The purpose of this chart is to help you understand the NWEA measurement scale (RIT scale) and how it can be used to measure academic growth over time. For more specific information to help support instruction please see NWEA's DesCartes: A Continuum of Learning.

RIT
Reference Chart for
MPG Mathematics

NWEA tests produce scores that make it possible to monitor student growth from year to year along developmental curriculum scales or continua. The chart inside shows examples of the kinds of work students can do at various points along the NWEA RIT scale, assuming they have been exposed to content. This type of information is helpful in supporting appropriate instruction.

Please note that each subject-area has a unique alignment to the RIT scale. As a result, scores between subjects are not equivalent.

How to use the charts:

1. **Find the column containing the student's score for a particular subject. For example, if the student's score in "Problem Solving" is 188, refer to the column labeled 181-190.**

2. **Read down the column to locate a sample test question for a given reporting area, such as "Problem Solving." A student's score suggests that, currently, they are likely to get about half of the questions of this difficulty correct.**

3. **Now look at the questions in the column(s) to the left. The student is likely to get most of these correct, assuming he or she has been instructed in these skills and concepts.**

4. **The questions in the column(s) to the right will probably require new learning on the student's part.**

RIT Scale

We use the RIT scale to measure a student's academic growth over time. Like units on a ruler, the scale is divided into equal intervals – called Rasch Units (RIT) – and is independent of grade level.

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MPG MATHEMATICS

Columns: **below 131** | **131-140** | **141-150** | **151-160** | **161-170** | **171-180** | **181-190** | **above 191**

Problem Solving
Students understand and represent word problems, and they use strategies to solve and verify answers. They apply logic and reasoning, and they work with conjecture and proof.
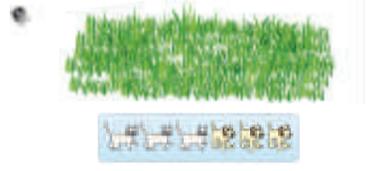
- **below 131:** Listen to the story problem. Ann has 1 dog and 1 cat. Move Ann's pets to the grass.
- **131-140:** Listen to the story problem: There is 1 tree in the yard. 2 more get planted in the yard. Move the trees to the yard to show how many there are all together.
- **141-150:** Listen to the story problem: There are four goats on the hillside. Three goats leave the hillside. Click on the goats to show how many are on the hillside now.
- **151-160:** Listen to the story problem: Walter baked 4 pies yesterday and 2 pies today. He wants to know how many pies he baked in all. Which symbol shows what Walter should do?
- **161-170:** Kibby the mother cat had 4 orange kittens. She had 3 brown kittens. She had 2 white kittens. She put them all on her big round bed. Listen to the story problem: How many kittens did Kibby have? Click on the sentence that is NOT needed to solve the problem.
- **171-180:** Lauren lost 1 baseball cap. Now she only has 2 baseball caps. How many baseball caps did Lauren have before she lost one? $\square - \square = 2$ Listen to the story problem. Move the numbers to the boxes to show the problem.
- **181-190:** Mr. Lopez wears glasses. Mr. Lopez has a moustache. Mr. Lopez is not wearing a hat. Listen to the clues to find Mr. Lopez. You can use the clues to help you cross out people who are not Mr. Lopez. Put a circle on Mr. Lopez.
- **above 191:** Ira had 8 tennis balls. He lost some at the tennis court. Now he has 3 tennis balls left. Listen to the story problem: Move the numbers to the lines to show the number sentence for the story problem.
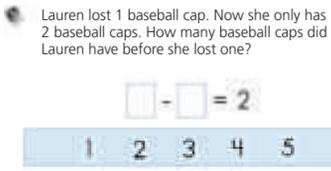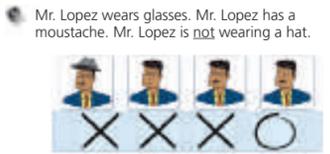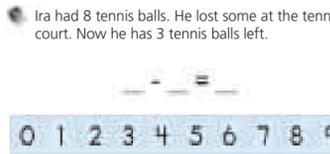
Number Sense
Students count, and they identify and represent numbers, including work with place value and fractions. They understand relative position and magnitude.

