



Quantile 101,

An overview

Jane Scott, Senior Educational Facilitator

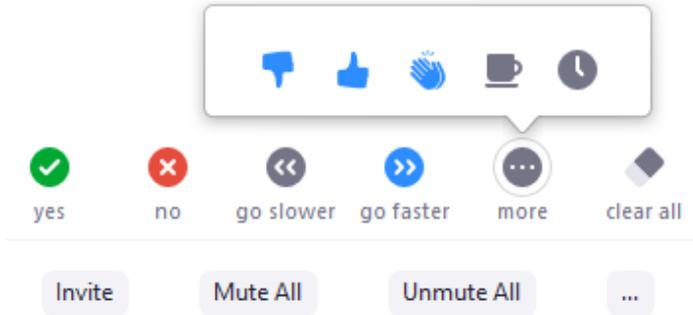
jscott@lexile.com

Matt Copeland, Director of Educator Engagement

mcopeland@lexile.com

Housekeeping:

During the meeting, feel free to use the Zoom tools:



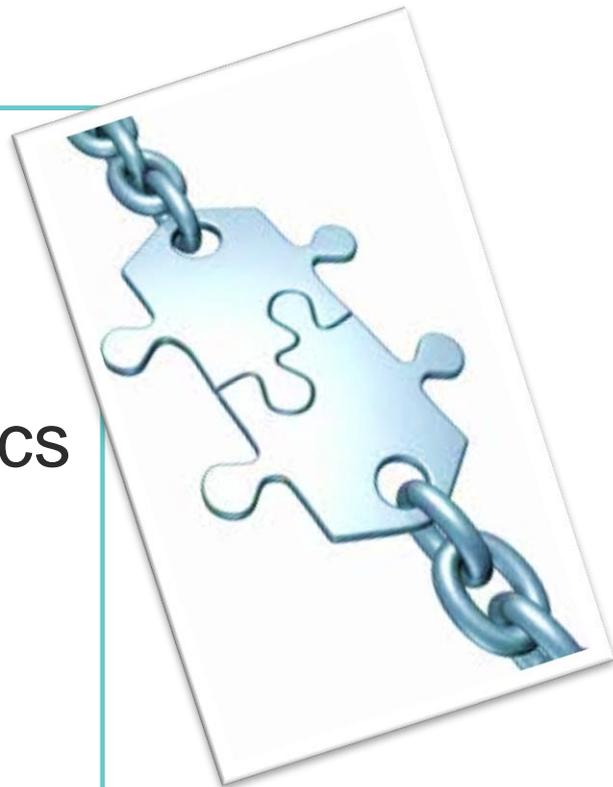
Please chat your questions
and
include your email address.

Matt will try and answer during the session
but may need to email with more details.

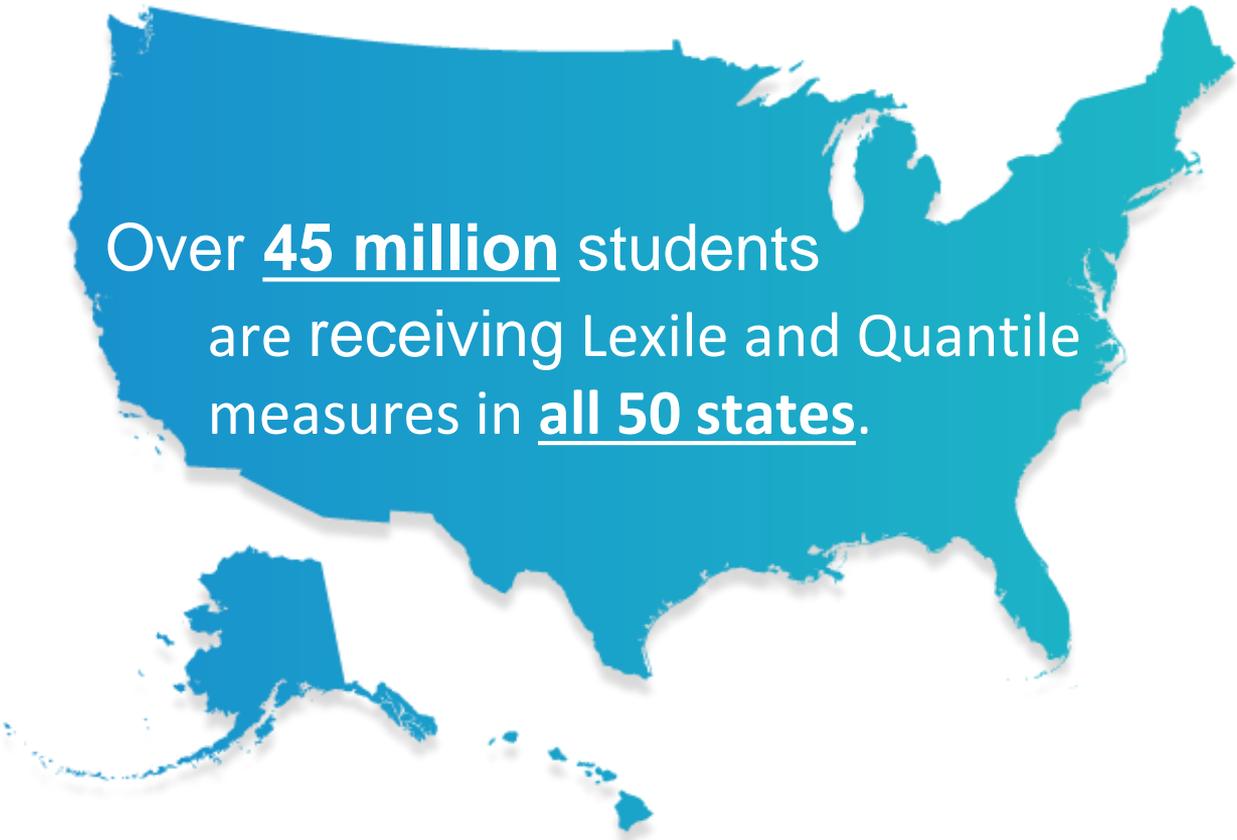


The Lexile Framework for Reading
and the
Quantile Framework for Mathematics
are linked to:

- State Assessments
- Norm-Referenced Assessments
- Formative Assessments
- Reading and Math Programs



The Big Picture



Over 45 million students
are receiving Lexile and Quantile
measures in all 50 states.





In 2020-2021
school year...

Students in grades
3-8 will
receive a
Lexile
and
Quantile measure
on ILEARN



Information for parents:

<https://www.doe.in.gov/assessment/ilearn-families>

Indiana
DEPARTMENT OF EDUCATION

ASSESSMENT / LEXILE OVERVIEW

Lexile Overview

Posted: Mon, 09/24/2018 - 12:58pm Updated: Mon, 04/20/2020

The Lexile Framework® for Reading

The Lexile Framework for Reading (Lexile Framework) measures a student's reading ability on the Lexile scale.

What is a Lexile measure?

There are two Lexile measures: the Lexile reader measure and the Lexile text measure. The Lexile reader measure represents a student's reading ability on the Lexile scale, while the Lexile text measure represents the difficulty of a piece of text on the Lexile scale. Lexile measures are expressed as numeric measures followed by a "L" (for example, 850L) and represent a position on the Lexile scale. When used together, Lexile measures help parents and educators determine the right reading material that is at an ideal difficulty to spur reading growth in beginning readers and text to above 1600L for advanced readers. Lexile measures help students of all ages better understand the right difficulty level. These measures help parents and educators determine the right reading material that is at an ideal difficulty to spur reading growth in beginning readers and text to above 1600L for advanced readers. Lexile measures help students of all ages better understand the right difficulty level. These measures help parents and educators determine the right reading material that is at an ideal difficulty to spur reading growth in beginning readers and text to above 1600L for advanced readers.

Indiana
DEPARTMENT OF EDUCATION

PROGRAMS DIRECTORY EVENTS

ASSESSMENT / QUANTILE OVERVIEW

Quantile Overview

Posted: Mon, 09/24/2018 - 1:06pm Updated: Fri, 03/27/2020 - 9:23am

The Quantile Framework® for Mathematics

The Quantile Framework for Mathematics (Quantile Framework®) measures a student's readiness to learn mathematics concepts and skills and matches it to math content.

What is a Quantile® Measure?

The Quantile Framework® consists of a Quantile measure and the Quantile scale. A Quantile measure represents the difficulty of a mathematical skill, concept or application and a student's understanding of these mathematical skills and concepts. Quantile measures are expressed as numeric measures followed by a "Q" (for example, 850Q), and represent a position on the Quantile scale.

The Quantile Framework spans the developmental continuum from Kindergarten mathematics through the content typically taught in Algebra II, Geometry, Trigonometry, and Pre-calculus, from below 0Q (Emerging Mathematician) to above 1600Q.

Quantile measures take the guesswork out of determining which mathematical skills a developing mathematician

Indiana Department of Education
is updating their website.
Information on
Lexiles and Quantiles
could be relocated.

Please contact: Kelly Connelly
(kconnelly@doe.in.gov)
if you have questions.

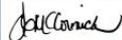


I LEARN Score Report

Dear Parent/Guardian,

This report provides information about your child's performance on the Indiana's ILEARN assessment. ILEARN is the summative accountability assessment for Indiana students to measure student growth and proficiency in English/Language Arts, Mathematics, Science, and Social Studies according to the Indiana Academic Standards.

Please read this report closely and discuss the results with your child and his/her teacher. Thank you for supporting your child's education.



