AFIRM

Autism Focused Intervention Resources & Modules

Modeling (MD)
---EBP Brief Packet---

This overview brief will support your use of the evidence-based practice: Modeling.

For more information visit:
www.afirm.fpg.unc.edu

Components of the EBP Brief Packet…

This evidence-based practice overview on Modeling (MD) includes the following components:

1. **Overview:** A quick summary of salient features of the practice, including what it is, who it can be used with, what skills it has been used with, and settings for instruction.
2. **Evidence-base:** The *MD Evidence-base* details the NPDC criteria for inclusion as an evidence-based practice and the specific studies that meet the criteria for this practice.
3. **Step-by-Step Guide:** Use the *MD Step-by-Step Practice Guide* as an outline for how to plan for, use, and monitor MD. Each step includes a brief description as a helpful reminder while learning the process.
4. **Implementation Checklist:** Use the *MD Implementation Checklist* to determine if the practice is being implemented as intended.
5. **Data Collection Sheets:** Use the data collection sheets as a method to collect and analyze data to determine if progress is being made for a learner with ASD.
6. **Tip Sheet for Professionals:** Use the *MD Tip Sheet for Professionals* as a supplemental resource to help provide basic information about the practice to professionals working with the learner with ASD.
7. **Parent Guide:** Use the *MD Parent Guide* to help parents or family members understand basic information about the practice being used with their child.
8. **Additional Resources:** Use the *Additional Resources* to learn more about the practice.
9. **CEC Standards:** A list of *CEC Standards* that apply specifically to MD.
10. **Module References:** A list of numerical *References* utilized for the MD module.

Suggested citation:

Sam, A., & AFIRM Team. (2015). *Modeling*. Chapel Hill, NC: National Professional Development Center on Autism Spectrum Disorder, FPG Child Development Center, University of North Carolina. Retrieved from http://afirm.fpg.unc.edu/modeling

Modeling (MD)

What is Modeling?

Modeling can be used to increase a learner's ability to perform a target behavior. Modeling involves the learner observing someone correctly performing a target behavior. The demonstration of the behavior *before* the learner is expected to demonstrate the behavior serves as a primer for the behavior. In addition, modeling can be used as a prompt in order to provide extra support to the learner after the direction has been provided and the child is trying to use the behavior. Modeling is most effective when it is used with the evidence-based practices of prompting and reinforcement.[1]

Evidence-base

Based upon the recent review, modeling meets the evidence-based practice criteria set by NPDC with 4 single case design studies and 1 group design study. The practice has been effective for early intervention (0-2 years), preschool (3-5 years), elementary (6-11 years), and high school-age (15-22) learners with ASD. Evidence-based practices (EBP) and studies included in the 2014 EBP report detailed how modeling can be used effectively to address: social, communication, joint attention, school readiness, play, vocational, and academic outcomes.

How is MD Being Used?

Modeling can be used by a variety of professionals, including teachers, special educators, therapists, paraprofessionals, and early interventionists in educational and community-based environments. Parents and family members also can use modeling in the home.

For more information visit:
www.afirm.fpg.unc.edu

AFIRM

Autism Focused Intervention Resources & Modules

---Evidence-base for Modeling---

The National Professional Development Center on ASD has adopted the following criteria to determine if a practice is evidence-based. The EBP Report provides more information about the review process (Wong et al., 2014).

Efficacy must be established through high quality, peer-reviewed research in scientific journals using:

- randomized or quasi-experimental design studies (two high quality experimental or quasi-experimental group design studies),
- single-subject design studies (three different investigators or research groups must have conducted five high quality single subject design studies), or
- combination of evidence [one high quality randomized or quasi-experimental group design study and three high quality single subject design studies conducted by at least three different investigators or research groups (across the group and single subject design studies)].

--OVERVIEW--

Modeling is used to teach target behaviors and skills. Modeling meets the evidence-based practice criteria with 4 single case design studies and 1 group case study. The practice has been effective with learners in early intervention (0-2 years), preschool (3-5 years), elementary (6-11 years), and high school learners (15-22 years). Studies included in the 2014 EBP report detailed how modeling can be used effectively to address: social, communication, joint attention, school readiness, play, vocational, and academic outcomes.

