MARSHALL UNIVERSITY

EARLY EDUCATION STEAM CENTER

CORE PRACTICES

College of Education and Professional Development
June Harless Center • MUEE STEAM Center

“Our task, regarding creativity, is to help children climb their own mountains, as high as possible. No one can do more."

—Loris Malaguzzi

Background

The Marshall University Early Education STEM Center was established in 2010 under the auspices of the June Harless Center for Rural Educational Research and Development. The first classroom was housed on the Marshall University Huntington campus and still operates to serve three, four and five-year-old children. In 2014, the Center expanded by adding another classroom in a public school building. In 2016, the center became the Marshall University Early Education STEAM Center to reflect the true mission of providing high-quality, developmentally appropriate STEAM education with a significant emphasis on the Arts. The center provides a holistic early childhood education experience while weaving STEAM content into play-based learning. The Marshall University Early Education STEAM Center is nationally accredited through NAEYC and prides itself on offering model, high-quality early education experiences to all involved in the early education program. The Reggio-inspired Center exists to focus on this time in child development as a unique and opportune stage, worthy of its own distinctive approach to environmental, inquiry-based, hands-on, concrete learning. The children who progress through the program are developing a foundation for the life-long experience of learning and living in today's global society.

"Education is not preparation for life;
Education is life itself."
-John Dewey

“The wider the range of possibilities we offer children, the more intense will be their motivations and the richer their experiences."

—Loris Malaguzzi

Reggio Inspired

Our journey of becoming a Reggio-inspired center began in 2011. The center was in a partnership with the West Virginia Department of Education and Cabell County to engage staff in a study abroad program. Through a grant, staff had the opportunity to study in Reggio Emilia, Italy, with colleagues from West Virginia, other parts of the United States, and other countries around the world. During this experience the staff learned about the background of the Reggio Emilia influence. In 2018, staff members participated in a study abroad experience in Reggio Emilia and Pistoia schools in Italy to continue learning more about this approach and philiosphy.

In 1913 the first preschool in the municipality of Reggio Emilia opened in Villa Gaida. After World War II, women organized and started to look for a new purpose and new life. They demanded quality care and education for their children as women prepared to enter the workforce. Between 1960 and 1970, the following schools were opened: the first municipal school, the center for infants and toddlers, and the municipality which housed fifteen pre-k and eleven infant/toddler centers. In 1994 Reggio Children was established and in 2006 the Loris Malaguzzi International Center opened. Loris Malaguzzi spearheaded the movement for early childhood education in Reggio Emilia, Italy. He was a primary school teacher who went on to study psychology and had experience in journalism and theater. After Malaguzzi's passing, the community of Reggio Emilia resolved to carry on and implement his dreams and fulfill the Reggio mission "to enhance the potential of all children." Educators from all over the world study his renowned approach to early childhood education.

There are five distinct features of the Reggio Emilia Approach: participation of families, collegial work of the staff, importance given to school environment, presence of the studio, and a pedagogical-didactic coordinating team who are experts in instruction and content. The educators embrace the Reggio Emilia approach at the Marshall University Early Education STEAM Center knowing that the space to explore, dream, construct, and deconstruct is essential to learning. Both children and educators view the classroom as a studio learning space. The educators are given the title of "Studio Educators" to support the philosophy and facilitate learning for children and other adults. With thought and intention, the educators design our classroom to embody this concept. They purposefully organize the space to accommodate large and small group experiences. Also important to this approach is a welcoming environment that encourages children to engage in activities and discovery. The year begins with a preset room and a blank canvas for the walls. As learning progresses, the walls fill with the children's thoughts, ideas, stories, questions, findings, artwork and photographs, which are documented and displayed.

Collaborative wonder and the sharing of ideas plant the seed for the class curriculum. The ideas are generated by the children, but given structure and purpose by the educator. Educators are continually asking the children to reflect on their old theories as they discover new information, feeding into the formulation of new theories. By integrating nature into the curriculum, the children learn to appreciate the physical and structural environment. The architectural design encourages playful encounters for the children.

The educators strive to incorporate nature into daily classroom happenings and give children access to materials from their natural world. Being surrounded by nature and natural items provides infinite benefits to children. Nature instills in everyone a sense of beauty and calmness. It exposes the children to things that are alive and growing. Being outside or surrounded by real objects promotes curiosity and exploration. Educators guide children to learn about being gentle and respecting living things. Self-esteem can thrive outdoors because nature does not judge people. Exposure to nature can help remind children that the world contains an infinite variety of things and all are important. Providing children time in nature and with found materials gives them the opportunity to observe nature. Being outdoors also requires patience and quiet watchfulness. Imagination comes into play as children create special places and use natural items to create stories and play. All senses become engaged when children interact with the natural world.

Throughout the learning process, educators document the children's experience through photographs, note-taking, video and artifacts the children make themselves. They are compiled and shared with the focus on process, rather than product. Documentation is utilized as a connection between their ideas and reflection of the children's work. Educators utilize documentation to reflect on children's work, predict where their work with children might go and communicate a shared respect for children and their accomplishments with the school and larger communities. Families are encouraged to experience the work and the explorations of their children through documentation.

Play-Based

It is very important to develop a positive attitude toward learning at an early age. For this reason, the Marshall University Early Education STEAM Center's educators strive to provide a joyful, comfortable and safe learning environment for each child. Children learn best through active exploration and interaction in their environment. They are given the opportunity to choose their experiences and follow their own ideas and interests through play. The role of the educator is to facilitate this process, while children are given the autonomy to choose experiences based on their current interests.

Today, most researchers agree that play is fun, flexible, voluntary and intrinsically motivating; it involves active engagement and often incorporates make-believe (Sutton-Smith 2001; Pellegrini 2009; Fisher et al. 2010; Lillard et al. 2013). Guided play maintains the joyful child-directed aspects of free play but adds an additional focus on learning goals through adult scaffolding (Weisberg et al. 2016). It offers an opportunity for exploration in a context specifically designed to foster a learning goal. As such, it features two crucial elements: child agency (the child directs the learning) and adult guidance to ensure that the child progresses toward learning goals. Research suggests that guided play is a successful pedagogical tool for educators in a variety of areas (Weisberg et al. 2016). In this document, some examples are outlined of how guided play can work in the classroom to build specific language, mathematics, and spatial skills.

"Play is often talked about as if it were a relief from serious learning. But for children, play is serious learning. Play is really the work of childhood."

—Fred Rogers

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Developmentally Appropriate Practice

Developmentally appropriate practice requires educators to meet the children where they are. This means that the educators know their children well and enable them to reach goals that are both challenging and achievable. Educators must use best practices that are based on knowledge, not assumptions, of how children learn and develop. Teaching practices must be appropriate to children's age and developmental status, attuned with them as unique individuals and responsive to the social and cultural contexts in which they live. Substantial periods of time must be provided so children may select activities to pursue from the choices teachers have prepared in various areas in the learning environment. Educators must provide opportunities for sustained high-level play and actively support children's progress toward engaged learning. Being intentional in their use of a variety of approaches and strategies, educators support children's interest and ability.

Creating a caring community of learners

- Educators get to know each child's personality, abilities and ways of learning.
- Educators work to build a strong sense of group identity among the children by planning ways for children to work and play together collaboratively.
- Educators ensure the children's health and safety while making learning lively and dynamic for the children.
- Hand in hand, with an organized environment is a well thought out daily routine. Educators plan for balance in the children's day.

Teaching to enhance development and learning

- Educators use a wide range of teaching strategies including acknowledging, encouraging, providing information, modeling and challenging.
- Educators scaffold children's learning and support their progress in all areas of learning and development.
- Educators use a variety of formats that are best for helping children achieve a desired outcome. These include large group, small groups, learning centers and daily routines.

Planning appropriate curriculum

- Educators are inspired by the Reggio Emilia approach to learning.
- Educators develop learning targets to help children focus and flourish at school and beyond.
- Educators develop projects based on the interests of children
- Educators relaunch children's ideas to inspire new learning and discovery.

