

Interpreting ESTAR Diagnostic Assessments Reports

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Goals

- Participants will
 - understand the purpose of the ESTAR Diagnostic Assessments,
 - examine the connection between Rtl and the ESTAR Assessment System, and
 - interpret results from ESTAR Diagnostic Assessments' reports.



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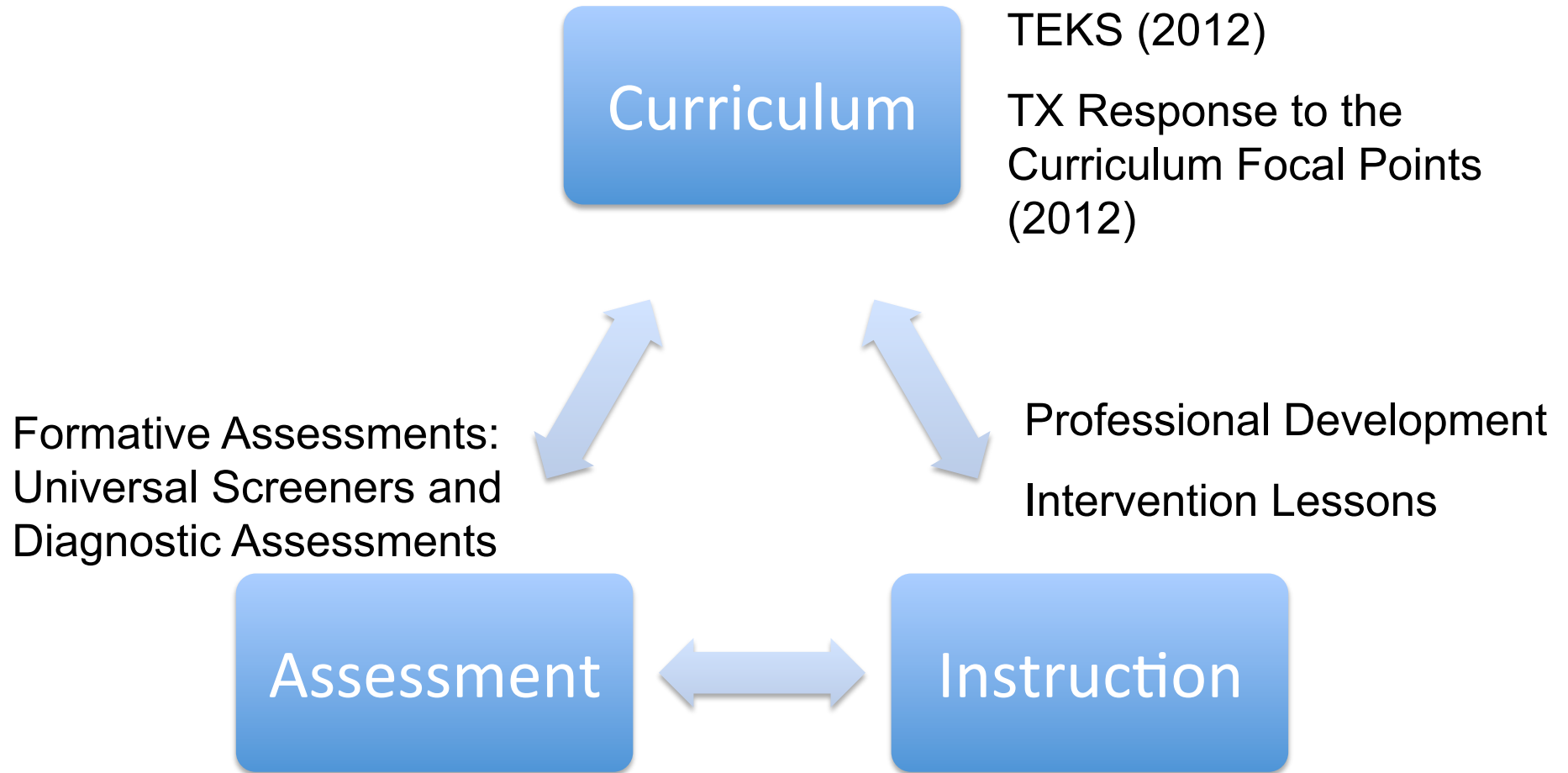
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Purpose of TXAR Initiatives

TXAR Implementation



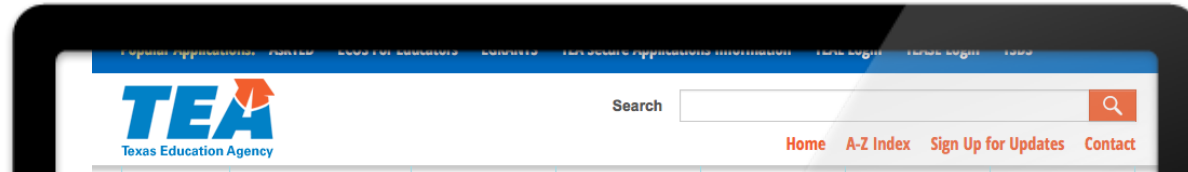
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What is RTI?



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Response to Intervention

Response to Intervention (RtI) is an approach that schools use to help all students, including struggling learners. The RtI approach gives Texas students opportunities to learn and work at their grade level. The idea is to help all students be successful.

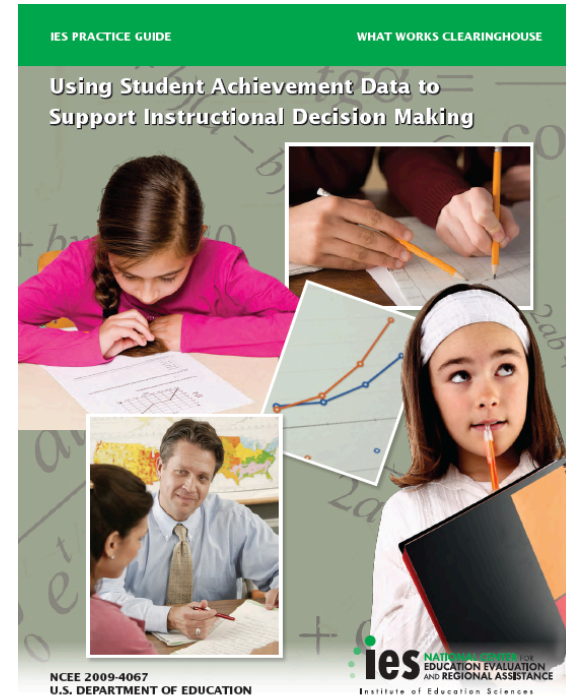


Using Data to Support Instructional Decision Making

Recommendation 1.

