

## DesCartes: A Continuum of Learning<sup>®</sup>

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# ESSENTIALS



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121 NW Everett St

Portland, OR 97209

Telephone: 503-624-1951 ♦ FAX: 503-629-7873

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## NWEA Philosophy

Our mission is: *Partnering to help all kids learn*. At Northwest Evaluation Association, we are aware of the achievement differences in students. They learn and grow when they are presented with information that is appropriately challenging—engaging but not overwhelming.

Historically, school districts have used a student's age (grade level) as the primary criterion for selecting instructional materials and lessons. We believe that a student's current achievement level should be the foremost consideration when grouping for instruction, selecting materials, and providing instruction.

DesCartes provides teachers with a tool to translate student scores so they know when to move a student – or students – beyond the conventional curriculum at a particular grade level and when to develop skills that may have been presented in earlier grades.

## Background

NWEA assessments use a measurement scale that has proven to be exceptionally stable and valid over time. Our scale is based on the same modern test theory that aligns student achievement levels with item difficulties on the same scale.

The scale we use is divided into equal parts (an equal interval scale), like centimeters on a ruler. We call these parts RITs, which is short for Rasch Unit (after the test theory's founder, Danish statistician Georg Rasch).

Like using a ruler to measure a child's growth in height, we use the RIT scale to measure a student's academic growth over time. We also apply this measurement scale to organizing the skills and concepts described in DesCartes.

## History and Development

DesCartes is the third major revision of an NWEA continuum of learning. Work on the first learning continuum began by looking at curriculum from an analytical point of view. NWEA researched each and every test item in our mathematics, reading, and language usage item database (over 15,000 items total). We limited the selection to those items that had successfully passed field-testing and were available for use on tests. As we reviewed each item, we identified the difficulty of the items, the skills and concepts assessed, and any vocabulary or symbols needed to comprehend the items. Through this process, a learning continuum of skills and concepts began to unfold.

Later, the learning continuum was made available online in an altered format that showed learning continuum statements at the difficulty level indicated by a student's RIT score plus the statements for RIT ranges just above and below the student's score.

Like previous versions, DesCartes: A Continuum of Learning is the result of ongoing communication with partner districts. Information and feedback has been collected at NWEA Members' Seminars, state user group meetings, during professional development training, as well as through surveys and focus groups. It is also the result of a multiyear indexing project at NWEA which included a complete review of our expanded item bank. DesCartes represents a more comprehensive view of curriculum than previous editions.

There are more items in our item bank with data representing a broader spectrum of skills and concepts. Therefore, there are more learning continuum statements that we can include and they are written with greater specificity.

This most current edition includes additional learning continuum statements, indicated by an asterisk (\*), where both data from test items and review by NWEA curriculum specialists are used to place the statements into appropriate RIT ranges. This concept is further explained in the 'Organization' section of this document.

Only skills and concepts tested by items contained in the NWEA item banks are listed in DesCartes. We realize that many districts have additional topic areas that will not show up here. We encourage them to use DesCartes as a tool to supplement the resources already in use by a district.

## Purpose and Suggested Uses

The purpose of DesCartes is to help guide instruction based on reports from an NWEA Achievement Level Test or computerized Measures of Academic Progress assessment. DesCartes enhances a teacher's ability to provide targeted instruction for individual students or student groups.

DesCartes has many uses, and we encourage educators to explore these uses and report back to us on their experiences. Suggested uses for DesCartes are in the following list.

*Materials Selection* — When teachers explore the diversity of students' performance levels within a class, selecting materials for students at the extreme ends of the spectrum is challenging. DesCartes can guide teachers in finding more appropriate materials for all students.

*Sharing Resources* — When teachers need to select materials for students, they need to know who to go to for acquiring appropriate classroom materials for students. NWEA encourages partnering with other educators to develop better ways to share resources.

*Gifted and Talented, Title I, and English Language Learners (ELL)*—When teachers apply DesCartes to gifted and talented, Title I, and ELL programs, we hope it will serve as a guide to constantly “push the envelope” with all students in order to help them grow academically as much as possible.

*Curriculum Planning* — When district personnel use DesCartes as a resource for curriculum development or program revision, it becomes a valuable planning tool.

*School Improvement Planning* — When district personnel have knowledge of student achievement translated by DesCartes, it will likely raise questions about how we group for instruction, how we use instructional time, how we structure our schools, how we organize our staff, and how we design our facilities.

