



## TEACHING TOOLS AND ACTIVITIES

### COLOR MIXING

 Critical Thinking and Problem Solving

Critical thinking and problem solving skills – the ability to understand cause and effect, figure out how things work, and solve problems – are essential for eventual success in the classroom and workplace[7]. One way to encourage these skills is by having kids experiment with color mixing. Color mixing can help practice critical thinking skills like exploring cause and effect through observation of how colors blend together and engaging in problem solving by testing different ways to achieve a certain color. This activity can also introduce kids to early math concepts such as how proportions combine to produce a whole[8].



#### WHAT YOU'LL NEED

**PLAY-DOH COMPOUND – PRIMARY COLORS (RED, YELLOW, AND BLUE)**



**FLAT WORK SURFACE**

#### WHAT TO DO



##### STEP 1

Take out 2 (or more) Play-Doh colors from the cans and pinch off small pieces of each.



##### STEP 2

Using their fingers, kids combine the colors until they fully mix them to make a new color.



##### STEP 3

Encourage them to experiment! Explore changes in shade by adding more of one of the colors they just used, or try new combinations of colors.

#### FUN TIPS

Being a play partner instead of an instructor helps encourage critical thinking skills and can make the play experience more fun for both you and your child. Promote exploration, abstract thinking, and begin to understand cause and effect by wondering out loud with your child.

Try prompting them with questions like:

- What do you think will happen?
- Is there any red left?
- What new color did you make?
- If we keep making the Play-Doh piece thinner and thinner, would it break?
- Is there anything in this room that's the same color as the one you made?
- How many pieces did you use to make a color?



## TEACHING TOOLS AND ACTIVITIES

### POTENTIAL BENEFITS OF THIS ACTIVITY

"With your participation and incorporating the "Fun Tips," this activity can give kids opportunities to explore a variety of concepts and work on valuable skills, including:

#### Critical Thinking and Problem Solving

- Making predictions
- Observing changes
- An understanding of cause & effect
- Comparing and contrasting

#### Fine Motor Skills

- Helps strengthen and develop the tiny muscles in the fingers
- Can help them later manipulate writing utensils

#### Integrated Use of the Senses

- Sight, touch, and smell
- Can help guide cognitive exploration

#### Basic Math Concepts

- Experimenting with different portions of Play-Doh compound can promote mathematical thinking about proportions and how when combined make a whole.

#### References

[7] A Gopnik. 2012. Scientific Thinking in Young Children: Theoretical Advances, Empirical Research, and Policy Implications. *Science*, 227, 1623-1627.

[8] J Sarama, D H Clements. 2009. Building Blocks and Cognitive Building Blocks: Playing to Know the World Mathematically. *American Journal of Play*, Winter, 314-337.



## TEACHING TOOLS AND ACTIVITIES

### PLAY-DOH GARDEN

 Collaboration

Collaboration –including being able to compromise and share resources – is an increasingly important 21st Century skill[13]. While young children are not typically thought of as collaborators, research suggests they are “natural helpers”[14] capable of sharing, helping, and cooperating with peers, when working together on a common activity[15]. Getting little ones to cooperate meaningfully with a peer can be quite an undertaking but when you present kids with the challenge of co-designing their very own Play-Doh garden, you give them an opportunity to engage in beneficial collaboration. During this activity, kids work together to design a garden of their liking and then build it with their favorite Play-Doh colors.



#### WHAT YOU'LL NEED

**PLAY-DOH  
COMPOUND -  
MULTIPLE COLORS**



- **LARGE PAPER**
- **MARKERS**
- **FLAT WORK SURFACE**



#### WHAT TO DO



##### STEP 1

Lay out a large piece of paper. Ask the kids to draw a garden using colorful markers. Ask questions to help generate ideas like “what’s in or around your garden? Flowers? Vegetables? A Fence? Flower pots?”



##### STEP 2

Encourage them to work together by collaborating on the same garden, rather than each making their own.



