



CIRCLE
KINDERGARTEN
CLASSROOM ENVIRONMENT
CHECKLIST

Teacher _____

School _____

Observer _____

School Year _____

BOY Observation Date _____

MOY Observation Date _____

EOY Observation Date _____



Introduction to the Kindergarten Classroom Environment Checklist

The Kindergarten Classroom Environment Checklist KCEC is a 22-item observation tool that evaluates the presence and quality level of important areas, materials, and concepts in a kindergarten classroom. A rich kindergarten classroom includes supportive tools for promoting student independence and academic success within classroom structures, expectations, and routines. The same structures which promote a social and emotionally grounded, routine-oriented, and organized environment allows for the seamless embedding of academic and skills-based learning opportunities throughout that environment.

The KCEC enables teachers to set the stage for successful learning as students engage in the classroom experience. The KCEC can be utilized as a goal-setting and reflection tool as teachers implement classroom organization grounded in evidence-based teaching strategies, or as a self-assessment tool in which teachers can drive their own professional learning. Administrators and instructional coaches may also use the KCEC as a companion to classroom organization strategies or to support teachers in identifying pedagogical areas of growth. The recommendation is to use this tool as a foundation of evidence-based practices, as it is designed to be utilized throughout the year. While the tool may be utilized as part of ongoing classroom observations, the basic components that measure high-quality physical environments are especially important at the beginning of year in order for teachers to develop a high-quality instructional environment, expectations, and routines.

How to Use the Kindergarten Classroom Environment Checklist KCEC

Observations can take place with or without students present and can be completed in item segments or all together. The tool is designed to focus on the learning environment, rather than the teacher's interactions with students, which are typically evaluated with separate classroom observation tools (i.e., CIRCLE Classroom Observation Tool). Unless otherwise noted, the observer should rate based only on what is visibly present in the classroom. The marked rating indicates that every part of the description is visible in the classroom. Observers are highly encouraged to utilize the blank spaces marked "notes/evidence" to enter additional observations that support the rating given.

The KCEC has 22 environmental indicators which are organized within 5 primary areas:

- Independent Learning Station Areas/Arrangement of Indoor Space and Organization
- Literacy
- Diversity, Equity, Inclusion
- Instructional Planning & Delivery
- Science, Technology, Engineering, Math (STEM) Materials

The KCEC uses a 3-point rating scale:

1. Low rating
2. Moderate rating
3. High rating

Refer to the Glossary (pg.16) for terms and definitions.

KCEC AT A GLANCE

SECTION 1: INDEPENDENT LEARNING STATION AREAS/ARRANGEMENT OF INDOOR SPACE AND ORGANIZATION

- CLASSROOM ORGANIZATION
- LEARNING STATION MANAGEMENT SYSTEM
- VARIETY OF LEARNING STATION MATERIALS
- LABELED LEARNING STATION MATERIALS
- BOOKS IN LEARNING STATIONS
- WRITING TOOLS IN LEARNING STATIONS

SECTION 2: LITERACY

- INTERACTIVE READ ALOUD SUPPORTS
- SUPPORTIVE AND SCAFFOLDED WRITING
- WRITING JOURNALS
- PHONOLOGICAL AWARENESS CONTINUUM
- WORD WALL AND/OR SOUND WALL

