Minecraft

Learning and Limits

Managing your child's Minecraft play

LearningWorks for Kids

Minecraft and Learning

Minecraft is a complex game, and if you spend some time listening to a child talk about it, you may actually understand less than you thought you did. One strategy that will help a child learn from Minecraft play, is to ask them to explain Minecraft in a way that adults or non-players will be able to understand. This may not be easy for them, but because of their interest in the game, they will more than likely be willing to give it a try. Doing this will encourage a metacognitive process (thinking about one's own thinking) that is crucial to higher level learning.

Minecraft offers unique opportunities to engage engage children in basic academic concepts like trial- and-error learning and creative freedom. These are important strategies for young learners to grasp at an early age. Minecraft allows "forgiveness of mistakes" for players taking creative risks that support the practice of critical thinking skills, like Flexibility and Planning, simply by learning how to play the game.

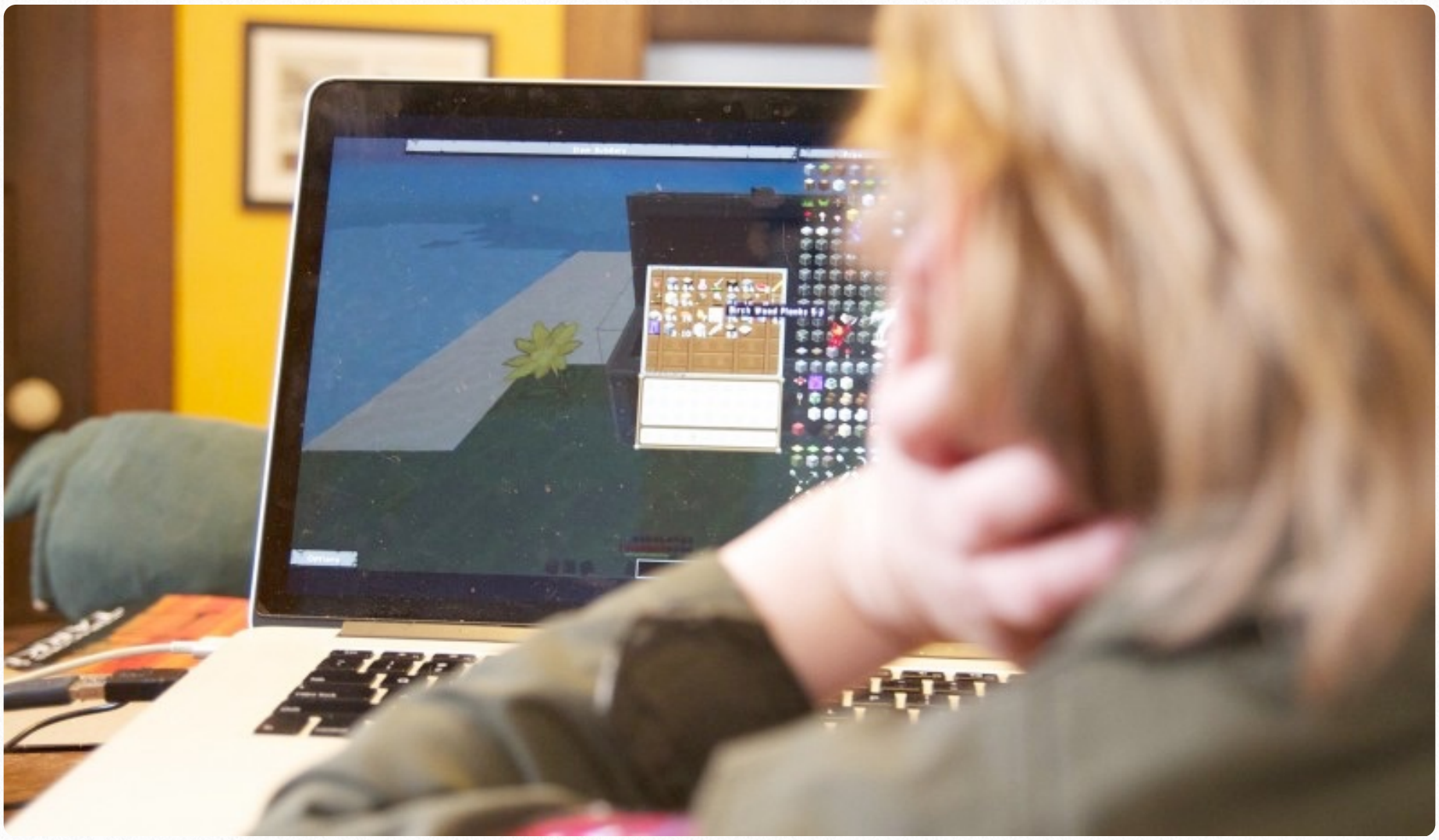
Because Minecraft is such a popular game amongst all children, knowledge and involvement in the game provides an oppor-

tunity for children to connect with their peers. Children can explore the world of Minecraft, with friends and classmates online, and can build, quest, and multiple other tasks, all while working together to reach each player's desired goal. Minecraft is a great game for teamwork and collaboration, as it requires an understanding of what others want to achieve in the game and communication about how to work together.

