{aligned} \text{Example: } & \frac{1}{2} + \frac{1}{3} + \frac{3}{8} = \\ & 2 \cdot 3 \cdot 8 = 48 \\ & \frac{1}{2} = \frac{24}{48} \\ & \frac{1}{3} = \frac{16}{48} \\ & \frac{3}{8} = \frac{18}{48} \\ & \frac{24}{48} + \frac{16}{48} + \frac{18}{48} = \frac{58}{48} = \frac{29}{24} = 1 \frac{5}{24} \end{aligned}$$

Adding Signed Numbers – three different cases of adding signed numbers

Case I: Adding *Same Signed* numbers:

1. The sign of the sum is the same as the sign of the numbers being added.
2. Add the absolute values (the distance of the number from 0).
3. Put the sign from Step 1 in front of the number you obtained in Step 2.

Case II: Adding two numbers with *Different Signs*:

1. The sign of the sum is the sign of the number that is largest in absolute value.
2. Subtract the absolute value of the number with the smaller absolute value from the absolute value of the number with the larger absolute value.
3. The answer is the number you obtained in Step 2 preceded by the sign from Step 1.

Case III: Adding more than two numbers with *Different Signs*:

1. Add all the positive numbers; the result is positive (as in Case I).
2. Add all the negative numbers; the result is negative (as in Case I).
3. Add the result of Step 1 to the result of Step 2 by using Case II.

Algebra – a branch of mathematics in which symbols are used to represent numbers and express mathematical relationships

Algebraic Expressions – an algebraic expression consists of one or more variables

It usually contains some constants and one or more operations. A letter in an algebraic expression always stands for a number. Therefore, you can add, subtract, multiply, divide, and perform other mathematical operations on a letter.

Examples: $2x + y$; $5x + 2y$ ($6x - 4y + z$). When letters or numbers are written together without any sign or symbol between them, then multiplication is assumed. Thus, $6xy$ means 6 times x times y .

Area – the number of square units in a region; the area of a rectangle equals length times width

Arithmetic – a branch of mathematics where problems are solved by calculating with numbers, using any one or a combination of the operations of addition, subtraction, multiplication and division

Average (mean) – the average or mean of N numbers is the sum of the N numbers divided by N

Example: To determine a student's average grade for a specific course during a 9-week period, you could add the test scores together and divide by the number of tests given.

Bar Graphs – vertical and horizontal bars used to represent quantities

It is essential that all labels and legends are read, with the base and sides of the graph carefully reviewed, to determine what the bars are measuring and how much they are increasing or decreasing. Before answering any questions, familiarize yourself with the graph and what it means.

Circumference – the perimeter of a circle

The formula is πd or $2\pi r$, where d is the length of a diameter and r is the length of a radius.

Example: If O is the center of a circle and $OP=5$ feet, then the circumference of the circle is $2 \cdot 5\pi$ or 10π feet.

Composite Number – integer that has more than 2 factors

Example: 10 is a composite number because its factors are 1, 2, 5, and 10

Consecutive integers – integers in sequence, such as 3, 4, 5, or -1, 0, 1

They can be represented in general as $n, n + 1, n + 2 \dots$ (where n is any integer).

Data Organization and Interpretation – the interpretation of graphs, tables, stem-and-leaf plots, scatters plot, and other visual displays of data

Decimal – a whole number plus a decimal fraction

The decimal point separates the whole number from the decimal fraction.

Decimal Fraction – a collection of digits after a period known as the *decimal point*

Example: .503, 7.50, and 2.5 are known as decimal fractions. Every *decimal fraction* represents a fraction. To find the fraction, remember the following:

1. The denominator is $10 \cdot 10 \cdot 10 \dots 10$. The number of 10's is equal to the number of digits to the right of the decimal point.
2. The numerator is the number represented by the digits to the right of the decimal point.