In the table below, the outcomes identified by the evidence base are shown by age of participants.

Early Intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
			No studies	
Social	Social	Social		Social
	Communication	Communication		Communication
	Joint Attention			
	School-Readiness			
		Play		
				Vocational
	Academic			

Early intervention (0-2 years)

Landa, R. J., Holman, K. C., O'Neill, A. H., & Stuart, E. A. (2011). Intervention targeting development of socially synchronous engagement in toddlers with autism spectrum disorder: A randomized controlled trial. *Journal of Child Psychology and Psychiatry, 52*(1), 13-21. doi: 10.1111/j.1469-7610.2010.02288.x

Preschool (3-5 years)

Matson, J. L., Box, M. L., & Francis, K. L. (1992). Treatment of elective mute behavior in two developmentally delayed children using modeling and contingency management. *Journal of Behavior Therapy and Experimental Psychiatry, 23*(3), 221-229. doi: 10.1016/0005-7916(92)90039-L

*Schrandt, J. A., Townsend, D. B., & Poulson, C. L. (2009). Teaching empathy skills to children with autism. *Journal of Applied Behavior Analysis, 42*(1), 17-32. doi: 10.1901/jaba.2009.42-17

Elementary (6-11 years)

Charlop-Christy, M. H., Le, L., & Freeman, K. A. (2000). A comparison of video modeling with in vivo modeling for teaching children with autism. Journal of Autism and Developmental Disorders, 30(6), 537-552. doi: 10.1023/A:1005635326276

*Schrandt, J. A., Townsend, D. B., & Poulson, C. L. (2009). Teaching empathy skills to children with autism. *Journal of Applied Behavior Analysis, 42*(1), 17-32. doi: 10.1901/jaba.2009.42-17

Middle (12-14 years)

No studies

High (15-22 years)

Rigsby-Eldredge, M., & McLaughlin, T. F. (1992). The effects of modeling and praise on self-initiated behavior across settings with two adolescent students with autism. *Journal of Developmental and Physical Disabilities, 4*(3), 205-218. doi: 10.1007/BF01046965

* Research which included participants in multiple age ranges.

AFIRM Autism Focused Intervention Resources & Modules

Modeling (MD)
---Step-by-Step Guide---

This practice guide outlines how to plan for, use, and monitor the practice of modeling.

Keep in mind that modeling can be used as:

- A prime or
- A prompt.

While each procedure is slightly different, the practice guide is applicable to both. When unique features are tied to a specific category, we will identify them through examples or cautions.

AFIRM Autism Focused Intervention Resources & Modules

BEFORE YOU START…

Each of the following points is important to address so that you can be sure the selected EBP is likely to address the learning needs of your student.

Have you found out more information about. . .?

- ☐ Identified the behavior…
- ☐ Collected baseline data through direct observation…
- ☐ Established a goal or outcome that clearly states when the behavior will occur, what the target skill is, and how the team will know when the skill is mastered…

If the answer to any of these is "no," review the process of how to select an EBP.

For more information visit:
www.afirm.fpg.unc.edu

Now you are ready to start…

Step 1: MD Planning

The planning step explains how to determine if the learner has the prerequisite skills needed for modeling and when and where to use modeling.

1.1 Determine if learner has the prerequisite skills needed for modeling

In order to learn from a model, a learner must be able to:

- Imitate others' behaviors,
- Perform some of the component skills that make up the target skill, and
- Sustain attention long enough to watch the model perform the target skill.

1.2 Select evidence-based practices to use with modeling to teach target behavior

Prompting and reinforcement are commonly used with modeling. A controlling prompt is used with modeling to ensure the learner performs the target skill/behavior correctly.

1.3 Identify times and activities to use modeling

To be effective, several times and activities should be identified throughout the day that will allow the learner to practice the target skill or behavior.