Assessing children's development and learning

- Children are assessed in order to monitor their development and learning and guide the planning and decision making. Assessments also support educators in identifying children who might need special services or support. Report and communicate to others, especially families.
- Educators make sure assessments are age-appropriate, individually appropriate and culturally appropriate.

Developing reciprocal relationships with families

- Educators realize that families are the most important people in a child's life. Educators make them feel welcome in the classroom and try to create a relationship that allows for open dialog maintaining frequent, positive, two-way communication with families.
- Educators acknowledge families' choices and goals for their children and respond with sensitivity and respect to their preferences and concerns.

Children enter early childhood settings with different strengths. Being an intentional teacher means planning for developmentally appropriate experiences that reach every child. In this picture, children are invited to create a detailed painting by observing the flowers. Children are provided various materials, allowing them to paint freely.

Beautiful Spaces

"It has been said that the environment should act as a kind of aquarium which reflects the ideas, ethics, attitudes and cultures of the people who live in it. This is what we are working toward."
— Loris Malaguzzi, Reggio Emilia, Italy

The Marshall University Early Education STEAM Center focuses on creating a learning environment that is beautiful, powerful and important to children. We believe that the environment serves as the third teacher and supports learning. Classroom spaces should be welcoming, aesthetically pleasing, culturally representative of community, and filled with natural and purposeful materials. The setup of the environment promotes collaboration, communication, relationships and exploration through play. The materials in the classroom are purposefully added to the environment to enhance creativity, thinking and problem solving skills, questions, experimentation and open-ended play.

Neutral is Necessary

- Neutral colors allow children's work and provocations to stand out (neutral documentation boards, off white walls, light wooden furniture, woven baskets for storage, simple carpets and light window coverings).
- The classroom is a blank canvas where children's work is highlighted.

Organization is Optimal

- It is important for children and adults to learn in an organized space where placement of each item is accessible and functional.
- Shelves and tables are lined with different sized and shaped baskets filled with resources.
- Children should have a space to place finished and ongoing work. This shows respect for putting time and effort into work.
- Documentation is near areas relative to work.
- Art resources should be sorted for easy searching.

Defined Spaces are Desirable

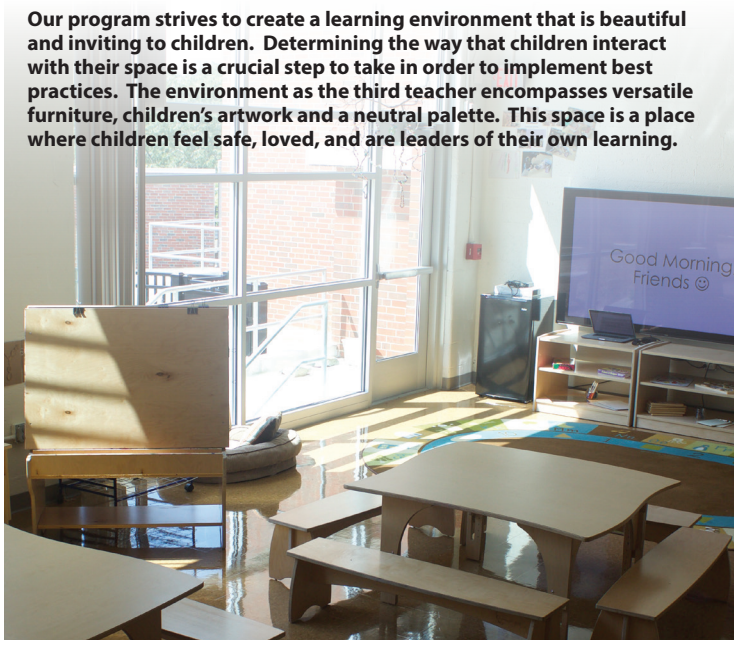
- Classrooms have quiet spaces with books and puzzles which are paired with soft cushions, draping materials, natural light, lamps and soft music.
- Clipboards, literature, displays and name cards are located in each area.
- Writing and drawing activities are on tables with resources nearby (various sizes of colored paper, colored markers, crayons, colored pencils).
- Construction area consists of recycled goods, loose parts and blocks of various shapes and sizes.
- Easels, tables and floor spaces are available with trays of paint for art opportunities and exploration.

Provocations are Paramount

- Provocations are kept simple and made to look irresistible. They offer a medium for children to explore within a designated space. They are used to extend a child's understanding or pique an interest.

Beautiful is Best

- It is important to use open-ended materials. Children can explore these materials and demonstrate their learning styles, strengths, imagination and theories of the world.
- Natural items (twigs, nuts, cones, and rocks) as well as recycled materials (bottle caps, lids and jewelry) are examples of open ended materials.



Our program strives to create a learning environment that is beautiful and inviting to children. Determining the way that children interact with their space is a crucial step to take in order to implement best practices. The environment as the third teacher encompasses versatile furniture, children's artwork and a neutral palette. This space is a place where children feel safe, loved, and are leaders of their own learning.

Child Guidance

Early childhood educators are responsible for creating a program that is developmentally appropriate. This requires that educators have a great deal of knowledge, skill and training. Upon entering pre-k, children vary significantly in what they know and can do. While some children have had rich learning experiences, others have not been exposed to these stimulating or supportive environments that contribute to the optimal development and learning. Due to the range in the types of quality learning experiences children enter pre-k with different developmental strengths. Daily life, especially that of a child, includes conflict; therefore, problem solving is a vital part of our curriculum. Misbehavior occurs when children do not know alternative ways of solving a problem or when children have very strong feelings that they do not yet know how to manage.

The educators work with both the family and the child in seeking alternative strategies for behaviors and techniques for coping with feelings, so the child may develop the skills and abilities to solve their own conflicts. The educators find that setting clear limits reduces the need for many rules. To accomplish this, educators maintain consistent routines, purposefully design the environment, intentionally plan a program, model appropriate behaviors and coach children in successful interactions.

Maintaining Consistent Routines

- A daily schedule is developed to help transition the children throughout the day.
- The educators provide transitional cues (minute reminders) to help the guidance of children.

Educators guide children's behavior by establishing predictable routines, setting clear expectations, and modeling kindness and respect. In this picture, children learned about making good choices by recycling. The educator guided the children through this process.

Modeling Appropriate Behaviors

- The educators model appropriate behavior by being at eye level with the child as opposed to being overhead.
- Educators assist a child in several ways should they need an adult's assistance. Sometimes children need a quiet space in the classroom where they can regain composure. Sometimes they need comfort from an adult such as a lap to sit on and an arm around them.
- The problem-solving approach to guidance utilized in the Center entails six main areas based on Eleanor Reynold's Guiding Young Children:
  - the environment
  - negotiation
  - teacher-child relationships
  - setting limits
  - active listening
  - affirmations
- Should an occasion arise that a child is not responding to these methods, a meeting with the family is held to plan strategies that are more appropriate for the child. Teamwork in developing individual plans with families is very important in solving problems children may experience. Other professionals can be consulted and additional resources identified that may be beneficial for a child when needed.

Core Practice 4

Powerful Interactions

What you say and what you do when you interact with children make a big difference in their lives. Powerful and intentional interactions achieve two important goals. They encourage teachers to build and deepen relationships with each child and they move children's learning forward in small steps. When you use interesting language, ask questions, and help children make connections you engage their curiosity and extend their thinking.

Be Present

- Show that you care and respect the child by being attentive and an active listener.
- Set limits in supportive, non-punitive ways.
- Acknowledge and accept a child's emotions.

Connect

- Use children's names each time you speak to them.
- Use mirror talk rather than saying "great work" to show children you appreciate what they do.
- Talk with children one-on-one about topics of interest.

Extend Learning

- Explain the reasons for the planned experiences so the children are aware of their own learning.
- Remind children of their boundaries, as needed, in a calm way.
- Ask open-ended questions to encourage children's thinking and learning.
- Use varied vocabulary.
- Repeat and extend what the child says.
- Offer specific information about their creations and tasks.
- Provide appropriate challenges to encourage further learning.