Teachers have found Minecraft to be a powerful tool for engaging children's minds. When Minecraft is used in its basic form, children are challenged to use academic skills such as geometry, reading, and scientific observation. Minecraft is also being used extensively in schools to teach subjects such as basic math, physics, social studies, history, geology, and humanities. Minecraft servers, with worlds built specifically to emphasize academic content, are widely available for teachers. Teachers use specially developed mods (modifications) and remixes of Minecraft in order to explore computer science, measurement skills, physics, farming, and more. One of the most highly recommended sources for Minecraft academic curricula is through MinecraftEdu.com.

Minecraft is a great tool for encouraging multiple forms of digital literacy. Many players have taken to modding (modifying) the game which makes it work in new and innovative ways. It is common to hear about Minecraft play leading to kids learning computer coding skills. Also, there are many children who have learned how to set up their own Minecraft servers, so that they can play in the game with their peers, in an environment that they have entirely created.

Minecraft: Learning and Executive Functions



Children who play Minecraft practice a variety of thinking and problem-solving skills on a regular basis. They use planning when designing a new building or mapping out a farm; flexibility when learning to “craft” new objects; and organizational skills to keep track of materials that they have accumulated, and ensure that they are safe from enemy creatures. Minecraft is a powerful tool for teaching executive functioning, attentional, and thinking skills. Teachers and parents observe planning, organizational, and time management skills routinely applied in game play.

Minecraft requires the use of problem-solving, creativity, social awareness skills, and cognitive flexibility skills. These skills are all part of executive functions. This makes Minecraft especially useful in reaching and teaching kids with ADHD, Learning Disabilities, Autism Spectrum Disorders, and kids who struggle with school.

Here are some of the executive functioning skills that Minecraft practices and improves, as well as how they are evident in game play:

Focus: Getting started and maintaining attention and effort towards tasks.

Players must monitor their hunger and health meters throughout the game, in order to not fall prey to starvation or monsters that lurk at night in the Minecraft worlds. To replenish these meters, players must consume food. Food can be obtained in a wide variety of ways, such as hunting wild animals, farming, or even baking cakes. However, how players choose to live in the game is entirely up to them, but trouble will arise if they fail to remain constantly aware of surroundings, inventory, and health. Minecraft's environment is randomly generated, so players must be highly aware of their surroundings in order to navigate the vast landscape. Players can easily become lost in the border-less world if they do not pay strict attention to their relationship with the landmarks around them or the direction in which they start their journeys. Before players are able to craft some of the more complex items such as a compass or map, they must first rely on the rising and setting of the sun and the surrounding biomes to navigate the world.

Flexibility: Adapting and adjusting to changing conditions and expectations.

In order to build in Minecraft, players must learn to 'craft' new objects by arranging materials found in the world to fit the recipe of their desired item.
The problem is that the player cannot discover these recipes until he or she creates the item for it. This backwards approach to item creation rewards intuitive and creative players with tools, weapons, furniture and dozens of other objects they can use in their world. With each new material found in the game, the number of items to craft grows exponentially. This allows flexible, creative players to utilize all of the hundreds of objects that the game provides. Perhaps the most jarring aspect of the game to newcomers is the randomized environment. Unlike other games that have fixed levels or maps, Minecraft's terrain generator provides an infinite and unique world with every new game. Because players can no longer memorize level layouts, enemy positions, or item locations, they must develop their abilities to adapt and improvise.

Organization: Arranging and coordinating materials and activities in order to complete a task.

Early in the game, players will realize the importance of keeping themselves and their materials not only safe, but organized. Players will often first build a house to seek shelter from enemies at night, and store their items. Building in Minecraft is essentially playing with virtual building blocks, the only difference being you must dig out the blocks of earth before you can place them elsewhere. While the number of blocks available to the player is limitless, it still requires time and effort to harvest the blocks. Because of this, players learn to plan ahead and manage their materials carefully in order to build effectively. When a player's inventory becomes full from crafting items, gathering materials, and collecting any other treasures available in the world, they craft a storage container to hold their excess items.

