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## *Curriculum*

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The Robots and Mud Pies π Preschool curriculum is a play based curriculum. Children learn best when they are actively involved with hands-on materials. To provide a well-balanced learning experience, the classrooms and the outdoor environment include materials that will allow children to learn social skills, literacy concepts, motor skills and creativity along with the science, technology, engineering and mathematics concepts.

### **The Project Approach**

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Children will be encouraged to study topics that interest them through in-depth studies of real world topics. These projects will be determined by the children's interests. The teacher will act as a resource to help children find more information and activities related to the topic of the project. The project work takes place alongside the other activities of the classroom with some projects lasting only a couple of days and other projects lasting for weeks or even months. Projects typically involve activities which stimulate learning in all areas of development. Projects have a beginning, middle, and an end. The beginning stage is the planning stage; a time to find out what the children know about the project. Teachers' help children develop questions their investigation will answer. The middle is the developing stage. Teachers provide resources that will help children with their investigations such as real objects, books, and other research materials. Children are involved in their learning and each child can work at their own level/pace. The end stage is when the children share what they have learned and teachers help children make meaningful transitions between projects.

Project Example: A small group of children start making necklaces with strings and beads. While making them, they realize that they have made many necklaces and some bracelets. One suggests that they could sell the jewelry. Another says they need to make a store. They ask the teacher if they can put a sign outside so people will come in to buy necklaces. The teacher talks with the children to help them determine what they already know about jewelry stores. She helps them figure out what they want to learn about jewelry stores and helps them plan their jewelry sale. She finds them books and websites related to jewelry, jewelry stores and money. Over a few days a plan is developed to invite parents, other friends and relatives and other classes to "The RAMPP Jewelry Store." They dictate the details of this to the teacher and some invitations are made on paper while others are sent via email and announced on the Facebook page. They make as

many necklaces as they can in the next few days. They make signs to announce the sale and price tags to put on the jewelry. They make a cash register. Other children may join in parts of the project but some children may prefer to continue their favorite activities (perhaps painting at the easel or building in the block area.) The adults help by asking questions such as, ‘what will you do next?’ ‘What will you do when people come into the store?’ When the sale day comes, the children create displays of the jewelry with the prices and they create a cashier’s station. Finally, the sale begins! The children greet their customers; show them the jewelry (perhaps putting a bit too much sales pressure on grandma); and with help, make change. Once the sale is done, they count how many necklaces and bracelets are left and figure out how many they sold. They count the money and they decide what to do with the money. They might decide to buy something for the classroom or they might decide to donate the money to one of the charities that RAMPP supports. At the end of the project, the children draw pictures and dictate stories about what they did and what they have learned. Throughout this project, the children are using skills and knowledge in all areas of development including fine motor, math, language, literacy, creativity and social skills. They are working together and solving problems as a group. The adults are present to observe and to act as resources for the children. A project like this might last a week. The length of time spent on a project is based on the children’s interest levels. A project like this might lead to a similar project with the same children or with other children in the school. After the jewelry sale is over, children may start planning another type of store or they may find other interests and move on to other topics.

### **STEM Education**

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Science, technology, engineering and mathematics concepts will be taught throughout the day integrated with the other activities going on in the classroom. . For example, a group of students may be asked to solve an engineering problem, ‘Build a bridge that the troll can live under and that is strong enough to hold the big Billy goat.’ This problem ties literacy activities with engineering, mathematics and science. The planned experiences will be based on the children’s interests at the time and may be tied directly to a project they are working on at the time. While these subjects will not be taught as separate units as you might find in schools for older children, an explanation of the separate subjects may be helpful to parents and other adults. The following is an explanation of how these areas will be approached at RAMPP:

## Science

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Science is observing and experimenting, making predictions, sharing discoveries, asking questions, and wondering how things work. At RAMPP, the children will be given the opportunity to explore many objects and concepts related to science. They will observe living organisms including plants and insects. Rocks, shells and other natural items will be available for exploration. Teacher led activities may include simple chemistry or physics experiments such as mixing baking soda and vinegar to see the reaction or testing gravity's effect on different objects. A simple version of the experimental method will be modeled for the children.