1.4 Identify model for the learner

The best person to serve as the model is a peer who is physically similar to the learner and respected by the learner. If a peer cannot be a model, a teacher, paraprofessional, therapist, or parent can serve as an effective model.

1.5 Provide training to model if appropriate

If a peer or sibling will model the identified target skill or behavior, then training might be needed. Adults can role play with the peer or sibling and provide scripts for the model to follow.


*Use the **Topic Bubble Script** to help peers know what to say.*


*Use the **Target Skill Written Cues Script** to develop words or phrases for peers to say.*

1.6 Determine if model will be used as a prime or as a prompt

When used as a prime, the desired behavior or skill is modeled before the learner is expected to demonstrate the behavior. When used as a prompt, the model provides extra support to the learner after the direction has been given and as the learner attempts to use the skill or behavior.


*Use the **Modeling Planning Form** before using the practice.*

Step 2: Using MD

This section describes the process of using modeling and includes following the unique steps of selected modeling procedure, providing prompting and reinforcement.

2.1 Follow the unique steps for using selected model procedure

- Model as a prime:
  - Cue the learner to observe the model
  - Model demonstrates/performs behavior/skill
  - Wait for learner to imitate behavior.
- Model as a prompt:
  - Direct learner to use behavior
  - If learner does not use behavior, model target behavior/skills

2.2 Provide feedback to learner

If the learner demonstrates the target skill or behavior, the adult will provide immediate reinforcement to the learner. If the learner does not perform the target skill/behavior, deliver the identified controlling prompt. If the learner does engage in the behavior following the controlling prompt, provide the learner with reinforcement.

 *Use the **Modeling Decision Tree** to guide your response.*

2.3 Thin reinforcement

When teaching a new target skill or behavior, a continuous reinforcement schedule should be used. As the learner acquires the skill, begin using an intermittent reinforcement schedule to thin the use of reinforcers.

Step 3: Monitoring MD

The following process describes how the use of modeling can be monitored and how to adjust your plan based on the data.

3.1 Collect and analyze data on target behavior

By collecting data on target behaviors and skills, team members are able to determine if the learner is making progress. Two common forms of data collection commonly used with modeling are time sampling and event recording.

*Use the **Time Sampling and Event Recording Forms** to collect data on the frequency of behaviors.*

3.2 Determine next steps based on learner progress

If the learner with ASD is showing progress with modeling based upon collected data, then continue to use this practice with the leaner. Gradually, new target skills and behaviors can be introduced to the leaner with ASD.

If the target skill or behavior is not increasing, ask yourself the following questions:

- Is the behavior well defined?
- Is the behavior measurable and observable?
- Does the learner have the needed prerequisite skills for modeling?
- Has enough time been devoted to using this strategy?
- Was modeling used with fidelity? (Use the Modeling Implementation Checklist to determine fidelity.)
- Are reinforcers used that are motivating to the learner?
- Does the controlling prompt ensure the learner uses the target skill or behavior?

If these issues have been addressed and the learner with ASD continues not to show progress, consider selected a different evidence-based practice to use with the learner.

Modeling (MD)
---Implementation Checklist---

Before you start:

Have you...

- ☐ Identified the behavior
- ☐ Collected baseline data through direct observation
- ☐ Established a goal or outcome that clearly states when the behavior will occur, what the target skill is, and how the team will know when the skill is mastered.

If the answer to any of these is "no", refer to the "Selecting EBPs" section on the website: afirm.fpg.unc.edu

Observation	1	2	3	4
Date				
Observer's Initials				
Step 1: Planning				
1.1 Determine if learner has prerequisite skills needed for modeling				
1.2 Select evidence-based practices to use with modeling to teach target behavior				
1.3 Identify times and activities to use modeling				
1.4 Identify model for the learner				
1.5 Provide training to model if applicable				
1.6 Determine if model will be used as a prime or as a prompt				
Step 2: Using				
2.1 Follow the unique steps for using selected model procedure				
Model as a prime				
Cue learner to observe the model				
Model demonstrates behavior/skill				
Wait for learner to imitate behavior				
Model as a prompt				
Direct learner to use behavior				
If learner does not use behavior, model target behavior				
2.2 Provide feedback to learner using reinforcement and prompting				
2.3 Thin reinforcement				
Step 3: Monitoring				
3.1 Collect and analyze data target behavior				
3.2 Determine next steps based on learner progress				