Later in the game, it becomes crucial to keep all of your items and materials organized. Having several storage containers for different item types, and paying close attention to the character's inventory will make the game much simpler in the long-run.

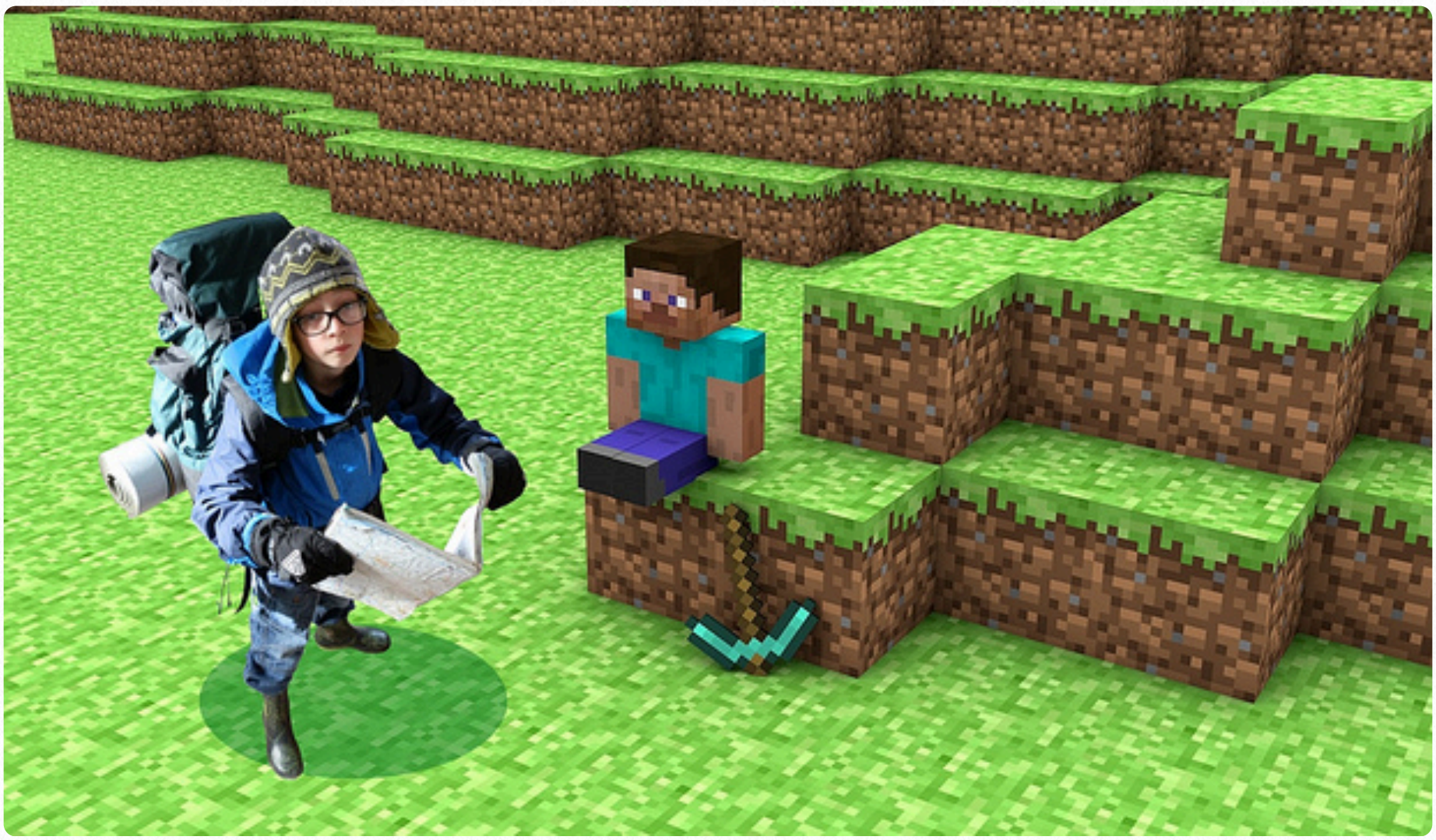
Planning: Developing a systematic approach for setting and achieving goals.

Minecraft is commonly compared to LEGOS, and for good reason. Similar to the popular building block activity, Minecraft allows players to build anything they can imagine, so long as they take the proper steps necessary to do so. Creating items and structures takes several steps. Players must first mine for materials, combine those materials to create tools, and then use those tools to build and mine faster. From fireplaces to mansions, as long as the player takes the time to plan out the steps required to build something, it can be created in Minecraft. Users have recreated everything from replicas of the pyramids in Egypt and the Globe Theatre, to actual circuits and working elevators in the game, each requiring an extensive amount of foresight to construct.