SECTION 3: DIVERSITY, EQUITY, INCLUSION

- STUDENT DAILY SCHEDULE
- CLASSROOM CARE CHART
- COMMUNITY HELPER CHART
- REPRESENTATIONS OF DIVERSITY

SECTION 4: INSTRUCTIONAL PLANNING & DELIVERY

- LESSON PLAN
- PROGRESS MONITORING PLAN
- STUDENT'S WORK DISPLAY

SECTION 5: SCIENCE, TECHNOLOGY, ENGINEERING, MATH (STEM) MATERIALS

- SCIENCE MATERIALS
- TECHNOLOGY MATERIALS
- ENGINEERING MATERIALS
- MATH MATERIALS

INDEPENDENT LEARNING STATION AREAS ARRANGEMENT OF INDOOR SPACE AND ORGANIZATION

Well organized classrooms are known to reflect student’s engagement, interest, active participation, and learning (Hamre & Pianta, 2007). In this section, titled Independent Learning Station Areas, Arrangement of Indoor Space and Organization, the Kindergarten Classroom Environment Checklist KCEC focuses on the classroom as the “third teacher” or in other words, an additional educational influence on students’ learning (Gandini, 2011). The Third Teacher framework brings visibility and value to the everyday items we experience in the classroom, constituting them as intentional, pedagogical extensions of a teacher’s instruction while mirroring the principles of the classroom community. This section is designed to evaluate the clarity (i.e. labeled learning station materials), accessibility (i.e. placement of learning station materials), and organization (i.e. learning station management systems) of the physical classroom space that students engage with daily. Research shows the quality and arrangement of materials, supplies, furniture, and equipment not only enhance indoor learning environments, but encourage imagination, discovery, invention, cooperation, and creativity among kindergarten students (Cappelloni, N. L., 2012).

Item	Rating Description	Observed		
		BOY	MOY	EOY
Classroom Organization	1. Room lacks recognizable, defined areas for whole group, small-group instruction, and learning stations. Most areas designated for students present obstacles or difficulties for students to navigate and move freely.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. Room has some recognizable, defined areas for large, small-group, and learning stations. At least half of areas designated for students in the classroom are arranged for students to navigate and move freely.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. Room has recognizable, defined areas for large, small-group, and learning stations. All areas designated for students in the classroom are arranged accessibly for students to navigate and move freely.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: Examples of Learning Stations include Phonological and Phonemic Awareness, Letter Knowledge, Word Work, Writing, Sensory, Library, Poetry, Language Development, Dramatic Play, Math, Science, Technology, Art, Construction, Music.			
Notes/Evidence:				
Learning Station Management System	1. Learning stations are not labeled with words and/or pictures at students’ eye level. There is no place for students’ names at each learning station or a central classroom learning station planning board.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. At least half learning stations are labeled with words and/or pictures at students’ eye level. There are places for students’ names at each learning station or a central classroom learning station planning board.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. All learning stations are labeled with words and/or pictures at students’ eye level. There are places for students’ names at each learning station or a central classroom learning station planning board.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: Learning station labels should have words available in language(s) of instruction. Some teachers may include labels to represent children’s home languages throughout the classroom.			
Notes/Evidence:				

Item	Rating Description	Observed		
		BOY	MOY	EOY
Variety of Learning Station Materials	1. There is an inadequate variety of materials in learning stations, or the materials are inaccessible to students.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. At least half of the learning stations contain an adequate variety of materials that are accessible to students.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. All learning stations contain an adequate variety of materials that are accessible to students.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Adequate materials are defined as having enough for each child to successfully engage in an activity. Materials can include magnetic letters, picture rhyming cards, math manipulatives, etc.				
Notes/Evidence:				
Labeled Learning Station Materials	1. Materials and shelf labels are unclear, inaccurate, or not labeled. They hinder students' independent handling and storage of materials.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. At least half of the materials are stored and labeled with words, pictures, and matching locations to facilitate students' independent handling and storage of materials.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. Most materials are stored and labeled with words, pictures, and matching locations to facilitate students' independent handling and storage of materials.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: If dual language/bilingual classroom, learning station material labels should have words in language of instruction for a high rating. Examples of learning stations may be exploratory station, reading station, writing station, library station, audio/visual station, electronic station, advisory station, acting/dramatic play station, or stations that represent other subjects such as Math station, Art station, Science station, and Communication station.				
Notes/Evidence:				
Books in Learning Station	1. There are books in the classroom library. There are no additional books available to students in other areas of the classroom.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There are books in the classroom library and half of stations. Books are related to station's intended activities.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There are books in the classroom library and in most stations. Books are related to station's intended activities.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Books related to intended activities include rhyming books in literacy station, construction books in math station, life cycle books in science stations, etc.				
Notes/Evidence:				