##### STEP 3

Finally, have the kids create the objects in their drawing using Play-Doh compound. Watch as they transition their flat design into a colorful 3D garden.

#### FUN TIPS

Throughout the project, encourage kids to build off of each other’s thinking and respond to each other’s ideas. While they are drawing and creating, facilitate their work by helping them share space, tasks, and materials. At the end of the activity, highlight the benefits of how great it is for them to work together, and remind them how this couldn’t have been done without all of them helping!



## TEACHING TOOLS AND ACTIVITIES

### POTENTIAL BENEFITS OF THIS ACTIVITY

With your participation and incorporating the "Fun Tips," this activity can give kids opportunities to explore a variety of concepts and work on skills, including:

#### Collaboration

- Engaging in tasks that work toward a common goal
- Identifying roles in a group activity
- Building capacity to be a natural helper in everyday interaction

#### Sharing

- Experiencing how it feels to work together on a common goal
- Taking turns using materials

#### Understanding Emotions

- Recognizing how others think and feel by talking about what each person wants to do and why

#### References

- [13] Hanover Research. 2011. A Crosswalk of 21st Century Skills. Hanover Research – District Administration Practice.
- [14] R Rende, J Prosek. 2015. Raising Can-Do Kids: Giving Children the Tools to Thrive in a Fast-Changing World. New York: Perigee / Penguin
- [15]N White et al. 2014. "It's Mine!" Does Sharing with Siblings at Age 3 Predict Sharing with Siblings, Friends, and Unfamiliar Peers at Age 6? Early Education and Development, 25, 185-201.



### LEARNING LETTERS

● Communication

Communication skills ranging from basics like learning letters and words to expanding their ability to engage in conversations are fundamentally important for supporting both academic and eventual career success [9]. Activities that encourage kids to physically create letters help promote reading and writing skills[10], and parent-child conversation during shared activities can lead to vocabulary growth[11]. The alphabet is a big part of the educational curriculum, and sometimes it can be difficult to make the concept of writing fun and engaging. This activity does away with tricky writing utensils and the permanency of marks on paper by allowing kids to practice their ABCs with a more freeform, hands-on approach using Play-Doh compound. During the activity, talking can help develop a young child's vocabulary and stimulate conversational skills like turn-taking and sharing ideas[12].



#### WHAT YOU'LL NEED

##### CLEAR VISUALS OF LETTERS AND/OR WORDS

• For example, write some letters on a piece of paper, or find something in the house that clearly shows large letters or words



##### PLAY-DOH COMPOUND



##### FLAT WORK SURFACE

#### WHAT TO DO



##### STEP 1

Provide the visual to your child and decide together which letter to explore.



##### STEP 2

Encourage them to recreate the lines in the letter using their favorite Play-Doh color.



##### STEP 3

Try building familiar words or making their name. Make sure to talk through the activity as they go; see below for some conversation starters.



## TEACHING TOOLS AND ACTIVITIES

### FUN TIPS

Talk a lot and use “adult” words to help your child expand their understanding of new words. Encourage conversational skills by talking through the different colors, textures, and shapes that make up the letters. Engage kids by providing positive commentary and asking questions to prompt further thinking, such as:

- Does the letter have curvy or straight lines?
- Which letters have holes and which ones do not?
- "Look! There's red, blue, yellow, and white!"
- "Wow! You made a circle!"
- "Hey! That looks like a snake!"

Try making meaningful connections by personalizing your child's exploration of letters. Link your activity to their names, favorite things to do, or family members.