Example: .503 is represented by the following fraction: $\frac{503}{1000}$

Denominator – the bottom number of a fraction that tells you how many equal parts there are in the whole

Dilation (Reducing or Enlarging) – moving a geometric figure by reducing or enlarging

Distance Problems – basic formula to determine distance: Distance Traveled = Rate · Time

The distance an object travels is the product of its average speed, or rate, and the time it is traveling. This formula can be readily converted to express time in terms of distance and rate by dividing each side by Rate: Time = Distance / Rate

It can also be converted to determine Rate by dividing Distance by Time: Rate = Distance / Time

Dividing Decimals – divide one decimal, known as the dividend, by another decimal, known as the divisor

Example: $2.4 \div 0.3$

1. Move the decimal point in the divisor to the right until there is no decimal fraction in the divisor.

$$2.4 \overline{) 3.}$$

2. Move the decimal point in the dividend the same number of places to the right as you moved the decimal in Step 1.
 $24 \div 3$
3. Divide the result of Step 2 by the result of Step 1 as if they were whole numbers.
 $24 \div 3 = 8$
4. The number of decimal points in the result, also known as the quotient, should be equal to the number of decimal places in the result of Step 2.

Dividing Fractions – divide one fraction, known as the dividend, by another fraction, known as the divisor

Invert the divisor and multiply (to invert a fraction, turn it upside down).

Example: $\frac{3}{8} \div \frac{3}{4}$ would become $\frac{4}{3}$. Use the following steps to assist in dividing fractions:

Step 1: Invert (turn upside down) the second fraction in the problem. Convert to a multiplication problem.

$$\frac{3}{8} \div \frac{3}{4} = \frac{3}{8} \cdot \frac{4}{3}$$

Step 2: Multiply the numerators and the denominators.

$$\frac{3}{8} \cdot \frac{4}{3} = \frac{12}{24}$$

Step 4: Simplify, if necessary.

$$\frac{12}{24} = \frac{1}{2}$$

Even Number – any integer divisible by 2; that is, 0, ± 2 , ± 4 , ± 6 , ± 8 . . .

Exponent – in the expression x^n (read: x to the nth power), n is the exponent

The exponent tells how many times to use the base number as a factor.

Example: $3^5 = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

Factor – a factor of an integer is a divisor of that integer

Example: 1, 3, 5, and 15 are factors of 15, but 2 is not a factor of 15 (-1, -3, -5, and -15 are, however, factors of 15). Zero is not a factor of any integer.

Fraction – a number that represents a ratio or division of two numbers

A fraction is written in the form of $\frac{a}{b}$. The number on top is called the *numerator*; the number on the bottom is called the *denominator*. The denominator tells how many equal parts there are and the numerator tells how many of these equal parts are taken. A fraction cannot have 0 as a denominator since division by 0 is not defined. A fraction with 1 as the denominator is the same as the whole number that is its numerator.

Geometry – includes spatial relationships such as parallel and perpendicular lines, intersections of sets of points (a line and a circle, for example), and order along a path; properties of common geometric figures (rectangles and cubes, for example); special triangles (isosceles, equilateral, and right); locating points on a coordinate grid

Glide Reflection (Slide and flip) – moving a geometric figure by sliding and then flipping

Integers – whole numbers and their opposites . . . -4, -3, -2, -1, 0, 1, 2, 3, 4 . . .

Interest and Discount – two of the most common uses of percent are in calculating interest and discount problems

The rate of interest is generally given as a percent.

Basic formula for interest problems: Interest = Amount · Time · Rate

Basic formula for discount problems: Discount = Cost · Rate of Discount

Calculate the rate of discount with the following formula: Rate of Discount = Cost – Price / Cost

Mean (See average.)

Measurement – using various units to assign numerical values to properties of objects, such as length, weight, and so on

There are two basic systems of measurement in the United States: customary and metric.