Item	Rating Description	Observed		
		BOY	MOY	EOY
Writing Tools in Learning Stations	1. Writing tools are only available in the writing station and no other learning stations.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. Writing tools are available in the writing station and in half of the other stations to encourage writing skills related to that area of the classroom.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. Writing tools are available in the writing station and in most other stations to encourage writing skills related to that area of the classroom.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Evidence of writing tools can included dry erase boards, dry erase markers, tracing letters, markers, different size pencils, color pencils, crayons, letter stamps, stickers, a variety of paper, etc. *Flannel boards, slanted boards, weighted pens/pencils, hand grips, etc. can be used as a student accommodation.				
Notes/Evidence:				

LITERACY

In this section titled Literacy, the KCEC focuses on the presence of distinct and purposeful resources in the classroom. These resources support emergent literacy using interactive read-aloud supports, supportive and scaffolded writing, writing journals, and materials that support the development of skills along the phonological awareness continuum. Developing a literacy-rich environment requires the deliberate selection and use of materials. Authentic print-rich environments encourage language development and improve classroom climate by providing opportunities for students to interact with print in various ways. Research shows students are poised to learn literacy skills when “immersed in classroom environments that support natural literacy experiences throughout the day” (Bowden, 2005). In evaluating the quality of literacy practices and support provided in the classroom, educators help ensure intentional literacy development fostered in young students.

Item	Rating Description	Observed		
		BOY	MOY	EOY
Interactive Read Aloud Supports	1. There is no evidence of interactive read aloud supports in the large-group meeting area or stations.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There are 1-2 pieces of evidence for interactive read aloud supports in the large-group meeting area or stations that encourage scaffolded questioning and active listening.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There are 3 or more pieces of evidence for interactive read aloud supports in the large-group meeting area or stations that encourage scaffolded questioning and active listening.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: Evidence of interactive read aloud supports may include pocket charts highlighting literary elements, story retell props (puppets, flannel board), vocabulary or picture cards, written comprehension questions, journal entry prompts, sticky notes with targeted teaching points stored in the read-aloud book, scaffolds/sentence stems, etc. Some of these items may be noted in the lesson plan.			
Notes/Evidence:				
Supportive and Scaffolded Writing	1. There are no writing samples that show evidence of teacher-modeled, shared, interactive, or independent writing.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. 1-2 writing samples show evidence of teacher-modeled, shared, interactive, or independent writing.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. At least 3 writing samples show evidence of teacher-modeled, shared, interactive, or independent writing.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: Evidence of writing may include modeled, shared, interactive writing or independent writing as evidenced in daily news/morning message, anchor charts, class-made books, student journals, KWL charts, semantic webs, etc. In modeled writing, teachers act as both composer and scribe.			
Notes/Evidence:				

Item	Rating Description	Observed		
		BOY	MOY	EOY
Writing Journals	1. Journals are unavailable to students to capture consistent writing entries.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. Journals are available to students and capture 1 or less dated writing entry per week.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. Journals are available to students and capture 2 or more dated writing entries per week.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: Evidence of journaling may be seen in free-writing, process writing journals, or content specific journals such as Math, Science, Social Studies, Response to Literature, and Writing journals. Journals may be topic specific or capture a variety of entries. For example, some classrooms may have multiple journals per child that align to specific academic subjects, whereas other classrooms may capture all academic subjects in one journal. If journals are not readily accessible, the observer should inquire where they are stored in order to review.			
Notes/Evidence:				
Phonological Awareness Continuum	1. There is evidence of 1 domain connected to the phonological awareness continuum in the classroom environment or materials.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There is evidence of 2-4 domains connected to the phonological awareness continuum in the classroom environment or materials.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There is evidence of 5 or more domains connected to the phonological awareness continuum in the classroom environment or materials.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: Common phonological awareness materials can include rhyming picture cards; syllable sorts; flipbooks; anchor charts; nursery rhymes; poems; sentence strips; Elkonin boxes.			
Notes/Evidence:				
Word Wall and/or Sound Wall	1. There is no word or sound wall in the classroom.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There is a word and/or sound wall and it is accessible for students to engage with.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There is a word and/or sound wall and it is accessible for students to engage with and aligns with learning objectives.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: If dual language/bilingual classroom, two-word and/or two-sound walls are recommended for a high rating, one in each language. Most words include picture icons, but some words may not, such as sight words/function words that do not need pictures/icons. For word and sound walls to be interactive, classrooms may utilize Velcro™ or something similar to create a functional, interactive learning material. Interactivity encourages accessibility and student engagement; and alignment with teacher lesson plans, objectives, scope and sequence. Observer may need to work with teacher to review lesson plans, scope and sequence, learning objectives, etc. to ensure alignment.			
Notes/Evidence:				

