# The Plugged-In Parents' Guide to Autism

## Tips, Strategies, Apps, and Activities for Helping Kids with Autism

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## What is Autism?

*What you need to know about Autism and Autism Spectrum Disorders.*

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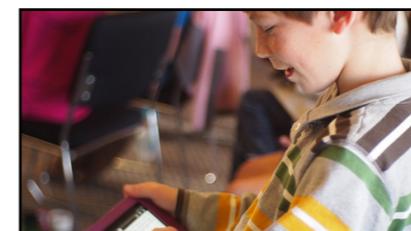
# What is Autism?

Autism Spectrum Disorders are neurobiological disorders characterized by persistent deficits in social communication and social interaction across settings. They are developmental disorders that begin in early childhood and often continue throughout the lifespan. Symptoms include difficulty with social skills, communication problems, and a restricted or repetitive pattern of behavior and interests.

Autism Spectrum Disorder is the new official diagnostic term of the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition ( DSM-5). Children who were previously diagnosed with terms such as Autism, Asperger's Disorder, and Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) are now described with Autism Spectrum Disorders.  In the new diagnostic system, Autism Spectrum Disorders are divided by level of severity:  Level 1 children require some support with social and communication skills, Level 2 children require substantial support in order to be engaged in even narrow and limited interactions with others, and Level 3 children require very substantial support for basic communication and engagement with others.

**Signs of Autism Spectrum Disorder include:**

1. Difficulty in verbal back-and-forth communication skills
2. Difficulty in nonverbal communication skills such as poor eye contact or a lack of understanding of nonverbal communication
3. Deficits in developing and maintaining relationships
4. Repetitive speech, movement, or use of objects
5. Difficulty adjusting to change and upset or overly reactive to changes in routine or ritualized patterns of behavior
6. Fixation on interests that may be overly intense or highly restricted
7. Sensory abnormalities that include either over-reacting or under-reacting to environmental stimulation such as sound, smell, light, or temperature

# What You Need to Know about Technology and Autism

## Technology can be an incredibly powerful tool for helping children affected by autism.

On the one hand, technology can enhance receptive and expressive-language skills and improve communication with others. Conversely, the tendency for children affected by autism to become engaged with technology may result in them becoming even further isolated from their peers, so that their interactions are only via the screen rather than face to face. There are also legitimate concerns about how excessive use of technology or exposure to "addictive" games (such as massively multiplayer online role-playing

*"Technology can enhance receptive and expressive-language skills and improve communication"*

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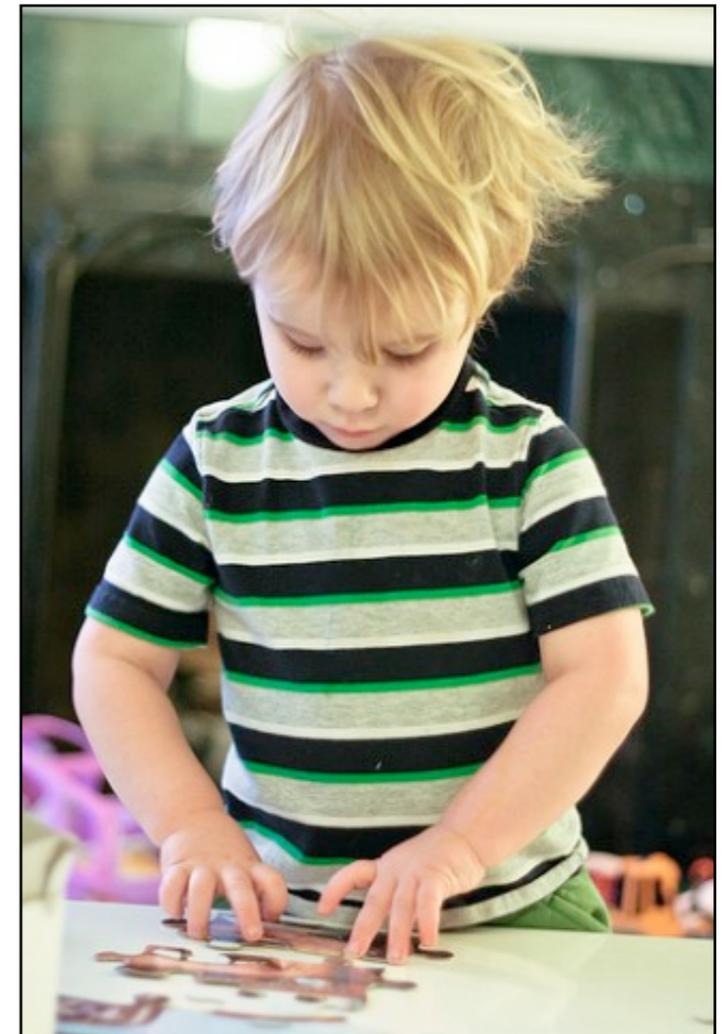
games) can have a negative impact on children with autism. Observation and research suggest that some children affected by autism pay far more attention to technology than to the people around them. Generally, this preference for non-human interaction is not a good thing. However, this is only side of the coin.