Median – (if a group of numbers is arranged in order) the middle number if N numbers are odd and the average of the two middle numbers if N is even

Mixed Numbers – consist of a whole number and a fraction

Example $6\frac{1}{2}$ is a mixed number

The following steps should be used to change a mixed number into a fraction:

1. Multiply the whole number by the denominator of the fraction. (Using $6\frac{1}{2}$ as the mixed number you would multiply $6 \cdot 2$).
2. Add the numerator of the fraction to the result of 1 above. ($12+1$)
3. Use the result of Step 2 as the numerator, and use the denominator of the fractional part of the mixed number as the denominator. This fraction is equal to the mixed number. ($\frac{13}{2}$)

A fraction whose numerator is larger than its denominator can be changed into a mixed number using the following steps:

1. Divide the denominator into the numerator; the result is the whole number of the mixed number. ($13/2 = 6$)
2. Put the remainder from Step 1 over the denominator; this becomes the fractional part of the mixed number. ($\frac{1}{2}$) The mixed number will be written as $6\frac{1}{2}$.
In calculations with mixed numbers, change the mixed numbers into fractions.

Mode – the number or numbers that occur the most often in a set of data

Multiple – the product of an integer and another integer

Some multiples of 4 are -8, -4, 0, 4, 8, 12, and 16, but 2 is not a multiple of 4 (2 is, however, a factor of 4).

Multiplying Decimal Numbers – multiple decimal numbers like whole numbers

The decimal point of the product is placed so that the number of decimal places in the product is equal to the total number of decimal places in all of the numbers multiplied.

Multiplying Fractions – multiply the numerators to form the numerator of the product; multiply the denominators to form the denominator of the product

Example: Nathan contributes $\frac{1}{10}$ of \$950 to his favorite charity on a monthly basis. How much does Nathan contribute?

$$\frac{1}{10} \cdot \frac{950}{1} = \frac{950}{10} = \$95$$

Multiplying Numbers Expressed in Scientific Notation – multiply numbers expressed in scientific notation using the steps below

In scientific notation, a positive number is written as the product of a number greater than or equal to 1 and less than 10 and an integer power of 10.

Example: $(4.1 \times 10^{-2})(3.8 \times 10^4)$

Step 1: Multiply the non-exponential terms in the usual way.

$$(4.1 \cdot 3.8) = 15.58$$

Step 2: Multiply the exponential terms by adding their exponents.

$$(10^{-2} \cdot 10^4) = 10^2$$

Step 3: Write your answers to Steps 1 and 2 in an equation:

$$(15.58)(10^2) = 15.58 \times 10^2$$

Step 4: Express your result in a scientific notation by moving your decimal point one place to the left and add one to the exponent, resulting in:

$$1.558 \times 10^3$$

Multiplying Signed Numbers – two different cases when multiplying signed numbers

Case I: Multiplying two numbers:

1. Multiply the absolute values of the numbers.
2. If both numbers have the same sign, the result of Step 1 is the answer and the product is positive. If the numbers have different signs, the result of Step 1 becomes negative.

Case II: Multiplying more than two numbers:

1. Multiply the first two factors using Case I.
2. Multiply the result of Step 1 by the third factor.
3. Multiply the result of Step 2 by the fourth factor.
4. Continue until you have used each factor.

Negative Integers – the numbers -1, -2, -3, -4 . . .

Numerator – the top number of a fraction that tells you how many parts you have

Obtuse Angle – an angle that is greater than 90 degrees

Odd Numbers – the numbers $\pm 1, \pm 3, \pm 5, \pm 7 . . .$

Order of Operations – an order to solving a problem that asks you to do addition, subtraction, multiplication, division, exponents, and some work in parentheses

Use the following steps:

Step 1: Do all the operations with parentheses first.

Step 2: Simplify all numbers with exponents.

Step 3: Multiplication and Division in order from left to right.

Step 4: Addition and subtraction in order from left to right.

Percent – another method of expressing fractions or parts of an object

Percents are expressed in terms of hundredths, so that 100% means 100 hundredths or 1. A decimal is converted into a percent by multiplying the decimal by 100. To convert a percent into a decimal, divide by 100 which will move the decimal point two places to the left. A fraction is converted into a percent by changing the fraction to a decimal and then changing the decimal to a percent. A percent is changed into a fraction by first converting the percent into a decimal and then changing the decimal to a fraction.

