



MATHEMATICS DIAGNOSTIC ASSESSMENT

Grade 1 to 7: Paper Version

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www.GeoGenius.co.za

NumberSense



www.NumberSense.co.za

Description

The Grade 1 – 7 Mathematics Diagnostic tool (developed and distributed under license to Brombacher and Associates) is an assessment that has been developed to assist teachers and schools in determining the grade equivalent mathematics performance levels for learners in Grades 1 to 7. Typically, the teacher (school) will administer this assessment to learners that have been identified as needing remedial support in mathematics. In a typical application, it is not envisioned that each learner in a class would complete the assessment.

- The assessment assesses performance on a range of foundational skills that are predictive of future success in mathematics. Each skill is assessed at a range of developmental levels.
- The learner is assigned an initial set of questions for the first skill based on their age. After responding to the items, and based on their performance, the learner is either directed to an easier set of items (if the initial set proved to be too demanding), a harder set of items (if the initial set proved to be too accessible), or, to the next skill if the learner's performance suggested that items were at the ideal developmental level. The learner progresses through the different skills in this way until they reach the last skill.
- On completion of the assessment, the learner is assigned to a grade equivalent developmental level based on their dominant performance level across the skills. Knowing the grade equivalent developmental level of the learner will enable the teacher to provide targeted remedial support to the learner.
- The assessment can either be administered as an oral assessment by the teacher, or digitally on the JumpCo JumpTrak platform.
- The instrument is in a first draft format that still needs validation. To enable the developers to validate the instrument, it is being made available for use at no charge for a

limited time. During this period, users (teachers and schools) may use the instrument with the understanding that: (a) the results give a good approximation of a learner's developmental level; (b) the developer may use the data collected to refine the tool; and (c) the results produced by a newer version (when/if updated) may differ from those produced on this version.

How to use the paper version of the Mathematics Diagnostic tool for Grades 1 to 7

Step 1: Identify the learners who will complete the assessment.

As already indicated, there is no expectation that all learners in a class/school will complete the assessment – only those identified by the teacher as needing remedial support.

Step 2: Download the Diagnostic Assessment relevant to the learner's age.

- a. Download the age-appropriate Diagnostic Assessment Stimulus Card
- b. Download the age-appropriate Diagnostic Assessment Recording Sheet (you will need one sheet per learner as this is where you track and record their progress)

Step 3: Administer the assessment.

Step 4: Teacher reviews learner performance.

Interpreting the learner's results:

- a. For each skill, select the level at which the learner ended on that skill by placing a tick in the appropriate box:
 - Skill 1: Counting Objects
 - Skill 2: Comparing Numbers
 - Skill 3: Number Patterns
 - Skill 4: Formulae
 - Skill 5: Solving Equations
 - Skill 6: Write the Rule
 - Skill 7: Geometry
- b. To determine the overall level, select the level with the greatest number of ticks. If more than one level has the same (largest) number of ticks, select the lower level. If a learner struggles at their initial level, administer the Diagnostic Assessment Tool for the previous age group. If a learner excels at their initial level, administer the Diagnostic Assessment for the next age group.

Please submit comments and questions to: info@brombacher.co.za

KEY

Recording Sheet

Diagnostic Assessment Tool for Ages 6 - 8 – recording sheet

Name: _____
 School: _____
 Age: _____ Grade: _____

Administration instructions

1. Complete the student details.
2. Have the student start by completing the appropriate task:
 Student Age: 6 year old start with task 1-1-1
 Student Age: 7 year old start with task 1-2-1
 Student Age: 8 year old start with task 1-3-1
3. For each task, score the student's responses on the recording sheet. Based on the score for each task use the decision tree to determine the next task.
4. Continue until the last skill and complete the summary table.

	1-R-2	1-1-1	1-1-2	1-2-1	1-2-2	1-3-1	1-3-2
1	(10) <input type="checkbox"/> <input type="checkbox"/>	(2) <input type="checkbox"/> <input type="checkbox"/>	(15) <input type="checkbox"/> <input type="checkbox"/>	(125) <input type="checkbox"/> <input type="checkbox"/>	(88) <input type="checkbox"/> <input type="checkbox"/>	(123) <input type="checkbox"/> <input type="checkbox"/>	(180) <input type="checkbox"/> <input type="checkbox"/>
2	(8) <input type="checkbox"/> <input type="checkbox"/>	(2) <input type="checkbox"/> <input type="checkbox"/>	(72) <input type="checkbox"/> <input type="checkbox"/>	(175) <input type="checkbox"/> <input type="checkbox"/>	(40) <input type="checkbox"/> <input type="checkbox"/>	(245) <input type="checkbox"/> <input type="checkbox"/>	(430) <input type="checkbox"/> <input type="checkbox"/>
3	(4) <input type="checkbox"/> <input type="checkbox"/>	(2) <input type="checkbox"/> <input type="checkbox"/>	(24) <input type="checkbox"/> <input type="checkbox"/>	(30) <input type="checkbox"/> <input type="checkbox"/>	(335) <input type="checkbox"/> <input type="checkbox"/>	(125) <input type="checkbox"/> <input type="checkbox"/>	(R6,75) <input type="checkbox"/> <input type="checkbox"/>
4	(24) <input type="checkbox"/> <input type="checkbox"/>	(2) <input type="checkbox"/> <input type="checkbox"/>	(24) <input type="checkbox"/> <input type="checkbox"/>	(30) <input type="checkbox"/> <input type="checkbox"/>	(335) <input type="checkbox"/> <input type="checkbox"/>	(125) <input type="checkbox"/> <input type="checkbox"/>	(R6,75) <input type="checkbox"/> <input type="checkbox"/>
5	(25) <input type="checkbox"/> <input type="checkbox"/>	(2) <input type="checkbox"/> <input type="checkbox"/>	(24) <input type="checkbox"/> <input type="checkbox"/>	(30) <input type="checkbox"/> <input type="checkbox"/>	(335) <input type="checkbox"/> <input type="checkbox"/>	(125) <input type="checkbox"/> <input type="checkbox"/>	(R6,75) <input type="checkbox"/> <input type="checkbox"/>

Skill 1- Grade 1- First half of the year

	1-1-1	1-1-2	1-2-1
	(3) <input type="checkbox"/> <input type="checkbox"/>	(15) <input type="checkbox"/> <input type="checkbox"/>	(125) <input type="checkbox"/> <input type="checkbox"/>

1-1-1 explained:

- The first number indicates the skill number (as per Step 4 on page 2: 1-7).
- The second number refers to the grade (R-7).
- The third number refers to the time of year within that grade: 1 being the first half of the year and 2 being the second half of the year.

Final Scoring/Level Interpretation

The dominant level in this example is Level 2-1: Grade 2, the first half of the year.

For Skill 3 (number patterns) however, they are at Level 1-2: Grade 1, the second half of the year, and for Skill 5 (solving equations) they are at Level 2-2: Grade 2, second half of the year.

Completing the summary table

1. For each skill, select the level at which the student ended on that skill by placing a tick in the appropriate box.
2. To determine the overall level:
 - a. Select the level with the greatest number of ticks.
 - b. If more than one level has the same (largest) number of ticks select the lower level.
 - c. If student excels at level 4-1, administer the Diagnostic Assessment Tool for Ages 9-10.

Summary table

	Level R	Level 1-1	Level 1-2	Level 2-1	Level 2-2	Level 3-1	Level 3-2	Level 4-1
Skill 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skill 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skill 3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skill 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skill 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>