Throughout the day, children have multiple opportunities to join together as a group. Children and teachers interact in a meaningful way by making sure each voice is heard and valued. In this picture, children take turns sharing with the group. Children often share stories, songs, artwork, a special object brought from home and/or anything that is valuable to them.

Core Practice 5

Documentation

The purpose of documentation is to make children's learning visible. During this process, children's thoughts, ideas and questions are taken seriously. (See Appendix A-2 and A-3) It is important to accurately reflect and represent children's learning. Educators are given the unique responsibility to communicate growth and development of children to both families and the community. Educators record the children's experiences in all curriculum and skill areas. A variety of media is utilized in the documentation process, including anecdotal records (See Appendix D-1 and D-1) records, My Days (See Appendix E-1), , digital portfolios, artwork, pictures and videos.

Anecdotal records

- The educators work together to annotate the learning process of the children in the classroom. (See Appendix A-1)
- The educators utilize state content standards to assess children's learning.
- The educators gather direct quotes to give meaningful representation to the learning of each child. (See Appendix D-1 and D-2)

My Days

- The educators work together to summarize daily classroom happenings into a document for families.
- Photographs are used to document children participating in learning experiences, project work and provocations.
- Key questions are provided to help generate communication about the learning that took place during the day. (See Appendix E-1)

Journals

- The educators utilize classroom journals as forms of communication with the children.
- Children can retrieve their journals throughout the day to openly write or draw.

Digital Portfolios

- The educators and children regularly add to their digital portfolios to display the child's growth.
- Anecdotal records are referenced to document children's interest in a specific area of the classroom or a specific standard.
- Conferences are held twice a year with families to talk about their child's strengths, areas of improvement and interests based on anecdotal records stored in digital portfolios.
- The educators and family members can gain knowledge about significant focus areas (problem-solving, dispositions to learning, collaboration and communication skills).
- Families have daily access to their child's digital portfolio so they can track their child's learning and have open communication with their child's educator.

Artwork

- The educators value the importance of displaying children's artwork accompanied by a direct quote from the child.
- Accompanying the direct quote is the child's name, educator's initials, a timestamp and date of the experience to aid in organization of experiences and work of the child.

Pictures

- The educators oversee taking daily pictures that can be utilized for portfolios, for documentation in the classroom, for presentations given regarding research, social media, and on the Center's website.
- Pictures are gathered at the end of each day and stored by date for easy access.
- Pictures accompany classroom documentation of projects and other provocations to help aid the child in referencing his or her own learning.

Videos

- Videography is utilized as a tool for documentation and is helpful during conferences and presentations.

Core Practice 6

Play

Play allows children to use their creativity while developing their cognitive, physical, and emotional strength. Play is also important to healthy brain development as it is through play that children learn to engage and interact with the world around them.

A Playful Environment

- The physical layout of the space is set up for open exploration. The furniture and resources are readily accessible to children and educators. Thoughtful consideration is put into the construction and presentation of experiences and materials so they are arranged in provoking and inviting ways to encourage exploration, learning, and inquiry.
- The environment allows time for children to play freely and time for intentional conversation.
- The environment gives purpose to the way that educators decide to use the time available in the program. Children need large blocks of time to develop play topics and ideas. Children need secure, warm, and trusting relationships so they are confidently supported in their explorations and risk-taking. The social and emotional environment is set by the educators and the children. Educators assist children in making connections with others, developing friendships and regulating behaviors.

Young Children Learn Through Play

- Play is the context within which children develop vital skills that are harder to practice in more structured formats.
- In play, children's capacity for concept formation and symbolic representation may be fully developed through the use of gestures, speech, and written signs in an imaginary situation.
- Play encourages children to create and narrate their own worlds, grapple with the challenges most urgent to them, and gain experience negotiating, roles and strategies with their peers.
- Encouraging play in the classroom, and strategically harnessing its power for specific learning purposes, allows for authentic engagement and deep learning opportunities for our youngest learners.

Children engage in various pretend play scenarios throughout the day. Dramatic play is not confined to one space, but rather unfolds in many areas of the classroom. Children use authentic props, create their own materials, incorporate writing into their play, and take on various roles. In this picture, children created a doctor's office and assumed the position of various roles such as doctor, nurse, receptionist and patient. Children are guided and supported by educators through this exploration.

Core Practice 7

Project Work

The project approach inspires children to be leaders of their own learning. Through project work, children have endless possibilities and opportunities to learn more about topics of their interest. While participating in a project, children are supported and encouraged to ask questions, collaborate, research, interact with experts, problem solve and conduct field experiences. The Project Approach serves as a tool for educators and children to work and learn together. This approach serves to enhance knowledge and skills in meaningful, authentic ways. Engaging children in project work addresses all components of the curriculum, especially social and emotional development.

A project topic can emerge from many areas of the classroom through play and conversations which educators observe. Children choose what topic to investigate with guidance from educators. Daily life projects develop at any time during the school day. These projects are easily recognized as stemming from the environment.

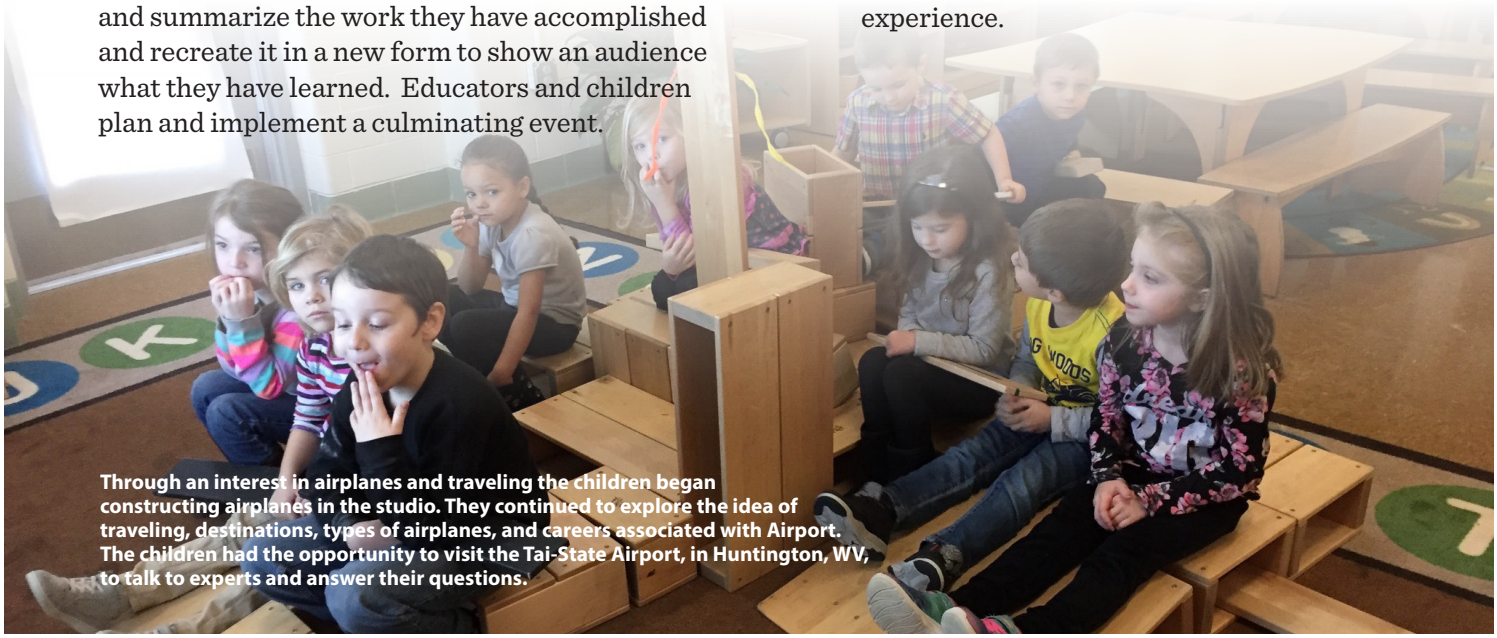
By engaging in this type of learning, educators and children extend beyond the classroom reaching their homes, communities, and the world.

