

Learning Objectives

- Participants will be able to define the concept of Theory of Mind.
- Participants will be able to compare the development of ToFM for typically developing children to the development of ToFM in children with hearing loss.
- Participants will be able to evaluate at least 5 readily available resources for easy application for exposing children with hearing loss to Theory of Mind and enhancing social-emotional skills.

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Defining Theory of Mind



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Mental State Language

- ‘Mental state’ words are not visible
- Words used about thoughts



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Mental State Verbs

LIKE **BELIEVE** understand
hope **perceive** decide
remember **imagine**
appreciate want consider
recognize miss learn
think surprise **WONDER**
know feel guess forget

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False Belief Understanding

A key milestone in ToM development (can a child separate what they know from what someone else knows/thinks?)

Sally-Anne task is a psychological test which is used to check a child's understanding of others' beliefs and points of views.

Sally and Anne put a marble in a box, Sally leaves and Anne takes the marble out and puts it in a basket.

Up until about age 4, most children will ascribe their own beliefs to Sally and tell the teacher/therapist that Sally will look in the new location for the marble.

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Sally Ann Test Video



Why is ToM important?

- ToM is the basis of children's social understanding.
- Linked to pro-social behaviors such as helping, sharing, co-operation, comforting. (Caputi et al, 2012)
- Linked to successful peer relationships and popularity with peers. (Peterson & Siegal, 2002; Slaughter et al, 2002; Punch et al, 2011; Caputi et al, 2012)
- ToM predicts teacher rated social competence. (Peterson et al, 2007)

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Why is ToM important?

- Critical for literacy - understanding narratives - reading between the lines. (Astington & Pelletier, 2004; Nicholas & Geers, 2006)
- Critical for ability to learn by instruction and through collaboration. (Astington, Pelletier & Homer, 2002; Astington & Pelletier, 2004)
- Many studies show that language ability is related to theory of mind ability. (Astington & Jenkins, 1999; Astington, Pelletier & Homer, 2002, Davidson, Geers & Nicholas, 2013; De Villiers, 2000; Happé, 1995; Jenkins & Astington, 1996)

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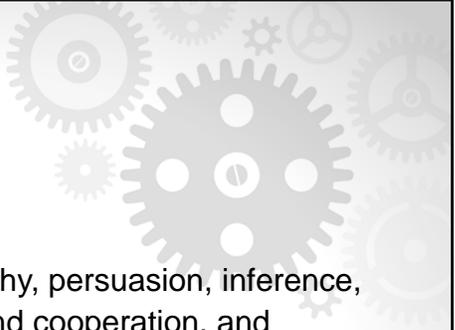
The image shows a black silhouette of a human head in profile, facing left. Inside the head, several grey gears of various sizes are visible, some overlapping each other, symbolizing cognitive processes and the 'theory of mind'.

Theory of Mind

Critical for:

- Reading comprehension,
- Socialization (peer relationships)
- Success in school

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The image shows a faded version of the silhouette of a human head in profile with gears inside, similar to the one in the first slide.

Theory of Mind

Also important for:

- helping to communicate empathy, persuasion, inference, reasoning, thinking critically and cooperation, and understanding narratives and texts
- making conversations easier by predicting what the listener already knows, how they are reacting, and what should be said next
- reading comprehension (understanding characters in a story)

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Theory of Mind

Not generally taught directly...

- Learn by overhearing others use mental state verbs in different contexts and situations
- Learned incidentally
- Acquired as the child is learning language

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Begins in Infancy

- Eye contact
- Joint attention
- Turn taking
- Taking cues from the emotions of others

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Theory of Mind Milestones

- By age 2: children can understand that people will feel happy if they get what they want and feel sad if they do not
- 2 year olds talk about what they and others want, like and feel
- 3 year olds also talk about what people think and know

www.education.com › School and Academics › Classroom Learning building blocks of social cognition

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The Preschool Years

- Typically developing children's understanding of ToM develops rapidly in the preschool years
- Development of ToM at 3-5 years of age is particularly pronounced and important such as mastery of false belief tasks (Wellman & Peterson, 2013)

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Appearance-Reality Task

Used to assess a child's ability to distinguish between reality and representation

- Child is given a sponge that is painted to look like a rock.
- When asked what the object looks like and what it is really, a 3-year old will give the same answer to both questions-either a sponge or a rock; 4-year olds will correctly answer the questions.