*Monitoring Student Progress* — When educators want to track where students are on a continuum of learning, they can use DesCartes as a guide. Checklists can be derived from DesCartes to assist with this tracking.

*Individual Education Plans* — When educators focus on the targeted growth of the student, DesCartes can help identify specific skills to support the student in reaching targeted goals.

*Parent Conferencing* — When parents understand how test scores translate into the skills and concepts their child is developing, they can encourage activities to engage their child in additional learning. DesCartes provides a way for teachers to communicate with parents about their child's academic progress.

## Organization

DesCartes contains separate sections for reading, language usage, mathematics-lower grades, and mathematics-upper grades. Within each subject are categories known as main goal strands. The main goal strands are then broken down into ten-point RIT ranges based on difficulty. Within each RIT range, sub goals, which further divide content within the goal area, break down the skills and concepts found in the NWEA item banks. These skills and concepts are described in learning continuum statements.

### Note:

A learning continuum statement appears in the earliest RIT range where the skills and concepts it describes are prominently seen. A statement may appear in up to three consecutive RIT ranges. It is important to not only focus on the RIT range where the student is functioning, but to watch for any holes in a student's grasp of skills and concepts that may appear earlier in the continuum.

## State Standards and Other Curriculum Guides

To generate NWEA tests and a version of DesCartes aligned to local needs, we extract content from state standards and other curriculum guides by determining which can be assessed with multiple choice test items.

This content is organized into main goal strands for meaningful testing and reporting. These main goal strand headings appear in NWEA reports and in DesCartes.

## Interpreting DesCartes (Sample Page)

Figure 1 shows an annotated graphic of a page from DesCartes. This graphic is meant to be a reference to help teachers translate test scores for developing their classroom instruction.

**Subject: Reading**

**Subject:** Topic of Mathematics, Reading or Language Usage

**Goal Strand:** Reporting area for tests; also referred to as the goal

**Goal Strand: Interpretive and Evaluative Comprehension**

**RIT Score Range: 191 – 200**

**RIT Score Range:** Measurement of the assessment scale for each subject and goal area

Skills and Concepts to Enhance 181 - 190	Skills and Concepts to Develop 191 - 200	Skills and Concepts to Introduce 201 - 210
<b>Main Idea</b> <ul style="list-style-type: none"> <li>Analyzes literary text to identify the main idea representing the main idea</li> <li>Analyzes text to identify the main idea or theme of a literary text</li> <li>Analyzes literary text to identify the main idea representing the main idea</li> <li>Enhance: Skills and concepts of the RIT range that students are able to retain and maintain</li> <li>Draws conclusions in literary text based upon supporting details</li> <li>Interprets the main idea of informational texts based on supporting details</li> </ul>	<b>Main Idea</b> <ul style="list-style-type: none"> <li>Analyzes text to identify main idea or theme of a literary text</li> <li>Analyzes literary text to identify the main idea representing the main idea</li> <li>Develop: Skills and concepts of the RIT range that students are ready to learn now</li> <li>Interprets informational text to identify a title representing the main idea</li> <li>Interprets the main idea of informational texts based on supporting details</li> </ul>	<b>Main Idea</b> <ul style="list-style-type: none"> <li>Analyzes literary text using supporting details</li> <li>Analyzes text to identify the main idea (main idea) of a literary text</li> <li>Analyzes literary text to identify the main idea representing the main idea</li> <li>Introduce: Skills and concepts of the RIT range that students may be ready to learn soon</li> <li>Draws conclusions in literary text based upon supporting details</li> </ul>
<b>Evaluate Validity</b> <ul style="list-style-type: none"> <li>Determines viewpoints in literary text</li> <li>Interprets the author's viewpoint in informational text*</li> </ul>	<b>Evaluate Validity</b> <ul style="list-style-type: none"> <li>Infers viewpoints in literary text</li> <li>Interprets the author's viewpoint in informational text*</li> </ul>	<b>Evaluate Validity</b> <ul style="list-style-type: none"> <li>Infers viewpoints in literary text</li> <li>Analyzes validity of information</li> <li>Analyzes informational text support*</li> </ul>
New Vocabulary: none New Signs and Symbols: none	New Vocabulary: none New Signs and Symbols: none	New Vocabulary: characterize, headline, historical document, narrate, primary source, research paper, thesis paper, world literature New Signs and Symbols: none

\* Both data from test items and review by NWEA curriculum specialists are used to place these learning continuum statements into appropriate RIT ranges.