Parents and educators of children affected by autism will tell you about the many ways that technology can help their children with sharing interests with



others, self-regulation, and developing a sense of personal competence. Technology can help children with autism better understand and recognize feelings, develop cognitive flexibility, improve expressive and receptive vocabulary, and reduce repetitive behavior. Beyond the observations of parents and educators there are also well-researched reasons for how and why technology and autism can be a powerful combination.

**Here are some of the main reasons why understanding how to use technology with children affected by autism is so important:**

1. **Time spent with social digital media is beneficial.**

   Researchers such as Shane and Albert (2008) have consistently shown that children affected by autism spend far more of their time in individual media activities such as watching television or playing one-player video games. We recommend that parents of children affected by autism insist that at least half of their technology interests be social.

2. **Non-social digital media provides a "safe space" for kids with autism.**

   Children with autism are attracted to computers and games. A study by Sweetenham (1996) revealed three primary connections between computer technology and autism: computers involve no social factors, computers are consistent and predictable, and children can take control and determine the pace of activity. Messier (2007) conducted an interview study with children with Autism Spectrum Disorder that suggested that they are motivated by the skills and challenges of video games and escaping into a fantasy reality. We recommend the use of games and apps that involve strategy, problem solving, and adaptability, challenging children with autism to build upon existing skills and not stay in their comfort zone.

3. **Technology commonly exercises visuospacial skills.**

   Children with Autism Spectrum Disorder may display specific visuospatial strengths that draw them to video games. For example, studies suggest that children with autism tend to find hidden figures more easily than typically-developing peers in an embedded figures test, suggesting that they might be better at video games involving hidden figures. Select games such as Super Hexagon, Echochrome, and Portal 2 can build upon other spatial-reasoning skills.

4. **Technology may enhance the drive for learning.**

   Autism researchers such as Christina Whalen have identified motivation, attention, and flexibility as important tools for teaching children with Autism Spectrum Disorder and describe how TeachTown, a video-game like tool for developing social and emotional competencies, increases the effort and attention of children affected by autism. We suggest that using popular, fun games and technology such as New Super Mario Bros U, Tumblr, or Pinterest can serve both as a reward for effort with social and academic demands and also as an engaging tool for improving social and communication skills.

# How Games and Apps Can Help a Child Affected by Autism

Proper use of video games and apps for children affected by autism includes the regular involvement of parents and teachers to guide and monitor use. While some technologies can directly impact symptoms of autism, many games and apps are actually more useful as teaching tools for the development of communication, social, and problem-solving skills. The following chart demonstrates some of the ways that video games and digital media can be helpful for children affected by autism.

