

Executive Function Activities for 7- to 12-year-olds

These games provide challenges and practice for executive function and self-regulation skills among school-age children. For children in this age range, it is important to steadily increase the complexity of games and activities.

Card games and board games

■ **Card games in which children have to track** playing cards exercise working memory and promote mental flexibility in the service of planning and strategy. *Hearts*, *spades*, and *bridge* are popular examples.

■ **Games that require monitoring and fast responses** are great for challenging attention and quick decision-making in children at this age. *Spit*, for example, requires attending to your own play as well as your opponents' progress.

■ **For younger children, card games requiring matching** by either suit or number continue to test cognitive flexibility. *Rummy* games, including *gin rummy*, are popular examples. Games with more complicated sets of options, such as *poker* and *mahjong*, may challenge older children.

■ **Any game involving strategy** provides important practice with holding complicated moves in mind, planning many moves ahead, and then adjusting plans—both in response to imagined outcomes and the moves of opponents. With practice, children can develop real skill at classic games of strategy like *Go* or *chess*, while challenging working memory and cognitive flexibility. Many more modern strategy games exist as well. Mensa, the high IQ society, holds



a yearly competition testing new games, and provides an interesting list of favorites.

■ **Children this age also enjoy more complex games** involving fantasy play, which require holding in working memory complicated information about places visited in imaginary worlds, rules about how characters and materials can be used, and strategy in attaining self-determined goals. *Minecraft* is a popular computer game of this sort, while *Dungeons & Dragons* is a longtime card-based favorite.

Physical activities/games

■ **Organized sports** become very popular for many children during this period. Developing skill at these games practices children's ability to hold complicated rules and strategies in mind, monitor their own and others' actions, make quick decisions and respond flexibly to play. There is also evidence that high levels of physical activity, particularly activity that requires coordination, like soccer, can improve all aspects of executive function.

■ **Various jump rope games** also become popular among children of this age. Children can become very skilled at *jump rope*, *double Dutch*, *Chinese jump rope*, and other such challenges. Developing skill in these games requires focused practice, as well as the attention control and working memory to recall the words of the chant while attending to the motions.

■ **Games that require constant monitoring** of the environment and fast reaction times also challenge selective attention, monitoring, and

continued

inhibition. For younger children, hiding/tag games, particularly those played in the dark, like *flashlight tag* and *Ghost in the Graveyard*, are fun. Older children may enjoy games like *laser tag* and *paintball*. Many video games also provide practice of these skills, but can include

violent content, so care should be taken in selecting appropriate options and setting reasonable time limits. Common Sense Media, a non-partisan media information organization, provides useful reviews of popular games.

Music, singing, and dance

■ **Learning to play a musical instrument** can test selective attention and self-monitoring. In addition to the physical skill required, this activity challenges working memory to hold the music in mind. There is also some evidence that the practice of two-handed coordination supports better executive function.

■ **Whether or not children learn an instrument, participating in music classes** or community events can still require them to follow rhythmic patterns, particularly when improvisation is involved (e.g., clapping or drumming). This can challenge their coordination of working memory, attention, cognitive flexibility, and inhibition.

■ **Singing in parts and rounds**, as is done in children's singing groups, is also a fun challenge, requiring a similar coordination of working memory, monitoring, and selective attention. As children's musical skills grow,



adults can present them with steadily increasing challenges.

■ **Dancing**, too, provides many opportunities to develop attention, self-monitoring, and working memory, as dancers must hold choreography in mind while coordinating their movements with the music.

Brain teasers

Puzzles that require information to be held and manipulated in working memory can be terrific challenges.

■ **Crossword puzzles** are available for all skill levels and draw on manipulation of letters and words in working memory as well as cognitive flexibility.

■ **Sudoku** provides a similar challenge but

works with numbers and equations rather than letters and words.

■ **Classic spatial puzzles** like *Rubik's Cube* require children to be mentally flexible and consider spatial information in devising potential solutions.

■ **Cogmed and Lumosity** provide computer game puzzles and challenges that are designed to exercise working memory and attention.

Resources

Common Sense Media

- www.common Sense Media.org
- www.common Sense Media.org/game-reviews

List of winning games from American Mensa's Mind Games competitions

- mindgames.us.mensa.org/about/winning-games/

Other programs

- www.cogmed.com
- www.lumosity.com

Tips for using video games

- www.mindinthemaking.org/wp-content/uploads/2014/10/PFL-learning-and-videogames.pdf