Dr. Jennifer McCormick
State Superintendent of Public Instruction

INFORMATION ON INDIANA'S ILEARN ASSESSMENT

I LEARN is Indiana's new online computer-adaptive assessment designed to measure your child's proficiency based on the Indiana Academic Standards. Overall student results in ILEARN are reported as four-digit scale scores. The overall scale scores for Indiana students align with the four proficiency levels (Below Proficiency, Approaching Proficiency, At Proficiency, and Above Proficiency). The report provides your family with useful information, including the following: how your child scored on the assessment, whether the scores meet state proficiency standards, and how your child's scores compare with students in his/her school, corporation, and state.

UNDERSTANDING THE ILEARN ASSESSMENT

Individual Student Report

How did my student perform on the test?
Test: ILEARN English/Language Arts Grade 5
Year: Spring 2019
Name: Demo, Student A.

Basic test information

Name	STN	Scale Score	Proficiency Level	Reported Lexile® Measure	College and Career Readiness Indicator
Demo, Student A	999999001	2710	Above Proficiency	700L	Yes

Scale Score: Represents your child's overall numerical score placed on an alternative scale rather than just using percent correct or a raw score.

Proficiency Level: Indicates which proficiency level your child is placed into based on the overall scale scores.

Reported Lexile® Measure (English/Language Arts only): Represents your child's reading ability, and serves as a guide in selecting books for your child.

Reported Quantile® Measure (Mathematics only): Represents your child's mathematical skills, and helps you identify activities to support your child in gaining mathematical skills and understanding.

College and Career Readiness Indicator: Indicates whether your child meets the college-and-career readiness standards.

Proficiency at readiness.
Your child's test times. His/her score range at an estimation of your child's ability.

Proficiency at readiness.
Your child's test times. His/her score range at an estimation of your child's ability.

The comparison scores table shows how your child's scale score compares with peers at the school, corporation, and state levels.

The reporting category performance table shows your child's performance across domains within a content area. Reporting category performance is reported as Below (⚪), At/Near (⚫), or Above (⚳).

Bar charts indicate how your child performed. The black bar shows your child's performance. The white bar shows the expectation by domain. The green band shows the range of performance expected over time typically associated with the assessment's small measurement error.

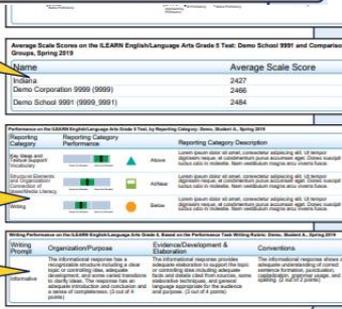
English/Language Arts reports include descriptions of your child's performance on the Performance Task (i.e., writing portion). If a condition code appears, your child's response could not be scored. Unscorable responses include responses that are blank, insufficient, written in a non-scorable language, off-topic, off-purpose, or illegible.

ADDITIONAL RESOURCES

- To understand more about your child's proficiency level, go to www.doe.in.gov/assessment/ilearn-families
- To practice questions similar to what your child has seen on ILEARN, go to www.doe.in.gov/assessment/ilearn-sample-items-and-scoring

For more information about this assessment, go to www.doe.in.gov/assessment/ilearn

For more information about Lexile® Measures, go to www.doe.in.gov/assessment/lexile-measures-indiana



Average Scale Scores on the ILEARN English/Language Arts Grade 5 Test: Demo School 9999 and Comparison Group, Spring 2019

Name	Average Scale Score
Indiana	2427
Demo Corporation 9999 (9999)	2486
Demo School 9999 (9999, 99991)	2484

Performance on the ILEARN English/Language Arts Grade 5 Test, by Reporting Category: Demo, Student A, Spring 2019

Reporting Category	Reporting Category Performance	Reporting Category Description
Language and Cultural Literacy	Above	Language and cultural literacy includes all 10 strands of language and cultural literacy. This reporting category includes all 10 strands of language and cultural literacy.
Language Development	At/Near	Language development includes all 10 strands of language development. This reporting category includes all 10 strands of language development.
Language Proficiency	Below	Language proficiency includes all 10 strands of language proficiency. This reporting category includes all 10 strands of language proficiency.

Writing Performance on the ILEARN English/Language Arts Grade 5 Test: Demo School 9999 and Comparison Group, Spring 2019

Writing Prompt	Organization/Purpose	Evidence/Development & Elaboration	Conventions
Write a persuasive letter to the principal about the school's new policy on cell phone use.	Organization/Purpose	Evidence/Development & Elaboration	Conventions

Students can also receive LEXILE student measures from numerous partner products

Over 65 popular reading assessments & programs, including 16 state assessments, report Lexile measures.

aimsweb



empower
assessments

ETS TOEFL Primary

myON

i-Ready

Imagine Learning

Istation

KidBiz 3000

FLEX
LITERACY

nwea
map



Performance Series
WEB-BASED DIAGNOSTICS

Reading
Inventory

STAR
Assessments



Students can also receive QUANTILE student measures from numerous partner products

Over 19 popular math assessments & programs, including
14 state assessments, report Quantile measures.

aimsweb

Mc
Graw
Hill CTB
McGraw-Hill

ERB

fuel**education**[™]
the new power of learning

i-Ready[®]

nwea
map[®]

T T M
Think Through Math

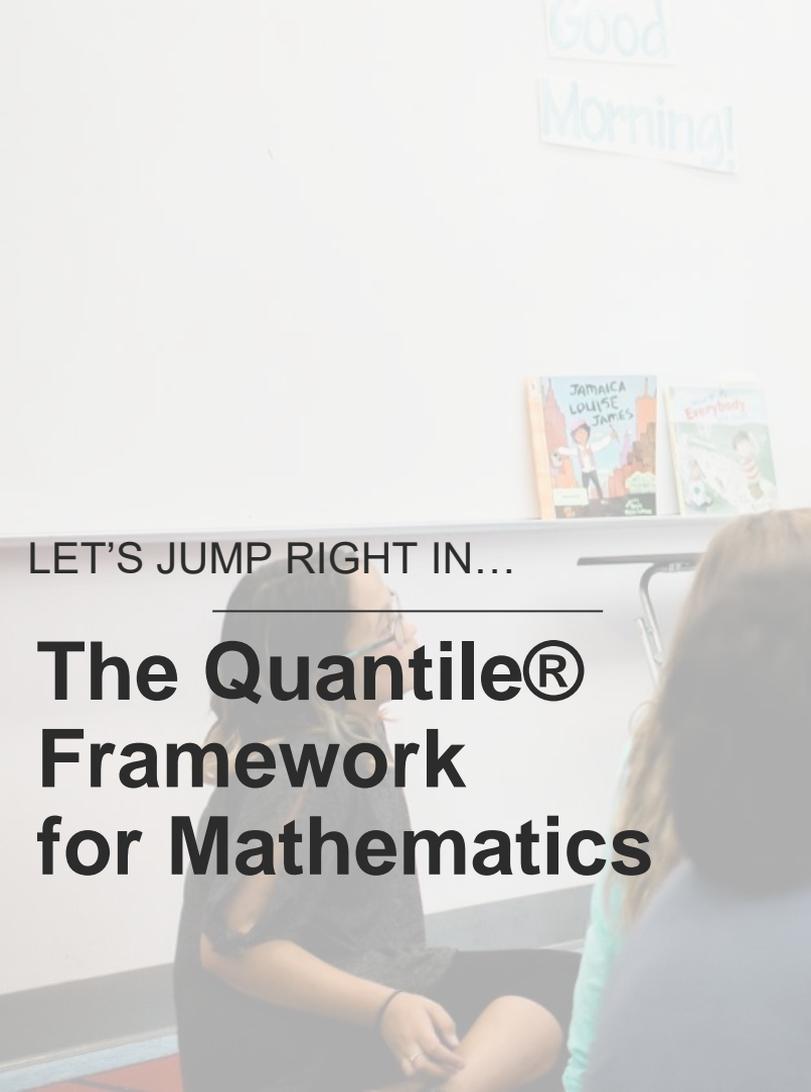
Math
Inventory[™]

Istation

THE
IOWA TESTS[®]
Measurement You Can Trust[™]
Innovation You Can Use

VOYAGER SOPRIS
LEARNING[™]





LET'S JUMP RIGHT IN...

The Quantile® Framework for Mathematics



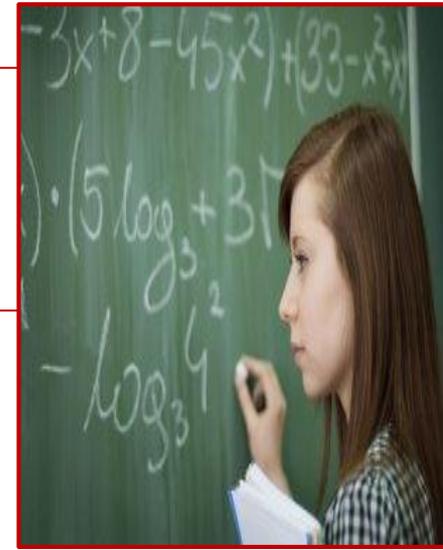
The Quantile Framework...