Perimeter – the distance around the outside of a shape or figure

Positive Integers – the numbers 1, 2, 3, 4 . . .

Prime Number – an integer that has exactly two different positive divisors, 1 and itself

Example: 2, 3, 5, 7, 11, 13 (1 is neither prime nor composite because it has only one factor. The only even prime number is 2.)

Probability – the chance of an event occurring

Probability can be expressed as a decimal, percent, fraction or ratio. The number of favorable outcomes divided by the total number of all possible outcomes determines the probability of an event.

Proportion – a statement that two ratios are equal

In a proportion, the product of the extremes is equal to the product of the means.

Ratio – a comparison of two numbers by division

The ratio of a to b is written as $a:b$ or a/b . Ratios may be handled as fractions, and b can never be zero. To find the ratio of two quantities, the numbers must represent the same units. If two numbers measure different quantities, their quotient is usually called a rate.

Rectangular Prism – a solid with two parallel congruent rectangular bases and with rectangular lateral sides

Reflection (Flip) – moving a geometric figure by flipping

Right Angle – an angle that is exactly 90 degrees

Rotation (Turn) – moving a geometric figure by turning

Scientific Notation – a method used by scientists to convert very large or very small numbers to more manageable ones

To convert a very large number, use the following steps:

Example: 96,000,000

Step 1: Starting at the “imaginary” decimal point to the right of the last zero, move the decimal point until only one digit remains to the left.

96,000,000 becomes 9.6

Step 2: Count the number of places the decimal was moved left. It is 7 places, which is expressed as:

10^7

Step 3: Express the full answer in scientific notation this way:

$96,000,000 = 9.6 \times 10^7$

To convert a very small number, use the following steps:

Example: .000075

Step 1: Move the decimal point to the right until there is one digit other than zero to the left of the decimal.

.000075 becomes 7.5

Step 2: Count the number of places the decimal was moved right. It is 5, which is expressed using a negative sign with the exponent:

10^{-5}

Step 3: Express the full answer in scientific notation this way:

$.000075 = 7.5 \times 10^{-5}$

Signed Number – a number preceded by either a plus or minus sign

If a sign (+ or -) is not given, the plus sign is assumed.

Simplify a Fraction to Lowest Terms – a fraction is reduced to lowest terms when the numerator and denominator have no common factors

Example: $\frac{1}{2}$ is reduced to lowest terms, but $\frac{2}{4}$ is not because 2 is a common factor of 2 and 4.

Simplifying Algebraic Expressions – two general methods for simplifying algebraic expressions

Case I: Simplifying expressions without parentheses:

1. Perform any multiplications or divisions before performing additions or subtractions.
The expression $6x + y / x$ means add $6x$ to the quotient of y divided by x .
2. The order in which you multiply numbers and letters in a term does not matter, so $6xy$ is the same as $6yx$.
3. The order in which you add terms does not matter; for example: $6x - 2y - x = 6x - x + 2y$.
4. If there are roots or powers in any terms, you may be able to simplify the term by using the laws of exponents (**see Exponents of this section**). Example: $5xy \cdot 3x^2y = 15x^3y^2$
5. Combine like terms. Like terms are terms that have exactly the same letters raised to the same powers. In combining like terms, you simply add or subtract the coefficients of the like terms and the result is the coefficient of that term in the simplified expression.

Case II: Simplifying expressions with parentheses:

1. Perform the operations inside the parentheses before doing the others.
2. Use the distributive law to remove the parentheses.
3. Proceed with the steps found in Case I to determine the answer.

Subtracting Decimal Numbers – subtract one decimal number from another

1. Put the decimal numbers in a column so that the decimal points are vertically aligned.
2. Add zeros so that every decimal has a place holder in each column to the right of the decimal point.
3. Subtract the numbers as you would whole numbers.

- Place the decimal point in the result so that it is directly beneath the decimal points of the numbers subtracted.