Phases

- In the first phase, a topic is chosen based on children's interests. The children recall past experiences and express background knowledge of relevant events, objects, and people.
- During phase two, the children have new experiences and investigations, draw from observations, construct models, observe closely and record findings. Educators and children take time to explore, predict, experiment and invent, and discuss and dramatize. (See Appendix A-2 and A-3)
- In the third and final phase, the children review and summarize the work they have accomplished and recreate it in a new form to show an audience what they have learned. Educators and children plan and implement a culminating event.

Field Experiences

- During the project, children have various field experiences related to the study.
- Assisted by educators, children develop a plan for field experiences. This plan consists of questions, maps, pictures, journals and anything else children consider important.
- These experiences can be as elaborate as traveling on a bus to a specific location, or simply going to a grassy area near the classroom.
- Often field experiences include an expert on the topic of study. Children formulate questions to ask the expert as part of planning for the field experience.



Through an interest in airplanes and traveling the children began constructing airplanes in the studio. They continued to explore the idea of traveling, destinations, types of airplanes, and careers associated with Airport. The children had the opportunity to visit the Tai-State Airport, in Huntington, WV, to talk to experts and answer their questions.

Early Numeracy

Exposing children to numeracy in the classroom is an essential part of early education. Mathematical thinking is cognitively foundational and children's early knowledge of mathematics strongly predicts their later success in math and other content areas. While engaged in free play, children are doing so much more than simply playing. Children learn to invent solutions to solve simple arithmetic problems and engage in early numeracy actively in their play. Providing experiences in which children can begin to understand mathematical concepts allows them to look at the world from different perspectives.

Numeracy Development

- Educators provide experiences in the classroom to encourage children to use mathematical language, discuss patterns and shapes, estimate, measure, compare, play number games, categorize, and other early numeracy opportunities that arise daily.
- Rich language environments support the development of early literacy and numeracy skills. Educators read books to promote numeracy development and use higher-level vocabulary words. It is also important to use higher-level vocabulary words when discussing mathematical concepts.

Research

- There are rich connections between early literacy and early numeracy skill development. Skills frequently targeted in early literacy experiences have connections with specific early numeracy concepts.
- Children who have a background in mathematical concepts are prepared for counting and cardinality as well as reasoning skills.
- Through higher-level play, children explore patterns, shapes, and spatial relations; compare magnitudes; and count objects. This is shown to be true regardless of the children's income level or gender.

Reid, Kate, "Counting on it : Early numeracy development and the preschool child" (2016). h p://research.acer.edu.au/learning_processes/19

Early numeracy is a key component to building a strong foundation for more complex mathematical concepts. Daily experiences are planned using natural materials, such as rocks, pinecones and sticks. Educators plan real-world mathematic experiences for children to explore. In this picture, a child worked with stones, number rocks and dice to explore counting and cardinality.

Early Literacy

"A good book is a magic gateway into a wide world of wonder, beauty, delight, and adventure" -Gladys Hunt

Early language and literacy (speaking, listening, reading, and writing) development begins in the first three years of life and is closely linked to a child's earliest experiences with books and stories. The interactions that young children have with literacy materials such as books, paper, and crayons, and with the adults in their lives are the building blocks for language, reading and writing development. The more natural unfolding of skills through the enjoyment of books, the importance of positive interactions between young children and adults, and the critical role of literacy-rich experiences is most appropriate and beneficial at this stage in development. It can be counterproductive to provide formal reading instruction to children who are not developmentally ready to read. Instead of developing a love of reading in children, they may begin to associate reading and books with failure. Therefore, it is critical for educators to provide a literacy rich environment where books are accessible, language is encouraged and developed, and opportunities for engagement are endless. Below are several skills that are incorporated into the daily classroom experiences.

Print Motivation

- Educators make reading fun by using interesting voices and gestures during storytelling. Children are actively engaged during a read aloud while educators ask questions, activate prior knowledge and extend their learning.
- It is important to choose developmentally appropriate stories that are not too long. Educators select non-fiction and fiction books that are relevant to children's interests.

Phonological Awareness

- Through daily reading experiences, children are exposed to the early stages of phonological awareness. Children recognize words that are made up of smaller parts by participating in rhymes, songs, and chants.
- Morning gatherings and whole group meetings provide opportunities for children to recognize alliterations, clapping syllables, and noticing sounds of animals, automobiles and other sounds of interest.

Print Awareness

- Educators model appropriate concepts of print. This includes recognition of front to back and reading left to right along with the role of the author and illustrator and how to care for and handle books.
- Children are introduced to varied vocabulary through "Words of the Week", fiction and non-fiction text and modeling by the educators.
- "Words of the Week" provide the children with the opportunity to explicitly learn a word. Children are encouraged to utilize this new vocabulary in daily conversations.

Narrative Skills

- Through daily experiences in the classroom the children are encouraged to ask and answer questions, retell stories, and describe what is happening in pictures throughout a book.
- Educators ask open-ended questions to allow room for thinking processes to develop.

Letter Knowledge

- Through daily experiences children are exposed to and intentionally immersed in alphabetic principles. They are encouraged to begin to recognize the shapes of letters and letter names.

Writing

- Children have access to their journals on a daily basis.
- Through daily experiences, children have opportunities to write their names, names of friends and family members, and use inventive spelling.
- Educators provide provocations and experiences where writing has meaning.

Core Practice 10

STEAM (Science, Technology, Engineering, the Arts, and Mathematics) Approach

STEAM is an educational approach to learning that uses Science, Technology, Engineering, the Arts and Mathematics as access points for guiding inquiry, dialogue and critical thinking. The end results are children who take thoughtful risks, engage in experiential learning, persist in problem solving, embrace collaboration and work through the creative process.

It is critical to promote awareness, understanding and interest in these critical curriculum areas. Children are exposed to CREATE Lab programs such as Arts and Bots, Children's Innovation Project, Message from Me and other technology. It is vital that children use technology as a tool to gain access to information as well as creatively design solutions to problems.

STEAM Process

- The STEAM approach requires intentional connection between standards and implementation.
- STEAM experiences incorporate two or more standards from the areas of Science, Technology, Engineering, the Arts and Mathematics, which are taught, documented and assessed.
- Inquiry, collaboration and communication are critical to the STEAM approach.

Technology as a Tool

- Laptops and iPads are utilized in the classroom as a way to access information. Children use these tools when they have a purpose for research or inquiry. Gaming is not used on these tools.
- Educators incorporate technology tools into daily classroom happenings to create an engaging learning environment that is child-directed.
- Interactive Panels/SmartBoards are used for whole group and small group instruction. Morning gatherings are typically held on a large carpet that faces the interactive board, which enhances the group meetings.
- Children engage in robotics, circuitry and communication via technology. CREATE Lab resources can be found at www.cmucreatelab.org

Children have access to various types of developmentally appropriate technology in the classroom. STEAM experiences are integrated in all parts of the classroom. In this picture, children used Message From Me, a program developed by the CREATE Lab at Carnegie Mellon University. This application allows children to take pictures of their work, record their voice, and send to their families throughout the day.

Provocations

Provocations are intentionally planned, open-ended experiences that invite children to explore a concept. These experiences are developed based on children's interest and early learning standards. They can also expand on a thought, project, idea and interest. Provocations can be as simple as a photo of a rock sculpture next to some pebbles to invite children to build or elaborate as a table with an assortment of recycled materials next to a book on robots and resources to make robots. Often though, provocations are simple and displayed beautifully to provoke interest.

Beautiful Provocations

- Educators create inviting experiences that provoke children to use open-ended materials.
- The children can explore these materials and demonstrate their learning style, strengths, imagination and theories of the world.
- Natural items can be used such as, but not limited to, twigs, nuts, cones, rocks, stones, shells, sand, wool and cotton.
- Recycled bits such as bottle caps, lids, corks, jewelry, keys and buttons can be utilized for creations.