...is like a yardstick

*...it's the way
to measure:*

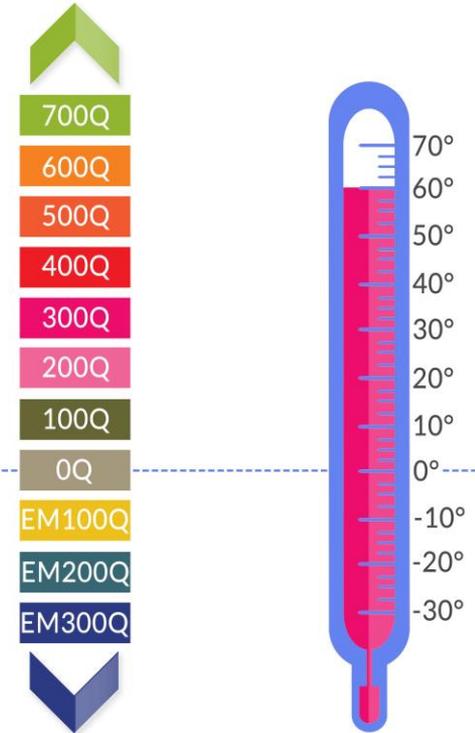
- Students' mathematical knowledge and
- Difficulty of math skills and concepts



Measures Reported

- Measures reported from EM400Q to 1600Q
- Measures below 0Q are reported as “EM” or “Emerging Mathematician”
- “Model the concept of addition for sums to 10” EM260Q.
- The “EM” replaces the negative sign in the measure.

Interpreting Emerging Mathematician

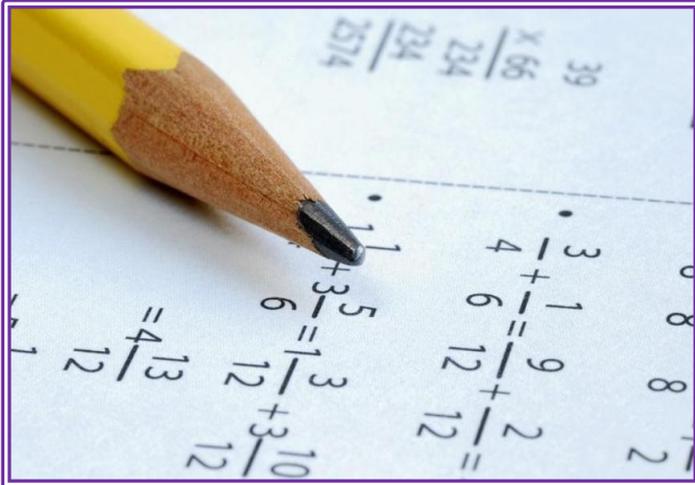


Quantile Scale < > Thermometer



How Are Lexile & Quantile Scales Similar?

- Developmental scales
- Measure student and resource (book/math concept or skill) on the same scale
- Personalize instruction



THE QUANTILE METRIC...

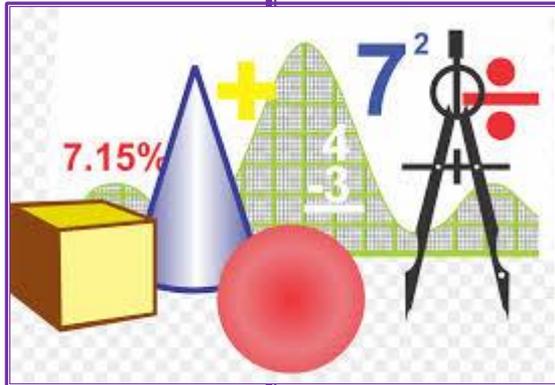
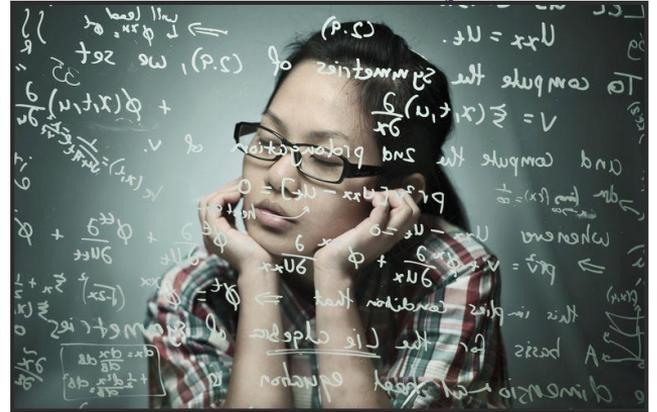
TWO TYPES OF QUANTILE MEASURES

Two Kinds of Quantile Measures

Student Quantile Measure

A student Quantile helps you to know:

- Which skills and concepts a child is ready to learn.
- The level of success a child is expected to have with an upcoming skill or concept.
- How a child is growing in mathematics on a single scale across grade levels.



Quantile Measure for QSCs

(Quantiles Skills and Concepts)

When applied to mathematical skills and concepts, Quantile Measures indicate the task difficulty associated with a skill or concept relative to other mathematical skills and concepts.



Quantile Framework

Quantile measures *match math readiness and complexity* on the same scale.

A student's **Quantile measure** is her *readiness for math instruction*

QUANTILE STUDENT MEASURE



840Q



700Q

600Q

500Q

400Q

300Q

200Q

100Q

0Q

EM100Q

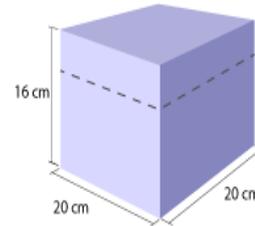
EM200Q

EM300Q



QUANTILE LESSON MEASURE

a. Amy has a fish tank shaped like a rectangular prism that is 20cm by 20cm. What is the volume of the tank?



b. If Amy only fills the tank $\frac{3}{4}$ of the way, what will be the volume of the water in the tank?

840Q

A **Quantile measure of material** is its *math complexity*.



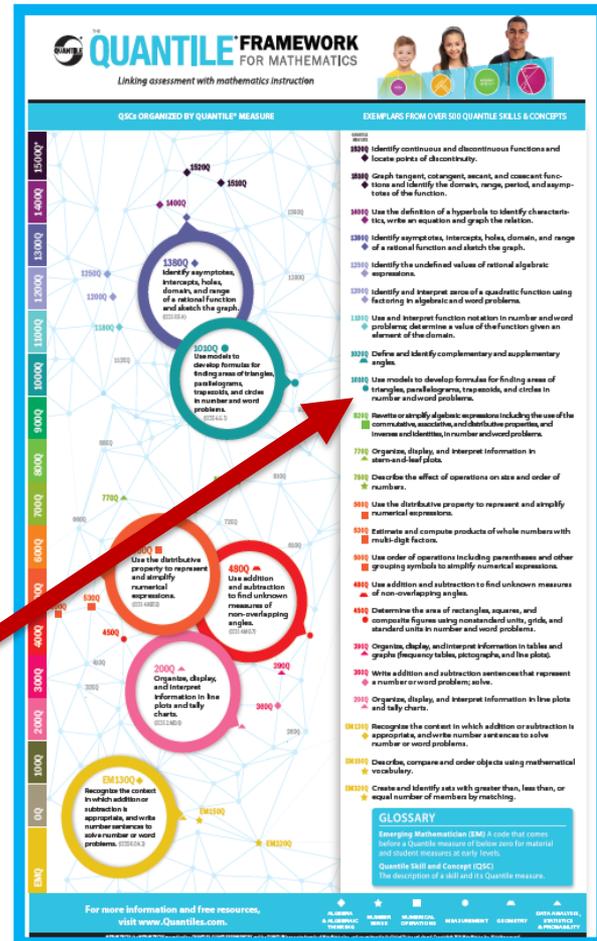
What are QSCs? (Quantile Skills and Concepts)

Within the Quantile Framework, **QSC** is the term used to reference skills and concepts.

For example, the mathematical skill/concept
“Use models to investigate the concept of the
Pythagorean Theorem”
is **QSC 271** or...

(Indiana Academic Standards for Mathematics
8.GM.7)

QSC271 has a Quantile measure of **1010Q**.



Note: the QSC number is simply a number to identify the concept or skill and is not indicative of or related to the Quantile measure.

4 QSCs were aligned and help unpack a single IN Math standard

Indiana Academic Standard for Mathematics 4.M.3

Use the four operations (addition, subtraction, multiplication and division) to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money. Include addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.

Indiana Standard	QSC ID	QSC Description	Quantile Measure	Strand
4.M.3	QSC258	Convert measures of length, area, capacity, weight, and time expressed in a given unit to other units in the same measurement system in number and word problems.	820Q	Measurement
4.M.3	QSC147	Determine the value of sets of coins and bills using cent sign and dollar sign appropriately. Create equivalent amounts with different coins and bills.	460Q	Measurement
4.M.3	QSC649	Estimate, measure, and compare <u>length</u> using appropriate tools and units in number and word problems.	240Q	Measurement
4.M.3	QSC651	Estimate, measure, and compare <u>weight</u> using appropriate tools and units in number and word problems.	360Q	Measurement

The Quantile Scale—Mapping Math



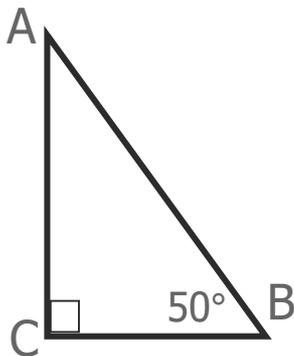
The Quantile scale is:

1. **Unidimensional** (i.e., a Quantile measure describes mathematics achievement across content strands)
2. **Developmental** (i.e., higher the Quantile measure, the more complex the math skill is or the more proficient the student is! *Please note: The opposite is true in the EM space.*)

one problem=requires knowledge across 4 strands

Measurement Item

What is the measure of $\angle A$?