| KIDS WITH AUTISM SPECTRUM DISORDER | VIDEO GAMES AND OTHER DIGITAL MEDIA |
|---|---|
| May be inflexible or rigid and struggle with changes or making mistakes. | Video games help kids practice being flexible in a safe and engaging environment by learning the rules of the game through trial and error and guided discovery. |
| Are often unaware of social cues and conventions. | Massively multiplayer online role-playing games are particularly good for becoming part of a group and require that players learn the "customs" of the game world, allowing kids with autism to socialize in a more comfortable environment. |
| Often display poor fine- or gross-motor coordination. | All video games practice some degree of fine- and gross-motor skills, particularly those with motion controls. |
| May become vulnerable to bullying, while not understanding when they are being teased or how to protect themselves. | Many online multi-player games contain the same types of social interactions a child will find at school, both the good and the bad. However, parents can sit with their child (without the other players knowing) to help coach him through any difficult social interactions that may occur. |
| Often do not share common interests with peers. | Most kids play at least a few video games, so having a knowledge of gaming gives kids with autism a topic of conversation to use with others. |
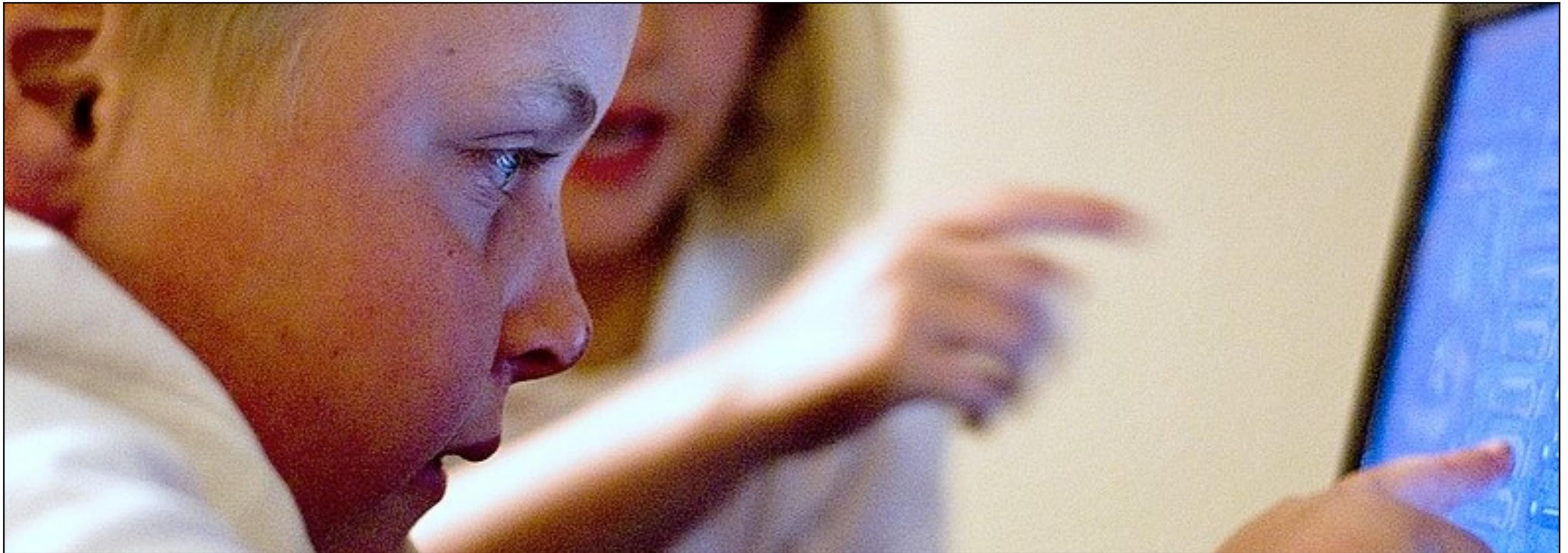
# Cautions, Concerns, and Solutions for Using Technologies with Children Affected by Autism

While video games and other digital media can be powerful aids in teaching a variety of social and other vital skills, there are concerns about the use of these tools for children with ASD and social-communicative issues.

As a result, we encourage parents to be very judicious about and monitor the use of digital media for children with ASD and social-communicative issues. Consult the table below to see what you should watch out for and how you can go about avoiding these problems.

| CAUTIONS | SOLUTIONS |
|---|---|
| Because children with ASD often struggle in social relationships, they can be overly drawn to single-player games or immerse themselves on the Internet. | Require that your child predominantly play multi-player games and games that facilitate social interactions. Kids with ASD may find that they are more readily accepted by their peers in these games, as they have more skill at identifying social cues in game-based communication than in translating nonverbal cues. |
| While social gaming can be helpful for kids with ASD, they may become so comfortable in these online social settings that they lose sight of the importance of face-to-face communication. | Carefully monitor how much time your child spends in these online social settings and make sure to use them as an opportunity for practicing face-to-face communication skills. Ask your child questions about specific online social interactions and have him try to explain how such an interaction would play out in the real world. |
| Kids with ASD are also easily obsessed and may perseverate on playing a particular game beyond the point where they gain any benefit from it. | Encourage your child to play a variety of games and even a variety of different genres and game-modes. Playing many different types of games will help him improve his flexibility and lessen the likelihood of him becoming obsessed with just one game. |

