

# MAD SCIENTIST

## Pouring, Gross Motor Development

*We believe that learning should engage the imagination. With child sized goggles and some authentic lab grade materials, your child will feel like a real mad scientist. These activities will keep them interested enough to spend the time to develop their fine and gross motor skills.*

**Pour Into One Beaker** - You will need two beakers (one with a handle) and the tray. Fill the beaker with the handle just enough that the water will fill the second beaker, but not so much that it will overflow. Model how to pour from one beaker to the other, slowly and deliberately so that the water doesn't spill. After you pour into one beaker, pour it back to the first one and then allow your child to do it. Allow your child to do this activity over and over until they can successfully pour without spilling. Remember, they will likely spill at first, and this is to be expected. They shouldn't be made to feel bad because of it. Just make sure to have a towel ready and have them wipe up their spills.

**Pour Into Multiple Beakers** - Follow the steps for the previous activity, only this time, add a third container. Only fill the first beaker with enough water to fill both containers, and model how to pour just enough water into each container so that they don't spill. After modeling the activity, allow your child to do it until they have mastered it, then add more containers to increase the level of difficulty.

**Set Up Test Tubes On Rack** - This is as simple as it sounds, but can be difficult for younger children, as it requires significant motor control.

**Put Test Tube Caps On And Off** - This is a bit more challenging, as it requires fine motor skills. Putting the caps on and taking them off can be tough, so make sure to model how to do it for them first, and help if they need it. Be careful not to jump in too quickly, though, as sometimes they need to become frustrated just before they make a breakthrough.

**Pouring With Funnel** - Using the beaker filled with just enough water to fill all the test tubes, model how to pour through the funnel into each test tube carefully so that you don't spill. You may need to try this by yourself ahead of time, as it can be challenging not to overpour, but you could also use it as a teaching moment to show your child that adults make mistakes, too. When you are finished pouring into all of the test tubes, there should not be any water left in the beaker. Then, you can model pouring the water from the test tubes back into the beaker. After the demonstration, allow your child to do this activity, and let them repeat it until they can do it without spilling.

## Pouring, Gross Motor Development, continued

**Pouring Without Funnel** - This is an extension of the previous activity, with the challenge of not using the funnel. The pouring has to be much more controlled and precise so that you do not spill. Make sure your child has mastered the previous activity before attempting this one.

## Color Tablet Matching

*Dr. Montessori believed that children learn best when a single concept, like color, is isolated from other attributes. Objects that can be sorted by color, size, and shape do not provide an optimal learning experience. The included activities are also great for children who are more active and like to move around!*

**Match 3 Colors** - Remove both sets of primary colors from the color tablets set: red, blue, and yellow. Have them in a pile at the bottom of your workspace, and demonstrate lining them up along the edge of your workspace. Place the first one at the top, then bring the second one next to the first. Show that it does or doesn't match. If it does, place it next to the first one. If it doesn't, place it below. Continue until the colors are all matched. See videos for a visual of how this works.

**Match To Items In The Environment** - Take a single color and walk around the room, showing your child all of the items that are the same color. This is great for active children who need to move. Do it with them at first, then allow them to walk around and do it themselves.

**Find Items That Match** - Choose a single primary color tablet and have the child bring items that match to the workspace. This activity fosters both movement and memory, as the child has to remember the color of the tablet that they left on the workspace, and go find something that matches. Some examples of items they can bring are: a pencil, stuffed animal, spoon, book, etc. Start with two colors before you add a third, having the child place the items under the column with the color tablet at the top. Gradually add more tablets and items to increase the difficulty. This teaches sorting and helps with memory.

## Color Tablet Matching, continued

**3 Period Lesson** - The 3 period lesson is used a lot in Montessori classrooms, and can be used to teach the names of the primary colors. It has 3 parts: 1. Naming (Introduction) "This is red", 2. Recognizing (Identification) "Show me red", and 3. Remembering (Cognition) "What is this?" Name each color as you lay it on the mat. Repeat the name several times before you move on to the next one, doing the same for each color. Ask the child to point to the last one you named. This gives them the opportunity to succeed, since that is still fresh in their mind. Once they can name the last color, ask about the second one, then the first. After they are able to successfully name each of the colors, proceed to the third part. Point to each color and ask what it is. For some children this activity will be super simple, but you can use this method for teaching many different concepts, and add difficulty by adding more colors or objects. [Add secondary colors and repeat the previous activities]

See insert for Color Mixing and Fine Motor Development.

### Note:

**One important element of Montessori is that the materials are aesthetically appealing** so that the child wants to work with them. Science materials can seem boring by themselves, but when everything is set out and filled with colored water, it can help their imagination come alive!

**To get the best results**, we recommend you select one of two ways to introduce these materials to your child:

1. Have all the materials set up and ready to go. Place all the items out, and fill the containers with colored water so that it is beautiful and feels like a real laboratory.

This may appeal to younger children who have not had much contact with scientific equipment.

2. For older children, we recommend that you introduce "setting up the laboratory" as the first activity. Involve them in placing everything out and getting ready to begin their experiments. Kids especially love adding the dye to the dropper bottles because they fizzle, **creating the feeling of watching a real experiment.**