DIVERSITY, EQUITY, INCLUSION

High quality classroom environments equitably reflect the students and staff within them. More specifically, materials and practices that make up the learning environment such as books, materials, images, celebrations, activities, and routines should be grounded in students’ identities and interests. In this section of the KCEC, areas such as the **Student Daily Schedule**, **Classroom Care Chart**, and **Community Helper Chart** focus on balancing routines and responsibilities so that students learn to care for the classroom, building an environment of shared responsibilities and care for peers that fosters a sense of belonging within each student. Additionally, research shows that students bring their own set of culturally based expectations, skills, talents, abilities, and values with them into the classroom. They begin to develop their self-concept (at least in part) from how others see them and to form positive self-concepts, students must honor and respect their own families and cultures and have others honor and respect these key facets of their identities too (Kaiser, B; Rasminsky, J. S. 2019). Honoring students’ identities in the classroom can be practiced through **Representations of Diversity**, which mirrors students’ growing identities back to them in positive, inclusive ways. Additionally, Representations of Diversity is an age-appropriate practice to respectfully introduce students to people, identities, or cultures that may be different from theirs. This age-appropriate introduction to concepts like inclusivity increase students’ respect for themselves and others.

Item	Rating Description	Observed		
		BOY	MOY	EOY
Student Daily Schedule	1. There is no student daily schedule located at student’s eye level to allow for students to see activities and daily routines. There may be a daily schedule located for adults’ use only.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There is a student daily schedule located at student’s eye level, yet only displays words and does not include pictures/icons for each activity.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There is a student daily schedule located at student’s eye level that includes words with pictures/icons for each activity.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Some Kindergarten schedules will add clock/times to expose students to higher level math skills; There may also be evidence of materials used by students or teachers to interact with schedule (clothes pins, arrows, time markers).				
Notes/Evidence:				
Classroom Care Chart	1. Classroom expectations for respectful conduct are not displayed in writing and icons.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. Classroom expectations for respectful conduct are displayed in writing and icons.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. Classroom expectations for respectful conduct are displayed in writing and icons at students’ eye level.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Respectful conduct can include treating others, self, and classroom environment with thoughtfulness and care.				
Notes/Evidence:				

Item	Rating Description	Observed		
		BOY	MOY	EOY
Community Helper Chart	1. There is no community helper chart with equal opportunities for students to practice contributing specific responsibilities to the classroom community.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There is a community helper chart with equal opportunities for students to practice contributing specific responsibilities to the classroom community.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There is a community helper chart at students' eye level with equal opportunities for them to practice contributing specific responsibilities to the classroom community.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Observers may notice words and corresponding icons to help students make connections between community helper titles and responsibilities/tasks.				
Notes/Evidence:				
Representations of Diversity	1. There are no materials in the classroom that are reflective of students' identities or the diversity of others, or there is evidence of stereotypical representations of individuals from diverse backgrounds.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There are a variety of materials in the classroom that are reflective of students' identities.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. A variety of materials in the classroom are reflective of students' identities and encourage awareness of the diversity of others.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Examples can include the various ways diversity is representative of people and their cultures. Artifacts may include photos, posters, books, songs, manipulatives, pictures of family celebrations (foods, customs, traditions), etc., that accurately represent diverse ethnicities, cultures, abilities, family structures, and gender roles without reinforcing stereotypes. Cultures of the students in the classroom should be represented, among others.				
Notes/Evidence:				