Make data part of an ongoing cycle of instructional improvement by

- ❑ **Collecting** and preparing a variety of **data** about student learning,
- ❑ **Interpreting data** and **developing hypotheses** about how to improve student learning, and
- ❑ **Modify instruction** to test hypotheses and increase student learning.



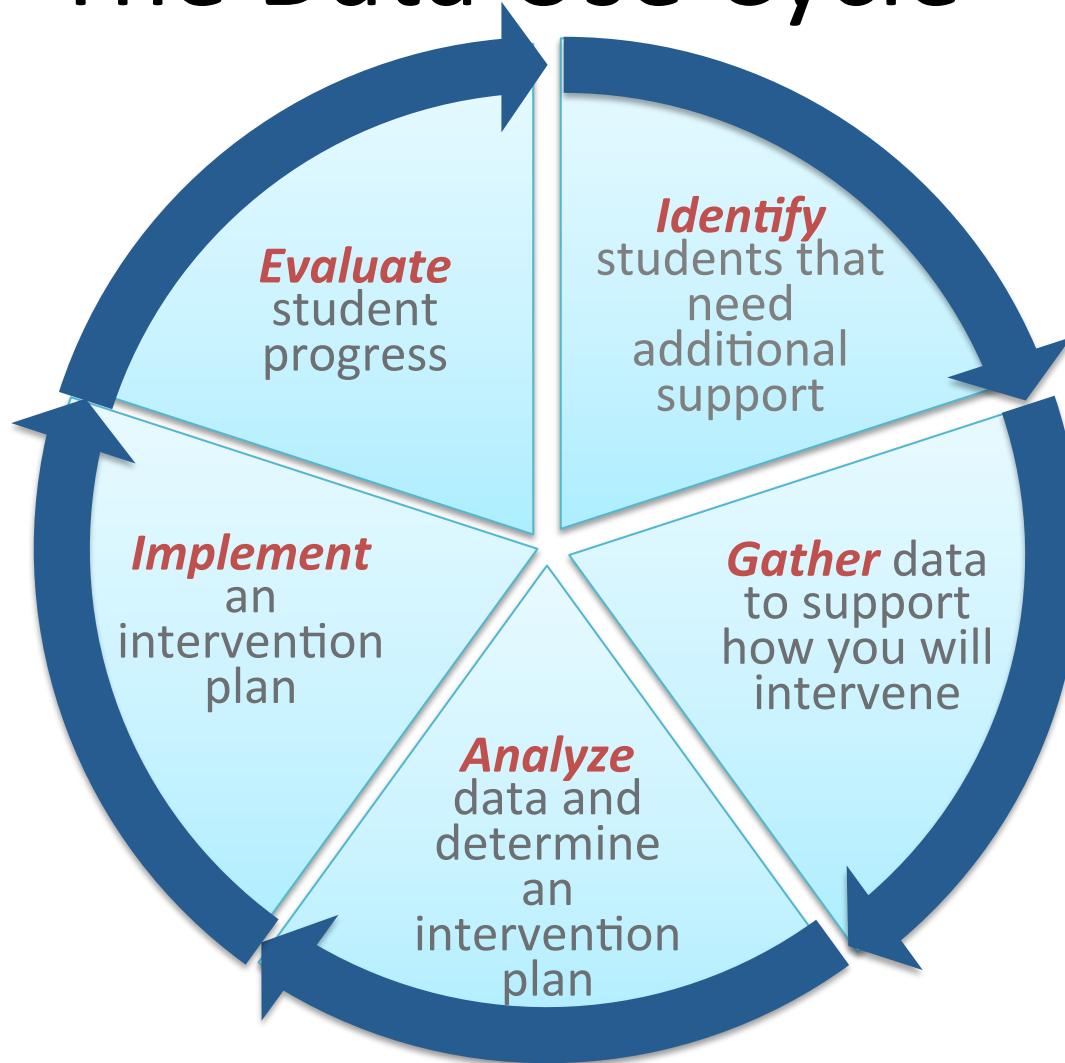
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The Data Use Cycle



