

# Science Says

Science Facts & Analysis from Science for Georgia

## Child Literacy in Georgia

Two-thirds of Georgia third graders cannot read at grade level. Third grade reading proficiency represents an inflection point – setting a child on-track for high-school graduation and life success.

### Problem

Kindergarten and third grade reading level achievements are important indicators for a child's future academic performance and overall well-being.

Reading at level in 3<sup>rd</sup> grade is the number one indicator of high school graduation. Students who cannot read proficiently at their grade level by the end of third-grade are four times more likely than their proficient counterparts to drop out of high school and are more likely to experience long-term behavioral and mental health issues.

Third grade signifies the shift from learning to read to reading to learn, as children begin to apply their reading skills to other subjects like math, science, and history. The best indicator of third-grade literacy achievement is being at-level upon completion of kindergarten. At this time, a child is expected to know how to read and write simple stories and to associate spoken words with their written form. For a child to enter kindergarten ready to learn to read, the best thing is to read 15 minutes of reading a day starting at age 6 months.

Factors that can influence a child's reading and comprehension skills can include the home reading environment, maternal reading fluency, maternal mental health, and a child's physical health.

## Recommended Steps for Families to Improve Home Reading Climate

- 15 min a day of reading starting at age 6 months is the number one way for kids to enter Kindergarten ready to learn to read.
- Limiting screen time and increasing exposure to books and other reading materials between the ages of 3 and 5 leads to better neurological development. Library cards in Georgia are free for all Georgia residents through the Pines Library system. These library cards provide access library books and online resources. Some counties issue temporary e-cards if you are unable to apply for a permanent.
- In the time of Covid-19, many parents have been forced to work from home and rely on television or devices to occupy their children. Bearing this in mind, parents should apply closed captioning to as much programming as possible. Closed captioning improves word recognition, ability to decode language, and supports vocabulary acquisition.
- Turn daily tasks into learning opportunities. Examples: placing labels on objects at home, having your child read labels at the grocery store, and reading signs out loud.
- Access free online reading resources such as PBS Kids, Get Ready to Read, and Reach Out and Read. Find more at: <https://sci4ga.com/knowledge-base/reading-resource-directory/>

## Facts and Analysis

How does Pre-K and Kindergarten readiness contribute to reading level achievement in K-12?

Participating in [high quality child care programs, prekindergarten, Early Head Start, and Head Start increase](#) and improve a child's literacy level before entering grade school. Pre-K standards should be [aligned to K-12 readiness](#) standards to ensure maximum success as a child transitions into grade school. Alignment strategies include improving teacher preparation and instruction and implementing developmentally appropriate assessments such as [student interviews](#) that gauge each child's individual skill level. The effect of quality preschool [persists](#) over time. Studies have shown that preschool programs provide the [foundational skills](#) necessary for later academic success. For example, [early counting skills](#) during the transition to kindergarten can be a good indicator of a child's future performance on advanced mathematics assessments.

What kinds of mental health and behavioral issues can children who do not meet literacy milestones have?

Kids who have reading difficulties can experience [anxiety or depression](#) as a result of not meeting the appropriate milestones. Being unable to read or understand class content leads to decreases in [self-worth](#) and self-esteem, and an inability to express frustrations. Internalizing frustrations may lead to poor mental health. [Externalizing frustrations](#) may include misbehaving in school and getting into physical fights [beginning a destructive cycle](#) of detention, out-of-school suspension, and decreased class-time.

What is a home reading environment?

A [home reading environment](#) is a concept that is used to describe how much exposure children are having to books at home and/or if they are being read to at home by a parent, caregiver, or guardian. Parents and caregivers who [reading to](#) or with children at home and that have books at home are associated with increased activation of certain parts of the brain that control [visualization](#).

What is the Get Georgia Reading campaign?

The Get Georgia Reading campaign was created in 2013 in [response](#) to low third grade reading achievement statistics throughout the state of Georgia. Private, public, state, and local organizations have come together to apply a [four-pillar framework](#) aimed at helping all Georgia third graders reach their corresponding reading level. The [four pillars](#) include access, language nutrition, productive learning climate, and teacher preparation and effectiveness.