INSTRUCTIONAL PLANNING & DELIVERY

This portion of the KCEC focuses on the visible components of the classroom related to that make planning, delivery, and reflecting on for instruction and learning visible. This section, titled Instructional Planning and Delivery follows a conceptual teaching and learning cycle where teachers can plan, implement, assess, and reflect on the success of their teachings. In other words, “an experienced teacher will have a clear picture in their mind of the students’ intended learning outcomes and will design appropriate and effective instructional activities to guide students toward mastery of those outcomes.” (Iris Center, 2004). Throughout this section, observers and educators will familiarize themselves with the physical components of a classroom that support this intentional, reflective approach to teaching. The **Lesson Plan** area of the KCEC offers suggestions for ensuring a teacher’s plans for instruction are aligned to standards and guidelines. The **Progress Monitoring Plan** supports the lesson plan’s outcomes which can be purposefully monitored and documented. This section ensures a teacher’s “observation, documentation, and assessment of young students’ progress and achievements is ongoing, strategic, reflective, and purposeful.” (NAEYC DAP Position Statement, 2023). Finally, the **Student Work Display** describes the components that make students’ learning visible and authentic. While not all learning can be captured through physical work samples, the classroom’s display of students’ work can be an indicator of skill development throughout the year.

Item	Rating Description	Observed		
		BOY	MOY	EOY
Lesson Plan	1. There is no standards-based lesson plan, or the lesson plan is incomplete. There are no activities for all parts of the daily schedule. There is no evidence of planned student groupings and/or small-group instruction.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There is a complete standards-based lesson plan with learning objectives, yet they are not aligned to activities for all parts of the daily schedule or there is no evidence of planned student groupings and/or small-group instruction.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There is a complete standards-based lesson plan and learning objectives are evident. The lesson plan includes intentional activities for all parts of the daily schedule. There is evidence of planned student groupings and/or small-group instruction.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: In a dual language setting, the lesson plan should indicate planned language of instruction for the time of day/day of the week to follow their model. Student accommodations should be clearly outlined for individualized instruction while maintaining confidentiality. Parts of the daily schedule can include whole-group, small-group, learning stations, transitions, etc.				
Notes/Evidence:				
Progress Monitoring Plan	1. There is no plan to gather data to inform instruction.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There is a systematic plan in place to gather data to inform large group instruction.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There is systematic plan in place to gather data to inform individual student, small and large group instruction.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: A progress monitoring plan is an arrangement, pattern, program, or scheme used by teachers for the purpose of collecting student data to drive instruction. Examples of student data can include assessment materials, documented evidence data-driven planning meetings; formative data, portfolios, anecdotal notes, and standards aligned progress monitoring data. Observers may find this in a teacher's online assessment tool account – consent may be needed to view this information.				
Notes/Evidence:				

Item	Rating Description	Observed		
		BOY	MOY	EOY
Student Work Display	1. There are no authentic examples of student work displayed in the classroom and/or hallway.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. Student work is displayed in the classroom and hallway. The work observed is an authentic example of student academic abilities; there is variability in the range of skills represented. Not all students' work is visible.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. Student work is displayed in the classroom and hallway. The work observed is an authentic example of student academic abilities; there is variability in the range of skills represented. All students' work is visible.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: If dual language/bilingual classroom, work should be displayed in all instructional languages. Observers may notice variability in student work as related to different skill levels and learning domains.			
Notes/Evidence:				