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Theory of Mind Milestones

- By age 4: recognize that other people have minds and that their minds may hold different information; recognize that appearances may be deceptive and can mislead
- Ability to pass false-belief tests and appearance-reality tests at about age 4 represent important milestones in ToM development

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Theory of Mind 3 Levels

1. Precursors: knowing that feelings can be associated with stimuli (i.e. get a gift, feel happy) (typically by age 5 to 6)
2. First Manifestations: you can act differently than you feel (a hurt person is laughing) (typically age 7 to 8)
3. More Advanced: understanding humor (typically age 11 – 12)

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Theory of Mind Milestones

- By age 5: understand that someone who appears happy may actually be sad
- Understanding false belief is universal in typical children over the age of 5
- Number of factors affect age at which skill is acquired and language acquisition is one factor

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Theory of Mind Milestones

By age 6: pass second-order false-belief tests (are related with what people think about other people's thoughts. In second-order false-belief tasks, the child is required to attribute the false belief of one person based on the thoughts of another)

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Later Childhood

- At around 7 years, the child can reason what another person may think about a third person's thoughts and feelings. (Meltzoff & Decety, 2003; Sundqvist et al, 2014)
- Advanced ToM abilities develop around 8-11 years: understanding irony, sarcasm, faux pas etc. (Wellman & Liu, 2004; Baron-Cohen et al, 1999; Sundqvist et al, 2014)

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ToM and Children Who are Deaf

Severe delays have been shown in the development of ToM in children who are deaf. (Meristo et al, 2007; Peterson, 2002; Peterson, 2009; Schick et al, 2007)

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ToM and Children with Hearing Loss

- Even though they have good language skills, many children with hearing loss lag several years behind children with typical hearing in their ability to grasp the beliefs of others.
- Correlation between language level and understanding false beliefs that is due to diminished exposure to interactive conversations from a young age.
- Deaf and hard-of-hearing students are at risk for delays in social cognition. (www.handsandvoices.org)

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ToM and Children with Hearing Loss

- To acquire ToM, children need exposure to rich and meaningful language and a range of opportunities to hear this language across varying contexts
- Need access to this language and opportunities to practice using it
- If has less exposure to ToM concepts then development of these skills may be impacted.
- For children with hearing loss, exposure to language alone might not be enough-need to understand the language (inference, critical thinking) to learn from the situation.

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What is the mechanism causing this delay? Effects of diagnosis on parental interaction?

Increased use of mental state language has been shown to accelerate ToM development of typical children

Diagnosis of deafness has been shown to decrease the amount of mental state language used with deaf children

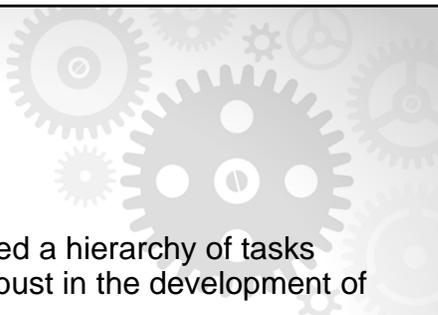
(Moeller & Schick, 2006; Meins & Fernyhough, 1999; Wellman & Peterson, 2013; Lecciso et al, 2013)

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Intervention Strategies for Therapy, Families and in Classrooms

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Hierarchy of tasks – Wellman and Liu

Wellman and Liu (2004) developed a hierarchy of tasks which have been shown to be robust in the development of Theory of Mind

- Diverse Desires (DD)
- Diverse Beliefs (DB)
- Knowledge Access (KA)
- Contents False Belief (FB)
- Hidden Emotion (HE)
- Sarcasm and Irony (SARC)

(Wellman et al, 2011; Wellman 2012)

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Diverse Desires

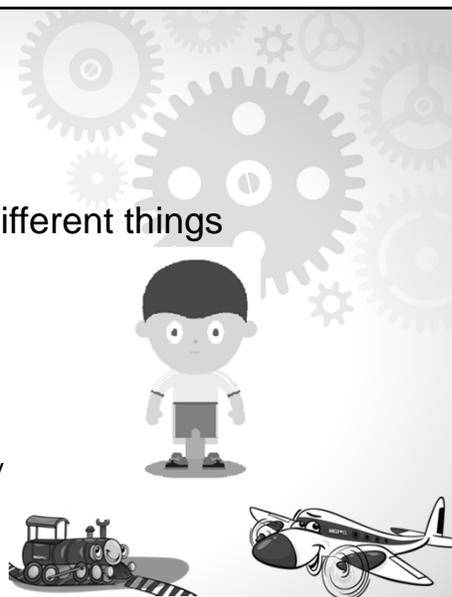
Different people can want different things

“Here’s Johnny. It’s play time. Here are two toys. Which toy would you like best?”

Child chooses.

“Well that’s a good choice, but Johnny likes the *(alternative)*. He doesn’t like the.....