# Transforming Your Child's Love of Technology Into Real-World Skills
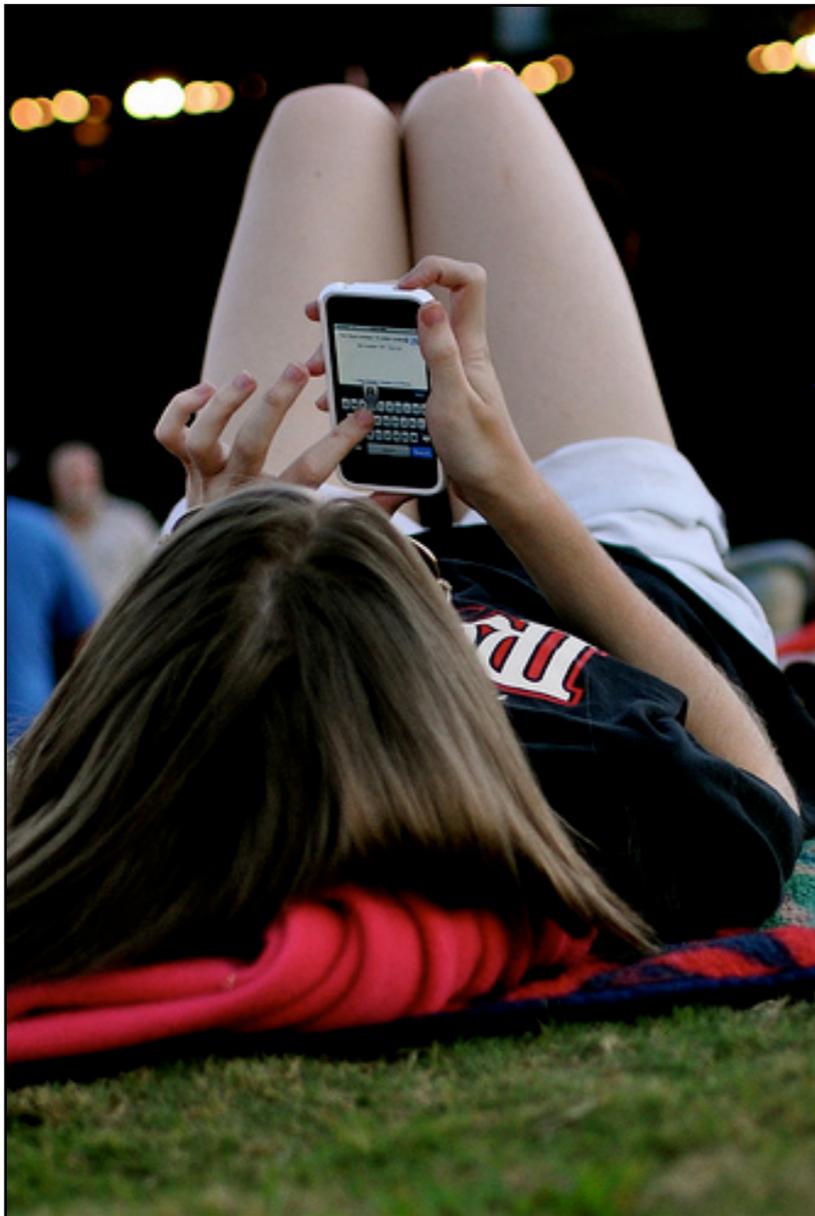
**We strongly discourage parents of children with autism to allow them unfettered use of technology.**

Simple strategies such as keeping computers and tablets in public areas, having clear rules about homework completion being a prerequisite for game play, and requiring daily outdoor activities can help in setting effective limits. However, you could readily use your child's engagement with video games and apps to expand his range of interests, enhance his capacity for regulating his emotions, and improve his communication and social skills  The following strategies show how to combine the love of technology with activities that will benefit your child.