- **below 131:** Look at the picture. How many superheros are there?
- **131-140:** Look at the coat racks. Click on the rack that has the FEWEST coats.
- **141-150:** Click on 9 cows.
- **151-160:** Click on the number that is 1 more than 13.
- **161-170:** What number do the blocks show?
- **171-180:** 347. Look at the number. What is 100 more than 347?
- **181-190:** Look at the numbers. Put the correct symbol in each of these problems to make them true.
- **above 191:** 6 hundreds and 5 ones. Which number is described?
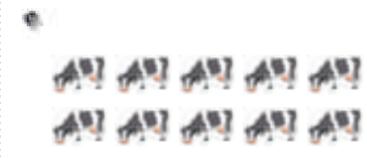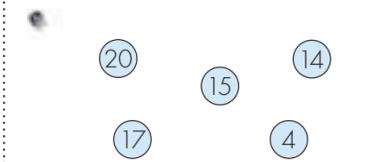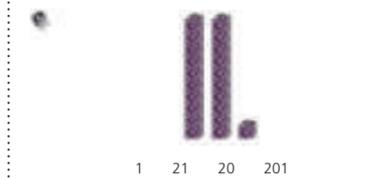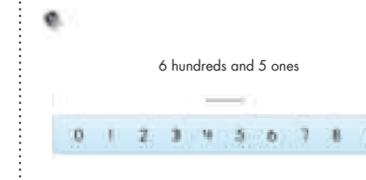
Computation
Students add and subtract, and they use models to prepare for multiplication and division.

- **below 131:** Look at the trucks. Two trucks and one more truck is how many trucks all together?
- **131-140:** $1 + 3$. Look at the planes. 1 plane plus 3 planes equals how many planes?
- **141-150:** $2 + 2 =$ ___ What is the answer?
- **151-160:** $7 - 4 =$ ___ Look at the 7 keys. Take away 4 keys. What is the answer?
- **161-170:** $7 + 8 =$ ___ What is the answer?
- **171-180:** ___ shells. Bella had 78 shells in her collection. She gave 43 shells away to her friends. How many shells are left in Bella's collection? You can move base ten blocks to help you solve the problem.
- **181-190:** Listen to the story: Julia bought a robot toy for 79 cents. She paid for it with one dollar. Show the change that Julia should receive. Take as many coins as you need from each stack.
- **above 191:** 2×7. What is the answer?
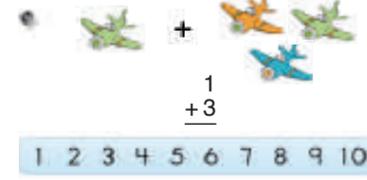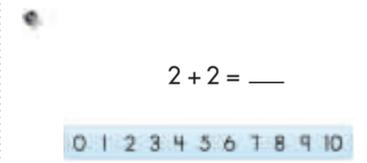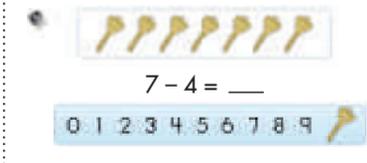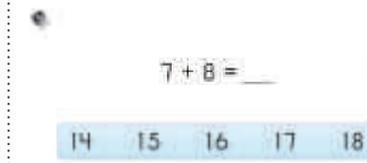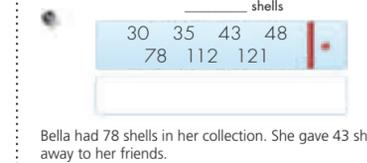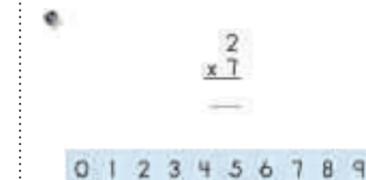
Measurement and Geometry
Students compare and order objects using tools, units, and estimation. They identify shapes and lines in two and three dimensions and describe attributes. They work with spatial transformations, symmetry, and congruence.