So now it’s time to play. Johnny can only choose one toy. Which toy will Johnny choose?”



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Diverse Beliefs

Different people can have contrasting beliefs about the same thing

“Here is Johnny. He wants to find his book. His book might be in his bag or it might be in the bedroom. Where do you think his book is?”

Child chooses.

“Well that’s a good idea but Johnny thinks its*(alternative)*. Where will Johnny look for his book?”



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Knowledge Access

Not seeing leads to not knowing

“Here’s a bag. What’s in the bag?”

Child gives any response.

Open bag.

“Let’s see, there’s ainside.”

Close bag.

“Mom has never seen inside this bag. Does Mom know what is in this bag?”



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Contents False Belief

Child judges another person’s false belief about what is in a distinctive container when child knows what is in the container

A person can hold a belief that is incorrect or not true

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Hidden Emotion

Child judges that a person can feel one thing but display a different emotion



People can feel a different emotion from the one they display



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Strategies for Theory of Mind

- Use Mental State Verbs in everyday routines

think, believe, like, love, hate, imagine, hope,
remember, know, guess, feel, forget, recognize,
learn, perceive, decide, understand, miss,
appreciate, surprise

Example: I don't know where the cat is. I am guessing he is hiding under the bed or he could be outside.

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Strategies for Theory of Mind

Link concrete objects with Mental State Verbs

Have a variety of objects and discuss why you like one and not the others-then child chooses one and explains why he likes that one; then guess at which one parent may like

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Strategies for Theory of Mind

- Name the Mental States as they happen
- Draw the child's attention to other's mental states as they happen such as when someone is thinking point out they are thinking but we don't know what they are thinking; someone is smiling so they are feeling happy.

Example: Mom is thinking about what to make for dinner. Let's guess at what she will make.

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Strategies for Theory of Mind

- Talk about past experiences
- what happened earlier in the day, week while using Mental State Verbs
- highlight perspectives, thoughts, motives of others in those experiences

Example: Yesterday, your brother wanted ice cream. But I felt that since he had been feeling ill, the ice cream wouldn't be good for him. I think tomorrow if he is better, he can have some.

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Strategies for Theory of Mind

- Pretend play (act out scenarios with dolls)
- Read books (think about characters, how they feel, infer, think about choices or what to do next, books with surprise, tricks)
- Play hide and seek (guess)
- Tell make-believe stories (pretend)
- Explain why people behave the way they do-emotions (how someone's actions can affect the people around them-hurt feelings)

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Theory of Mind Milestones K-2nd Grade

- Awareness that mental events are not physical entities
- Awareness that others' knowledge and thoughts may be different from one's own
- Ability to draw inferences about people's thoughts, feelings and intentions from their behaviors (in a simplistic manner)

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Theory of Mind Strategies K-2nd Grade

- Talk frequently about people's thoughts, feelings, and motives; use words such as *think*, *remember*, *feel* and *want*
- Ask questions about thoughts, feelings, and motives during storybook readings

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Theory of Mind Milestones 3rd – 5th Grade

- Growing recognition that others interpret experiences (rather than simply absorb) and so may misconstrue events
- Realization that other people's actions may hide their true feelings

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Theory of Mind Strategies 3rd – 5th grade

- As students read literature, ask them to consider why various characters might behave as they do
- Have students speculate about what people might have been thinking and feeling during events in history
- Help students resolve interpersonal conflicts by asking them to consider one another's perspective and develop a solution that addresses everyone's needs

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Sarcasm and Irony

Child hears a sarcastic sentence contained within a scenario and judges that a person may mean something other than the literal words spoken

People sometimes use language in a nonliteral way

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Enhancing Theory of Mind

- Talk about misunderstandings
- Talk about why jokes are funny
- Engage in rich, pretend play and role playing
- Talk about people's thoughts (opinions and perspectives), wants, feelings and why they act the way they do
- Discuss situations such as misunderstandings, teasing and forgetfulness
- Read stories with surprises, mistakes, secrets (invite children to see things from a different point of view)
- Imagine
- Use Mental State Verbs

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Theory of Mind Milestones 6th – 8th Grade

- Increasing interest in other people's thoughts and feelings
- Recognition that people may have multiple and possibly conflicting motives and emotions
- Ability to think recursively about one's own and others' thoughts

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Theory of Mind Strategies 6th – 8th Grade

- Encourage students to look at historical and current events from the perspective of various historical figures and cultural groups; use role-playing activities to enhance perspective taking
- In discussions of literature, talk about other people's complex (and sometimes conflicting) motives

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Theory of Mind Milestones 9th – 12th Grade