### POTENTIAL BENEFITS OF THIS ACTIVITY

With your participation and incorporating the “Fun Tips,” this activity can give kids opportunities to explore a variety of concepts and work on valuable skills, including:

#### Essential Communication Skills

- Holding an engaged conversation with a parent during a joint activity

#### Vocabulary

- Listening to child-directed talk by a parent can build understanding of new words
- Practicing using new words discovered by listening to a parent

#### Reading

- Recognizing letters of the alphabet
- Identifying the letters in their own names and in sight words

#### Writing

- Forming and imitating familiar letters

#### References

- [9] S P Morreale & J C Pearson. 2008. Why Communication Education is Important: The Centrality of the Discipline in the 21st Century. *Communication Education*, 57, 224-240.
- [10] K H James, L Engelhardt. 2012. The Effects of Handwriting Experience on Functional Brain Development in Pre-literate Children. *Trends in Neuroscience and Education*, 1, 32-42.
- [11] M L Rowe. 2012. A Longitudinal Investigation of the Role of Quantity and Quality of Child-Directed Speech in Vocabulary Development. *Child Development*, 83, 1762-1774.
- [12] L B Adamson et al. 2014. From Interaction to Conversations: The Development of Joint Engagement During Early Childhood. *Child Development*, 85, 941-945.



## TEACHING TOOLS AND ACTIVITIES

### MAKING STORIES

 Creativity

Fostering creativity – being able to think outside the box, brainstorm, generate new ideas and improve existing ones – is one of the core 21st Century skills that has received extensive attention[16]. Helping young minds to imagine "what if" and "what could be"[17] are the roots of creative thinking. Parents can support this by offering guidance rather than instruction and helping young children to be flexible in their thinking as they discover and generate new ideas.[18]



#### WHAT YOU'LL NEED

##### PLAY-DOH COMPOUND



##### A FEW SMALL TOYS, SUCH AS PLASTIC ANIMALS OR VEHICLES



##### FLAT WORK SURFACE

#### WHAT TO DO

##### STEP 1

Place the Play-Doh cans and other toys on a table together



##### STEP 2

Ask the kids to select a few toys then have them use the Play-Doh compound to sculpt a habitat or other related items to the toys they selected.



##### STEP 3

Encourage kids to build out any scene they imagine with minimal explanation or guidance. You'll be amazed to see the kinds of dialogs, stories, and ideas they come up with!



Many kids will intuitively know what to do without instruction, but if they need a little help getting started, that's OK. You can get the ball rolling by making Play-Doh caves or other story-starter props to help spark some ideas. Make sure to let them decide where the adventure goes from there!



## TEACHING TOOLS AND ACTIVITIES

### FUN FACTS

Keep the creativity flowing by offering encouragement for open-ended activities, but don't be prescriptive by telling them what to do or make, or critique their work. Instead, encourage "trial and trial" experimentation, as opposed to "trial and error". Remember: when it comes to creative young minds, reality can be suspended, so anything goes!

For example:

#### Encourage exploration, inspiration, and long-lasting play by saying things like:

- "I wonder what else you will make!"
- "So that tree you made keeps falling down? What else can you try to make it stand up?"

#### Avoid critiquing or directing play by not saying things like:

- "I think you need a lake for the polar bear to drink from over here."
- "That doesn't really look like a tree."

### POTENTIAL BENEFITS OF THIS ACTIVITY

With your participation and incorporating the "Fun Tips," this activity can give kids opportunities to explore a variety of concepts and work on skills, including:

#### Creativity

- Apply previous information and experiences to a new context
- Making discoveries and generating new creations

#### Pretend Play

- Promoting an understanding of fantasy and reality
- Embracing open-ended, "what if" thinking
- Creating those "aha" moments of discovering new ideas and solutions to problems

#### References

- [16] T Wagner. 2012. *Creating Innovators: The Making of Young People Who Will Change the World*. New York: Scribner.
- [17] D S Weisberg & A Gopnik. 2013. Pretense, Counterfactuals, and Bayesian Causal Models: Why What Is Not Real Really Matters. *Cognitive Science*, 37, 1368-1381.
- [18] C Cook et al. 2011. Where Science Starts: Spontaneous Experiments in Preschoolers' Exploratory Play. *Cognition*, 120, 341-349.