

Dyscalculia: making numbers more meaningful

By Ron Hardman – Kilroy’s Workshop · Educational information, not clinical advice

When numbers and calculations remain difficult, “try harder” is not a teaching plan. Start with the particular math idea a learner needs help understanding.

What dyscalculia means

Dyscalculia involves severe, persistent difficulty with arithmetic. It is not another name for handwriting difficulty. A low score on one activity is not a diagnosis: the 2019 review by Haberstroh and Schulte-Körne describes assessment that considers mathematical performance alongside history and broader clinical and psychosocial information. [\[1\]](#)

Match support to the difficulty

The review favors interventions directed at specific mathematical difficulties and notes gaps in evidence and learning programs for older adolescents and adults. This supports being specific about the learning goal—not promising that one tool works for everybody. [\[1\]](#)

Our practical suggestion: ask the learner to explain a small example. Is the difficulty comparing quantities, understanding a fraction, choosing an operation, or remembering a procedure? Keep that observation separate from a diagnostic label.

Connect quantities, pictures, and symbols

The 2021 IES practice guide recommends systematic instruction, clear mathematical language, carefully chosen representations, and number lines for elementary mathematics intervention. [\[2\]](#) Its evidence is not a trial of Shop Class Math or proof of outcomes for teenagers with dyscalculia.

Our application: use the same quantity across an object model, a picture, and a written calculation. Explain what each part represents. Avoid adding several unfamiliar diagrams at once.

A workshop example: 7 pieces plus 5 pieces

1. Start with 7 equal-size pieces. Five more are added.
2. Make a group of ten: take 3 of the new pieces to join the 7.
3. Two new pieces remain. Ten and two make 12.
4. On a number line, start at 7, move 3 to reach 10, then move 2 to reach 12.

Write $7 + 5 = 12$. Ask the learner to connect each step to the pieces. Try another example together, then offer a similar problem independently. This is our original teaching example, not a diagnostic test or a validated intervention.

Make fraction size visible

Original practice idea: divide one strip into 8 equal parts. Shade 3. That is $\frac{3}{8}$ of this whole—not 3 separate wholes. Locate $\frac{3}{8}$ between 0 and 1 on a number line. Compare it with half: $\frac{4}{8}$ is half, so $\frac{3}{8}$ is smaller. Keep the whole the same size when comparing fractions.

Keep practice and progress honest

Our [number-sense practice](#) includes grouped quantities, a number line with one move at a time, and fraction bars. It is untimed and unscored. Worked explanations are supported practice; they do not count as independent results in the parent report. Larger text and optional lesson read-aloud remain available.

Untimed exploration is our design choice, not a claim that timed practice is always harmful. The IES guide also includes timed activities as one way to develop fluency. [\[2\]](#) Choose the approach with the learner and their educators.

When to seek individual help

Persistent difficulties that affect school or everyday activities deserve discussion with educators and a qualified assessment professional. Bring examples of the learner's work, the help provided, and what the learner says is confusing. These resources do not diagnose, treat, or replace individualized support.

Sources & evidence limits

1. Haberstroh, S., & Schulte-Körne, G. (2019). The Diagnosis and Treatment of Dyscalculia. *Deutsches Ärzteblatt International*, 116(7), 107–114. [doi:10.3238/arztebl.2019.0107](https://doi.org/10.3238/arztebl.2019.0107). [PubMed record](#).

Evidence synthesis supporting a German guideline; searches covered 2015–2016. This is not presented as a current clinical standard or a study of this product. Claims here were checked against the indexed abstract.

2. What Works Clearinghouse (2021). *Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades*. Institute of Education Sciences. [Official guide and recommendations](#).

Elementary-grade intervention evidence; applying these ideas to teens requires caution.

Sources checked September 21, 2026. Selected-source educational guide, not a systematic review. Written by Ron Hardman - Kilroy's Workshop; no clinical review or product-efficacy study is claimed.

Read online: <https://shopclassmath.com/dyscalculia-and-math.html>