AFIRM Autism Focused Intervention Resources and Modules

AFIRM

Autism Focused Intervention Resources & Modules

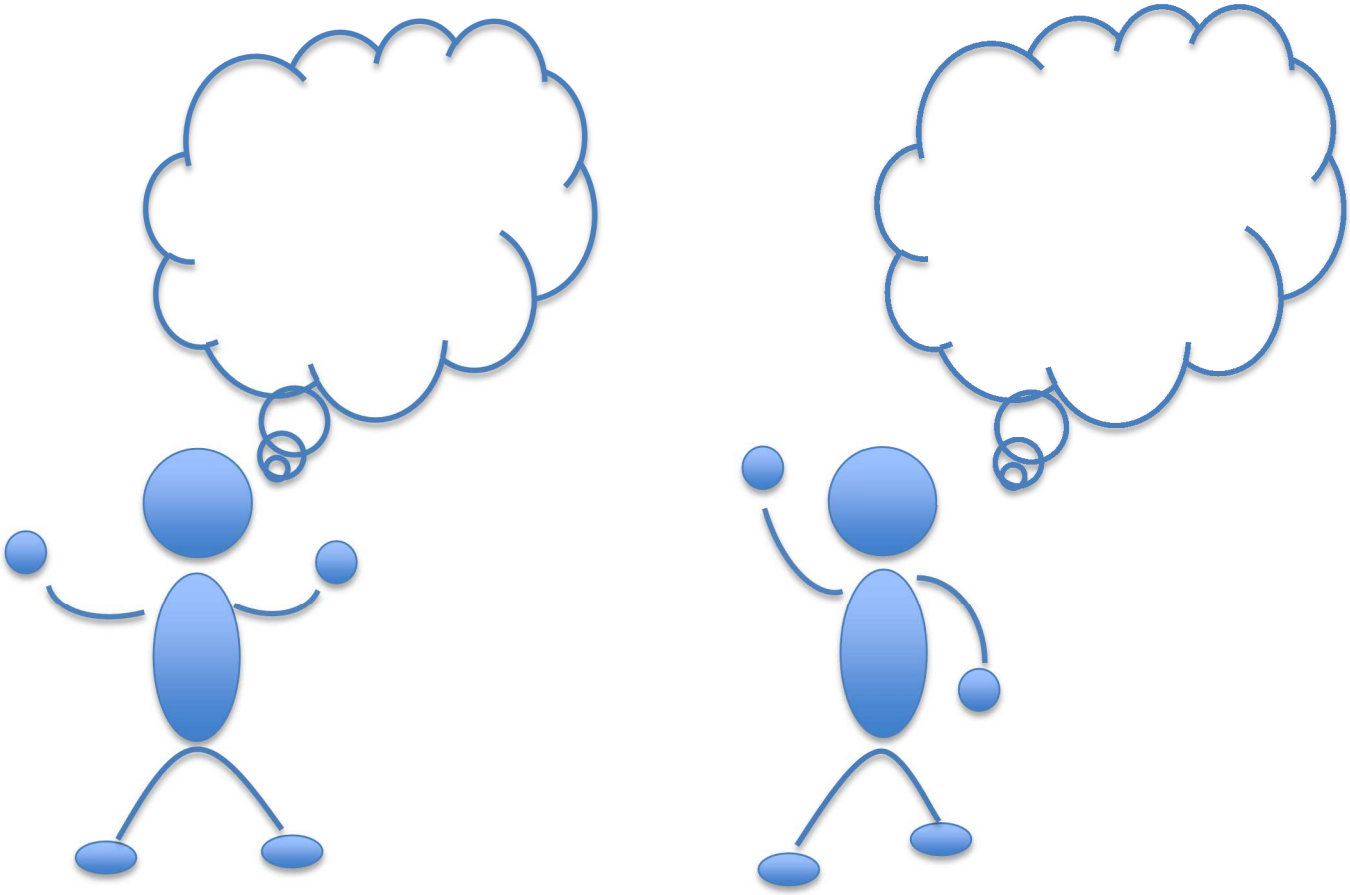
---MD Topic Bubble Template---

Learner's Name: _____ Date/Time: _____

Observer(s): _____

Target Behavior(s): _____

_____



For more information visit:
www.afirm.fpg.unc.edu

AFIRM

Autism Focused Intervention Resources & Modules

---MD Target Skill Written Cues Script---

Learner's Name: _____ Date/Time: _____

Observer(s): _____

Target Behavior(s): _____

_____

Skill:

Skill:

Skill:

For more information visit:
www.afirm.fpg.unc.edu

AFIRM

Autism Focused Intervention Resources & Modules

---MD Planning Worksheet---

Learner's Name: _____ Date/Time: _____

Observer(s): _____

Target Behavior: _____

_____

Determine If the Learner Has Prerequisite Skills:

Considerations	Yes	No
Does the learner imitate others?	☐	☐
Does the learner already have some of the skills necessary to perform the target skill?	☐	☐
Can the learner sustain attention long enough to observe the modeled behavior?	☐	☐

List Evidence-Based Practices that will be used with Modeling:

_____

_____

Identify the Controlling Prompt:

Try out different prompts to see which ones are successful in getting the learner with ASD to complete the task consistently.

Prompt	Level of Success

Controlling prompt selected:

_____

_____

Determine Reinforcers:

Questions to Consider	List Potential Reinforcers	Age Appropriate?
What natural reinforcers could be used?		
What activities, objects and foods does the learner select independently?		
What phrases or gestures seem to produce a pleasant response from learner with ASD?		
What does the learner say s/he would like to work for? (if appropriate)		
What reinforcers were identified by parents or to her team members as being successful in the past?		
What items did the learner select as part of the reinforcer sampling?		

Identify Times and Activities for Using Modeling:

Consider the target skill or behavior and determine the best time to use modeling.

Activity	Possible Opportunities
Individual Work	
Small Group Activities	
Embedded instruction within Ongoing Routines and Activities	

Models for Learner:

Setting/Time	Name of model

If applicable, describe what training the peer will receive:

_____

_____

_____

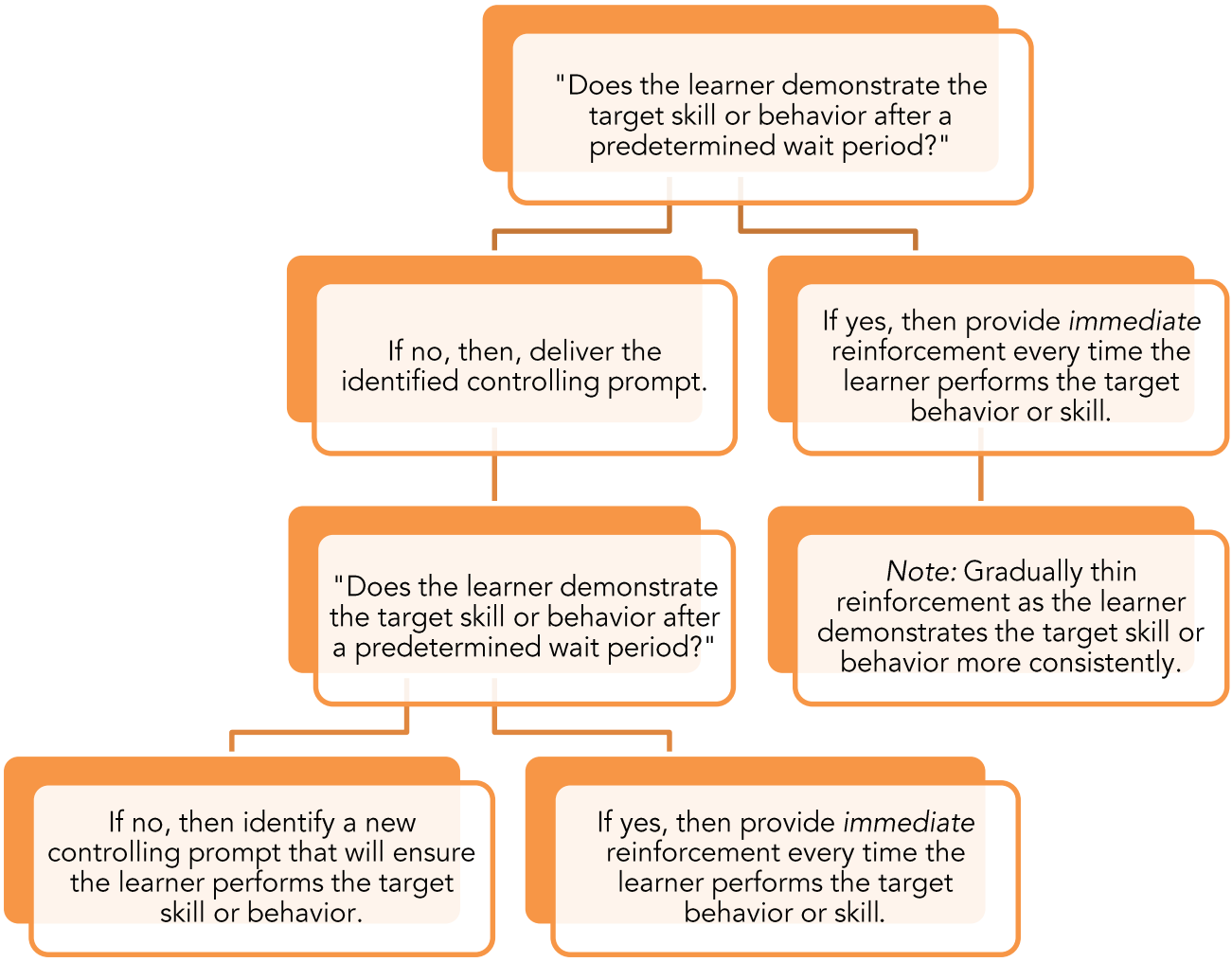
For more information visit:
www.afirm.fpg.unc.edu

AFIRM

Autism Focused Intervention Resources & Modules

---MD Decision Tree---

The controlling prompt is the least intrusive prompt which consistently ensures the learner will successfully perform the target skill/behavior. If the learner does engage in the behavior, provide the learner with a reinforcement to encourage future use the target skill or behavior.



For more information visit:
www.afirm.fpg.unc.edu

AFIRM

Autism Focused Intervention Resources & Modules

---Time Sampling Data Collection---

Learner's Name: _____ Date/Time: _____

Observer(s): _____

Target Behavior(s): _____

_____

Time Sampling:

Use time sampling to monitor the frequency of the target behavior by recording if the learner is engaging in the behavior before, during, or after (reinforcement).

	Time					
Date						**Total**

Anecdotal Notes:

Date	Observer Initials	Target Skill/Behavior, Comments, and Plans for Next Steps

For more information visit:
www.afirm.fpg.unc.edu

AFIRM

Autism Focused Intervention Resources & Modules

---Event Sampling Data Collection---

Learner's Name: _____ Date/Time: _____

Observer(s): _____

Target Behavior(s): _____

_____

Event Sampling:

Use event recording to collect the frequency data at every instance the behavior occurs.

Date	Skill/Target Behavior	Total

Anecdotal Notes:

Date	Observer Initials	Target Skill/Behavior, Comments, and Plans for Next Steps

For more information visit:
www.afirm.fpg.unc.edu

Autism Focused Intervention Resources & Modules

AFIRM

Modeling (MD)
---Tip Sheet for Professionals---

Modeling...

- Is an evidence-based practice for children and youth with autism spectrum disorder (ASD). Research studies have shown that modeling has been used effectively with learners in early intervention, preschool, elementary school, and high school.
- Involves someone correctly performing a target behavior or skill as a visual demonstration for the learner.