## Technology

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Technology is using tools, being inventive, identifying problems, and making things work. Electronics, tools and everyday objects are forms of technology used in our daily life. At RAMPP, the children will learn how to use technology in order to solve problems, to gain knowledge, and to describe what they have learned. For example, a group of children may use thermometers and rain gauges to track the weather for a week. They can use a tablet computer to check their findings against the weather.com information. They can also use the tablet to learn more about types of weather. Then they can use a computer to explain what they have learned by telling a teacher what to write and adding photographs to make a book. For the most part, electronic technology will only be used as tools at RAMPP. While playing computer games and watching videos are great fun, these will be rare activities at RAMPP.

## Engineering

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Engineering is solving problems, using a variety of materials, designing and creating, and building things that work. Many of the materials available to the children at RAMPP lend themselves to building structures and creating simple machines. During Free Choice Time, they will be able to explore these materials and learn how they work. For instance, a couple of children may decide to play with the Duplos Simple Machines set (a type of Lego toy). While building and exploring, they find that they can make the propeller spin around but it keeps hitting the table when they try to spin it. Through trial and error, they figure out that if they add more Duplo bricks at the base of the structure, the propeller will be high enough that it doesn't hit the table when it spins. Simple, child directed activities like this will be supplemented with teacher directed engineering problems. During these activities, the teacher will provide the children with some materials (perhaps a set of wooden blocks, a toy goat and a toy troll). She will present them with a problem (the troll needs a bridge that is tall enough for him to live under and strong enough for him and a goat to stand on top of the bridge). She will ask them to work together to solve the problem. The children will be prompted to work through the following steps while doing these activities.

*Identify the Problem:* Describe the challenge to be solved.

*Explore:* Research what others have done. Discover what materials are available.

*Design:* Use your knowledge and creativity to come up with many solutions. Choose one idea and draw or make a model of it.

*Create:* Make your solution.

*Try It Out:* Test your solution.

*Make It Better:* Evaluate how the solution worked and think of how to improve your design.

Over time, the children will become more adept at working through these steps and brainstorming together to make creative solutions to a variety of problems.

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## Mathematics

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Counting, making patterns, learning about shapes and measurement are important math concepts for preschoolers to learn. At RAMPP, the children will learn math concepts while playing and going about their daily activities. Snack time is a great time to practice counting and sorting with different types of crackers. Jumping from one shape on the floor to another shape gives the children practice using their large muscles while they are learning about shapes and colors. Teachers can help preschoolers learn about graphing by having them stand in groups based on the color of their pants and then making a graph with one square of paper representing each child. Because preschoolers learn concepts such as this best when they are moving and excited about an activity, we will not use worksheets to teach mathematics or other concepts at RAMPP.

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## Literacy

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Reading and writing are essential skills for any child throughout their years in school. At RAMPP, children will be surrounded with writing and reading activities which will engage them and allow them to learn literacy skills at their own pace. Teachers will read books daily. They will model reading in many ways such as reading a recipe or reading a note from a parent. They will introduce the children to writing by having them dictate stories while the teacher writes their words. The children will practice writing in the Writing Area and in other areas of the room. For instance, when a child paints a picture, a teacher will encourage her to write her name on the paper. When a child wants to play “restaurant” in the dramatic play area, the teacher will provide him with a pencil and an order pad so he can write down what people want to eat. Science and engineering activities will include reading and writing concepts too. At first, a child’s writing will look like scribbling but over time, she will learn to write letters and, eventually, words. Children will not use flash cards, worksheets or drill type computer programs at RAMPP. We hope to help each child learn to love reading, writing and school in general. Making reading and writing meaningful and fun will make that more likely.