SCIENCE, TECHNOLOGY, ENGINEERING, MATH (STEM) MATERIALS

At times, the academic concepts of science, technology, engineering, and math (STEM) can seem to overlap significantly enough that many have difficulty identifying what makes them different from each other. This section of the KCEC intends to view STEM materials, where each academic concept is separate yet related to each other, ultimately increasing student outcomes across several domains. In the **Science Materials** section, educators and observers are encouraged to promote use and engagement of tools that cover: Scientific Investigation and Reasoning; Matter and Energy; Force, Motion, and Energy; Earth Space; Organisms and Environment. When Science learning is viewed in a more categorical manner, educators can make informed decisions regarding choice of materials for specific lesson plans. Likewise, the **Technology Materials** section also categorizes concepts to be learned within the domain while also ensuring that technology and interactive media remain as “tools that can promote effective learning and development when they are used intentionally by early childhood educators, within the framework of developmentally appropriate practice (NAEYC 2009a), to support learning goals established for individual children (NAEYC 2009a)”. The **Engineering Materials** section allows teachers to extend what is possible from students’ learning in Science, Technology, and Math to promote design, building, and problem-solving activities to leverage and challenge students’ developing skills. Finally, the **Math Materials** section mirrors that of the literacy section, ensuring students have access – physically, auditorily, and visibly – to math concepts that extend beyond simple number identification and patterns.

Item	Rating Description	Observed		
		BOY	MOY	EOY
Science Materials	1. There are no accessible materials that support scientific inquiry which align to science domains: Scientific Investigation and Reasoning; Matter and Energy; Force, Motion, and Energy; Earth Space; Organisms and Environment.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There are 1-2 accessible materials that support scientific inquiry and align to some science domains: Scientific Investigation and Reasoning; Matter and Energy; Force, Motion, and Energy; Earth Space; Organisms and Environment.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There are 3 or more forms of accessible materials that support scientific inquiry and align to all scientific domains: Scientific Investigation and Reasoning; Matter and Energy; Force, Motion, and Energy; Earth Space; Organisms and Environment.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: Examples of accessible materials include, but are not limited to, journals, anchor charts, unit books and related materials, rubrics, diagrams, pictographs, magnifying glasses (hand lenses), thermometers, pH test strips, rulers, tape measures, nets, measuring cups, microscopes, stopwatches, binoculars, telescopes, magnets, and weighing scales.			
Notes/Evidence:				

Item	Rating Description	Observed		
		BOY	MOY	EOY
Technology Materials	1. There are no accessible materials that support technology-based learning in alignment with the technology standards: creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There are 1-2 materials that support technology-based learning in alignment with the technology standards: creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There are 3 or more accessible materials that support technology-based learning in alignment with the technology standards: creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Examples of technology include digital and analog materials, including software programs, applications (apps), broadcast, and streaming media, etc.				
Notes/Evidence:				
Engineering Materials	1. There are no accessible materials that support engineering design, building, and problem-solving through engineering challenges.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There are 1-2 accessible materials that support engineering design, building, and problem-solving through engineering challenges.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There are 3 or more forms of accessible materials that support engineering design, building, and problem-solving through engineering challenges.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Examples: Engineering concepts for kindergartners can be achieved through engaging design and construction activities such as block-building, marble runs, cup-stacking, plastic brick assembly, and crafting paper airplanes. Further challenges may include designing and constructing balloon cars, catapults, boats, and ramps utilizing a variety of materials and loose parts.				
Notes/Evidence:				

Item	Rating Description	Observed		
		BOY	MOY	EOY
Math Materials	1. There are no accessible materials that support mathematical inquiry which align to mathematical domains: numbers and operations, algebraic reasoning, geometry and measurement, data analysis, and financial literacy.	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2. There are 1-2 accessible materials that support mathematical inquiry and align to some mathematical domains: numbers and operations, algebraic reasoning, geometry and measurement, data analysis, and financial literacy.	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3. There are 3 or more forms of accessible materials that support mathematical inquiry and align to all mathematical domains: numbers and operations, algebraic reasoning, geometry and measurement, data analysis, and financial literacy.	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	Examples: Accessible materials can include, but are not limited to, number list/chart, number lines, pattern manipulatives, standard & nonstandard units of measurement, five and ten frames, picture cards with objects, small collections to subitize, categorize or pattern with cards with numerals and dots to represent amounts, picture graphs, 2 & 3 dimensional shapes, coins, math journals and other artifacts, and other real-world items.			
Notes/Evidence:				