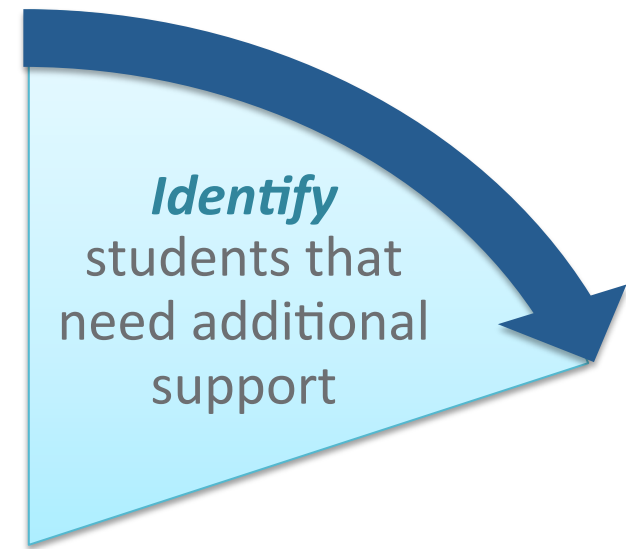
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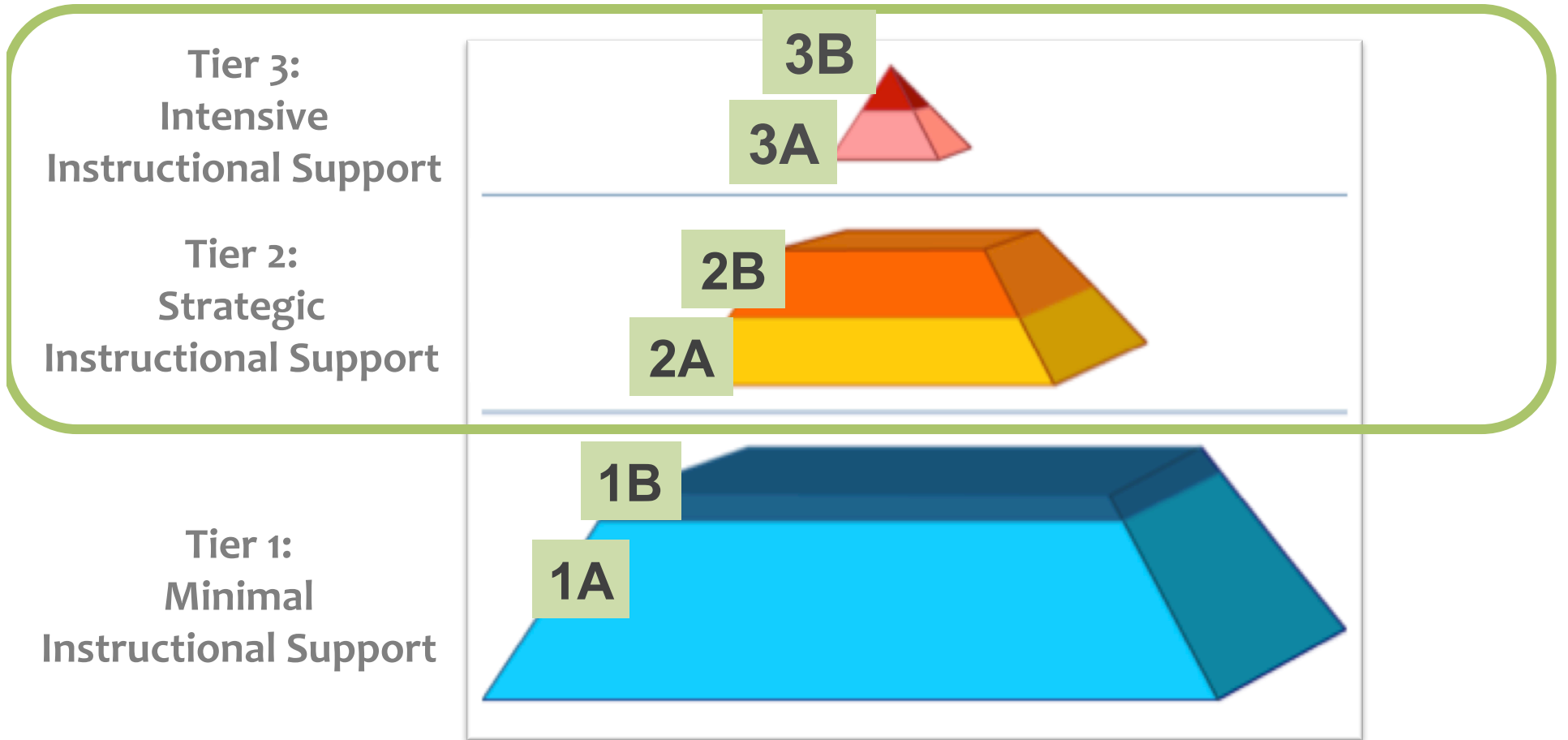


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- Administer the ESTAR/MSTAR Universal Screener to all students in your classroom.
- Use the results to determine which students need additional support based on their performance.



ESTAR/MSTAR Universal Screener



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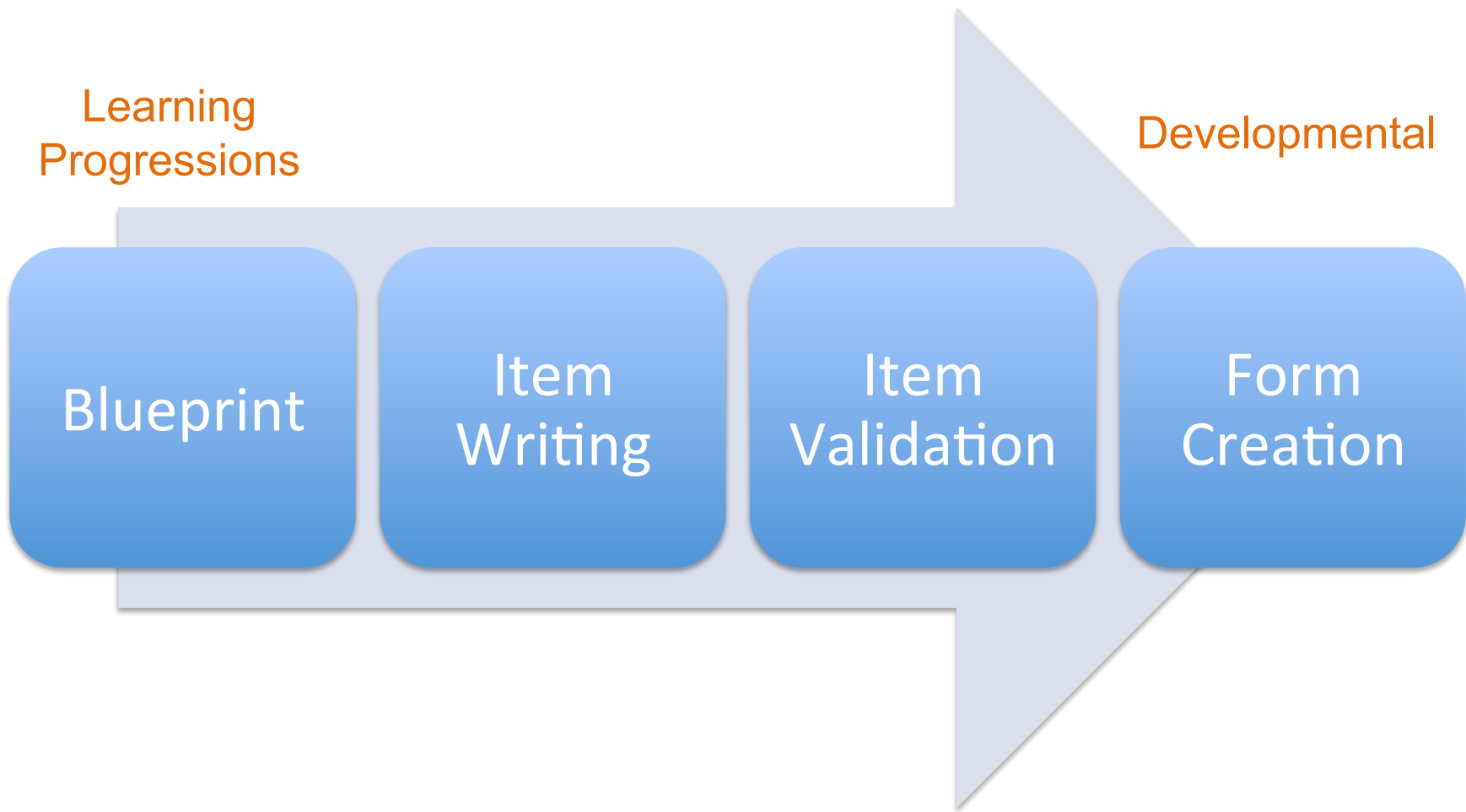
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Gather

- Collect various forms of *qualitative* and *quantitative* data to help you determine which diagnostic assessment should be assigned.
- Use the ESTAR/MSTAR Diagnostic Decision Tree and Assessment Guide to select and assign an appropriate ESTAR/MSTAR Diagnostic Assessment.