Blank cells indicate data are limited or unavailable for this range or document version.

**Figure 1 Sample Page from Reading**

## Using DesCartes

Given a student's (RIT) achievement score, teachers can identify the portion of DesCartes that represents the student's instructional level. The skills and concepts listed at RIT ranges below the student's score may need to be reinforced and enhanced to maintain them. The learning continuum statements in RIT ranges just above are the skills and concepts which may need to be introduced with appropriate structure.

These RIT score ranges can help teachers prepare for flexible small group instruction within a classroom. By putting students together who have similar instructional needs, teachers can better meet the needs of all students. Our goal is to create maximum growth for all students, whether they are in the lowest quartile or the highest quartile. As students learn the skills and concepts within a RIT range, they can be shifted to another flexible group.

The following example provides a way to apply a student's test score to DesCartes.

Imagine a report with student goal scores for reading. One student, Marty, has an overall score of 187 in reading. By using the table of contents in the Reading section of the DesCartes notebook, Marty's teacher can find the page with RIT scores between 181 and 190. Having located this page, Marty's teacher will refer to the center column (Skills and Concepts to Develop) and use these statements as a guideline for targeted instruction.

If Marty is the only one in the RIT range of 181 to 190, then the learning statements in reading will provide targeted instruction for him alone. However, if other students fall into the same RIT range, Marty's teacher can use the statements for all students who fall in that range. NWEA's Instructional Resources report automatically arranges students by RIT range achievement to assist in this effort.

### Tip

If a student's RIT score is between two RIT ranges, use the learning continuum statements in the lower RIT range first. Information in the columns immediately before and after a student's RIT score is useful for refining instruction.

## Using the Skills and Concepts Columns

Teachers use learning continuum statements in DesCartes to determine what a student has learned, what the student is learning, and what the student needs to learn.

The pages in DesCartes are divided into three columns: skills and concepts to enhance, skills and concepts to develop, and skills and concepts to introduce. These divisions are explained in the next sections.

### ***Skills and Concepts to Enhance***

When a student responds correctly to test items 75% of the time, we consider the related skills and concepts appropriate to enhance. The statements in the skills and concepts to enhance column may need continued reinforcement, support, and enhancement to maintain.

### ***Skills and Concepts to Develop***

When a student responds correctly to test items 50% of the time, we consider the related skills and concepts appropriate to develop. The statements in the skills and concepts to develop column are those that a student is ready to learn. The RIT score in the upper left corner of each page of DesCartes is the marker for the center column. These learning continuum statements inform teachers of skills and concepts they may want to include in current classroom instruction.

### ***Skills and Concepts to Introduce***

When a student responds correctly to test items 25% of the time, we consider the related skills and concepts appropriate to introduce. Many students can learn skills and concepts in this column if the appropriate groundwork is laid or if a task is presented in a more structured format.

Given a student's test scores, one approach to using DesCartes may be to review the skills and concepts to enhance to ensure that there are no holes in a student's grasp of skills and concepts that may appear earlier in the continuum. Skills and concepts to develop need to be reviewed for alignment with what the students are currently learning. Skills and concepts to introduce may require more foundation and may need to be taught with more structure.

## Learning Continuum Statements

There are two types of learning continuum statements in DesCartes. All statements have item data to support their RIT range placement. Learning continuum statements without an asterisk are consistent with previous editions of DesCartes (the NWEA Learning Continuum). These statements are driven solely by student response data. An asterisk at the end of the statement indicates that both data from test items and review by NWEA

curriculum specialists are used to place these learning continuum statements into appropriate RIT ranges. The item response data associated with these statements are not sufficient to be solely data-driven. Therefore, we have combined the item response data we do have and our knowledge of the RIT scale with NWEA curriculum specialists' content expertise. This allows for a more comprehensive instructional resource. As our item banks grow and we assess more students, DesCartes will continue to evolve into an even more comprehensive and useful resource.

## Teachers' Tips on Ways to Use DesCartes

This section provides useful tips for teachers, from other teachers, who want to use DesCartes to its fullest potential.

### **1. Give meaning to RIT scores**

The RIT scale provides the framework by which we measure student growth. DesCartes puts flesh on that framework, providing a better picture of what students already know and what they need to learn next.

#### **Teachers' Tip**

Share DesCartes with parents and students during conferences. Students and parents will better understand that learning takes place on a continuum rather than in grade specific chunks. Together they will celebrate what's been learned and look forward to the learning that lies ahead.