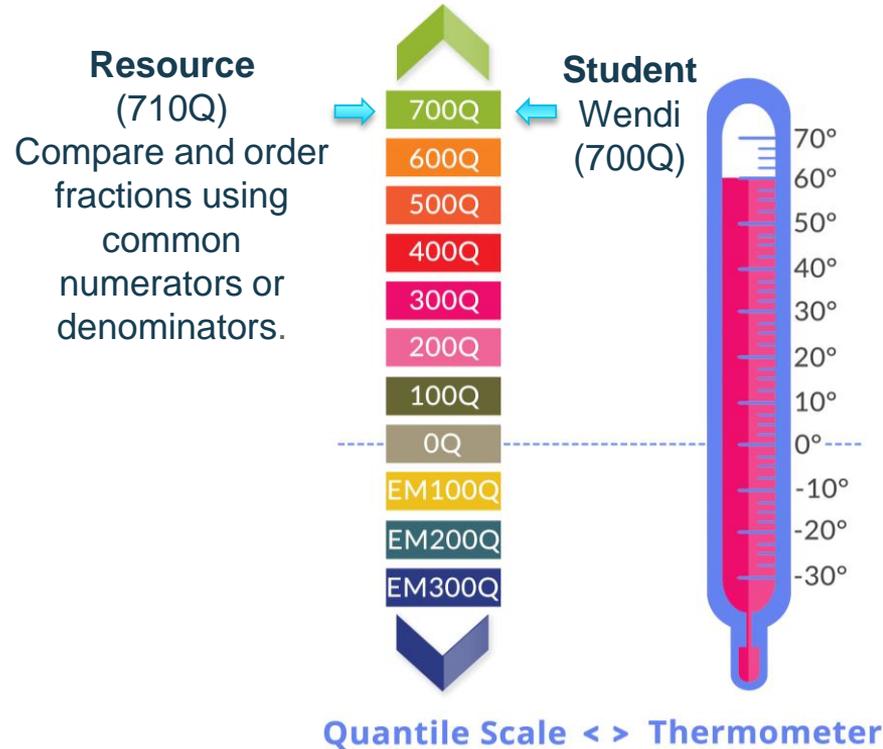


<u>Step</u>	<u>Strand</u>
Recognize it's a triangle & right triangle	Geometry
Sum of the interior angles sum to 180° .	Geometry
A right angle is 90° .	Measurement
Set up "equation" & solve	Algebra
Calculations	Numerical Operations



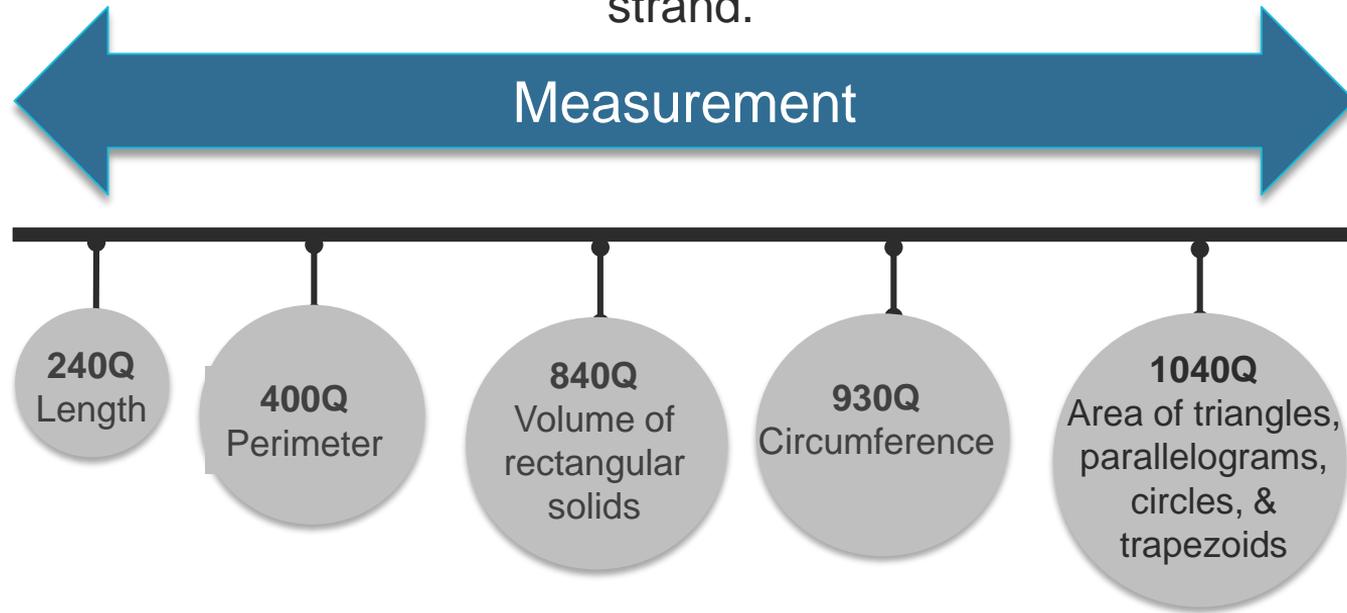
The Quantile Scale

The Quantile Framework places the difficulty of a skill, student ability and resources all on the same scale!



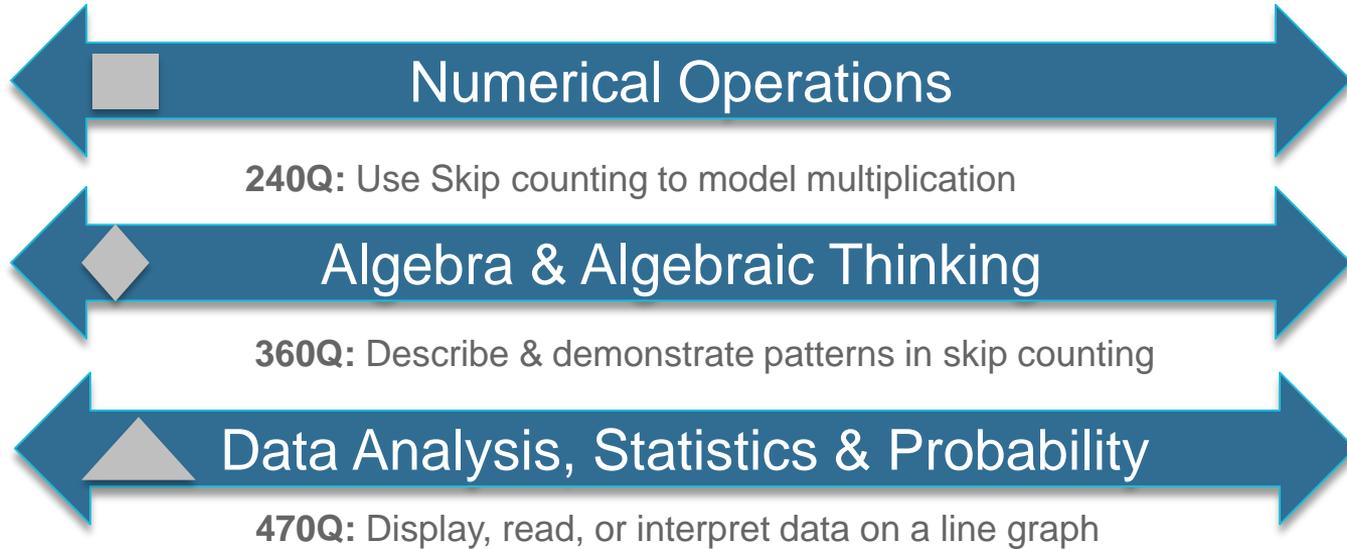
Content Strands in Mathematics

The Quantile Scale is developmental *within* one content strand.



Content Strands in Mathematics

The Quantile Scale is developmental **across** content strands





WHY DO I NEED TO KNOW ABOUT THE QUANTILE FRAMEWORK...



WHAT ARE THE BENEFITS OF THE QUANTILE FRAMEWORK?

Let's explore

Student Expectations in the

Indiana Academic Standards for Mathematics

**that have been aligned to the
Quantile Framework for Mathematics**

OR

***(How an educator determines the difficulty of any
math standard in their curriculum!)***



Indiana Academic Standards for Mathematics

Standard Search Keyword Search

Search the Quantile Framework using the following criteria:

State or Common Core *

Indiana

Grade or Course *

Grade 6

Goal *

All Goals Selected

Search the Math Skills Database for Quantile Skills and Concepts (QSCs) using your state standards. The database contains targeted, free resources appropriately matched to students by Quantile measure and math content.