ESTAR/MSTAR Diagnostic Assessments



ESTAR Diagnostic Assessments

Understanding
Addition and
Subtraction of Whole
Numbers (AS)

A - Foundations
of Addition and
Subtraction of
Whole Numbers

B - Applications
of Addition and
Subtraction of
Whole Numbers

Understanding
Multiplication and
Division of Whole
Numbers (MD)

A - Foundations
of Multiplication
and Division of
Whole Numbers

B - Applications
of Multiplication
and Division of
Whole Numbers

Fractions as
Numbers (FR)

Fractions as
Numbers



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MSTAR Diagnostic Assessments

Rational Numbers (RN)

A – Understanding Fractions

B – Representations of Positive Rational Numbers

C – Applications of Positive Rational Numbers

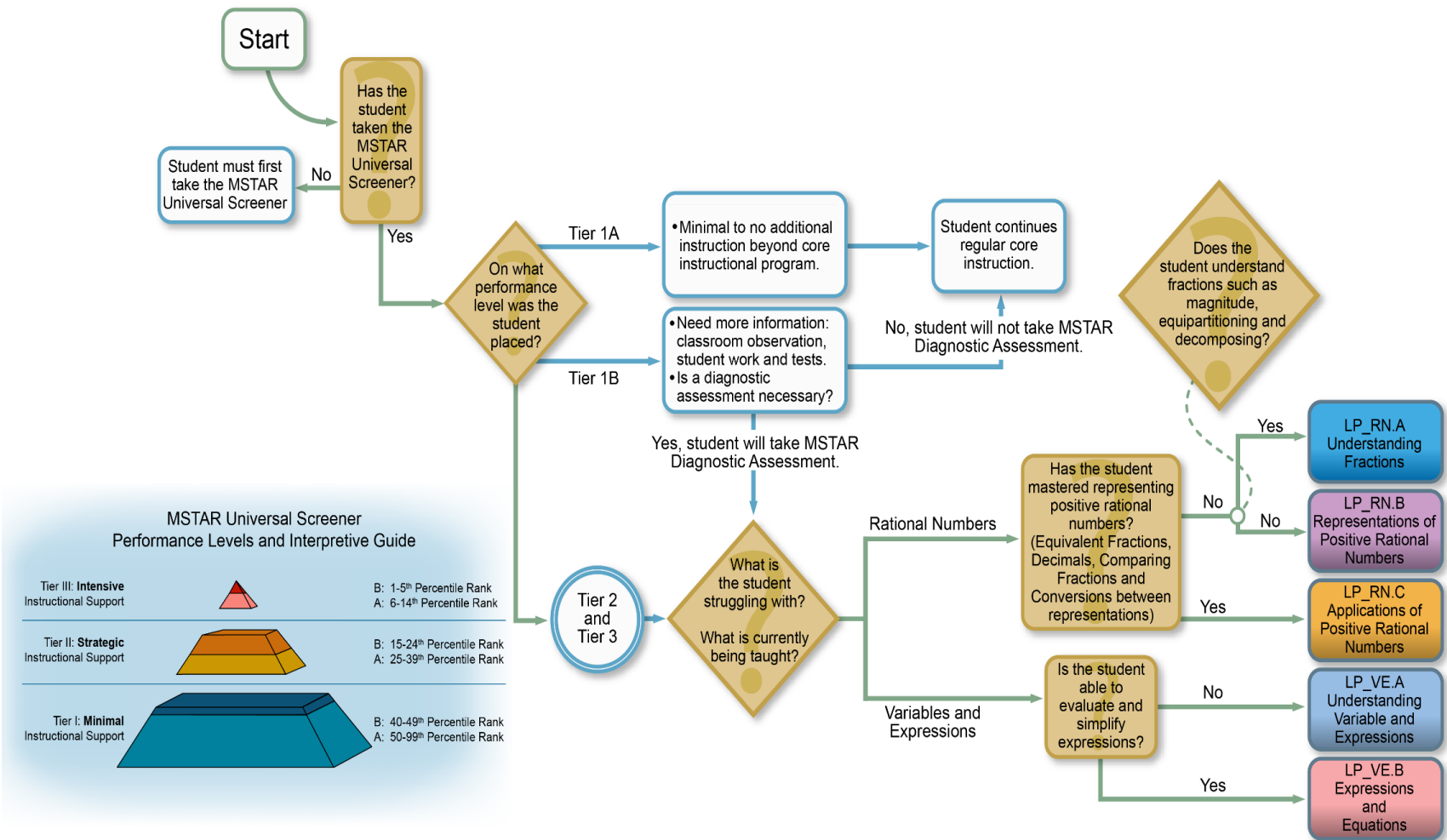
Variables and Expressions (VE)

A – Understanding Variables

B – Expressions and Equations



MSTAR Diagnostic Decision Tree



MSTAR Assessment Guide

Assessment	Content / Assessment Focus
RN.A Understanding Fractions	<ul style="list-style-type: none"> • Understanding the magnitude of whole numbers and fractions • Partitioning whole and different-sized shapes and combining partitioned parts • Composing and decomposing fractions using addition and multiplication
RN.B Representations of Positive Rational Numbers	<ul style="list-style-type: none"> • Representing and generating equivalent fractions • Writing, comparing, and representing decimals • Comparing fractions using visual models, by reasoning about the numerators and denominators, and by finding a common denominator • Identifying and generating equivalent fractions and decimals
RN.C Applications of Positive Rational Numbers	<ul style="list-style-type: none"> • Understanding attributes of ratios and identifying equivalent ratios • Identifying, applying, and extending unit rates • Modeling and solving addition and subtraction problems with rational numbers • Modeling and solving multiplication problems with rational numbers • Modeling and solving division problems with rational numbers
VE.A Understanding Variables	<ul style="list-style-type: none"> • Identifying, describing, and using variables as unknown quantities • Evaluating single and multi-variable expressions • Translating between verbal descriptions and symbolic representations of equations and expressions • Simplifying expressions with whole number, rational, or unwritten coefficients
VE.B Expressions & Equations	<ul style="list-style-type: none"> • Understanding relationship between expressions • Solving single variable equations using a variety of methods



Administering a Diagnostic Assessment

Students have unlimited time to complete an ESTAR/MSTAR Diagnostic Assessment.