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KCEC GLOSSARY

TERM	DEFINITION
Accessibility	The quality of being independently accessible to ensures that students are able to fully participate in classroom activities.
Algebraic reasoning	A process of recognizing and analyzing patterns, studying and representing relationships, making generalizations, and analyzing how things change.
Alphabetic principle	The phonic relationship between sounds and written letters.
Anchor chart	A large paper that includes a graph, list, table, grid, web, or other types of graphics teachers and students create together to capture the most important content and relevant strategies. A tool used to support instruction (i.e., “anchor” the learning for students).
Artifact	An artifact is anything that can provide evidence of educational experiences.
Authentic print rich environment	Within this area, one can find handcrafted print from the teacher. These hand-crafted print materials are not commercially produced. These genuine displays showcase a variety of print examples, including read-aloud pocket charts, interactive writing, and theme-related print works. A few examples of authentic print include a pocket chart for reading aloud (listing important details such as the title, author, illustrator, and key vocabulary), writing shared or interactively, thematic or unit-related print, environmental print, nursery rhyme or song pocket charts, graphically organized charts (such as Venn diagrams or semantic webs), class-made books or cards, class surveys, and more.
Awareness of numbers and operations	The understanding of numbers, ways of representing numbers, the relationships among numbers, and number systems. The process of understanding meanings of number operations and how they relate to one another, such as addition and subtraction of whole numbers and the relationship between the two operations.
Bilingual education	An instructional approach in which a non-English-speaking student's native language is used in primary instruction until he or she has developed sufficient command of English.
Community helpers chart	A visual tool that outlines responsibilities for individual students to help keep the classroom running smoothly, resulting in uninterrupted instruction. A community helpers chart contains enough jobs so that all students can participate in support of the classroom community. They ensure all children are able to meaningfully contribute to the success of a classroom. Exemplary job charts are posted or located in a place that is visually accessible to all.
Classroom contributions chart	A chart that lists school/classroom expectations.
Data analysis	A process of representing and comparing data using concrete objects, pictures, and simple graphs.
Developmentally appropriate	Practices, behaviors, activities, and settings that are adapted to match the age, characteristics, and developmental progress of a specific group of children.
Diagram	A two-dimensional display which communicates using visual relationships. It is a simplified and structured visual representation of concepts/ideas.
Early literacy	What children know about and are able to do as it relates to communication, language, reading, and writing before they can actually read and write. Children's experiences with conversation, books, print, and stories (oral and written) all contribute to their early literacy skills.
Early math/numeracy	The foundations of mathematical reasoning that are acquired in early childhood, typically by way of number counting, measuring, sorting, noticing patterns, and adding and subtracting numbers.
Environmental print	The print of everyday life. Words and symbols that appears in signs, labels, and logos.