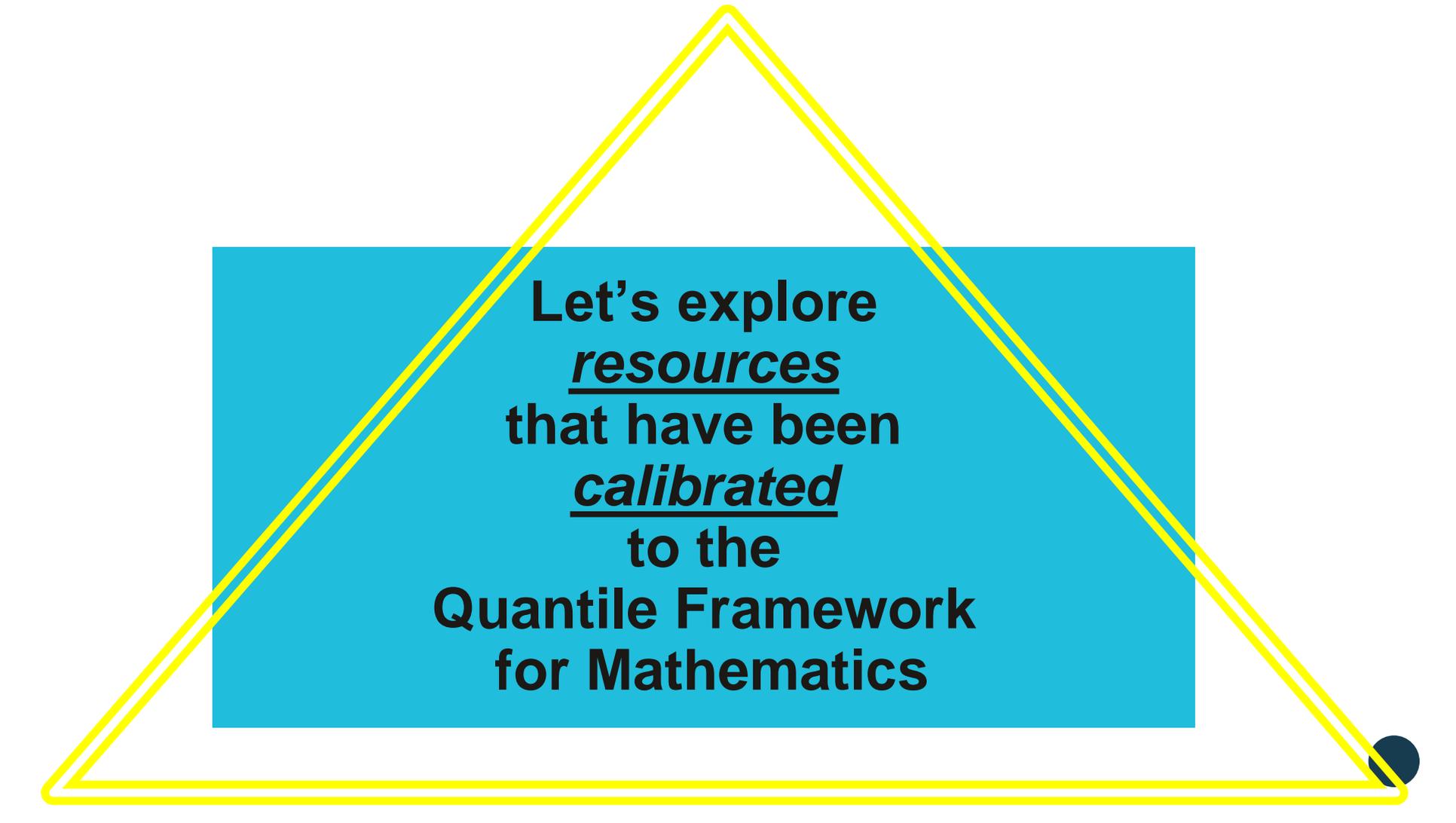
Search

Indiana Academic Standards College & Career Ready 2014 | 74 skill(s) found

All Strands

Skills Resources

STATE GOAL	QSC ID	QSC DESCRIPTION	QUANTILE MEASURE	STRAND
6.AF.1	QSC274	Evaluate algebraic expressions in number and word problems.	840Q	Algebra and Algebraic Thinking
6.AF.2	QSC300	Rewrite or simplify algebraic expressions including the use of the commutative, associative, and distributive properties, and inverses and identities in number and word problems.	820Q	Numerical Operations
6.AF.3	QSC218	Translate between models or verbal phrases and algebraic expressions.	750Q	Algebra and Algebraic Thinking
6.AF.3	QSC274	Evaluate algebraic expressions in number and word problems.	840Q	Algebra and Algebraic Thinking
6.AF.4	QSC1032	Identify from a set of numbers which values satisfy a given equation or inequality.	860Q	Algebra and Algebraic Thinking
6.AF.5	QSC208	Solve one-step linear equations and inequalities and graph solutions of the inequalities on a number line in number and word problems.	650Q	Algebra and Algebraic Thinking
6.AF.5	QSC276	Write a linear equation or inequality to represent a given number or word problem; solve.	800Q	Algebra and Algebraic Thinking
6.AF.6	QSC604	Graph or identify simple inequalities using symbol notation $>$, $<$, \leq , \geq , and \neq in number and word problems.	550Q	Algebra and Algebraic Thinking



**Let's explore
resources
that have been
calibrated
to the
Quantile Framework
for Mathematics**



Differentiation Opportunities:

SAS Curriculum Pathways



Virtual Nerd



that quiz



Math Goodies™
Your Destination for Math Education!



conceptua[®]
MATH

ILLUMINATIONS
Resources for Teaching Math

Math Warehouse Games



SHODOR
a national resource for computational science education



Illustrative Mathematics

NLVM
Utah State UNIVERSITY
interactive online math lessons



Math Textbooks are Calibrated



Everyday Math Grade 6 - 2016

Publisher: SRA McGraw-Hill
ISBN-13: 9780021430734

Table of Contents

Hide All QSCs

Section 1: Unit 1 Data Displays and Number Systems

Lesson 1: Exploring Statistical Questions (Hide QSCs) (610Q)

QUANTILE SKILL AND CONCEPT DESCRIPTION	QUANTILE MEASURE	RESOURCES
Recognize that a statistical question is one that will require gathering data that has variability.	610Q	6

Lesson 2: Creating Dot Plots (Hide QSCs) (920Q)

QUANTILE SKILL AND CONCEPT DESCRIPTION	QUANTILE MEASURE	RESOURCES
Use frequency tables, dot plots, and other graphs to determine the shape, center, and spread of a data distribution.	920Q	7

Lesson 3: Introducing the Mean (Hide QSCs) (850Q)

QUANTILE SKILL AND CONCEPT DESCRIPTION	QUANTILE MEASURE	RESOURCES
Describe data using the mean.	850Q	6

Lesson 4: Introducing the Mean as a Balance Point (Hide QSCs) (920Q)

QUANTILE SKILL AND CONCEPT DESCRIPTION	QUANTILE MEASURE	RESOURCES
Describe data using the mean.	850Q	6

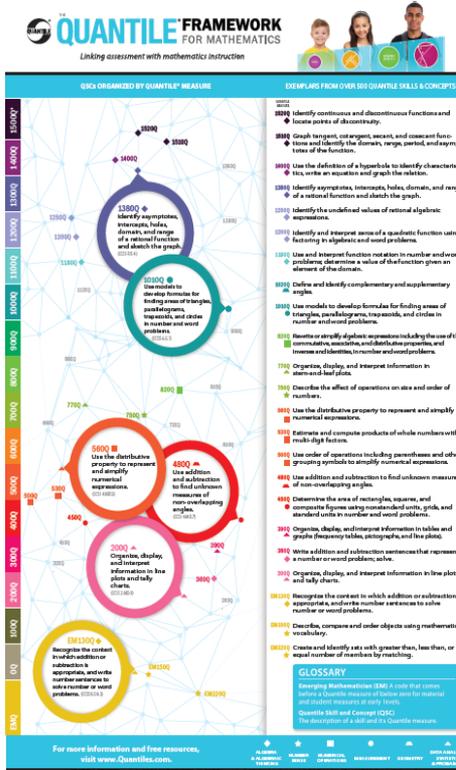
The Puzzle Pieces...

www.Quantiles.com



(The Math Skill Database where QSCs have been linked to state math standards)

Skills Concepts Resources



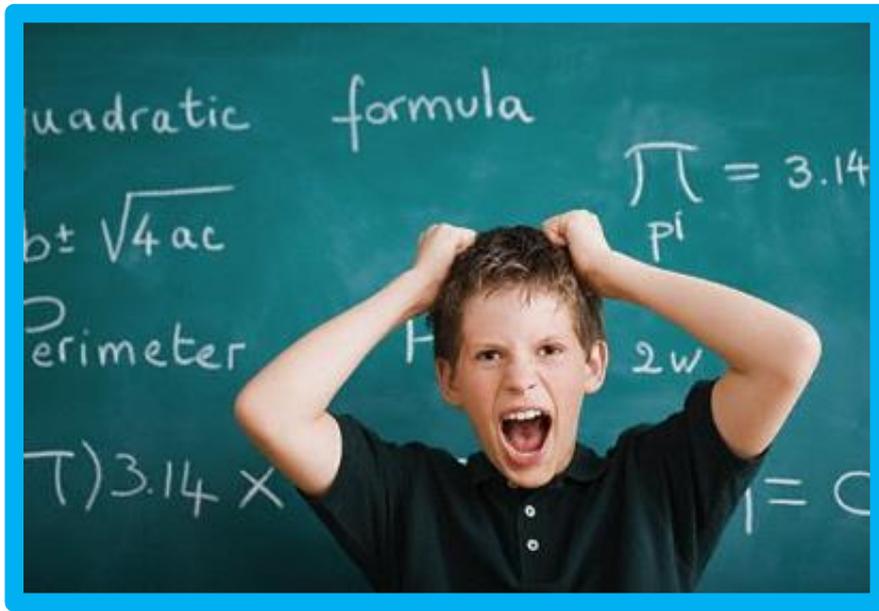
(a part of the Student Quantile measure of student readiness to determine math ability)



“

MATHEMATICAL INSIGHTS PROVIDED

← →
**HOW DOES THE QUANTILE
FRAMEWORK INFORM
DIFFERENTIATION? OR...**



**What happens when students
are not ready
or
too advanced
for the focus skill to be taught?**

An Essential Feature of the Quantile Framework: the Quantile Skill and Concept Details (QSCs)!

