



# Brain Builders: Developing a Preschool Curriculum for Outdoor Learning at The Red Barn

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## Introduction

### Questions for project:

1. Does combining early literacy skills and outdoor play create a better learning experience for pre-school children?
2. Would a manual for an outdoor program improve children's letter recognition and handwriting skills?

### Background:

- Outdoor play engages attention, promotes cognitive, physical, social and emotional development.<sup>2</sup>
- Early literacy skills like letters and sounds are critical for learning writing.<sup>4,5</sup>
- Letter recognition requires form constancy, visual scanning, memory and cognitive skills.<sup>4</sup>
- The outdoors helps to reduce stress, improve attention and promote cognitive and emotional development.<sup>2</sup>

### Theory / Frame of Reference

- The following helped with planning for different strategies and interventions to implement for the Brain Builder's Program.
  - Model of Children's Play:
    - Uses play as the occupation to focus on a child's cognitive, motor, language and social skills development.
    - Skill development will reflect a child's problem solving and reasoning skills.
    - Physical play helps children to develop eye- hand coordination and in-hand manipulation skills which are both vital to handwriting.
  - The Development of Handwriting Skills Frame of Reference:
    - Identifies five different areas that could affect handwriting skills in children: proximal posture, use of writing tools, grasp, components such as attention and memory, and the handwriting itself.

### Significance to Occupational Therapy

- OTs focus on foundational skills like handwriting, letter recognition and motor control in children's development.
- OTs create an enjoyable, sensory rich environment to improve encouragement, motivation and reduce stress.

### Purpose of Project:

- Develop a 4-month long manual for the Brain Builders program at The Red Barn that combines concepts of Handwriting Without Tears (HWT) curriculum within an outdoor approach.
- The manual will:
  - Guide therapists and future educators in adapting activities in an outdoor, nature-based environment to meet individual literacy development goals.
  - Focus on gross motor and fine motor skills.
  - Provide tasks adaptations and environmental modifications.
  - Incorporate nature-based activities.

## Methods

### Project Design

- Create detailed modules for day-to-day activities to focus on early literacy and handwriting skills in preschoolers.
- Each modules follows a template and focuses on letter recognition, letter formation, shapes, colors, numbers and science.
- All modules and activities are conducted in an outdoor environment to enhance gross motor, fine motor, social and sensory regulation skills.

### Site & Population:

- The Red Barn in Leeds, Alabama.
- Preschool children ages 4-6 years old.

### Curriculum:

- Books were chosen to set the theme of each month and were based on HWT letter sequence. The first 4-months were based on the letters L, F, E, H.
- Each module focused on development of pre-handwriting skills.
- Adaptations or modifications for activities and alternative activities were created.
- Activities were described for both mounted (riding) or unmounted lessons for a barn environment.
- Extra sections in the manual included: table of contents, introduction, questions about the type of environment needed, regulation strategies, environmental adaptations, outdoor songs to sing and Alabama early learning school standards.

## Results

### Curriculum Design:

- 4-month, day to day manual focused on concepts of the Handwriting Without Tears curriculum.
- Overall structure of manual:
  - Table of contents
  - Introduction/ Questions
  - Month 1: The Grouchy Ladybug (Letter L)
  - Month 2: Jump Frog Jump (Letter F)
  - Month 3: Elmer (Letter E)
  - Month 4: A Horse Named Jack & From Head to Toe (Letter H)
  - Appendix: Regulation strategies, environmental adaptations, songs, and Alabama Standards

### Structure of Each Month:


- Each month is organized in a clear, readable format
  - Supplies/ Equipment
  - Warm up activity
  - Circle time/ book discussion
  - Gross Motor activity
  - Clean up
  - Free Play
  - Fine motor or Craft activity
  - Clean up
  - Free Play

- At the end of each day is a suggestions or adaptation section to include different types of modifications to the activities. There is an alternative section which includes other activities the group can do if the one on the daily schedule is not working.
- Each day focuses on a proximal to distal format to build core strength first which is essential to fine motor skills.

INTRODUCTION:		
Who are we?		4
What is the Brain Builders program?		4
Why should children play outdoors? What are the benefits of learning outside?		4-5
Why is it important to develop motor skills, social skills and sensory experiences before practicing handwriting?		5-6
Why is it important for preschoolers to learn early literacy skills, shapes and colors?		6
What are the benefits of an equine-assisted learning approach?		7
What are the benefits of a horse's movements?		7
Important Terminology		8
Final Statement		8

QUESTIONS:		
What are common materials you need?		9
What is the best environment for this program?		9
How do you handle weather changes?		9
How do we use the environment effectively?		9-10

CIRCLE TIME:		
Seating Arrangements		11
MONTH 1: THE GROUCHY LADYBUG (LETTER L)		
Month 1 Cover Page		12
Weekly layout:		
Week 1		13-14
Week 2		15-16
Week 3		17-18
Week 4		19-20
Week 1		21-23
Week 2		34-46
Week 3		47-58
Week 4		59-71