Simple Provocations

- Educators keep experiences simple and make opportunities look irresistible.
- Educators use the placement of materials to invite children to wonder and explore.
- Various mediums can be explored in a simple fashion such as watercolor paint and painting tools or utilizing nature materials with paint.

Provocations are set up daily to invite children to take a closer look at specific concepts. In this picture, children explored their individual characteristics. Children used mirrors, literature, paper and writing tools to draw self-portraits.

Core Practice 12

Outdoor Learning

Studies show that outdoor learning delivers many benefits- reducing stress, improving moods, boosting concentration, and increasing a child's engagement at school. Children should have the opportunity to engage in learning experiences outside as much as they do inside. Educators place value on aesthetics, organization, thoughtfulness, provocation, communication, and interaction in the outdoor learning environment. As educators, it is important to put thought into organizing space outdoors. This forethought stimulates children's imagination, discovery, inquiry and sense of wonder.

Young children thrive in an environment where they can explore the unknown, feel safe to investigate the unpredictable, and take risks. Taking children outside and providing them with the tools and materials they need to explore fulfills basic needs. Being outside has so much more to offer than just benefiting physical and health development. Cognitive and social emotional development are impacted as well. Outdoor learning encourages children to invent games, engage in social experiences, and appreciate aesthetics. Simply being outside invites children to appreciate the natural world filled with sights, sounds, and textures that promote development in all areas.

Environment

- Gross motor experiences are provided daily in many forms. These skills encompass the abilities required to control the large muscles of the body for walking, running, jumping, balancing, and many more. Providing optimal time outside is crucial for children's large muscle development.
- While outside, open-ended art experiences are a choice for children to create artwork from natural and found materials.
- Fine motor skills are developed through a variety of ways while exploring the outdoors. This includes digging in the sand, playing musical instruments and cultivating plants.
- While outdoors fiction and non-fiction books are available for children to read with friends, on a bench, under a tree or on a cozy blanket.
- Early numeracy skills are developed while working in the sand and water table with measurement, counting during hide and seek, recognizing shapes in nature and much more.
- Teaching children how to dress appropriately and using proper precautions is another outdoor learning opportunity.

Gardening

- By including children in planting seeds and caring for the garden, they will be more likely to try new foods. Eating healthy foods is vital for brain and body development. It can often be difficult for children to try different foods, but they will have a sense of pride in trying what they have grown in the garden.
- Fine motor development is also enhanced. Scooping up the dirt, placing the seeds in the pots and pouring the water all take fine motor control and strength.
- Gardening is an introduction to many scientific concepts. The cause-effect relationship that happens after the children plant seeds sparks an interest to see what will come next.
- Children make their own hypothesis and monitor the progress each day. Through this experience they are learning the basic steps of the scientific process. Educators guide children as they learn about the impact of sunlight and water on the growth of a plant. They learn which plants need more sunlight, which need less water, and how long they take to grow.

Core Practice 13

Cultural Experiences

It is important to prepare children for global citizenship in an increasingly complicated and interconnected world. Children should have an understanding and appreciation of other cultures, people, and places. By valuing diversity our educators integrate global perspectives and studies into daily experiences as well as expose children to other languages.

Curriculum that Supports Global Skills and Knowledge

- Educators purposefully plan global experiences for children.
- Children have multiple opportunities through their work in projects and provocations to build global skills and knowledge.
- Technology is utilized to expose children to Global Grover and Gigapan (panoramic photography). These daily experiences focus on different global perspectives.
- Our families and community are used as resources to bring global perspectives to our classroom. They help to bring learning experiences that build on children's and families' traditions, cultures, values and beliefs.

Teaching World Languages

- Language learning is offered through provocations, and visiting experts in the classroom. University staff are utilized as experts, as well as family and community members.
- Language learning connects children with communities, new cultures, and artistic opportunities. It empowers them to contribute to their community and world.

Cultural experiences are promoted and encouraged through use of technology and literature. In the first picture, the children were given the opportunity to explore the globe and money from countries of interest. In the second picture, the children were given the opportunity to explore clothing from Japan.

Intentional Opportunities

The children are provided with a variety of experiences that give them the opportunity to further play, explore, and learn based on their interests. The educators set clear intentions for the children by utilizing a Prepared Possibility (weekly planning tool), knowing that they are subject to change based on how the children perceive and engage in the experiences. (See Appendix B-1 and B-2) Below are examples of intentional opportunities that are planned by the educators and occur during morning gathering, group times and STEAM experiences.

Morning Gathering

- The children and educators gather at the beginning of the day to participate in a greeting and create a plan for the day.
- Children sit in a circle so they can see each other and actively participate.
- Social interaction, classroom culture and relationships are developed and sustained.
- Educators utilize a variety of structures and strategies to get to know children well during the morning gathering.
- Morning gathering provides a check-in on how children are developing their character traits. If there are problems with behavior, tolerance, responsibility or courtesy, these problems are resolved at this time.

Group Times

- Children and educators gather to participate in musical experiences related to their interests.
- Educators expose children to various types of literature based on topics of interest, classroom culture and best practices.

STEAM Experiences

- STEAM experiences are provided to children in the indoor and outdoor learning environments.
- Thought-provoking questions and aesthetically pleasing materials are intentionally displayed to engage children in learning experiences.
- Educators are facilitators of learning.

Intentional opportunities are provided to children in many forms. Educators plan experiences to enhance an idea or to foster the children's interest. In this picture, children focused on adding details to their drawings. Children were presented with animal figures, paper, and drawing materials.

Core practice 15

Learning Targets

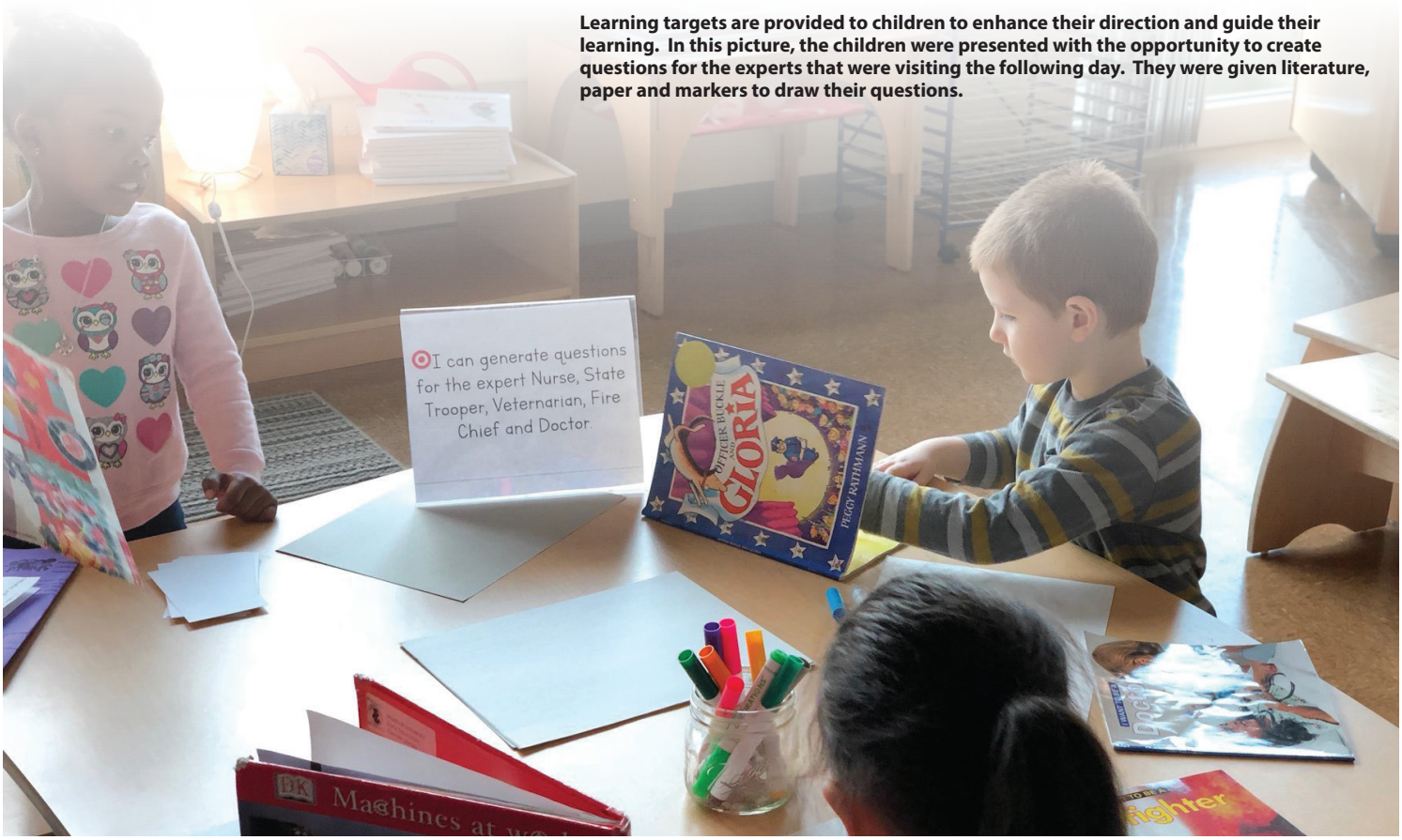
Learning targets frame an experience from the child's point of view. All learning, whether social interaction or academics, is supported through the intentional use of learning targets. They are utilized to clearly communicate the expectations for the children and allow them to take ownership of their learning.