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**Expand the variety of digital tools your children can master.**

Encourage family activities with alternative technologies. Digital media plays a large part in children's lives today and will likely be an important component of their future education and employment. However, an obsessive interest in a single game or technology is counterproductive for all children, especially those with ADHD or ASD. Expand their



interests by having them arrange a family movie night using digital streaming services such as Netlfix or Hulu Plus, complete with with pizza, popcorn, and candy. Have a family contest to see who can use a typing program such as Burning Fingers to become the fastest keyboarder in the house. Create and sustain a family blog with assigned roles such as writer, photographer, and designer. Embrace their interest in technology and have them interact with others. Help them to see that there are other digital media where they can have fun and learn while still interacting with others.

**Encourage sports and educational video games.**

Studies suggest that sports and educational video games are associated with less oppositionalism and hyperactivity amongst children affected by autism. Educational games have the benefit of teaching academic content in a fun and engaging fashion, as well. Sports video games such as  WordsWorth, Madden 25, and NBA 2K12 have been demonstrated to increase the amount of time that players engage in real-world sports. They can also improve executive-functioning skills while nurturing a healthy interest in

real-world sport, an interest that may serve to help children share an interest with their peers.

**Play exergames (video games that require exercise) to improve attention and stress management skills.**

The emerging research on the science of play and exercise indicates that vigorous video-game exercise can improve executive functions and the capacity to manage stress. Many exergames are particularly helpful for children with autism, as they promote social activity and practice communication skills. Encourage your child to engage in vigorous physical exercise several times a week, which can be done with games such as Just Dance 3, Wii Sports, or Star Wars Kinect. The body produces proteins called brain-derived neurotrophic factor during exercise that can counteract feelings of anxiety and depression and promote well-being, self-esteem, and personal accomplishment. Explain the science of exercise to your child so that he is motivated to do it on a regular basis. Exercise also helps to establish sleep patterns, which help regulate mood.

**Nurture your child's video-game interests that are more broadly shared by others.**

Repetitive or narrow interests are often described as a major symptom of autism. However, autism experts do not categorize a child's intense involvement in activities such as video games, Legos, or Star Wars as reflective of an Autism Spectrum Disorder because they are commonly-shared interests with typically-developing peers. The key to helping children affected by autism who also love video games is to get them to have other
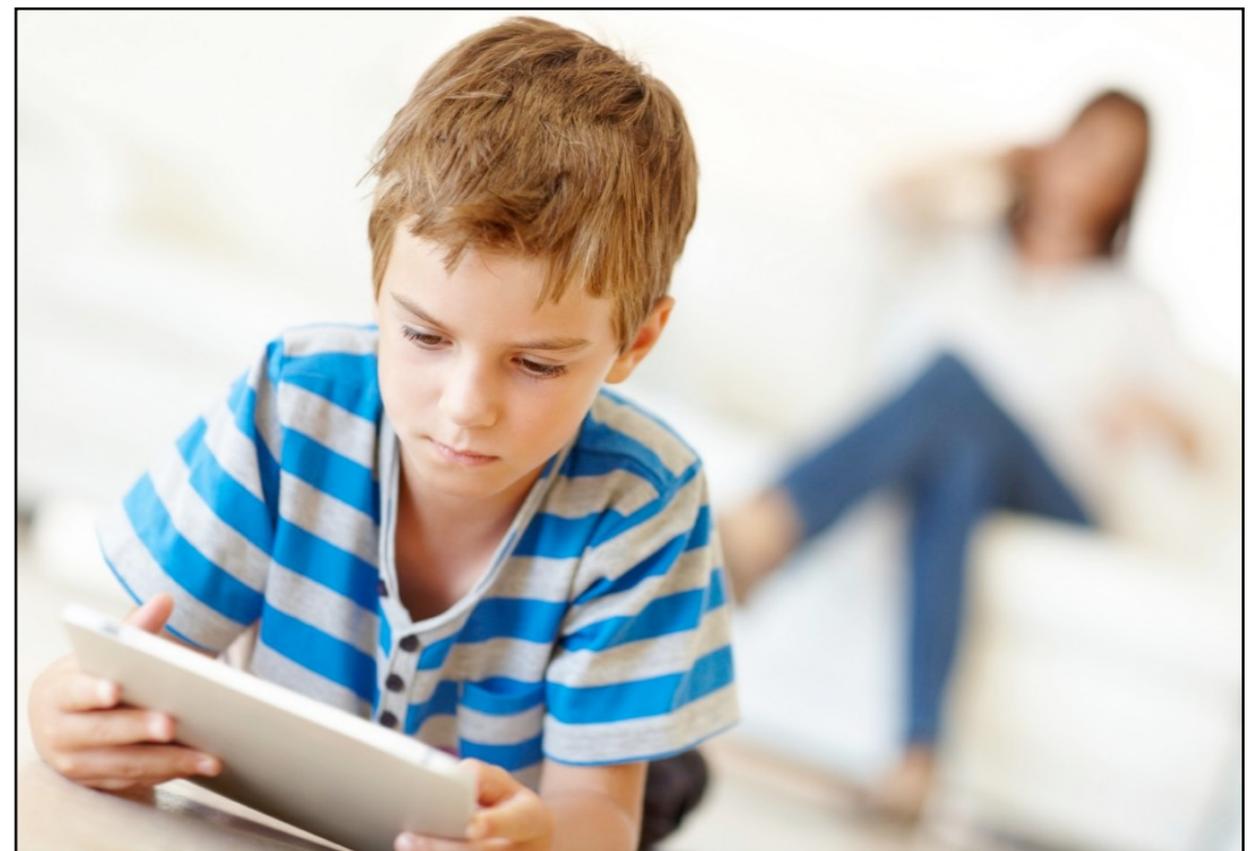
interests, to learn to talk about their "passions" for a limited amount of time, and to find others who share these interests. For example, encourage your child's interest in learning about baseball, dinosaurs, Pokemon, sharks, or cars rather than about train schedules, clocks, or air conditioners.