## **Art, Music, Dramatic Play and Physical Development**

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While RAMPP's curriculum has an *emphasis* on STEM activities; this does not mean the children will not have access to other creative activities. The classrooms will include an Art Area, a Music Area and a Dramatic Play Area in addition to the Writing Area, Science Area, Block Area and Math & Manipulatives Area. Each classroom will also have a number of activities that allow the children to practice small motor and large motor skills. The children will have free access to all of these areas during Free Choice Time. Additionally, many of the teacher suggested activities will involve art, music, dramatic play or physical activities. For instance, on one day, the teacher may put out finger paint in the art area, set up an obstacle course to promote large motor skills and show the children new puppets in the dramatic play area. The children will have free access to many art materials daily. The music area will have assorted musical instruments and an mp3 player the children can use to play a variety of music for dancing. The dramatic play area will include dress up clothes and props that will encourage the children to act out stories and to try out community helper roles such as teacher, firefighter, and police officer. Often the projects that develop from the children's interests will lead to activities in all of these areas. When planning what they want to do to solve an engineering problem or when they are describing what happened in a science experiment, the children will often use art supplies to draw what they want to describe.

## **Outdoor Play**

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Daily opportunities for gross motor activity and exercise are necessary for the overall development of young children. Our outdoor environment provides a wide array of activities which will engage the children in learning activities. The RAMPP playground will include activities such as a sandbox, a flower garden for the children to tend, a sound garden where they can make music, balls and other sports equipment, and tools to aid in the exploration of insects, plants and other natural objects. The playground will not include large, plastic climbing structures because the RAMPP approach to outdoor play emphasizes interacting with natural elements and with each other. We will observe and learn about plants, insects, birds, and other animals that live in our area. To assist in these investigations, teachers will have field guides, other books, and access to the internet so the children can learn how to identify these plants and animals. We will add collections of 'loose parts' that can enhance the outdoor experience. These loose parts include tree cookies (branches and logs cut to make flat cross-sections of trees), shells, rocks, and assorted pieces of wood. The children can use these to build structures, make ramps and bridges, and create art work. With these materials and activities, children will be able to work on a variety of developmental areas including motor skills, language and literacy, art, music, science, math and social skills.

## **Kindergarten Readiness**

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All of the above activities and categories of learning are the types of activities children need in order to prepare for kindergarten. At RAMPP, teachers refer to the *Virginia's Foundation Blocks for Early Learning: Comprehensive Standards for Four-Year-Olds* when planning activities and learning materials for the children. This book is a document that provides a set of minimum standards in literacy, mathematics, science, history and social science, physical and motor skill development, and personal and social development with indicators of success for entering kindergarten that are derived from scientifically-based research. During the year prior to kindergarten entrance, we will provide a number of activities for the children and the parents to help them prepare for kindergarten, both academically and in the socio-emotional sense. Some of these activities will be parent meetings which will give you more information about what you can do to help your child prepare for kindergarten.

## **Learning Through Play and the Role of the Teachers**

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Children are natural learners. Given a variety of materials to play with and time to explore, even with no adult input, most children will learn a great deal about science, math and other concepts. However, children still need adults to keep them safe and to help put words to what they are learning and to help them learn the social aspects of our world. The teachers at RAMPP help children learn language, pre-reading and pre-writing concepts. They teach the children about social customs such as the manners expected in our society. They also provide information about math, science, engineering, and other concepts the children are learning. A child could come to understand the concepts of more and less without any adult input but he would not know the words 'more,' 'less,' and 'same' without someone else giving him those *words*. At RAMPP, the teachers are very intentional in their planning for the children. They plan the arrangement of the room, the materials on the shelves, the books they read to the children, and the activities they present to the children. They observe the children and listen to them in order to know what information they need to give to the children and what information the children can learn simply by interacting with each other and with the materials available. They are present to supervise for safety and to let children know that they are there to help if they get frustrated, scared, hurt, or just lonely. The teachers help the children learn to solve problems rather than simply solving the problems for them. They can provide challenging and engaging tasks for the children because they have been observing and know what topics interest each child and what skill level each child has. So, while we believe strongly that children learn through play, we also know that the children need thoughtful input from teachers while they play in order to learn the concepts they will need to know throughout their school careers.

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