<b>Week 4 Day 2</b> Topic: Elmer Letters	
Supplies/ Equipment needed: <ul style="list-style-type: none"><li>• Chalk</li><li>• Toss</li><li>• Writing stick</li><li>• Pickets</li><li>• Elmer Book</li></ul>	
Activities: <ul style="list-style-type: none"><li>• Warm up Activity<ul style="list-style-type: none"><li>◦ Think, duck, guess!<ul style="list-style-type: none"><li>▪ Children will sit in a circle, while one person goes around the circle saying heads saying "think, duck, guess"</li><li>▪ They will choose one person to be the guess, once that person is tapped and called guess, the guess will choose the tapping person around the circle until they are either tapped or sit down in the guess's spot</li><li>▪ Once the person who has chosen to be a guess, the guess will guess between the "tapper" and "tip" "think, duck, guess" around the circle</li></ul></li></ul></li><li>• Circle time book discussion<ul style="list-style-type: none"><li>◦ 2 children will tell the story of the Elmer together to their peers</li></ul></li><li>• Gross motor<ul style="list-style-type: none"><li>◦ Letter L scavenger hunt<ul style="list-style-type: none"><li>▪ Place the letter L on different trees or sticks around the environment</li><li>▪ Children will go on a scavenger hunt throughout the woods identifying and locating different L's hidden. Once an L is recognized, ask each child what is something that starts with L?<ul style="list-style-type: none"><li>▪ Could it be elephant, ear, egg, eye, elephant, eagle</li></ul></li><li>▪ Do you see anything around you that starts with the letter L? What about the earth? Could the dirt, trees, leaves and sky be a part of earth?</li></ul></li></ul></li><li>• Clean up</li><li>• Free play</li><li>• Fine motor craft<ul style="list-style-type: none"><li>◦ What type of trees is L made out of? How many trees is L made out of?</li><li>▪ One big tree and 3 little trees or the top middle and bottom</li></ul></li><li>• Using a stick, draw an L in the ground, now look around you and see if there is anything you can cover your L with. Do you see any cobbles or elephant ears around to cover and L?</li><li>▪ Could you see pickets as your cobbles to cover L?</li><li>▪ If having trouble drawing L on their sticks, have the instructor demonstrate activity and children imitate</li><li>◦ Once you find pickets place them on top of the L you just made following the big line, little line format</li></ul>	
	
<ul style="list-style-type: none"><li>• Clean up</li><li>• Free play</li></ul>	
Suggestions: Adaptations: <ul style="list-style-type: none"><li>• Mounted activity<ul style="list-style-type: none"><li>◦ Letter L scavenger hunt<ul style="list-style-type: none"><li>▪ What riding, being on or use for the letter L, can you find it? What is one thing that starts with the letter L? How does the letter L connect?</li></ul></li></ul></li></ul>	

## Discussion

There were a few themes noted while creating this manual and need to be considered for future implementation:

### Topic 1: Integration of Outdoor Play

- Outdoor play supports cognitive, emotional and developmental growth. By including sensory rich activities, such as building letters with rocks or sticks, can help reinforce letter recognition, fine motor skills and spatial awareness.
- Combining outdoor play with outdoor learning encourages the use of senses such as sight, touch and movement for deeper understanding of early literacy skills.

### Topic 2: Challenges of Accommodating various learners

- Preschool children can vary in their cognitive, emotional and developmental stages.
- Identifying the best way to modify activities to be developmentally appropriate for each child, while following the educational goals of the Alabama standards was difficult.

### Topic 3: Challenges of Including all necessary materials

- Ensuring the manual includes all necessary early literacy content without overwhelming educators implementing the program.
- The goal was to create a comprehensive curriculum that covered all important learning skills, while keeping the daily activities concise, organized and straightforward.

### Limitations:

- The program has not been implemented or assessed, which makes it difficult to evaluate the manual's effectiveness in promoting early literacy skills.
- No data collection or feedback to assess overall effectiveness of the manual.
- It is uncertain if the manual provides enough educational material to meet the needs of children.
- Unable to determine how well the program accommodates children with disabilities.

## Conclusion

### Implications for Occupational Therapy Practice

- Occupational Therapist (OT) and educators can tailor activities to individually meet children's needs. They can adapt activities and use sensory regulation strategies to prevent overstimulation and de-escalate challenging behaviors.
- OT's can support educators in helping children build social skills and manage challenges, preparing them for academic and social success.

### Future Research

- Implement the program and collect data to assess impact on an outdoor learning environment for early literacy skills.
- Explore how nature-based materials compare to indoor materials (pen and paper) for developing fine motor skills.
- Investigate how socioeconomic status or developmental delays affect children's responses to outdoor activities.

## References

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- <sup>3</sup> Kramer, P., Hinojosa, J., & Howe, T.-H. (2020). *Frames of Reference for Pediatric Occupational therapy* (pp. 425–460). Wolters Kluwer.
- <sup>4</sup> Piasta, S. B., & Wagner, R. K. (2010). Developing early literacy skills: A meta-analysis of alphabet learning and instruction. *Reading Research Quarterly*, 45(1), 8–38. <https://doi.org/10.1598/rmq.45.1.2>
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