Time Management: Being efficient and aware of our use of time and effort.

In Minecraft, players will need to actively monitor the time and effort they spend toward specific goals. Players need to compete against the game's cycles of night and day, as well as work toward a singular goal while effectively managing time. If this isn't done, it will often result in the neglect of other important goals. During periods of night, players must have an effective shelter constructed to defend against the wild beasts living within in the Minecraft universe. Working toward a singular goal during the day while failing to segment time to address other equally important tasks can be fatal for the player's character. Additionally, multiple goals in Minecraft take large periods of both the game's time cycles and real time to complete. Players who are able to successfully multitask, switch quickly between objectives, and devote proper amounts of time to their objectives, are more likely to meet their own deadlines and advance further in their gameplay than players who are unable to effectively manage their time.

Tips for Using Minecraft to Teach Executive Functions



1. Set strict play time rules.

By limiting your child's exposure to the game into regimented time slots, you will not only be helping to avoid addictive use of the game; you will also be maximizing the benefits of your child's play time. This helps reinforce proper planning and sustained attention, as an absent-minded approach will lead to little progress within the limited time.

2. Make the time to play the game with your child.

You may need to ask your children to slow down building and exploration in order for you to understand what they are doing. Asking your children questions about the game can be a great exercise for both of you.

3. Set simple goals.

The best way to start the game is to set some very basic goals. These include collecting mined materials, building a workbench to craft items upon, and constructing a simple shelter before nightfall. Make sure to discuss all the steps involved, and the need for focus on the task in order to achieve your goals before nightfall (this is when monsters arrive in Minecraft).

4. Encourage your child to work on a specific task in the game.

Preferably, find something that requires the use of planning and organizational skills. Rather than simply exploring, ask them if they can build you a house or set up a farm.

5. Set larger goals.

Once you have discussed how setting some simple goals early on require planning and focus skills, put these skills to work by setting a larger goal. This can include venturing out into uncharted land in order to set up a second home base, or traveling into the depth to tunnel out new mining material. Explain why poor planning and a lack of focus will likely lead to failure, and how breaking the tasks into smaller steps, and remaining attentive will help improve the chances for success.

6. Re-create something from the real world.

Now that you and your children have tackled larger projects, go for something even more challenging. Have your child choose something from real life to recreate in the game. Preferably, this will be something easily accessible (either at home or online) as it will be necessary in order to easily reference the choice, and ensure an authentic virtual counterpart. Grab a pen and paper and be thorough. List the needed materials, plot out a spot to build it in the game and start creating your structure. When this is done successfully, your child can see the benefits of goal-directed persistence and preparation.

7. Take Minecraft and other sandbox games beyond the console of computer.

Encourage your child to build with LEGOS, design and construct a fort in the backyard, or to learn more about the actual mining and discovery of materials that make up today’s world.

Setting Effective Limits on Minecraft and Other Video Game Play

If you have a child who has grown accustomed to playing Minecraft for hours on end, you will most likely be met with frustration from your child when you attempt to set limits on Minecraft play. However, this doesn't mean you shouldn't.

The most comprehensive approach is to encourage a healthy "Play Diet" in which you emphasize and support alternative activities in which your child can participate. While these may not be as alluring as Minecraft, suitable substitutes such as going to the gym or local pool, engaging in an art or construction project, or any activity that aligns with your child's interests. With younger children, you are likely to have firmer control, and will be able to set more effective limits. Before a parent becomes overly focused on setting limits with Minecraft, it is important to consider how you can optimize a child's learning with their love of the game.

Minecraft and other video-games can be very powerful motivational tools. However, sometimes restrictive limits that parents

set on access can make technologies even more attractive. When kids feel as if they can't play at all, they can become over-focused on access. This is like kids who are not allowed to have soda, and go to a birthday party and then drink excessive amounts of it, only to

feel sick afterwards. In general, the team at LearningWorks for Kids encourages parents not to use video games as a reward, because it makes game play into a prize, rather than one of many activities that kids might do on a regular basis. Instead, encourage video games to be an activity similar to playing outside with your friends, being on a sports team, reading a book, or spending time with your family.