There are 25-55 questions per assessment.

Stopping rules are in place to minimize frustration.

Give the diagnostic assessments electronically.



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Administration Guidelines

ESTAR/MSTAR Teacher

Accessing the system

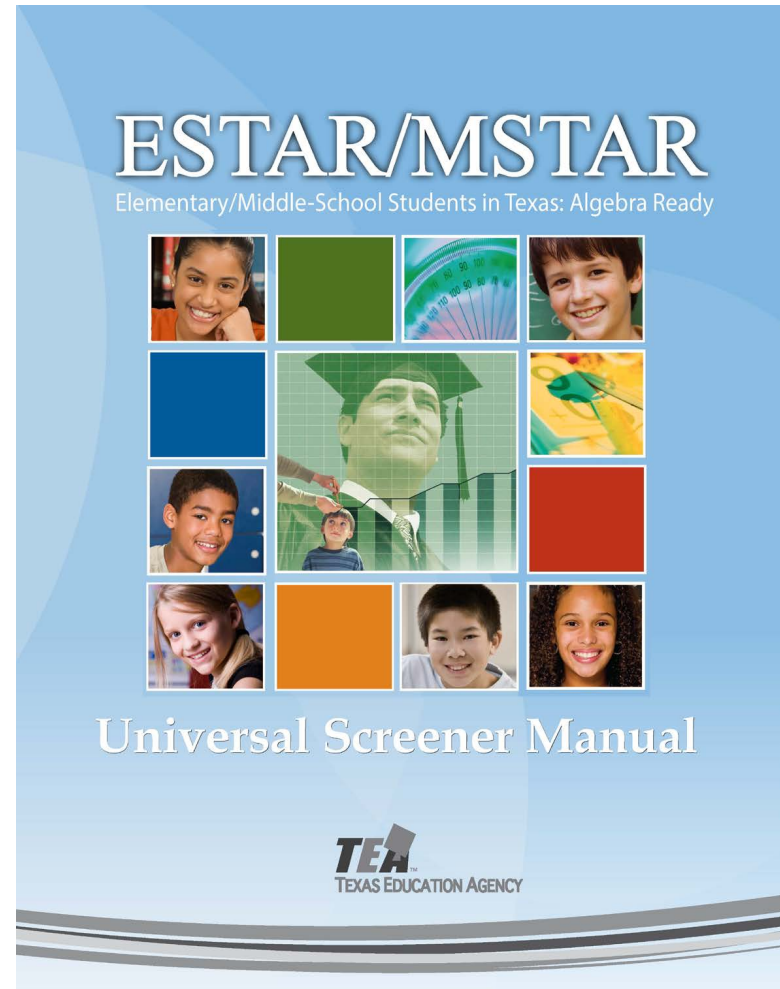
Assign students
an assessment

Access the reports

Additional guidelines
for administration

ESTAR/MSTAR Student

Accessing the system



“But I thought —”

“I should give *all* of the diagnostic assessments to the students who were identified as ‘at-risk’ on the universal screener.”

“I should give every student in my class one of the diagnostic assessments.”



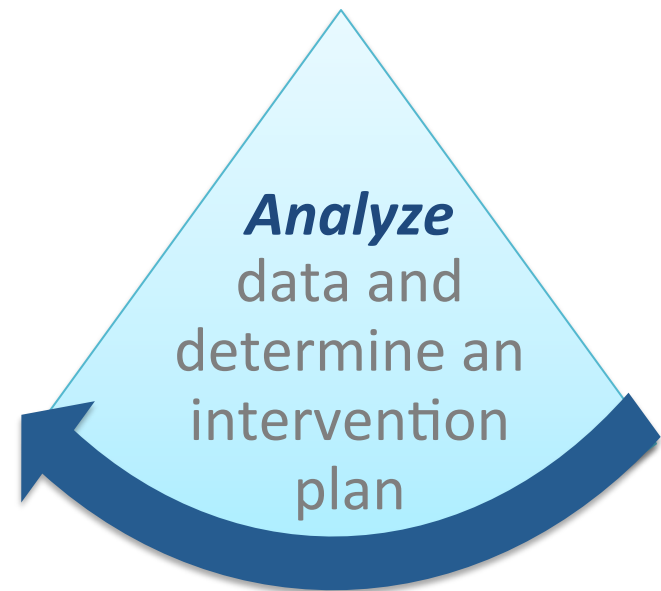
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Use the reports from the diagnostic assessments to determine an action plan based upon students' strengths and opportunities for growth.





the students' current location on a mathematical learning progression.

**efficiently plan
supplemental
instruction**

information about students' strengths and opportunities for growth.



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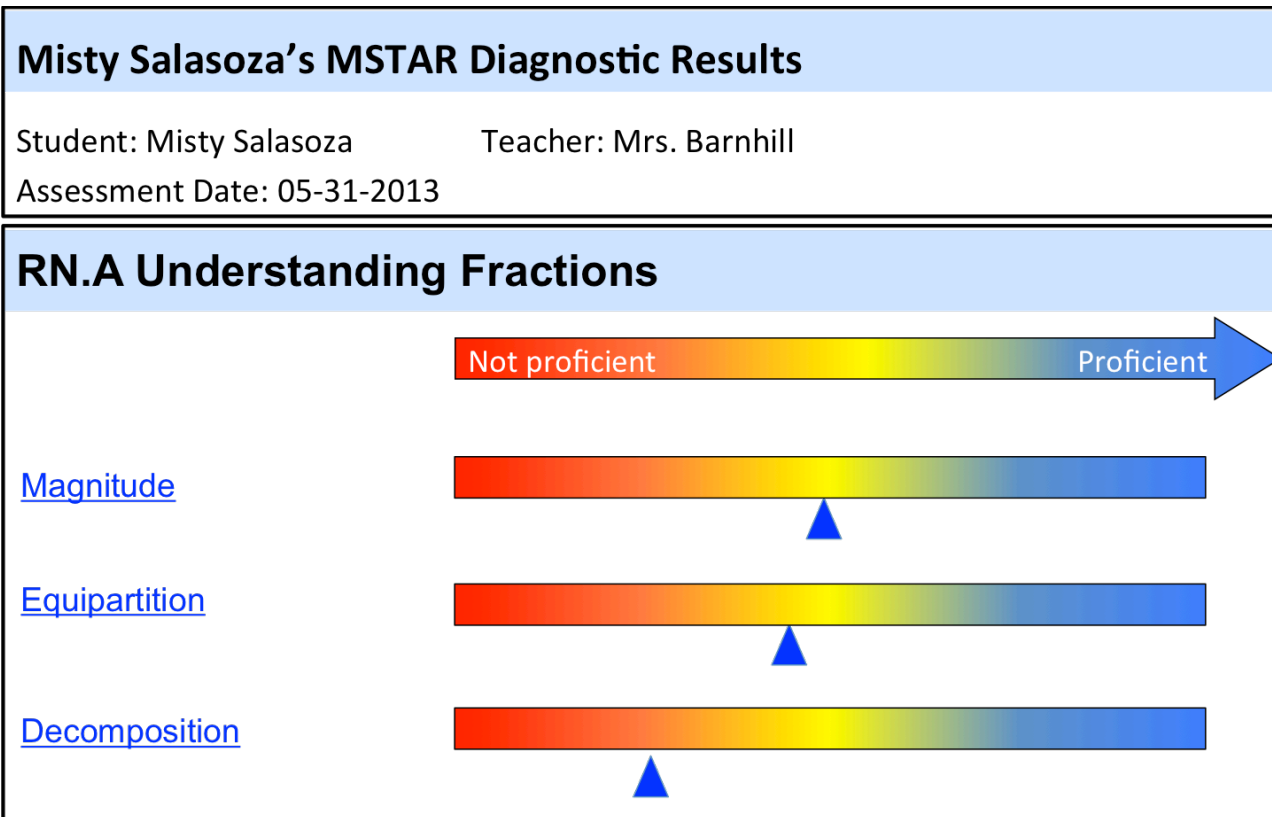