[Language nutrition](#) refers to adult-child interactions that are rich in language and therefore critical for brain development. [Access](#) refers to children and families having access to support services and high-quality early childhood and elementary education. [Productive learning climate](#) refers to the impact of the school climate on social-emotional development, attendance, and engagement as well as long-term success. [Teacher preparation and effectiveness](#) refers to teachers being prepared to deliver high-quality, evidence-based instruction, specific to the unique needs of each child.

## How does maternal reading and writing affect child literacy?

Lower [maternal reading](#) and writing levels are linked to decreased development of reading and language networks in a child's brain. Mothers who are more [proficient](#) at reading are able to provide high quality reading that fosters the acquisition of reading skills in children. [Parental literacy](#) programs can improve a parent's reading and/or writing skills and, in turn, the skills of their children.

## Why is maternal mental health significant for a child's literacy development and from what stage does it have an impact?

Current research has not yet indicated that there is an exact age at which a child's reading and comprehension skills are impacted by maternal mental health. However, maternal [depression](#) and anxiety can affect a child's physical and mental health starting from the prenatal stage to adolescence. Infancy and toddlerhood may be [marked](#) by lower cognitive performance, anger, passivity, and less creative play. A child who is [school-age](#) may experience attention deficit or hyperactivity disorders, anxiety and/or depression that affects academic performance.

## Does physical health contribute to child literacy?

Poor physical health can be a [contributing factor](#) to low child literacy if a child is [chronically absent](#) to due to illness or distracted by constantly feeling unwell. Low attendance means a student will miss out on [key learning opportunities](#) and peer interaction. School-age children can concentrate better and retain more information if they have a healthy [diet](#). Exercise helps children develop [coordination](#) of large and small muscles which are important for daily tasks such as using scissors, writing, and getting ready for school.

## What effect does the home environment (i.e. toxins, air quality, mold, etc) have on neurological development?

An often-overlooked risk factor for reading problems and learning disabilities is [exposure to neurotoxicants](#) in the environment. Many of these exposures occur [prenatally](#).

[Lead exposure](#) via paint, water, or soil can also have varying degrees of impact on the development of the brain. Children living in [homes built before 1950](#), or [government housing](#) are at an increased risk of being exposed to lead and experiencing permanent brain damage.

[Polybrominated diphenyl \(PBDE's\)](#), a compound that used to be commonly used as a fire-retardant in fabrics, furniture, electronics, wire insulation, and infant products, can induce structural and functional changes in the brain of a developing fetus. The compound crosses the placental barrier and impairs the development of [functional connectivity](#) in the reading network of the brain. While they are being phased out – avoiding ripped or torn furniture with exposed foam, can cut down on exposure.

Columbia University Center for Children's Environmental Health out together guides on how to [avoid common toxins](#) in the home.

## How do Georgia's literacy statistics for this age group compare between rural and urban areas?

The percentage of students achieving proficient learner status or above on the 3<sup>rd</sup> Grade ELA Milestones is [disproportionately higher](#) in urban areas, namely the Metro Atlanta area and surrounding suburbs compared to more rural north, middle, and south Georgia. In smaller urban areas like Savannah and

Macon, there are [pockets](#) where 49.5 to <92.6% of third grade students are achieving proficient learner status or above.

### Which children are at a higher risk of not meeting these literacy milestones?

Black and Hispanic children face [significant barriers](#) when it comes to literacy and education in the U.S. [compared](#) to their White and Asian counterparts. In 2016, the percentage of children under 18 who live in [poverty](#) was higher for Black and Hispanic children than it was for Asian and White children. The percentage of children receiving [center-based care](#) (e.g. daycare) was lowest among Hispanic families. In 2017, there was a [27-point difference](#) in reading achievement scores between Black and White children. The difference in scores was [19 points](#) between Hispanic and White Children. Black children also have higher rates of out-of-school [suspension](#) than any other ethnic group. The high school completion rate is highest among White students compared to Hispanic and Black students.

### About Science for Georgia

Science for Georgia is a 501c3 dedicated to bridging the gap between scientists and the public through training, outreach opportunities, and direct contact with the public, policymakers, and the press. Science for Georgia highlights how science can impact people's lives and advocates for the responsible use of science in public policy.