Subtracting Fractions – when fractions have the same denominator, subtract the numerators and place the result over the denominator

When fractions have different denominators, use the following process to complete the subtraction:

- Find a common denominator.
- Express each fraction as an equivalent fraction with the common denominator.
- Subtract the numerators and place the result over the denominator.

Subtracting Fractions (Renaming) – to subtract mixed numbers you must be able to rename the fraction as a whole number plus a fraction

Complete the following process when renaming in mixed numbers:

Example: $5\frac{3}{8} - 2\frac{7}{8}$

You will need to borrow from the column to the left, just as you do when working with whole numbers. You will borrow 1 from 5, which becomes 4, and then convert the borrowed 1 into a fraction that is $\frac{8}{8}$. Add the borrowed $\frac{8}{8}$ to the $\frac{3}{8}$, which now becomes $\frac{11}{8}$. Then complete the subtraction process.

$$5\frac{3}{8} - 2\frac{7}{8} =$$

$$4\frac{8}{8} + \frac{3}{8} = 4\frac{11}{8}$$

$$4\frac{11}{8} - 2\frac{7}{8} =$$

$$2\frac{4}{8} =$$

$$2\frac{1}{2}$$

Subtracting Signed Numbers – use these steps when subtracting signed numbers

- Change the sign of the number you are subtracting (the number to the right of the subtraction sign)
Example: $5 - (-3)$ would change to $5 + 3$
- Add the result of Step 1 to the number being subtracted using the rules of **Adding Signed Numbers**.

Symbols

= is equal to

≠ is not equal to

· or x multiplication

< is less than

> is greater than

÷ or / division

≤ is less than or equal to

≥ is greater than or equal to

|| is parallel to

Translation (Slide) – moving a geometric figure by sliding

Volume – the measure of the interior of a space (three dimensional) figure

A unit for measuring volume is the cubic unit.

APPENDIX C

ACRONYMS

&

GLOSSARY

Kentucky Department of Education ACRONYMS

This appendix contains acronyms and a glossary of terms that you may encounter as a paraeducator. The terms will **not** be covered on the KPA.

A

ADA Average Daily Attendance
ADD Attention Deficit Disorder
ADHD Attention Deficit Hyperactivity Disorder
ARC Admissions and Release Committee

C

CATS Commonwealth Accountability System
CDC Centers for Disease Control
CDIP Comprehensive District Improvement Plan
CEC Council for Exceptional Children
CIP Comprehensive Improvement Planning
CSIP Comprehensive School Improvement Plan

D

DAC District Assessment Coordinators
DOK Depth of Knowledge

E

EBD Emotional Behavior Disorder
ELL English Language Learner
ELP English Language Proficiency
EPSB Education Professional Standards Board
ESEA Elementary & Secondary Education Act
ESL English as a Second Language
ESS Extended School Services

F

FRYSC Family Resource and Youth Services Center

G

GSSP Gifted Student Services Plan

H

HSE Highly Skilled Educator

I

IC Infinite Campus
IDEA Individuals with Disabilities Education Act
IECE Interdisciplinary Early Childhood Education
IEP Individual Education Plan
IFSP Individual Family Service Plan
IGP Individual Graduation Plan

K

KAC Kentucky Arts Council
KAGC Kentucky Association of Governmental Communicators
KAGE Kentucky Association for Gifted Education
KAMC Kentucky Accessible Materials Consortium
KAR Kentucky Administrative Regulation
KBE Kentucky Board of Education
KEA Kentucky Education Association
KEES Kentucky Educational Excellence Scholarship (handled by KHEAA)
KELP Kentucky Early Learning Profile
KEPS Kentucky Educator Placement System
KERS Kentucky Employees Retirement System
KET Kentucky Educational Television
KETS Kentucky Education Technology System
KHEAA Kentucky Higher Education Assistance Authority
KIDS Kentucky Instructional Discipline Support
KIRIS Kentucky Instructional Results Information System
KRS Kentucky Revised Statute
KSB Kentucky School for the Blind (Louisville)
KSBA Kentucky School Boards Association
KSD Kentucky School for the Deaf (Danville)
KTIP Kentucky Teacher Internship Program
KTRS Kentucky Teachers Retirement System
KVHS Kentucky Virtual High School
KVL Kentucky Virtual Library