**Find friends with who share your child's interests, including those about video games and technology.**

Schedule short but fun-filled visits, watching a Star Wars movie, going to a baseball game, or playing with Pokemon cards. You may also want to use a shared technology interest such as playing Minecraft together, programming a game on Scratch, or making a video to put up on YouTube. Children with Autism Spectrum Disorder are likely to have limited peer interactions, but they may find a few children with whom they share interests and can communicate effectively. It is important to supervise some of this communication to ensure that your child is not displaying signs of rigidity in play or conversation. Get him involved in an activity

that broadens the interests that he can share with others..



**Teach your child communication skills by learning to answer the cell phone appropriately.**

Many children affected by autism are anxious about speaking on the telephone or do not have the appropriate skills to communicate effectively on the phone but may love speaking on a cell phone. Learning to do so can be a powerful technique for those children who are itching to get their own cell phones. Teach

them the necessary steps for answering, describing strategies such as saying hello, introducing themselves if appropriate, and asking to whom they are speaking. Let them observe you while they do this on the cell phone or, even better, have them on another phone line (at home) as you have a conversation with someone else. Parents can also use role playing, calling from their home phone to a cell phone that a child needs to answer.

**Teach skills about taking turns during conversation using props and technology.**

Many children with communication difficulties tend to engage in one-sided conversations where they either talk without listening or do not know how to respond effectively to another person's communication. Have a one-on-one conversation with your child at home in which the speaker holds onto something such a microphone, a telephone receiver, or a cell phone as a prop to determine whose turn it is to talk and whose turn it is to listen. You could also use Skype or Google Hangouts for watching on a computer screen and learning to pay attention to cues that the other person is done talking. It is best to model this process first for the child.

**Use video and real-world experiences to understand nonverbal messages.**

Children affected by autism often struggle to find meanings in facial expression, movement, and posture. Practicing these skills by watching television, movies, or videos without the sound may be useful. Ask your child to predict what is happening in the muted version and then discuss what was actually said when you watch it for a second time with the sound on. Create an emotion scrapbook in which the child collects and labels pictures gathered from an online photo service such as flickr or snapfish of facial emotions such as happiness, sadness, anger, surprise, and fear. Other non-technology strategies to understand nonverbal cues could include playing a game with parents in which they try to guess other people's emotions by watching them in a supermarket or other location. Playing charades at home or pointing out one's own observations about other people's behavior and nonverbal cues may also be useful.

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