Creation of Learning Targets

- Educators develop learning targets to support social interaction and academic skills.
- Learning targets are derived from state standards.
- Learning targets are written in child-friendly language and begin with "I can..."
- Learning targets are measurable and use concrete, verbs.
- Learning targets identify the intention of the learning experience.
- Learning targets are specific and refer to a particular experience or project.
- Learning targets focus on the process of learning. (See Appendix C-1)

Implementation

- Learning targets are introduced to the children during whole group meetings.
- Learning targets articulate specific learning outcomes.
- Educators use learning targets to frame instruction about social interactions and classroom norms.
- Educators also use learning targets to frame instruction in academic areas.
- Learning targets allow children to take ownership of their learning.
- Learning targets give the children a clear goal or expectation to meet.
- Educators help children unpack the learning targets to ensure the meaning and expectations are clear.



Learning targets are provided to children to enhance their direction and guide their learning. In this picture, the children were presented with the opportunity to create questions for the experts that were visiting the following day. They were given literature, paper and markers to draw their questions.

Assessment Tools in the Classroom

It is important to actively observe and document each child during his/her daily experiences in play, project work and daily routines. These observations are used to design lesson plans and experiences to meet the children's needs and interests. Educators, whom the children are familiar with, conduct these assessments individually as well as in group settings. Assessments occur on a continuous basis and at certain times throughout the year as mandated by the West Virginia State Board. These observations serve as a basis for the assessment of children's overall development and record achievements, progress, and goals in the following areas:

- Social and Emotional Development
- English Language Arts
- Mathematics
- Science
- The Arts
- Physical Health and Development
- Approaches to Learning

Early Learning Reporting System (ELRS)

- ELRS is designed for WV educators to report children's progress toward mastering state standards and expectations.
- ELRS is a concise performance-based measure using child data collected through observation and work samples.
- This reporting process takes place three times per year (fall, winter, and spring) in PreK settings.

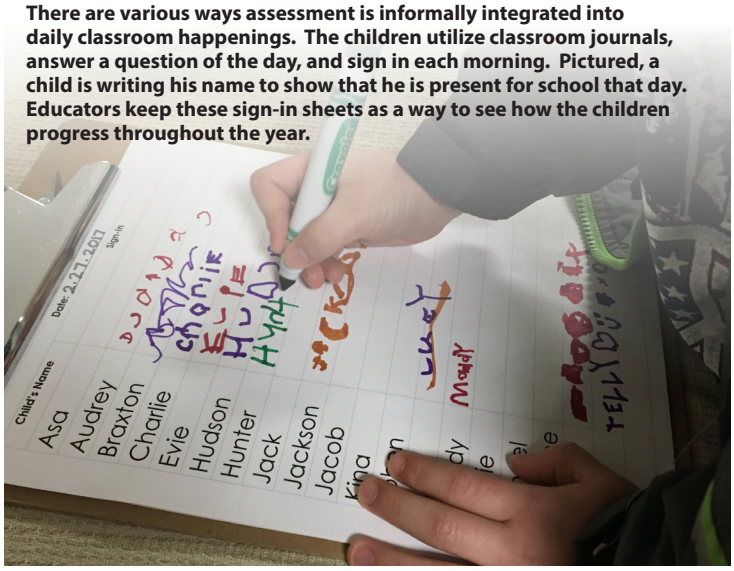
Digital Portfolios

- Seesaw is a program that allows educators to digitally document photos, videos and children's work.
- Early Learning Standards are tagged to each digital entry to highlight the specific standards that are mastered. (See Appendix D-1 and D-2)

Developmental Screenings

- The Battelle Developmental Inventory Screening is a tool used to assess all children at the beginning of the school year to determine if children are meeting developmental milestones.
- If a child needs to be referred for additional services, a meeting is called immediately with the family to obtain written permission and discuss the referral process.
- During referral, university, county and community agencies are utilized.

There are various ways assessment is informally integrated into daily classroom happenings. The children utilize classroom journals, answer a question of the day, and sign in each morning. Pictured, a child is writing his name to show that he is present for school that day. Educators keep these sign-in sheets as a way to see how the children progress throughout the year.



Core Practice 17

Morning Gathering

A classroom morning gathering is a daily routine for children and educators. It is a class meeting that sets the tone for a successful day. We believe and research supports, that every child should be acknowledged with his or her name during the morning greeting. Morning gathering is a special time for children to feel loved and valued. Culture is planned, developed, and sustained through this practice that brings the children together to share understandings. This structure allows for relationship building and character development. It encourages children to build positive connections with their peers and their educators.

Greeting

- Children and educators greet one another by name and practice offering hospitality. This may occur through song, chant or movement.

Sharing

- Children share information about important events in their lives.
- Listeners often offer empathetic comments or ask clarifying questions.

Plan for the Day

- Educators discuss opportunities of the day with the children.
- Children then determine what provocations they would like to explore.
- Learning targets for the day are shared and unpacked with the children.

Resources

- *99 Activities and Greetings* by Melissa Correa-Connolly
- *Journey Toward the Caring Classroom* by Laurie S. Frank
- *The Morning Meeting Book* by Roxann Kriete

In this picture, the children chose to participate in the shoe salad greeting. Each child takes a shoe off and puts it in the center to create the shoe salad. They are then given the opportunity to choose a shoe and find the matching shoe and greet that friend by saying, "Good morning, (child's name)!"

Creating a Classroom Culture

Classroom culture involves creating an environment where children feel safe and free to be involved. Our program uses ***The 7 Habits of Happy Kids*** by Sean Covey to provide children with the opportunity to become independent, collaborate with others, and live a balanced life. Throughout the journey of exploring the habits, children are exposed to experiences where they practice leadership skills with family and friends. We believe that children must be taught how to collaborate with others and that leadership training will have a positive impact on achievement.

The children focus on the following lifelong traits: leadership, responsibility, accountability, problem solving, adaptability, communication, initiative and self-direction, creativity and teamwork. This content provides a logical, sequential, and balanced process to help children be proactive. The 7 Habits of Happy Kids include the following habits:

1. Be Proactive
2. Begin with the End in Mind
3. Put First Things First
4. Think Win-Win
5. Seek First to Understand, Then to be Understood
6. Synergize
7. Sharpen the Saw

Implementation

- The first three habits focus on learning more about yourself as an individual and being in charge of your own choices.
- The next habits, four through six, highlight playing well with others and working as a team.
- The final habit is about taking care of yourself. In the final phase of 7 habits exploration, children learn how to balance all aspects of life.
- Educators will introduce and explore each habit at the beginning of the school year. A habit may be reinforced before moving on. The habits are utilized daily in classroom conversations and play.
- Educators and children also use non-verbal signals to provide a visual accompanying each habit. This cue is essential during whole group times.