- Recognition that people are products of their environment and that past events and present circumstances influence personality and behavior
- Realization that people are not always aware of why they act as they do

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Theory of Mind Strategies 9th – 12th Grade

- Explore the possible origins of people's perspectives and motives in discussions of real and fictional events
- Schedule debates in which students must present convincing arguments for perspectives opposite to their own

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Strategies for Theory of Mind

- Talk about upcoming/future events
- Tell about future events giving reasons why you participate and ask questions to include child in conversation

Example: I would like to go the zoo on Saturday. I like seeing the animals. I think the monkeys may be swinging in the trees. Do you remember when we went to the zoo a few months ago? I forget if we saw the elephants last time.

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Strategies and Resources for Developing Social Skills

Theory of Mind



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Theory of Mind Targets

Goal 1: Discuss other's feelings

Goal 2: Role play

Goal 3: Vocabulary exposure *think, feel, remember*

Targets:

Discuss feelings: The gorilla is swinging by himself, maybe he feels lonely.

Role play: I'm the zoo keeper and I am going to go feed the animals. Mr. Lion I will be careful by you because you are mean. Why is he mean? Mr. Bear, I will be quiet by you because you are sleeping and I don't want to wake you up. How would the bear feel if I woke him up?

Vocabulary: How do you think the lion would feel if he fell in the water? Why does the gorilla feel lonely? Do you remember if you ever went to the zoo and if so, what did you think about it?

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Center on Social Emotional Foundations in Early Learning

<http://csefel.vanderbilt.edu/>

Tucker Turtle Takes Time to Tuck and Think

A scripted story to assist with teaching the “Turtle Technique”

By Rochelle Lentini, University of South Florida
Updated 2007



Created using pictures from Microsoft Clipart® and Webster-Stratton, C. (1991). The teachers and children videotape series: Dina dinosaur school. Seattle, WA: The Incredible Years.

 Center on the Social and Emotional Foundations for Early Learning

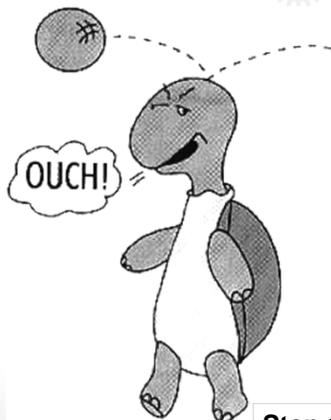
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When Tucker got mad, he used to hit, kick, or yell at his friends. His friends would get mad or upset when he hit, kicked, or yelled at them.



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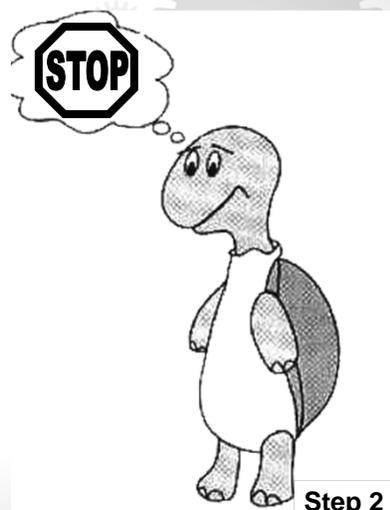
Tucker now knows a new way to “think like a turtle” when he gets mad.



Step 1

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He can **stop** and keep his hands, body, and yelling to himself!



Step 2

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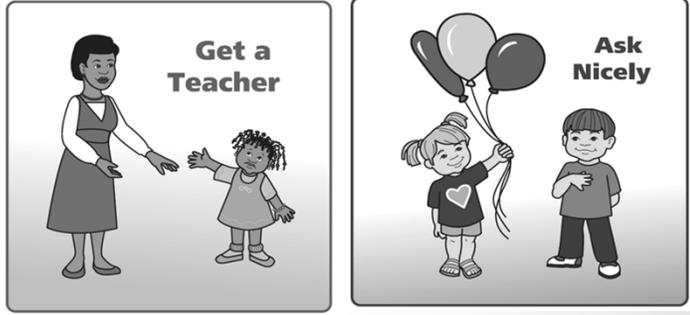
He can **tuck** inside his shell and take **3 deep breaths** to calm down.