L

LEA Local Education Agency
LEAD Leadership for Educational Achievement in Districts
LEP Limited English Proficiency
LMC Library Media Center
LMS Library Media Specialist
LRC Legislative Research Commission

M

MEP Migrant Education Program (Title I, Part C)
MUNIS Municipal Information Systems

STUDENTS WITH SPECIAL NEEDS

This appendix contains information about students with special needs that may assist you as a paraeducator. The information will **not** be covered on the KPA.

DEFINITIONS

"Child with a disability" means a child evaluated in accordance with 707 KAR 1:300, as meeting the criteria listed in the definitions in this section for autism, deaf-blindness, developmental delay, emotional-behavior disability, hearing impairment, mental disability, multiple disabilities, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, or visual impairment which has an adverse effect on the child's educational performance and who, as a result, needs special education and related services.

"Special education" means specially designed instruction, at no cost to the parents, to meet the unique needs of the child with a disability including instruction in the classroom, in the home, in hospitals and institutions, and in other settings. Special education means speech-language pathology services, (if the service is considered special education rather than a related service), travel training, and vocational education.

"Specially-designed instruction" means adapting as appropriate the content, methodology, or delivery of instruction to address the unique needs of the child with a disability and to ensure access of the child to the general curriculum included in Kentucky's Program of Studies, 704 KAR 3:303.

DISABILITY CATEGORIES

Kentucky has 13 disability categories children can be found eligible for:

1. **"Autism"** means a developmental disability significantly affecting and nonverbal communication and social interaction, generally evident before age three that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional-behavior disability.
2. **"Deaf-blindness"** means hearing and visual impairments that have an adverse effect on the child's education performance, the combination of which causes severe communication and other developmental and educational needs that cannot be accommodated in special education programs solely for children with deafness or children with blindness, unless supplementary assistance is provided to address educational needs resulting from the two disabilities.
3. **"Developmental delay" or "DD"** means that a child within the ages of three through eight has not acquired skills, or achieved commensurate with recognized performance expectations for his age in one or more of the following developmental areas: cognition, communication, motor development, social-emotional development, or self-help-adaptive behavior. Developmental delay includes a child who demonstrates a measurable, verifiable discrepancy between expected performance for the child's chronological age and current level of performance.
4. **"Emotional-behavioral disability" or "EBD"** means that a child, when provided with interventions to meet instructional and social-emotional needs, continues to exhibit one or more of the following, when compared to the child's peer and cultural reference groups, across settings, over a long period of time and to a marked degree:

- a. severe deficits in social competence or appropriate behavior which cause an inability to build or maintain satisfactory interpersonal relationships with adults or peers;
- b. severe deficits in academic performance which are not commensurate with the student's ability level and are not solely a result of intellectual, sensory, or other health factors but are related to the child's social-emotional problem;
- c. a general pervasive mood of unhappiness or depression; or
- d. a tendency to develop physical symptoms or fears associated with personal or school problems.

This term does not apply to children who display isolated (not necessarily one) inappropriate behaviors that are the result of willful, intentional, or wanton actions unless it is determined through the evaluations process that the child does have an emotional-behavioral disability.