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Generating the Diagnostic Summary Report



Making Instructional Decisions using the Diagnostic Summary Report



What is the student's greatest area of proficiency?

What is the student's greatest area of non-proficiency?

Making Instructional Decisions using the Diagnostic Summary Report

Opportunities	Strengths
<p>The student does not understand:</p> <ul style="list-style-type: none"> equal intervals as they relate to counting distance using a number line, location of unit fractions and mixed numbers greater than 1, and relative size of a fraction compared to 	<p>The student understands:</p> <ul style="list-style-type: none"> the natural order of a number line and how to create and interpret a number line with proper order and spacing using 0 and positive whole numbers. (RN.A 1.1) that numbers on a number line represent
<ul style="list-style-type: none"> set of objects into equal groups without a remainder. (RN.A 2.3) the connection between fractions and division as partitioning a set can 	<p>modeled by equally partitioned shapes, the total number of parts in one whole is the denominator of a fraction, and the same unit fraction can describe wholes of different shapes and sizes. (RN.A 2.2)</p>
<ul style="list-style-type: none"> composition and decomposition to represent whole numbers as fractions, and models addition of unit fractions with the same denominator as multiplication. (RN.A 3.3) decomposition of fractions (including improper fractions) and whole numbers modeled as repeated addition of equal fractions (including unit fractions) or multiplication. (RN.A 3.4) 	

Which strengths can you build upon to support opportunities for growth?

In what order could you progress through these opportunities to increase the student's understanding of the concepts?



Making Instructional Decisions using the Diagnostic Summary Report

Which strengths can you build upon to support opportunities for growth?

Opportunities

The student does not understand:

- equal intervals as they relate to counting distance using a number line, location of unit fractions and mixed numbers greater than 1, and relative size of a fraction compared to 1 based on the numerator and denominator. (RN.A 1.3)
- unit fractions as equal intervals on a number line, the location of mixed numbers based on the sum of unit fraction intervals, and the distance between two fractions based on unit fraction intervals. (RN.A 1.4)
- the connection between a) fractions as partitioning a whole into equal parts, and b) division as partitioning a set of objects into equal groups without a remainder. (RN.A 2.3)
- the connection between fractions and division as partitioning, a set can be composed of several wholes, and the number of equally-sized parts in a whole determines the unit fraction that can be used to compose larger fractions. (RN.A 2.4)
- composition and decomposition of

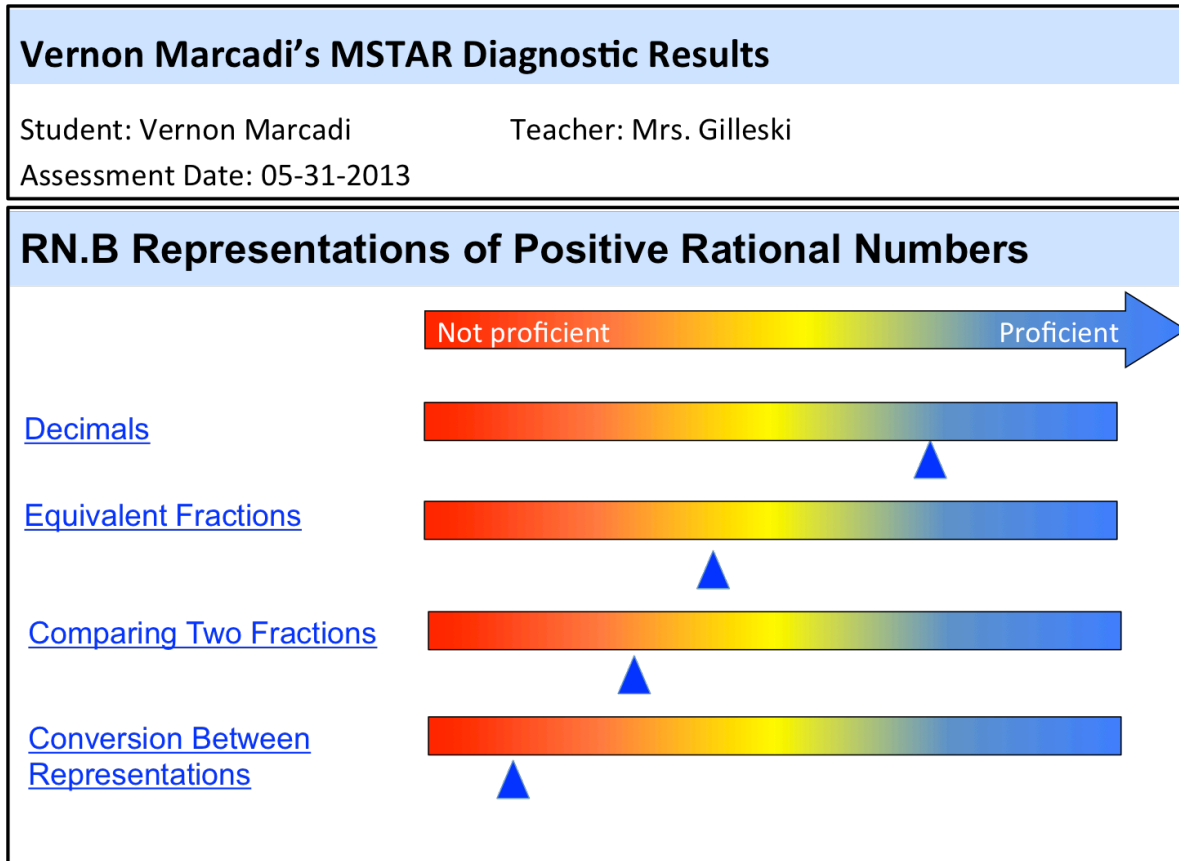
Strengths

The student understands:

- the natural order of a number line and how to create and interpret a number line with proper order and spacing using 0 and positive whole numbers. (RN.A 1.1)
- that numbers on a number line represent a location and a distance from 0, numerical values increase "to the right", and common fractions can be used to approximate rational number distance. (RN.A 1.2)
- fractions can be modeled by equally partitioning circles and rectangles and the number of equally-sized pieces that compose one whole. (RN.A 2.1)
- fractions and unit fractions can be modeled by equally-partitioned shapes, the total number of parts in one whole is the denominator of a fraction, and the same unit fraction can describe wholes of different shapes and sizes. (RN.A 2.2)
- how a visual model can be used to show the composition of a fraction as the number of equal parts and that the numerator and denominator of the fraction will be equal when all parts in the whole are counted. (RN.A 3.1)



Making Instructional Decisions using the Diagnostic Summary Report



What is the student's greatest area of proficiency?

What is the student's greatest area of non-proficiency?

Making Instructional Decisions using the Diagnostic Summary Report

Opportunities	Strengths
<p>The student does not understand:</p> <ul style="list-style-type: none"> • multiplying a fraction by an equivalent representation of 1, (n/n), generates an equivalent fraction in which the denominator represents the whole 	<p>The student understands:</p> <ul style="list-style-type: none"> • that equivalent fractions can be represented with a visual model and are located at the same point on a number line. (RN.B 4.1) • how to generate simple equivalent
<p>Which strengths can you build upon to support opportunities for growth?</p>	
<ul style="list-style-type: none"> • the fractional portion of a decimal represents part of another unit, and how to use place value and expanded notation to read, write, and compare decimals. (RN.B 5.4) 	<ul style="list-style-type: none"> • how to a) approximate the length of an object to the nearest hundredth, b) locate the point on a number line corresponding to this length, and c) use
<p>In what order could you progress through these opportunities to increase the student's understanding of the concepts?</p>	
<ul style="list-style-type: none"> • decimal equivalencies for non-unit fractions by using common unit fractions, the connection between division and fractional representation, and conversion between improper fractions and mixed numbers. (RN.B 7.2) • converting fractions to decimals by using long division and justifies that division represents counting unit fractions. (RN.B 7.3) 	

Making Instructional Decisions using the Diagnostic Summary Report

Which strengths can you build upon to support opportunities for growth?

Opportunities

The student does not understand:

- multiplying a fraction by an equivalent representation of 1, (n/n), generates an equivalent fraction in which the denominator represents the whole divided n times and the numerator represents n times as many shaded parts. (RN.B 4.4)
- how to a) accurately measure length as a decimal, b) identify the location of a decimal on a number line, and c) recognize equivalence between decimals and [fractions with denominators that are powers of 10](#), and compares decimals that have the same place value. (RN.B 5.3)
- the fractional portion of a decimal represents part of another unit, and how to use place value and expanded notation to read, write, and compare decimals. (RN.B 5.4)
- comparing fractions with like denominators through reasoning about the number of parts in the

Strengths

The student understands:

- that equivalent fractions can be represented with a visual model and are located at the same point on a number line. (RN.B 4.1)
- how to generate simple equivalent fractions using models, or by finding common denominators and multiplying the numerator and denominator by the same number. (RN.B 4.2)
- that different fractions can be equal or, when represented on a model, have the same magnitude. (RN.B 4.3)
- how to a) approximate the length of an object to the nearest tenth, and b) locate the point on a number line corresponding to this length. (RN.B 5.1)
- how to a) approximate the length of an object to the nearest hundredth, b) locate the point on a number line corresponding to this length, and c) use the money model to connect decimals (tenths, and hundredths) to [fractions with denominators of 10 or 100](#). (RN.B 5.2)



Making Instructional Decisions using the Diagnostic Summary Report

In what order could you progress through these opportunities to increase the student's understanding of the concepts?

Opportunities

The student does not understand:

- multiplying a fraction by an equivalent representation of 1, (n/n), generates an equivalent fraction in which the denominator represents the whole divided n times and the numerator represents n times as many shaded parts. (RN.B 4.4)
- how to a) accurately measure length as a decimal, b) identify the location of a decimal on a number line, and c) recognize equivalence between decimals and [fractions with denominators that are powers of 10](#), and compares decimals that have the same place value. (RN.B 5.3)
- the fractional portion of a decimal represents part of another unit, and how to use place value and expanded notation to read, write, and compare decimals. (RN.B 5.4)
- comparing fractions with like denominators through reasoning about the number of parts in the

Strengths

The student understands:

- that equivalent fractions can be represented with a visual model and are located at the same point on a number line. (RN.B 4.1)
- how to generate simple equivalent fractions using models, or by finding common denominators and multiplying the numerator and denominator by the same number. (RN.B 4.2)
- that different fractions can be equal or, when represented on a model, have the same magnitude. (RN.B 4.3)
- how to a) approximate the length of an object to the nearest tenth, and b) locate the point on a number line corresponding to this length. (RN.B 5.1)
- how to a) approximate the length of an object to the nearest hundredth, b) locate the point on a number line corresponding to this length, and c) use the money model to connect decimals (tenths, and hundredths) to [fractions with denominators of 10 or 100](#). (RN.B 5.2)







Making Instructional Decisions Using the Student and Group Misconceptions Report

Which circles would it be helpful to click on so that you could get more information about the students' misconceptions and errors based on their responses?