Supplemental Resources

- On the website, https://www.leaderinme.org, theleaderinme.org, there are various learning experiences that coincide with the habits. Educators use this resource to enhance the habits and provide children with a technology integration opportunity.
- *In The 7 Habits of Happy Kids* Collection, children continue to learn the importance of being yourself, planning, staying organized, finding your strengths, listening, working together and valuing friendship.
- The character puppets are also a great asset to the literacy experiences. Educators often use these puppets when introducing a habit. The books and puppets are readily available for children to use in the library area of the classroom.

School to Home Connection

- *The 7 Habits of Happy Kids* is a great resource not only at school, but for families to use at home. Families are given a book for their personal library during a family night which provides an overview of the habits. At the end of each story, there are tips for families to implement.
- Educators include information about the 7 Habits on the My Day that is sent home daily. Families are encouraged to use the language at home to provide consistency for the children.

Family and Community Involvement

Families are viewed as partners, collaborators and advocates for their children. Educators respect parents as each child's first teachers and involve parents in every aspect of the curriculum. Children, educators, families and community are interactive and work together. Daily communication and multiple events are provided to encourage participation of families. Community partners are actively involved in the program to strengthen the aspect of real world experiences for children.

Family Events

- The Center hosts family nights to engage families.
- Family nights are based on current projects and provocations.
- Children and families are given the opportunity to participate in experiences together.
- These events encourage children to share their learning with their families.

Family Involvement

- Families are invited to assist with various experiences within the classroom. Some examples include birthday celebrations, planned field days, lunch experiences and reading aloud to the class.
- Families are encouraged to share their expertise based on the interest of the children.

Communication Tools

- Children use an app called Message From Me to send pictures and an audio recording of a learning experience. This connects families immediately to what their children are learning.
- The My Day (See Appendix E-1) is sent daily through email to families. This document gives the families a glimpse into their child's day through pictures, quotations and key questions that will encourage communication at home. Transition tips are added to the document toward the end of the year to assist with the transition to kindergarten.
- The families are encouraged to connect to their child's digital portfolio through Seesaw. This app allows families to receive notifications when a picture, video or drawing is uploaded by either their child or an educator. The families are given the opportunity to communicate with the educators and their child regarding specific pieces of work, experiences, or important announcements.
- The center utilizes and maintains a social media site for families and followers to view. The site displays the classroom experiences, projects, outreach highlights and current early educational research. **www.facebook.com/musteamcenter**
- The Center utilizes and maintains a website for families and other community members to view important dates, events, enrollment opportunities and work of the children. **www.mueesteamcenter.com**

Community Involvement

- Educators build and sustain relationships with community organizations.
- Field experiences and experts are utilized to provide answers to children's questions through real-world environments.
- The view of the child as a contributing member in the community is a focus of the Center.

Community involvement provides children with the opportunity to connect with others at a local level. Pictured, the local garden club worked with children to plant herbs, vegetables and flowers in their outdoor learning environment. The garden club visited the classroom to teach the children about plants that will grow in our area and provided the supplies needed to grow a successful garden.

Core Practice 20

Professional Learning and Mentoring

The Marshall University Early Education STEAM Center serves as an educational research laboratory in which individuals involved in the study and education of young children can observe and/or participate in professional learning. The classroom environment provides a variety of opportunities for pre-service and in-service educators to observe learning taking place without interrupting the natural experiences of children.

Pre-service

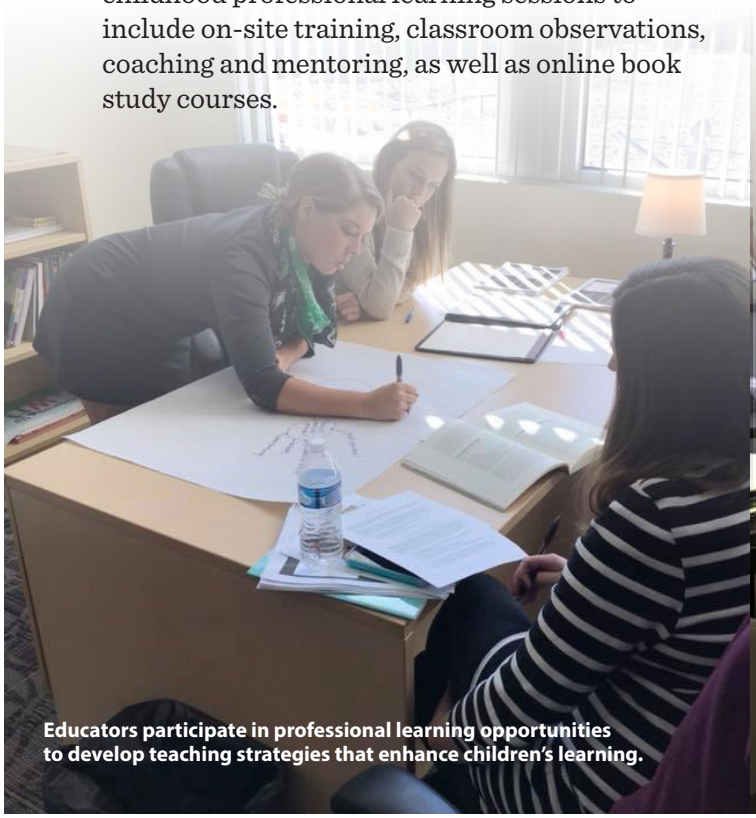
- As a part of the Marshall University College of Education and Professional Development, the Marshall University Early Education Center is a model program for early childhood and elementary education majors.
- Clinical and practicum hours are conducted through collaboration between the Marshall University Early Education Center team and Marshall University professors.

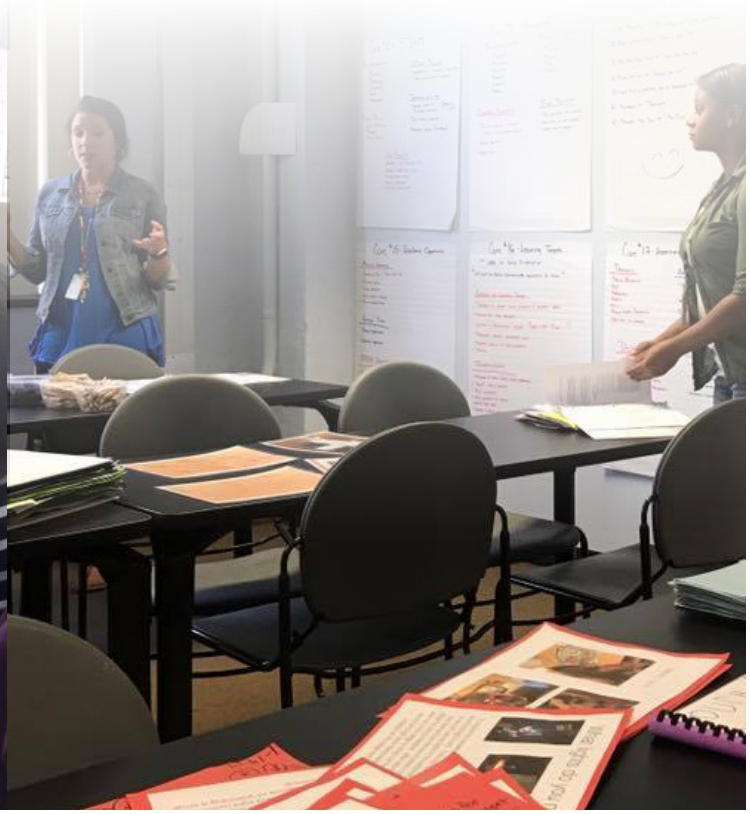
In-service

- Our team works collaboratively to design professional learning sessions specific to the Marshall University Early Education Center approach.
- Interested county systems and districts contract with the June Harless Center to provide early childhood professional learning sessions to include on-site training, classroom observations, coaching and mentoring, as well as online book study courses.