### **2. Assist teachers in selecting and sharing appropriate instructional materials**

By knowing where students are performing, teachers can collaborate with one another and can utilize sets of resources typically found outside their individual classrooms. This helps to ensure that the appropriate materials needed for each child are available.

#### **Teachers' Tip**

Set up a central resource center in each school around RIT bands to provide shared lesson plans, textbooks, and other resources. Teachers could "check out" materials needed to match students' instructional needs.

### **3. Guide teachers as they develop needs-based, or flexible groups, for instruction**

DesCartes provides a map for individual students and groups of students based on students' specific instructional levels and needs. Most states have state standards which define grade-level skills and benchmarks. Some students' instructional level falls within this grade-level range, whereas other students' instructional levels fall below or above this grade-level standard. While state standards serve as the direct connection to mandatory curriculum, DesCartes can help define skills for those students currently performing below grade-level standards as well as for those students who have already reached their specific grade-level standards.

### Teachers' Tip

Study DesCartes to determine where grade-level standards fit for your grade. Look at DesCartes to find skills that may supplement specific grade-level standards as well as skills that fall below and above that standard. To begin working with flexible groups, select only one goal area. Based on their RIT ranges, divide the students into three or four groups. Work with them in these groups once or twice a week on specific skills related to their goal area. Once comfortable with working with the grouping in this goal area, the teacher might develop flexible grouping in another goal area, perhaps the next semester. Observe growth along a continuum of skills.

Many teachers feel the pressure to focus totally on their grade-level standards. Actually, most large concepts are built on a spiral. DesCartes provides concrete evidence of the continuum of learning around concepts that take place over several RIT bands.

### Teachers' Bonus Tip

In a teacher's meeting, identify one concept, such as Fact/Opinion, and ask teachers to meet in cross teams (such as a group of three teachers—one from each of grades 3, 4, and 5) to look at six RIT bands of Fact/Opinion and identify how the difficulty changes through the bands.

## **4. Assist in establishing goals for students and teachers and communicating with parents**

By providing general information about students' instructional needs, goals can be specific, measurable, and attainable by every student.

### Teachers' Tip

Use DesCartes in connection with students' fall assessment reports to create learning goals at the beginning of the school year. Revisit these goals during the year and adjust them as necessary.

### Teachers' Bonus Tip

Talk with a colleague about the goals you have for a student. Teacher-to-teacher dialogue about goals can be a powerful way to focus conversation. When teachers know what they need to teach, they can assist one another in exploring different ways to facilitate this learning.

### ***5. Develop learning plans that focus instruction on the specific needs of students***

Many teachers put together individualized plans for each student in a classroom. DesCartes is an excellent guide to assist in this process.

### Teachers' Tip

Use DesCartes as one piece of information about what the next steps are for a student. Create a specific set of learning goals for a student by listing certain skills and competencies that he or she should focus on for the next determined period of time. This plan can then be shared with others responsible for this student's learning, including parents and the student.

## Training

NWEA training sessions are designed for educators with varying levels of assessment knowledge. Our series of workshops and seminars lead participants to make practical use of assessment data. Participants leave with an understanding that data are fundamental to improving student achievement

We guide educators hands-on as they use data to plan lessons in accordance with state standards and DesCartes. With training, teachers can see how their state standards fit with DesCartes and learn how to manage the diversity in their classrooms. When teachers have diverse groups of students, they can understand what the data are revealing. Our objective is to show teachers how to use NWEA resources so that all their students can grow academically, regardless of where they are in the skills and concepts they understand.

If data are analyzed by using the traditional methods, either normative or comparative, NWEA assessment becomes just another test. However, if teachers understand the data, rely on the data, and use DesCartes with the data, the information becomes meaningful. To make meaning out of the data, teachers can use DesCartes to improve what they are doing for every student in the classroom. Rather than teaching to the middle segment of the classroom, teachers can look at the diversity in their classrooms and plan their curriculum to address the varieties of groups within their classroom. If a student is falling down in a subject area, teachers can help the student by customizing instruction using the learning continuum statements in DesCartes as a resource.

NWEA encourages teachers to enroll in our training series to improve teaching and learning skills. For more information, visit our web site: [www.nwea.org](http://www.nwea.org).

## Future Plans

NWEA plans to update DesCartes to:

- Add and refine more learning continuum statements as more test items are calibrated.
- Create a more interactive web site.
- Make it easier for teachers to compare goal structures to their state standards.