***A Knowledge Cluster often has 4 parts including the Focus Skill:
(Focus skill is the state standard an educator searches in the
Math Skills Database.)***

- **Prerequisite Skills**-skills that a child **needs to understand** to progress in their study of mathematics, these skills usually have lower Quantile measures than the skill the child is trying to learn
- **Supporting Skills**-skills that are **related to the math concept** being learned (Focus Skill) but are not dependent on the child knowing these skills or having learned about them.
- **Impending Skills**-skills which depend on a student having an understanding of the concept being taught (Focus Skill) and can **learn these skills after an understanding of the focus skill** has been determined



A closer look at a Knowledge Cluster from the website:

LEXILE & QUANTILE TOOLS

QUANTILE MATH SKILLS DATABASE

We can say that IN standard 5.NS.3 has a difficulty measure of:



5.NS.3 is aligned to... QSC154

Identify the place value of each digit in a multi-digit number to the thousandths place.

[620Q](#) | Number Sense

Indiana Focus Skill is : 5.NS.3

Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

Knowledge Cluster

Prerequisite Skills

QSC73: Indicate the value of each digit in any 2- or 3-digit number. (120Q)

QSC600: Use place value with thousands. (200Q)

QSC648: Read and write word names for rational numbers in decimal form to the hundredths place or the thousandths place. (470Q)

Supporting Skills

QSC147: Determine the value of sets of coins and bills using cent sign and dollar sign appropriately. Create equivalent amounts with different coins and bills. (460Q)

QSC1014: Indicate and compare the place value of each digit in a multi-digit whole number or decimal. (470Q)

Impending Skills

QSC158: Add and subtract decimals using models and pictures to explain the process and record the results. (590Q)

QSC608: Multiply or divide two decimals or a decimal and a whole number in number and word problems. (700Q)

QSC195: Read, write, and compare numbers with decimal place values to the thousandths place or numbers greater than one million. (600Q)

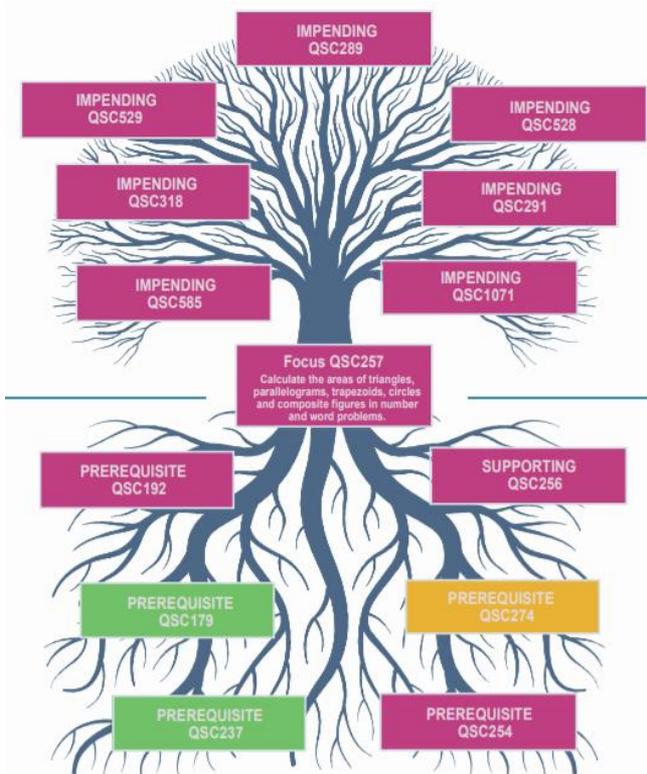
QSC633: Recognize and use patterns in powers of ten (with or without exponents) to multiply and divide whole numbers and decimals. (650Q)

QSC164: Round decimals to a given place value; round fractions and mixed numbers to a whole number or a given fractional place value. (600Q)

Resources



Structure of a Knowledge Cluster



For more information about Knowledge Clusters within the Quantile Framework, visit:

<https://www.quantiles.com/wp-content/uploads/2017/08/QFKnowledgeCluster.pdf>



Knowledge Cluster—applications

- To inform instruction that addresses the needs and abilities of each student
- To provide insight into content background necessary for success
- To add depth and breath to concepts in mathematics
- To adjust IEPs according to Quantile measures
- To provide a resource for meeting the needs of all RTI tiers



The Quantile Framework for Mathematics

is...

Compare and order fractions using common numerators or denominators. (710Q)

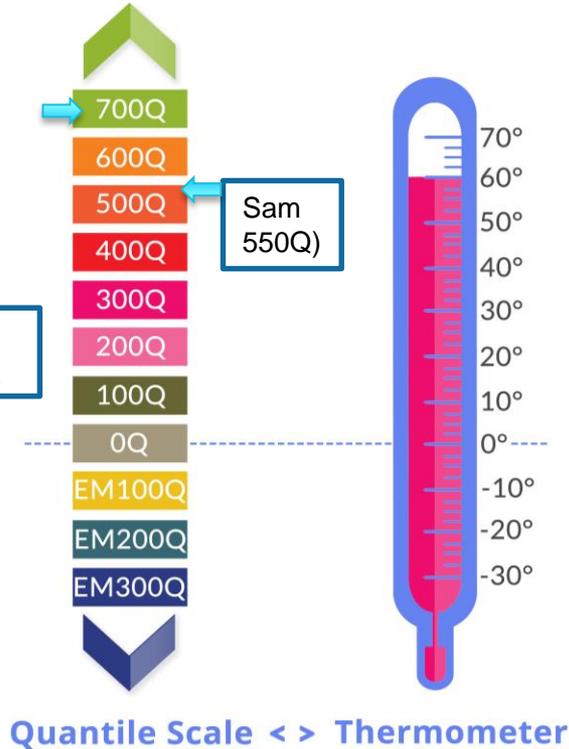
placing the difficulty of a skill,

student ability (710Q)

and resources

Other Resources
www.Quantiles.com

all on the same scale





WHAT HAVE WE LEARNED TODAY.....

HOW TO MEET THE NEEDS OF ALL LEARNERS

Lesson Planning & Quantile Measures

Let's take a look at how the Quantile website,
Math Skills Database,
along with the
Knowledge Clusters,
can assist a teacher in meeting the needs of a
single student, Laura,
or that of a small group with similar levels.



Teaching Indiana Standard 5.DS.2

Standard Search Keyword Search

Search the Quantile Framework using the following criteria:

State or Common Core *

Indiana

Grade or Course *

Grade 5

Goal *

5.DS.2 Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.

problems that involve perimeter and area of triangles, parallelograms and trapezoids, using appropriate units for measures.

5.M.4 Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths or multiplying the height by the area of the base.

5.M.5 Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for right rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve real-world problems and other mathematical problems.

5.M.6 Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems and other mathematical problems.

5.DS.1 Formulate questions that can be addressed with data and make predictions about the data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. Recognize the differences in representing categorical and numerical data.

5.DS.2 Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.

Search the Math Skills Database for Quantile Skills and Concepts (QSCs) using your state standards. The database contains targeted, free resources appropriately matched to students by Quantile measure and math content.

Search

**IN Standard
Focus Skill=
5.DS.2
Understand and use measures of center (mean and
median) and frequency (mode) to describe a data set.**

5.DS.2 Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.

Search

Indiana Academic Standards College & Career Ready 2014 | 4 skill(s) found

All Strands

Skills Resources

STATE GOAL	OSC ID	OSC DESCRIPTION	QUANTILE MEASURE	STRAND
5.DS.2	QSC135	Describe data using the mode.	470Q	Data Analysis, Statistics, and Probability
5.DS.2	QSC183	Describe data using the median.	800Q	Data Analysis, Statistics, and Probability
5.DS.2	QSC214	Describe data using the mean.	850Q	Data Analysis, Statistics, and Probability
5.DS.2	QSC634	Describe data using the range.	600Q	Data Analysis, Statistics, and Probability

Finding Mean for 5.DS.2 has a measure of 850Q



Standard Search Keyword Search

Search the Quantile Framework using the following criteria:

State or Common Core: Indiana
Grade of Course: Grade 5
Goal *: 5.DS.2 Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.

Search the Mat contains target

Laura and her group have an approx. Quantile measure of 450Q

pts (QSCs) using your state standards. The database identifies by Quantile measure and math content.

Search

Indiana Academic Standards College & Career Ready 2014 | 4 skill(s) found

Skills Resources

STATE GOAL	QSC ID	QSC DESCRIPTION	QUANTILE MEASURE	STRAND
5.DS.2	QSC135	Describe data using the mode.	470Q	Data Analysis, Statistics, and Probability
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5.DS.2	QSC634	Describe data using the range.	600Q	Data Analysis, Statistics, and Probability

All Strands

QUICK LINKS

Lexile® Tools

- Find a Book
- Grade Level Charts
- Analyzer
- Growth Planner
- Career Database
- WordLists
- Measures Manager

Quantile® Tools

- Summer Math Challenge
- Teacher Assistant
- Grade Level Charts
- Math@Home
- Math Skills Database
- Growth Planner
- Career Database
- Measures Manager
- Find Your Lesson



Let's look at Student Readiness and Task Difficulty

Skill 5.DS.2 has a difficulty 850Q

Too far for Laura and the group to reach without differentiation!

Laura and her group 450Q

Focus Skill: IN Standard: 5.DS.2

Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.



Knowledge Cluster

Laura and the group's
Quantile measure is 450Q

LEXILE & QUANTILE TOOLS My Account

QUANTILE MATH SKILLS DATABASE Resource Center

QSC214 Describe data using the mean. 850Q | Data Analysis, Statistics, and Probability

Knowledge Cluster

Prerequisite Skills

- QSC171: Estimate and solve division problems with multi-digit divisors; explain solution. (690Q)
- QSC201: Estimate and compute sums and differences with decimals. (580Q)
- QSC561: Identify outliers, and determine their effect on the mean, median, and range of a set of data. (1050Q)
- QSC281: Describe data using or selecting the appropriate measure of central tendency; choose a measure of central tendency based on the shape of the data distribution. (950Q)
- QSC1000: Determine the mean absolute deviation (MAD) for one or more sets of data. Describe the meaning of MAD for given data sets. (920Q)

Resources Show 6 Resources

These skills are still too high for Laura and her group! Go to even lower prerequisite skills....