Step 3

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Solution Kit

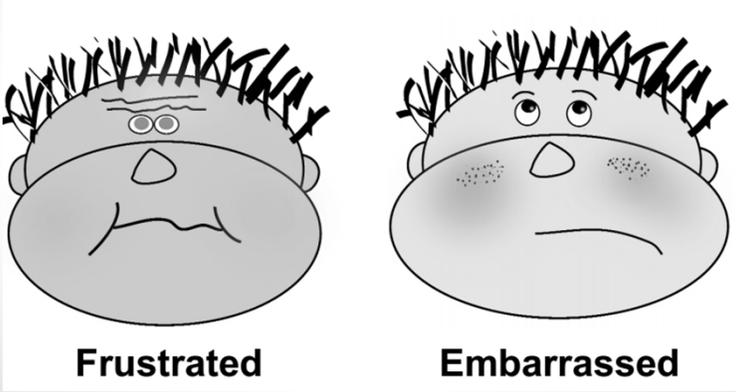


Get a Teacher

Ask Nicely

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Feelings



Frustrated **Embarrassed**

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The image shows two cartoon faces with spiky hair. The face on the left has a furrowed brow and a downturned mouth, labeled 'Frustrated'. The face on the right has a wide-eyed, slightly open mouth and a small frown, labeled 'Embarrassed'. The background features several gears of different sizes.

Oh Mr. Sun, Sun
Mr. golden Sun,
Won't you smile down on
my friend, Mary!

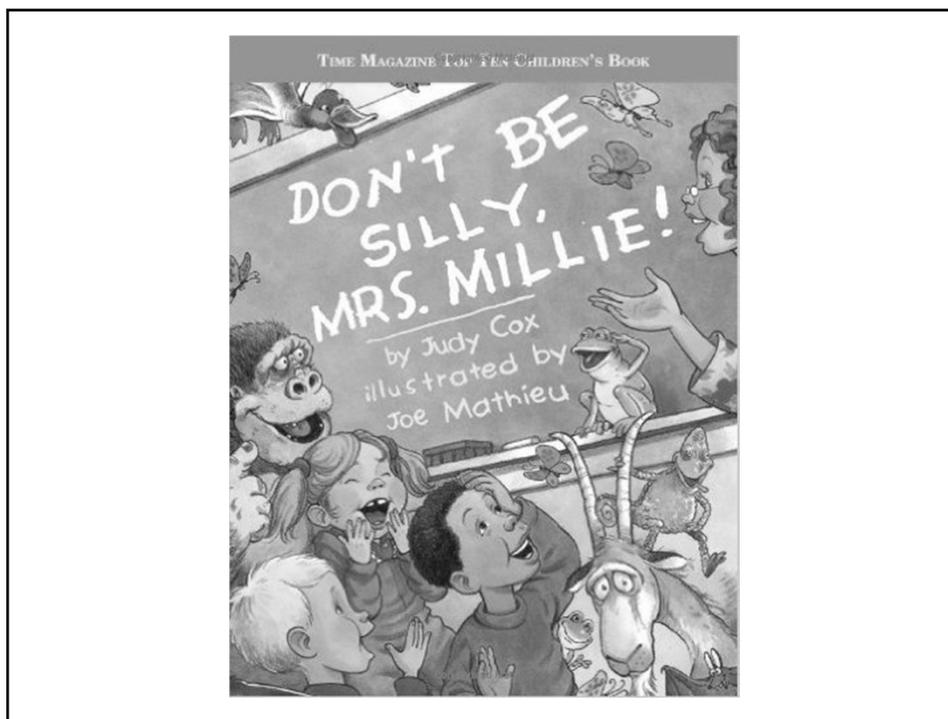


Fun Activities for Parents and Children That:

- Boost brain potential
- Encourage cooperation and caring

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The image contains a photograph of a woman and two children smiling and interacting. Below the photo is a list of benefits for fun activities. The background features several gears of different sizes.



Resources to Support Development of Social Skills and ToM

- *Don't Be Silly, Mrs. Millie!* By Judy Cox, Illustrated by Joe Mathieu
- *I Love You Rituals* By Becky A. Bailey, Ph.D.
- *How Are You Peeling?* By Saxton Freymann and Joost Elffers
- *Glad Monster, Sad Monster A Book about Feelings* By Ed Emberley and Anne Miranda
- *My Many Colored Days* by Dr. Seuss, Paintings by Steve Johnson and Lou Fancher

Resources to Support Development of Social Skills and ToM (continued)

- Social script examples of *What Do We Do In Circle?* and *Tucker Turtle Takes Time to Tuck and Think* from the website: Center on Social Emotional Foundations in Early Learning provides a wealth of FREE downloads and resources.

<http://csefel.vanderbilt.edu/>

- An additional website, Technical Assistance on Social Emotional Intervention
<http://challengingbehavior.fmhi.usf.edu/>

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Figurative Language and Idioms

Meredith Ouellette, MS
Director of Clinical Services
The River School, Washington, DC

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