5. **"Hearing impairment"**, sometimes referred to as "deaf" or "hard of hearing", means a hearing loss that
 - a. may be mild to profound, unilateral or bilateral, permanent or fluctuating;
 - b. results in difficulty identifying linguistic information through hearing; and
 - c. has an adverse effect on the child's educational performance.
6. **"Mental disability"** means that a child has one of the following:
 - a. mild mental disability (MMD) in which
 - cognitive functioning is at least two but no more than three standard deviations below the mean;
 - adaptive behavior deficit is at least two standard deviations below the mean;
 - a severe deficit exists in overall academic performance including acquisition, retention, and application of knowledge; and
 - manifestation is typically during the developmental period; or
 - b. functional mental disability (FMD) in which
 - cognitive functioning is at least three or more standard deviations below the mean;
 - adaptive behavior deficits are at least three or more standard deviations below the mean;
 - a severe deficit exists in overall academic performance including acquisition, retention, and application of knowledge; and
 - manifestation is typically during the developmental period.
7. **"Multiple disabilities " or "MD"** means concomitant impairments that have an adverse effect on the child's educational performance, the combination of which causes severe educational needs that cannot be accommodated in special education programs solely for one of the impairments. Examples of MD include mental disability-blindness, and mental disability-orthopedic impairment. The term multiple disabilities does not mean deaf-blindness nor does it mean a speech or language impairment in combination with another category of disability.
8. **"Orthopedic impairment" or "OI"** means a severe impairment of the bones, joints, ligaments, or muscles that adversely affects a child's educational performance. The term includes the following:
 - a. impairment caused by a variance present at birth such as clubfoot, or absence of some member;
 - b. impairment caused by disease such as poliomyelitis, or bone tuberculosis; and
 - c. impairment from other causes such as cerebral palsy, amputations, and fractures or burns that causes contractures.

9. **"Other health impairment " or "OHI"** means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that
- is due to a chronic or acute health problem, such as acquired immune deficiency syndrome, asthma, attention deficit disorder, attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, Tourette's syndrome, or tuberculosis; and
 - adversely affects a child's educational performance.
10. **"Specific learning disability" or "LD"** means a disorder that adversely affects the ability to acquire, comprehend, or apply reading, mathematical, writing, reasoning, listening, or speaking skills to the extent that specially designed instruction is required to benefit from education. The specific learning disability (LD) may include dyslexia, dyscalculia, dysgraphia, developmental aphasia, and perceptual/motor disabilities. The term does not include deficits that are the result of other primary determinant or disabling factors such as vision, hearing, motor impairment, mental disability, emotional-behavioral disability, environmental or economic disadvantaged, cultural factors, limited English proficiency, or lack of relevant research-based instruction in the deficit area.
11. **"Speech or language impairment"** means a communication disorder, including stuttering, impaired articulation, a language impairment, a voice impairment, delayed acquisition of language, or an absence of language, that adversely affects a child's educational performance.
12. **"Traumatic brain injury" or "TBI"** means an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. Traumatic brain injury does not mean brain injuries that are congenital or degenerative, or brain injuries induced by birth trauma. Traumatic brain injury means open or closed head injuries resulting in impairments in one or more areas, including the following:
- | | | |
|--------------|---------------------------|---------------------------|
| a. cognition | f. abstract thinking | j. psychosocial behavior |
| b. language | g. judgment | k. physical functions |
| c. memory | h. problem-solving | l. information processing |
| d. attention | i. sensory, perceptual, & | m. speech |
| e. reasoning | motor abilities | |
13. **"Visual impairment" or "VI"** means a vision loss, even with correction that
- requires specialized materials, instruction in orientation and mobility, Braille, visual efficiency, or tactile exploration;
 - has an adverse effect on the child's educational performance; and
 - meets the following:
 - The child has visual acuity with prescribed lenses that is 20/70 or worse in the better eye; or
 - The child has visual acuity that is better than 20/70 and the child has one of the following conditions:
 - medically-diagnosed progressive loss of vision; A visual field of twenty degrees or worse;
 - medically-diagnosed condition of cortical blindness; or
 - functional vision loss.

APPENDIX F

REFERENCES,

RESOURCES, &

ENDNOTES

REFERENCES, RESOURCES, & ENDNOTES

This appendix contains references and resources used to develop the KPA Study Guide. They may provide you information as a paraeducator. The information will **not** be covered on the KPA.

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Students with Special Needs

Kentucky Department of Education. Documents and information.

<http://www.kde.state.ky.us/KDE/Instructional+Resources/Exceptional+Children/>

The Kentucky System of Intervention

Kentucky Department of Education. *A Guide to the Kentucky System of Intervention*.

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ENDNOTES

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