So, drill down by clicking on prerequisite QSC171



QSC171
Estimate and solve division problems with multi-digit divisors; explain solution.

Using the Knowledge Cluster helps identify the point where Laura and those in her group with an ability of 450Q, are ready to begin instruction!

[Learn more about Skill and Concept Measures](#)

Knowledge Cluster

[Hide 7 Related QSCs](#)

Prerequisite Skills

- QSC166: Divide using single-digit divisors with and without remainders. (450Q)
- QSC170: Estimate and compute products of whole numbers with multi-digit factors. (530Q)
- QSC1009: Apply appropriate types of estimation for number and word problems that include estimating products and quotients. (470Q)

Impending Skills

- QSC608: Multiply or divide two decimals or a decimal and a whole number in number and word problems. (700Q)
- QSC214: Describe data using the mean. (850Q)
- QSC266: Use remainders in problem-solving situations and interpret the remainder with respect to the original problem. (710Q)
- QSC258: Convert measures of length, area, capacity, weight, and time expressed in a given unit to other units in the same measurement system in number and word problems. (820Q)

Resources

[Show 15 Resources](#)

By clicking on QSC 166 you'll reveal resources that have been calibrated to the level of the group.



Using the Knowledge Cluster helps identify the point where Laura and her group are ready to begin instruction!

LXILE & QUANTILE TOOLS

QUANTILE
MATH SKILLS DATABASE

My Account

Resource Center

QSC166

Divide using single-digit divisors with and without remainders.

450Q | Numerical Operations

[Learn more about Skill and Concept Measures](#)

Knowledge Cluster

[Hide 10 Related QSCs](#)

Prerequisite Skills

QSC162: Know and use division facts related to multiplication facts through 144. (350Q)

QSC165: Multiply a multi-digit whole number by a 1-digit whole number or a 2-digit multiple of 10. (330Q)

Supporting Skills

QSC114: Represent fractions concretely and symbolically, including representing whole numbers as fractions. (190Q)

QSC123: Identify and use the rules for divisibility (2, 3, 4, 5, 6, 9, and 10). (540Q)

Impending Skills

QSC546: Model and identify mixed numbers and their equivalent fractions. (610Q)

QSC171: Estimate and solve division problems with multi-digit divisors; explain solution. (690Q)

QSC633: Recognize and use patterns in powers of ten (with or without exponents) to multiply and divide whole numbers and decimals. (650Q)

QSC669: Estimate products and quotients of decimals or of mixed numbers. (600Q)

QSC1013: Solve multi-step number and word problems using the four operations. (580Q)

QSC1024: Represent division of whole numbers as a fraction in number and word problems. (800Q)

Resources

[Show 13 Resources](#)

Resources calibrated to 450Q

LEXILE & QUANTILE TOOLS My Account

QSC123: Identify and use the rules for divisibility (2, 3, 4, 5, 6, 9, and 10). (540Q)

Impending Skills ©

QSC546: Model and identify mixed numbers and their equivalent fractions. (610Q)

QSC171: Estimate and solve division problems with multi-digit divisors; explain solution. (690Q)

QSC633: Recognize and use patterns in powers of ten (with or without exponents) to multiply and divide whole numbers and decimals. (650Q)

QSC669: Estimate products and quotients of decimals or of mixed numbers. (600Q)

QSC1013: Solve multi-step number and word problems using the four operations. (580Q)

QSC1024: Represent division of whole numbers as a fraction in number and word problems. (800Q)

Resources

- Maths is Fun: Division Worksheets 3
- That Quiz: Integer Arithmetic
- Long Division WITH Remainders! Dividing Numbers Fourth Grade
- Divide two-digit dividends using friendly multiples
- Soccer Game Division With Remainders
- Snork's Long Division Game
- Long Division
- Subtractor
- Dividerama!
- Lucky Leftovers Game
- MLC: Introducing the Standard Algorithm
- Pick a Perfect Product Game
- Division without Remainder

Hide 13 Resources ^



Differentiation Opportunities:

SAS Curriculum Pathways



Virtual Nerd



that quiz



Math Goodies™
Your Destination for Math Education!



Math Warehouse Games



Steps to take in order to meet group's needs:

Focus Skill to teach: *Describe data using the mean (850Q)*

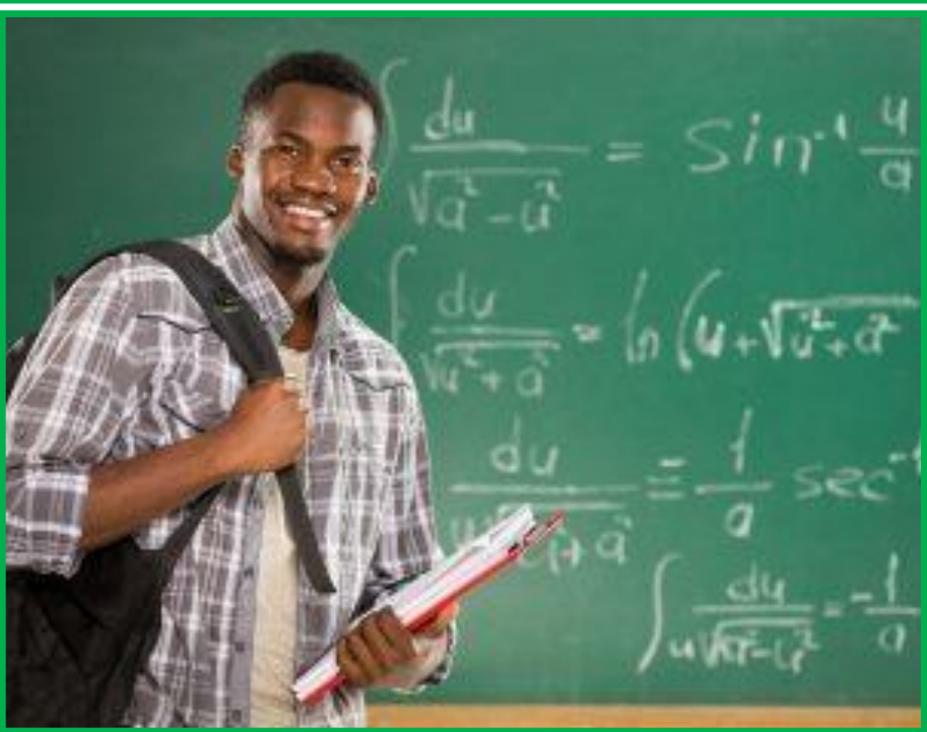
Prerequisite Skill: *Estimate and solve division problems with 2 and 3 digit divisors (690Q)*

Prerequisite Skill: *Divide using single-digit divisors with and without remainders. (450Q)*

Laura and the
group's
Quantile
measure is
450Q

The group's Quantile measure indicates that their instruction needs to begin here before attempting the more advanced skill!





COLLEGE AND CAREER MATH DEMANDS...

HOW DOES THE QUANTILE STUDENT MEASURE INFORM CCR?

What
our
research
tells
us...

Using The Lexile & Quantile Frameworks to Measure College and Career Readiness

Reading ability and mathematical understanding are two student attributes at the heart of college and career readiness (CCR). Lexile® and Quantile® measures quantify these abilities and can help monitor student growth toward evidence-based, grade-level benchmarks for CCR.

College and Career Readiness

Research indicates that to be college and career ready, high school graduates should strive to...

...read
independently
around 1300L



...engage in
mathematics
around 1350Q



Career Preparedness

The Lexile and Quantile measure are the only metrics available to compare and describe the reading and mathematics demands of careers.



Electrician Career
has a reading
demand of 1270L
and requires
mathematics skills
capability of 1045Q



Quantiles can Indicate Path Towards CC Readiness!

The screenshot displays the Quantile Framework for Mathematics website. At the top, navigation links include "About Us", "For Researchers", and "My Account". A "Navigate to: Select a Site" dropdown menu is open, listing "Quantile Tools" (highlighted with a red box), "The Lexile® & Quantile® Hub", "NEW! Quantile® Growth Planner", "Quantile® Math@Home", "Quantile® Math Skills Database", and "Quantile® Teacher Assistant". A "Site Search" field with a magnifying glass icon is also visible. The main banner features the Quantile logo and the text "QUANTILE FRAMEWORK FOR MATHEMATICS" and "Linking Assessment with Mathematics Instruction". Below the banner are two sections: "For Parents & Students" and "For Educators".

About Us For Researchers My Account

Navigate to: Select a Site

Quantile Tools

- The Lexile® & Quantile® Hub
- NEW! Quantile® Growth Planner
- Quantile® Math@Home
- Quantile® Math Skills Database
- Quantile® Teacher Assistant

Site Search

QUANTILE

QUANTILE FRAMEWORK
FOR MATHEMATICS

Linking Assessment with Mathematics Instruction

For Parents & Students

Quantile® measures help your child grow and improve math skills.

For Educators

Quantile measures help personalize instruction, monitor growth and predict future success.



Quantile Growth Planner:

Menu << **LEXILE & QUANTILE TOOLS** 🔔 My

QUICK LINKS *

Lexile® Tools

- 📖 Find a Book
- 📊 Grade Level Charts
- 🔍 Analyzer
- 📅 Growth Planner
- 👤 Career Database
- 📄 Word Lists
- 📊 Measures Manager

Quantile® Tools

- 🌟 Summer Math Challenge
- 👤 Teacher Assistant
- 📊 Grade Level Charts
- 🏠 Math@Home
- 📊 Math Skills Database
- 📅 Growth Planner
- 👤 Career Database
- 📊 Measures Manager
- 📖 Find Your Lesson

[See All Tools](#)

Membership Options

Lexile® Measures Manager

For Educators

Determine a student's optimal reading measure when multiple assessments that produce Lexile measures have produced significant and unexpected differences.