Staff Support

- The expectation of every team member is to participate in continuous growth and professional learning.
- Our team members seek grants to fund professional learning opportunities when possible.
- A professional learning plan is designed each year to meet the needs of the staff to promote continuous growth.





Educators participate in professional learning opportunities to develop teaching strategies that enhance children's learning.

“Education is a social process. Education is growth. Education is not a preparation for life; education is life itself.”

— John Dewey

Appendices Table of Contents

Experience: Date:

Name(s):	Name(s):	Name(s):	Name(s):

Paint What You Hear
November 5, 2019

Teacher Observations:

The children were given the opportunity to paint what they heard while listening to music. On the iPads, a video of airplane sounds played that encouraged children to make observations about what an airplane sounds like when in flight. "I drew lightning because it kind of sounds like that," one child described. Another child said, "I hear airplanes!" While painting the children mixed colors to create new colors. "I put blue and white together to make this lighter blue like the sky."

Creating a Taxiway
November 5-7, 2019

Teacher Observations:

The children were given the opportunity to design a taxiway for airplanes to land on. The children designed and decided what materials they needed for the airplanes to land when we build the taxiway. While designing the taxiway, one child said, “We need to make sure the taxiway is big so that way big airplanes can land on it.” Another child added, “We could use blocks for the taxiway, and maybe cardboard, too.” As the children continued to design, one child noticed a line in one of the examples of a taxiway and noted that we need to make a line so the airplanes will know where to land.

The following day, the children were given the opportunity to create the taxiway that they designed. To create the taxiway, they used butcher paper and tape. Using the paper as the pavement and the tape as the lines on the taxiway. While creating, one child said, “I need to put tape down in the middle, so the planes know where to be!” Another child added, “The taxiway is where the plane starts and ends. “

Appendix B-1

MUEE STEAM Center

Prepared Possibility Week of: _____

Projects/Provocations: _____

Learning Targets:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

	Monday QOD (Question of the Day-Yes or No):	**Tuesday** QOD:	**Wednesday** QOD:	**Thursday** QOD:
Morning Meeting: Greetings, Share, etc.				
Creative Expression: The Arts, Music, etc.				
Block Area				
STEM Activities: Science, Technology, Engineering & Math				
Outside Experiences				
ELA/Literature Focus				

Appendix B-2

MUEE STEAM Center

Prepared Possibility: October 23rd -26th

Projects/Provocations: Space Exploration

Learning Targets:

1. I can be productive at the messy table.
2. I can build a rocket at the light table.
3. I can create a telescope.
4. I can create a constellation.
5. I can listen before I speak.
6. I can collaborate with friends.

	Monday QOD: Would you like to build a rocket on the light table?	Tuesday QOD: Would you like to make an alphabet constellation?	Wednesday QOD: Would you like to make a star gazer telescope?	Thursday QOD: Would you like to explore the space materials in the messy table?
Morning Meeting: Greetings, Share, etc.	1,2,3,4 Come on _____ hit the floor! We're so glad you are here today, Hooray, Hooray, Hooray!	1,2,3,4 Come on _____ hit the floor! We're so glad you are here today, Hooray, Hooray, Hooray!	1,2,3,4 Come on _____ hit the floor! We're so glad you are here today, Hooray, Hooray, Hooray!	1,2,3,4 Come on _____ hit the floor! We're so glad you are here today, Hooray, Hooray, Hooray!
Creative Expression: The Arts, Music, etc.	Continue working on alphabet with items children brought from home and continue working all week. Alphabet Constellations: Paper, chalk, and star stickers	Continue working on alphabet with items children brought from home and continue working all week. Alphabet Constellations: Paper, chalk, and star stickers	Continue working on alphabet with items children brought from home and continue working all week. Star Gazer telescopes: cardboard rolls and blue paint. Children will paint the rolls.	Continue working on alphabet with items children brought from home and continue working all week. Star Gazer telescopes: cardboard rolls and blue paint. Children will use stars with the rolls.
Block Area	Add pictures of rocket ships to encourage children to build in the block area.	Add pictures of rocket ships to encourage children to build in the block area.	Add pictures of rocket ships to encourage children to build in the block area.	Add pictures of rocket ships to encourage children to build in the block area.
Dramatic Play	Add materials to encourage children to engage in pretend play scenarios related to space exploration: Astronaut helmet, space suit, keyboard, paper, glue, scissors, markers	Continue to provide materials: Astronaut helmet, space suit, keyboard, paper, glue, scissors, markers	Continue to provide materials: Astronaut helmet, space suit, keyboard, paper, glue, scissors, markers	Continue to provide materials: Astronaut helmet, space suit, keyboard, paper, glue, scissors, markers
STEM Activities: Science, Technology, Engineering & Math	Messy table: Galaxy Sensory Bin black beans, glow in the dark stars, balls for planets Light Table: Building rockets with tin cans and magna tiles.	Messy table: Galaxy Sensory Bin black beans, glow in the dark stars, balls for planets Light Table: Building rockets with tin cans and magna tiles.	Messy table: Galaxy Sensory Bin black beans, glow in the dark stars, balls for planets Light Table: Building rockets with tin cans and magna tiles.	Messy table: Galaxy Sensory Bin black beans, glow in the dark stars, balls for planets Light Table: Building rockets with tin cans and magna tiles.
Outside Experiences	Tricycles Scooters Large Hollow Blocks Blanket with puzzles Science Experiment: Sink or float	Watercolor paint on art panel Outlast blocks on track with wooden trucks Bean Bag Toss Sandbox Blanket and books Balls Activity table: paper, markers, scissors	Painting with Legos on activity table Scooters Balls Blanket with journals and markers Sandbox	Nature Walk: Magnifying glasses Bug catchers Sidewalk chalk Small Clipboard and pencils
ELA/Literature Focus	Me and My Place in Space	Me and My Place in Space	Me and My Place in Space	Me and My Place in Space

- I can collaborate with my friends.
- I can be productive in the block area.
- I can match the quantity to the number symbol.
- I can retell a story.

Baylen January 7, 2020

Anecdotal:
While working on the calendar, Baylen was able to correctly identify and write numerals. He joined the experience after single digits were already complete but persisted through the numerals that were not familiar to him. He shared, "Twenty-five is a two and a five. Two and five, right here." He checked his understanding using number stones and a number strip.

Standard(s) Assessed:
M.PK.3; AR.PK.9; AL.PK.6; M.PK.15

Domain(s):
Mathematics
Approaches to Learning
The Arts

CM

Kirby September 30, 2019

Anecdotal:
Today, the children further explored their interest of "doctors". Kirby added knowledge about doctors by stating, "I know they check hearts." She drew a picture of a stethoscope and shared, "I made it. Even the parts that go around your ears."

Standard(s) Assessed:
ELA.PK.III; AL.PK.11; AL.PK.4; ELA.PK.FR.PC.4; AL.PK.12

Domain(s):
English Language Arts
Approaches to Learning

CM

My Day

September 19, 2019

Outside Exploration

The children had the opportunity to build with blocks outside today. Some of the children brought cars out as well and built a track for the cars. The track included obstacles including ramps and various other "stoppers" that were placed along the way to the finish line. One child said, "Look, the car can't get over this block!" Another child said, "Let's put a ramp in front of it so it can jump over it!" The children used their problem-solving skills in order to get their cars to the finish line on the other side of the obstacle.

Question(s): What can you build with the blocks outside? How can the car get to the finish line?

What can you create?

Today the children used the leaves they collected outside yesterday to create. The children were given those leaves with white paint and black pieces of paper to create leaf prints. When slightly dipping their leaves in the paint, one child noticed the different patterns on each leaf and said, "Every leaf has different lines on it." Another child said, "I can see the lines when I put the leaf on my paper!"

Question(s): What does your leaf look like? Does your leaf look different than your friends?

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