Why Use?

- Learners with ASD often struggle with acquiring new target skills or behaviors.
- Modeling increases the ability of learners with ASD to perform the new skill/behavior and supports the generalization and maintenance of the skill/behavior.
- Modeling is a cost-efficient and convenient teaching tool that requires few additional resources.

Outcomes

- The evidence–base for MD supports the use of this practice to address the outcomes below:

Early Intervention (0-2)	Preschool (3-5)	Elementary (6-11)	Middle (12-14)	High (15-22)
			No studies	
Social	Social	Social		Social
	Communication	Communication		Communication
	Joint Attention			
	School-Readiness			
		Play		
				Vocational
	Academic			

Modeling MD

TIPS:

- Before using modeling, make sure the learner can imitate others' behaviors and sustain attention long enough to watch the model perform the target skill.
- If possible, select a model who is physically similar to the learner and respected by the learner.
- If using a peer for a model, provide the peer with a script and role play how the peer will perform the skill/behavior.

Modeling (MD)
---Tip Sheet for Professionals---

Modeling
MD

This tip sheet was designed as a supplemental resource to help provide basic information about the practice.

For more information visit:
www.afirm.fpg.unc.edu

AFIRM Autism Focused Intervention Resources & Modules

STEPS FOR IMPLEMENTING

1. Plan

- Determine if learner has prerequisite skills needed for modeling
- Select evidence-based practices to use with modeling to teach target behavior
- Identify times and activities to use modeling
- Identify model for the learner
- Provide training to model if applicable
- Determine if model will be used as a prime or as a prompt

2. Use

- Follow the unique steps for using selected model procedure
- Provide feedback to learner using reinforcement and prompting
- Thin reinforcement

3. Monitor

- Collect and analyze data target behavior
- Determine next steps based on learner progress

AFIRM

Autism Focused Intervention Resources & Modules

Modeling (MD)
---Parent's Guide---

This parent introduction to modeling was designed as a supplemental resource to help answer basic questions about this practice.

To find out more about how modeling is used with your child, speak with:

_____

For more information visit:
www.afirm.fpg.unc.edu

This introduction provides basic information about modeling.

What is a MD?

- Modeling is an evidence-based practice for children and youth with autism spectrum disorder (ASD) from 0 to 22 years old.
- Modeling involves a learner observing someone correctly performing a target skill or behavior.

Why use MD with my child?

- Learners with ASD often struggle with acquiring new target skills or behaviors.
- Observing someone perform the target skill or behavior increases the likelihood the learner will acquire and generalize the skill or behavior.
- Research studies have shown that modeling has been used effectively with learners in early intervention, preschool, elementary school, and high school to address academic, social, communication, joint attention, school readiness, and play outcomes.

What activities can I do at home?

- Before having your child complete an activity, perform the activity yourself. Use exaggerated motions and verbally describe what you are doing. For example, model asking for something to drink first. Then have your child ask for something to drink.
- Make a list of common activities you would like your child to do on a daily basis (such as brushing teeth, putting on shoes, saying "hello"). Choose three activities from the list to begin modeling for your child.
- When your child performs an activity successfully, be sure to praise your child. It might also be helpful to provide time with a favorite toy or activity when completing an activity.

AFIRM

Autism Focused Intervention Resources & Modules

Check out these resources to support your use of modeling.