Here are suggested strategies and additional links to help children stop playing Minecraft and transition from video-game play to other activities:

1. Have effective and readily available consequences for overuse of game time.

These do not need to be harsh rules. They can simply be something that you are able to apply consistently. Do not threaten to take Minecraft away for a month; instead set a consequence that is shorter and enforceable. For example, if your child refuses to stop playing Minecraft at an agreed-upon time, he or she can lose video-game play for a portion or all of the following day. Should this occur again in the next week, your child would lose double that amount. If this continues to occur on a regular basis or is accompanied by severe opposition, a more stringent approach might need to be applied. This should be done incrementally so that your child does not lose a week of game play before he or she has previously lost 2 days worth of gaming. Parents should be firm but not rigid. For example: a child who says, "I'll be off in a minute," but instead takes 90 seconds, is not engaging in the same level of opposition as a child who continues for 30 minutes and follows by storming off of the game in anger towards the parent.

2. Start setting limits at an early age.

The sooner appropriate and effective limits are set, the more effectively you will be able to reduce oppositional tendencies toward video-game use. The best limits are not elimination, but reasonable-use strategies. This way children are not "starved" from an activity in which their peers are engaged. Teaching your child to use video-games and technology responsibly is a difficult but worthwhile task.

3. Play Minecraft together.

Playing together provides parents with a bit more cachet when it comes to setting effective limits. You can also model moderation of your own screen time and begin to discuss this issue at an 8- year-old level. Playing as a family in local-server-multiplayer mode is a great idea. This will allow you to watch how your child plays, as well as getting you to talk to your child about his or her problem solving. It will prompt metacognition and social and collaborative skills.

4. Develop reasonable rules and limits in advance.

Start with basic ideas about how much time may be spent in front of a screen. Screen time should include non-school activities in front of computers, tablets, and cell phones. Parents and educators are often amazed to know how much time typical kids spend in front of screens. A 2010 study from the Kaiser Foundation indicated the following:

a) Kids ages 8 to 10 spent 3 hours and 41 minutes on television, 46 minutes on computers, and 1 hour on video games.

b) Kids ages 11 to 14 spent 5 hours on television, 1 hour 46 minutes on computers, and 1 hour 25 minutes on video games.

c) Kids ages 15 to 18 spent 4 hours 22 minutes on television, 1 hour 39 minutes on computers, and 1 hour 8 minutes on video games.

My suggestion is to stay under these limits for computer and video games, and to cut down as much as possible on television. In general, about an hour a day for video games is recommended, with more time allowed for older kids. Studies suggest that more than 3 hours a day in front of screens is detrimental to children's psychological adjustment. However, 1 hour a day is beneficial.

5. Practice and reward appropriate disengagement from fun activities.

Use clear and meaningful consequences and rewards when shifting from play to homework, or from activities to getting ready for bed. This will help your child recognize that you are serious when you tell him it is time to stop playing video games. Gameplay transitions are very difficult for children who are rigid or argumentative, because players often need to retrace their efforts if they are interrupted. Traditional strategies such as giving a 10-minute warning, using a visible timer, or having another fun activity to which your child can transition to may help. Some children may also benefit from having a specific routine where they regularly go from video game time to another routine activity.

6. If it seems impossible to set limits, own the technology.

Do not allow your kids to own their own tablets, computers, phones, or consoles. Purchase a tablet or laptop for yourself and make permission necessary to use the hardware. This can be especially helpful with younger children if it is well established. Discuss exceptions such as more time for game play on weekends, vacations, or an extended family road trip in advance.

7. Control access to the Internet.

Put the router in your bedroom, and turn it on and off at a set times. With children who own smart- phones, you may also need to have a safe place for their phones during the Internet ban. Keep in mind that this will affect others in the household, so it can be an unwieldy approach.

8. Use a parental monitoring tool that restricts technology access.

Apps such as Parental-Timelock or Kid Screen Time are examples of tools to monitor screen time. If homework on the computer is to be done between certain hours every night, a browser add-on such as LeechBlock can prevent social media and other online distractions. Here is a full and complete list of limit setting tools to fit the needs of any kid or family.

Introducing LearningWorks for Kids

So much more than just game and app reviews…

LearningWorks for Kids is an individualized, in-depth, interactive parents' guide for raising happy, healthy kids in a digital world.

Finding the right apps for your child is hard. We make it easy.

Parenting has always been hard, and while technology is supposed to make our lives easier, sometimes just trying to understand it is the hardest part of all.

At LearningWorks for Kids our mission is to help parents make sense of the digital world. We'll show you how to use today's most innovative technologies to improve critical thinking, strengthen academics, and manage difficult learning challenges like ADHD and Autism.

What is LearningWorks for Kids?

At LearningWorks for Kids we go far beyond simply reviewing the latest games and apps being sold as "educational" in the app store and online.

Our team of clinicians, educators, and technology specialists have built a groundbreaking website that analyzes each child's cognitive abilities, determines exactly which technologies can best address their learning needs, and provides parents with a constantly updating prescription of the best games and apps for their unique child.