- **below 131:** Look at the picture. Click on the shortest student.
- **131-140:** Look at the picture. Which bird is over the cloud?
- **141-150:** Look at the pictures. Which is shaped like a circle?
- **151-160:** October. Look at the calendar. Click on October 14th.
- **161-170:** Look at the shapes. Click on the pyramid.
- **171-180:** 3:45 9:15 8:20 4:40. Look at the clock. What time is shown on the clock?
- **181-190:** Look at the shapes. Click on the shapes that have six faces.
- **above 191:** 5 cm, 3 cm. What is the perimeter of the rectangle?
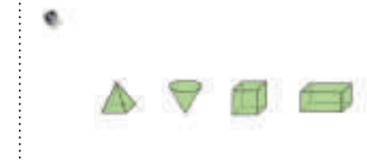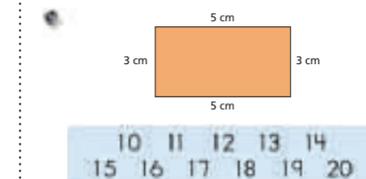
Statistics and Probability
Students collect, organize, display and analyze data. They understand probability and apply it to make predictions.
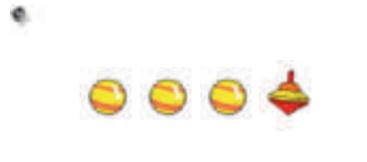
- **below 131:** Look at the pictures. Click on the picture that is different from the others.
- **131-140:** Look at the group of objects. The objects in this group belong together. Click on the object that belongs with the group.
- **141-150:** Gold Star Stickers. Sarah, Pablo, Jamal, Cher, Maria. Look at the sticker chart. Click on the name of the student with the most star stickers.
- **151-160:** Favorite Dinner. Look at the graph. How many students chose hot dog as their favorite?
- **161-170:** Boys' Favorite Colors. Look at the circle graph: "Boys' Favorite Colors." Which color did the most boys choose?
- **171-180:** Look at the picture. Saba closes her eyes and pulls one gumball out of the bag. Which gumball is Saba LEAST likely to pull from the bag?
- **181-190:** Listen to the story: Lara has 3 cats, Joe has 5 fish, and Mia has 2 dogs. Move the squares to complete the bar graph and show how many pets each student has.
- **above 191:** Look at the graph. Students were asked if they had hot lunch or cold lunch. How many students were surveyed in all?
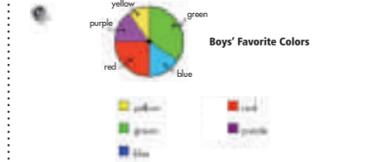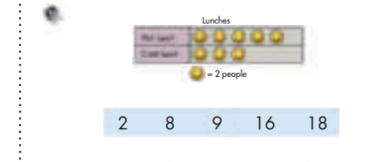
Algebra
Students recognize and analyze patterns and functions. They understand and apply algebraic concepts.
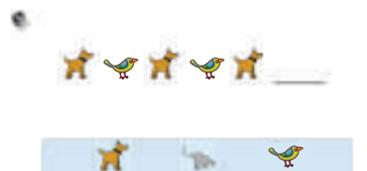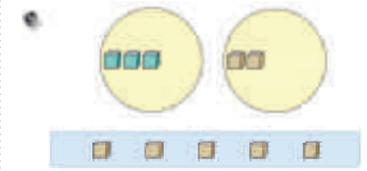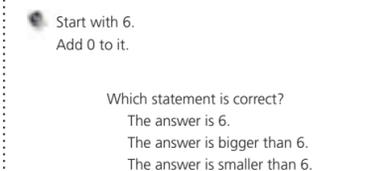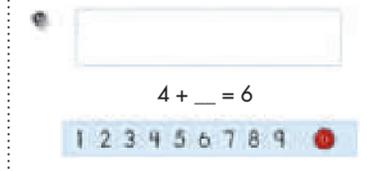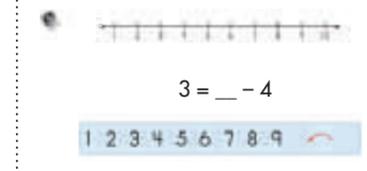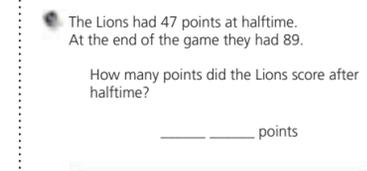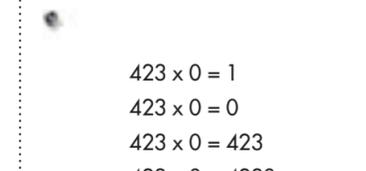
- **below 131:** What comes next in this pattern?
- **131-140:** Look at the pattern. Move the beans to the boxes to continue the pattern.
- **141-150:** Look at the two groups. Move cubes to the circles to make the groups equal.
- **151-160:** Start with 6. Add 0 to it. Which statement is correct? The answer is 6. The answer is bigger than 6. The answer is smaller than 6.
- **161-170:** $4 +$ ___ $= 6$. You can use the buttons to help you find the answer to the problem. Move the correct number to the blank line to make the sentence true.
- **171-180:** $3 =$ ___ $- 4$. You can use the number line and arrows to help you find the answer. Move the correct number to the blank to make the sentence true.
- **181-190:** The Lions had 47 points at halftime. At the end of the game they had 89. How many points did the Lions score after halftime? ___ ___ points.
- **above 191:** $423 \times 0 = 1$; $423 \times 0 = 0$; $423 \times 0 = 423$; $423 \times 0 = 4230$. Which problem is true?