For more information visit:
www.afirm.fpg.unc.edu

---Additional Resources---

Articles:

Charlop-Christy, M. H., Le, L., & Freeman, K. A. (2000). A comparison of video modeling with in vivo modeling for teaching children with autism. *Journal of Autism and Developmental Disorders, 30*(6), 537-552. doi: 10.1023/A:1005635326276

Geiger, K. B., & LeBlanc, L. A. (2010). An evaluation of preference for video and in vivo modeling. *Journal of Applied Behavior Analysis, 43*(2), 279-283. doi: 10.1901/jaba.2010.43-279

McDowell, L. S., Gutierrez Jr, A., & Bennett, K. D. (2015). Analysis of live modeling plus prompting and video modeling for teaching imitation to children with autism. *Behavioral Interventions, 30*(4), 333-351. doi: 10.1002/bin.1419

Website(s):

University of Louisville. (n.d.). *Modeling-autism/moderate and severe disabilities.* Retrieved on December 4, 2015 from: https://louisville.edu/education/abri/primarylevel/modeling/autism_msd

AFIRM

Autism Focused Intervention Resources & Modules

Modeling CEC Standards

The CEC Standards that apply to all 27 evidence-based practices can be found on our website at: http://afirm.fpg.unc.edu/learn-afirm

Below are CEC Standards that apply specifically to Modeling (MD) module.

Standard	Description
Initial Preparation Standard 2: Learning Environments	
ISCI 2 K5	Social skills needed for educational and other environments
Initial Preparation Standard 3: Curricular Content Knowledge	
DDA3 S2	Provide individuals with developmental disabilities/autism spectrum disorders strategies to avoid and repair miscommunications
DDA3 S5	Use specialized instruction to enhance social participation across environments
Initial Preparation Standard 5: Instructional Planning & Strategies	
ISCI 5 S19	Use strategies to support and enhance communication skills of individuals with exceptionalities
DDA5 S3	Provide specialized instruction for spoken language, reading and writing for individuals with developmental disabilities/autism spectrum disorders
DDA5 S15	Use specialized instruction to enhance social participation across environments

Standard	Description
Advanced Preparation Standard 3: Programs, Services, and Outcomes	
SEDAS3 S8	Provide varied instruction and opportunity to learn play and leisure skills

For more information visit:
www.afirm.fpg.unc.edu

---Module References---

1. McDowell, L. S., Gutierrez Jr, A., & Bennett, K. D. (2015). Analysis of live modeling plus prompting and video modeling for teaching imitation to children with autism. *Behavioral Interventions, 30*(4), 333-351. doi: 10.1002/bin.1419

2. Landa, R. J., Holman, K. C., O'Neill, A. H., & Stuart, E. A. (2011). Intervention targeting development of socially synchronous engagement in toddlers with autism spectrum disorder: A randomized controlled trail. *Journal of Child Psychology and Psychiatry, 52*(1), 13-31. doi: 10.1111/j.1469-7610.2010.02288.x

3. Schrandt, J. A., Townsend, D. B., & Poulson, C. L. (2009). Teaching empathy skills to children with autism. *Journal of Applied Behavior Analysis, 42*(1), 17-32. doi: 10.1901/jaba.2009.42-17

4. Charlop-Christy, M. H., Le, L., & Freeman, K. A. (2000). A comparison of video modeling with in vivo modeling for teaching children with autism. *Journal of Autism and Developmental Disorders, 30*(6), 537-552. doi: 10.1023/A:1005635326276

5. Matson, J. L., Box, M. L., & Francis, K. L. (1992). Treatment of elective mute behavior in two developmentally delayed children using modeling and contingency management. *Journal of Behavior Therapy and Experimental Psychiatry, 23*(3), 221-229. doi: 10.1016/0005-7916(92)90039-L

6. Ribsby-Eldredge, M., & McLaughlin, T. F. (1992). The effects of modeling and praise on self-initiated behavior across settings with two adolescent students with autism. *Journal of Developmental and Physical Disabilities, 4*(3), 205-218. doi: 10.1007/BF01046965

7. Wong, C., Odom, S. L., Hume, K. Cox, A. W., Fettig, A., Kucharczyk, S., ... Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders, 45*(7), 1951-1966. doi: 10.1007/s10803-014-2351-z

8. Cooper, J.O., Heron, T.E., & Heward, W.L. (2007). *Applied behavior analysis, 2nd ed.* New Jersey: Prentice Hall

9. Alberto, P. A., & Troutman, A. C. (2012). *Applied behavior analysis for teachers, 9th ed.* Upper Saddle River, NJ: Prentice Hall.