KCEC GLOSSARY

Evidence-based practice	Any discrete skills, techniques, or strategies which have been demonstrated through experimental research or large-scale field studies to be effective. Not to be confused with an evidence-based program.
Five and ten frames	Equal-sized rectangular boxes in a row where each box is large enough to hold a counter. The five frame is arranged in a 1-by-5 array. A ten frame is a set of two five frames or a 2-by-5 array.
Generic/commercial print	A store bought or pre-made visual that may include color, number words, alphabet, vowels, shapes, basic body parts, posters, etc.
Geometry	A branch of mathematics that includes measurement, properties, and relationships of points, lines, angles, surfaces, and solids.
Interactive read alouds	A large group activity in which the teacher reads a selected text aloud and intentionally pauses for questions, reflection, and conversation.
Interactive writing	A collaborative activity between students and their teacher, that provides an opportunity for students to practice physical writing skills, apply their knowledge of print and phonological awareness, and develop their confidence as writers.
Learning stations	Designated areas in the classroom that contain activities and materials linked to different key learning areas.
Lesson plan	A teacher's daily guide for what students need to learn, how it will be taught, and how learning will be measured.
Manipulatives	Concrete objects that allow students to explore an idea with an active, hands-on approach.
Math rich environment	A classroom that ensures students have the ability to engage in numerical and math related concepts throughout the day. Students are surrounded by objects, toys, and activities involving math to help build critical thinking and problem solving skills. A math rich environment, helps naturally develop student's math skills with simple things like stacking blocks, math related music and songs, calendars, counting games, role play (like a store), patterning materials, math books, measuring and comparing classroom objects, clocks, puzzles, magnetic numbers etc.
Mathematical development	The progressive development of a child's abilities, ideas, knowledge, and comprehension in solving math problems, communicating mathematically, and using mathematical reasoning.
Measurement	The understanding measurable attributes of objects and the units, systems, and processes of measurement, including the size, length, or amount of something.
Number chart	A table that shows the list of numbers in a systematic order.
Number list	A list whose items are numbered.
Number lines	A line on which numbers are marked in intervals and used to illustrate simple numerical operations.
Personal financial literacy	The ability to use knowledge to identify ways to earn income, understand how income meets one's wants and needs, list skills required for jobs, and determine the differences between wants and needs and money received as gifts and income.
Phonological awareness	The ability to identify, think about, and manipulate the sounds in oral/spoken language. It is the foundation for learning to read.
Phonological awareness continuum	A sequence of increasingly complex skills that build on each other over time. The phonological awareness skills are related to different ways that oral language can be broken down into smaller components, which is critical for later reading fluency. Within the phonological awareness continuum, lies the ability to segment sentences, identify individual words within them, detect rhyming patterns, identify alliteration, blend and segment syllables, synthesize and analyze onset-rime, and blend and segment phonemes.

KCEC GLOSSARY

Phonemic awareness	The ability to listen to, identify, and manipulate phonemes—the smallest units of sounds that are combined to create words.
Phoneme	The smallest unit of sound that can be identified in spoken language.
Phonics	A method of reading instruction in which students are taught the relationship between sounds and written letters.
Physical environment	The design and layout of a classroom, including its learning centers, materials, and furnishings.
Pictographs	A chart or graph that uses pictures to show data.
Print rich environment	A classroom where students are exposed to and interact with written language in different forms. This may include, child-made books (individual and group-process made), teacher-made books, picture books, children’s magazines, familiar books that children can ‘read’ and retell from memory, and visually accessible dictation posted on large sheets.
Progress monitoring	A formative assessment that measures student learning and growth towards targeted skills.
Representations of diversity	The use, display, and portrayal of many different types of people including, and not limited to, gender, race, ability, and religion.
Scientific inquiry	A form of problem solving that involves students progressively developing key scientific ideas through learning how to investigate.
Shared writing	A joint activity where teachers actively involve children in aspects of the scribing (e.g., spelling, handwriting) and/or composition of the message; however, teachers continue to do the physical writing. Interactive writing is very similar to shared writing except that the children are encouraged to share the writing implementation.
Sound wall	A visual tool used to organize sounds (phonemes) and the different letters (graphemes) used to make them.
Standard & non standard units of measurement	The units of measurement that are typically used within each measurement system, such as inches, feet, or cups. Nonstandard units of measurement are units of measurement that aren’t typically used, such as a pencil, a hand, or a shoe.
STEM	An integrative approach where teachers provide students opportunities to explore, problem solve, and apply concepts in science, technology, engineering, and mathematics.
Student daily schedule	A daily plan that includes words with pictures/icons for each activity.
Subitize	The ability to instantly recognize the number of objects without actually counting them.
Transition	The action of moving from one activity to another.
Visual support	A chart that helps a student understand concepts or behavioral expectations. It encourages students to independently perform a skill or behavior. It may include photographs, picture symbols, written words, clipart, line drawings, and/or physical objects.
Word wall	A collection of words organized by large visible letters on a wall, bulletin board, or other display surfaces in a classroom. It is designed to be an interactive tool students can use and provides visual cues and graphic representations of content. New information should be added on a regular basis with content area material rather than randomly selected words.
Writing journal	A notebook that gives students the opportunity to express their thoughts, feelings, and opinions in writing, and gives teachers a snapshot of student academic progress.