Making Instructional Decisions Using the Student and Group Misconceptions Report

Student ▲	Classroom ▼	RN.B.4.1 Representing Equivalence ▼	RN.B.4.2 Generating Equivalent Models ▼
Group Summary	All Cl	RN.B.4.2 Generating Equivalent Models <div style="float: right;">1 of 2 students proficient</div>	
VERNON MARCADI	Matl Peri Swe	<ul style="list-style-type: none"> The student generates simple equivalent fractions using a visual model. The student finds common denominators needed to write equivalent fractions (e.g., $3/4$ as $18/24$). The student knows to perform the same operation to the numerator and denominator to generate equivalent fractions. 	
MARCUS DEWARE	Matl Peri Swe	<ul style="list-style-type: none"> (M) Thinks adding to the numerator and denominator will generate equivalent fractions. (M) Thinks multiplying the numerator and denominator by the same number is x times the fraction [$(ax/bx \neq x(a/b)$] (M) Cannot relate the process of finding equivalent fractions to the model of the whole (i.e., increasing the denominator by a factor of x (resulting in smaller parts) results in a numerator that is also increased by a factor of x (a larger # of parts) in order to be equivalent to the original fraction). 	

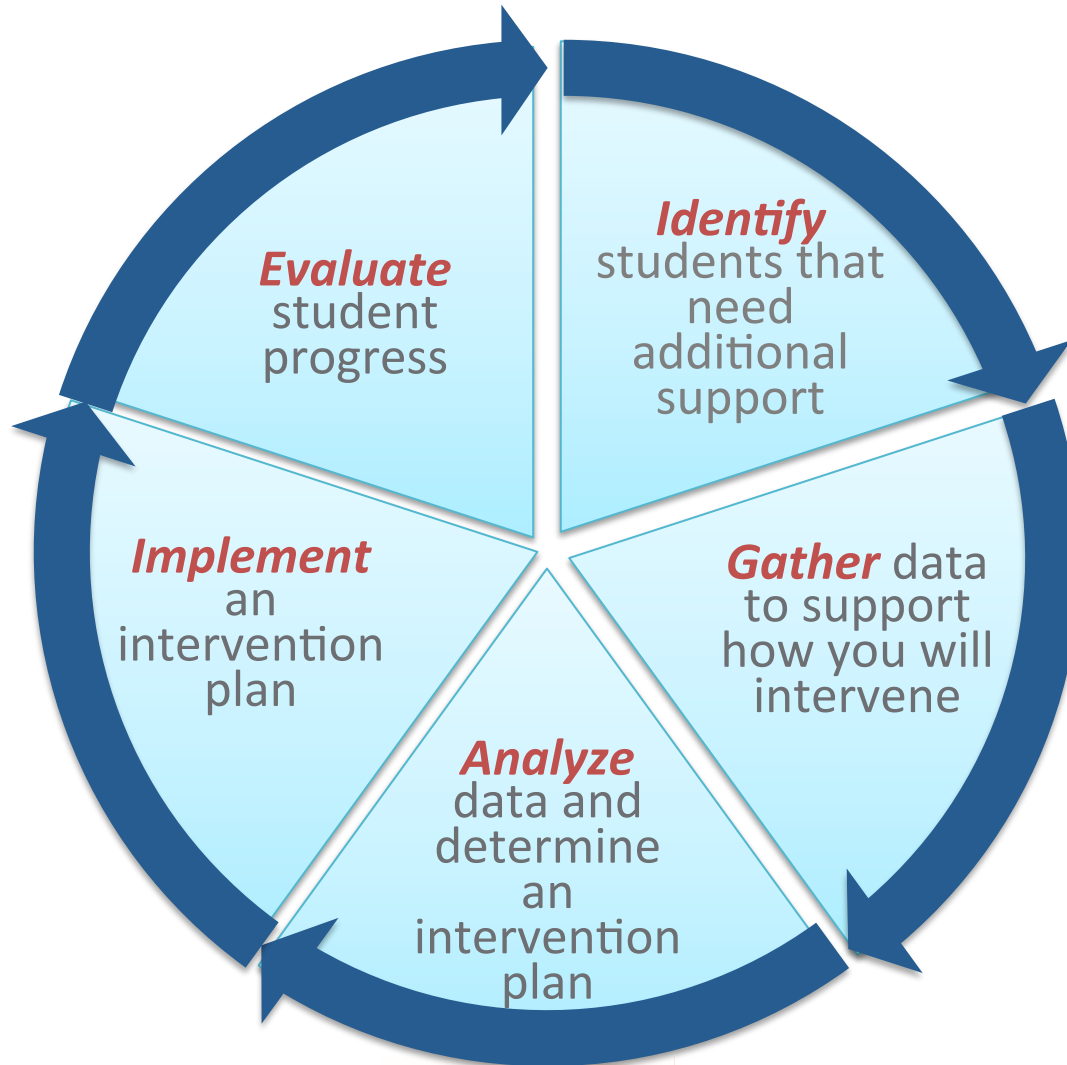


Student ▲	Classroom ▼	RN.A.1.1 Number Line Structure ▼	RN.A.1.2 Magnitude as Distance ▼	RN.A.1.3 Part to Whole Relationships ▼	RN.A.1.4 UNIT FRACTIONS ▼
Group Summary	Math Grade Period 1 BARNHILL	1 of 1 students proficient	0 of 1 students proficient	0 of 1 students proficient	0 of 1 students proficient
MISTY SALASOZA	Math Grade 6 Period 1 BARNHILL				

RN.A 1.3 Part to Whole Relationships

- (M1) Does not recognize that when dividing a whole into equal parts, each part has the same magnitude and the sum of the parts sum to equal the whole (e.g., $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{4}{4}$)
- (E1) Cannot correctly convert a mixed number to an improper fraction

The Data Use Cycle



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ESTAR/MSTAR Professional Development

ESTAR/MSTAR Assessments

ESTAR/MSTAR
Universal Screeners

ESTAR/MSTAR
Diagnostic
Assessments

ESTAR/MSTAR
Learning
Progressions

In Revision
In Revision

Tier 1 Instruction

ESTAR Academies

MSTAR Academies

Tier II Instruction

Coming Soon
ESTAR
Implementation
Tools

Coming Soon
MSTAR
Implementation
Tools

Testing Windows

- Universal Screener
 - Fall – August 24 – October 2, 2015
 - Winter – January 11 – February 12, 2016
 - Spring – April 4 – May 6, 2016
- Diagnostic Assessments
 - Fall – August 30 – October 9, 2015
 - Winter – January 18 – February 19, 2016
 - Spring – April 11 – May 13, 2016

Accessing the ESTAR/MSTAR System

<http://mstar.epsilon.com>

mathx@esc13.net

Help desk: 1-855-462-8489



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Additional Sessions

ESTAR Diagnostic Assessments	Friday 10:00	381BC
RtI Website and App	Friday 1:00	381BC

Contact Information

www.smu.edu/RME

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