QUANTILE TOOLS

Summer Math Challenge

For Educators and Parents

Keep math skills sharp with the Summer Math Challenge. This free program is six weeks of math activities for 1st – 6th grade students.

Quantile® Teacher Assistant

For Educators

Differentiate student instruction based on an individual's or classroom's Quantile measure. This tool organizes each state's standards into Knowledge Clusters and aligns them to the Quantile Framework.

Quantile® Grade Level Charts

For Educators and Parents

View and print student Quantile measures by grade level. Filter your view by grade(s), time of year, and student population percentiles.

Math@Home

For Parents and Students

Support classroom instruction at home by accessing free math resources that are tailored to a student's individual state, grade, mathematical topic and Quantile measure. Resources include activities, online games, tutorial videos, and worksheets.

Math Skills Database

For Educators

Discover individual Quantile Skills & Concepts (QSCs) and the Quantile measures of each state standard. Get a detailed view of the Knowledge Clusters and the interconnectedness of QSCs. Access free resources aligned to QSCs, state standards, and Quantile measure.

Growth Planner

For Educators, Parents and Students

Use Quantile measures to determine if a student is on track to graduate college-and-career ready. Access national and regional career data.

Quantile® Career Database

For Educators

Identify the math demands needed for a desired career and use it to inform goal setting. The Quantile measure is the only metric available to compare and describe the mathematical demands of a career.

Quantile® Measures Manager

For Educators

Determine a student's optimal mathematical measure when multiple assessments that produce Quantile measures have produced significant and unexpected differences.

Find Your Lesson

For Educators

Ensure student readiness for instruction with this tool that aligns the Quantile Framework to your textbook or other math curriculum. See each lesson's associated Quantile measure and explore further to identify prerequisite, supporting and impending math skills.



The Quantile Growth Planner



WHAT IS YOUR PROJECTED GROWTH?

The Quantile Growth Planner® uses Quantile measures to display recorded and projected growth in mathematics abilities. To begin, click on the Add/Edit Measure button to enter your Quantile measures from statewide annual assessments.

YOUR GROWTH PLANNER RESULTS

Add/Edit Measure

Add/Edit Career

Quantile®
Measure

1600Q
1400Q
1200Q
1000Q
800Q
600Q
400Q
200Q
0Q

3 4 5 6 7 8 9 10 11 12+

Grade

To see your forecasted growth, please add one or more measures by clicking on the “Add/Edit Measure” button.

The Quantile Growth Planner



QUICK LINKS

- Lexile® Tools
- Find a Book
- Grade Level Charts
- Analyzer
- Growth Planner
- Career Database
- WordLists
- Measures Manager

Quantile® Tools

- Summer Math Challenge
- Teacher Assistant
- Grade Level Charts
- Math@Home
- Math Skills Database
- Growth Planner
- Career Database
- Measures Manager
- Find Your Lesson

See All Tools
Membership Options

Support

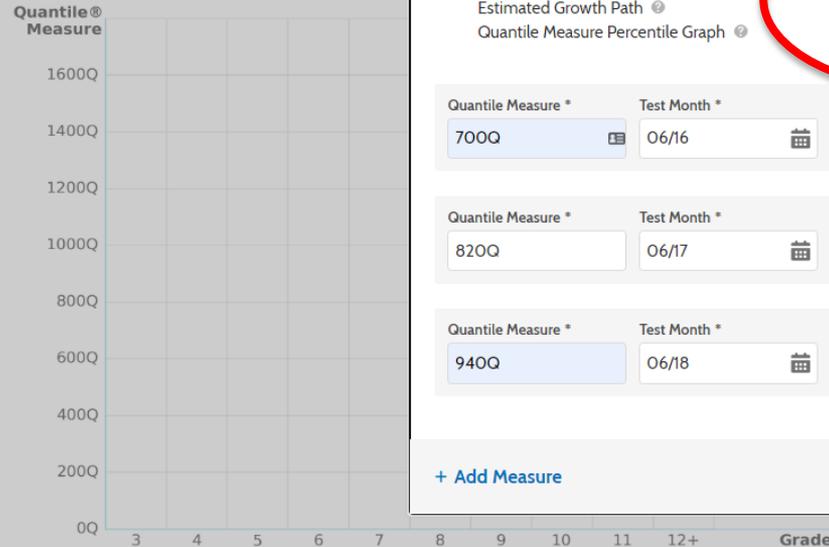


QUANTILE GROWTH PLANNER

WHAT IS YOUR PROJECTED GROWTH?

The Quantile Growth Planner® uses Quantile measures statewide annual assessments.

YOUR GROWTH PLANNER RESULTS



Add/Edit a Quantile Measure

Add your Quantile measures below. For each Quantile measure include the date the measure was obtained, the student's grade when the measure was obtained, and the school year start date for that grade.

Only add two measures per grade.
Only use Quantile measures from end-of-course or end-of-grade tests.

Shown on Graph

- Quantile Measure
- Pathway for Mathematical Readiness
- Estimated Growth Path
- Quantile Measure Percentile Graph

Additional Data

- Recommended Growth Path
- Advanced College and Career Readiness Range
- Fundamental College and Career Readiness Range
- Limited College and Career Readiness Range

Quantile Measure *	Test Month *	Grade *	School Year Start Month *
700Q	06/16	Grade 5	08/15
820Q	06/17	Grade 6	08/16
940Q	06/18	Grade 7	08/17

[+ Add Measure](#) [Submit](#)

our Quantile measures from

se add one or more
dit Measure" button.

**Next:
add the
career path
a student
is interested
in pursuing:**



WHAT IS YOUR PROJECTED GROWTH?

The Quantile Growth Planner[®] uses Quantile measures to display recorded and projected growth in mathematics abilities. To begin, click on the Add/Edit Measure(s) button to enter your Quantile measures from statewide annual assessments.

YOUR GROWTH PLANNER RESULTS

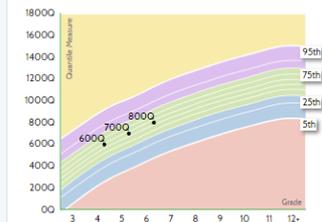
[Add/Edit Measure\(s\)](#)

[Add/Edit Career\(s\)](#)



HOW DO YOU COMPARE NATIONALLY?

What does your score mean on a National Level?
Check your Quantile Percentile Score. \odot



WHAT DO YOUR RESULTS MEAN?

Based on our estimated projection, you are close to meeting the challenges of college and career readiness at the end of grade 12.

- Pathway for Mathematical Readiness
- Quantile Measure
- Estimated Growth Path
- Recommended Growth Path
- Advanced College and Career Readiness Range
- Fundamental College and Career Readiness Range
- Limited College and Career Readiness Range





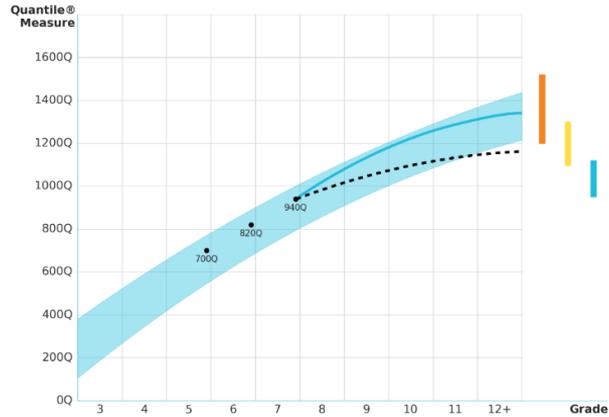
WHAT IS YOUR PROJECTED GROWTH?

The Quantile Growth Planner® uses Quantile measures to display recorded and projected growth in mathematics abilities. To begin, click on the Add/Edit Measure button on the left side of the page. The Quantile measure ranges span the complexity of entry-level materials for a career.

YOUR GROWTH PLANNER RESULTS

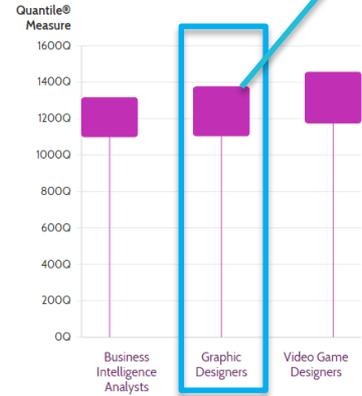
Add/Edit Measure

Add/Edit Career



YOUR COLLEGE & CAREER RESULTS

Information Technology
The Quantile measure ranges span the complexity of entry-level materials for a career.



Add/Edit a Career

Select the career field and specific career you wish to view more information about.

If only the field is selected, 3 careers with 3 different levels of required education are chosen.

Field *
Information Technology

Career
Graphic Designers

Clear Selections

Submit



Drill down to the Regional Data for Indianapolis, IN



Graphic Designers

JOB SUMMARY

Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.

EDUCATION LEVEL REQUIRED

Bachelor's Degree (16 years)

ESSENTIAL EDUCATION

Design, Communications and Media, Fine Arts, Computers and Electronics

GROWTH PLANNER

The Student's Estimated Quantile Measure for grade 12 indicates that they may need to devote extra attention to be prepared for the complexity of entry-level materials for Graphic Designers.



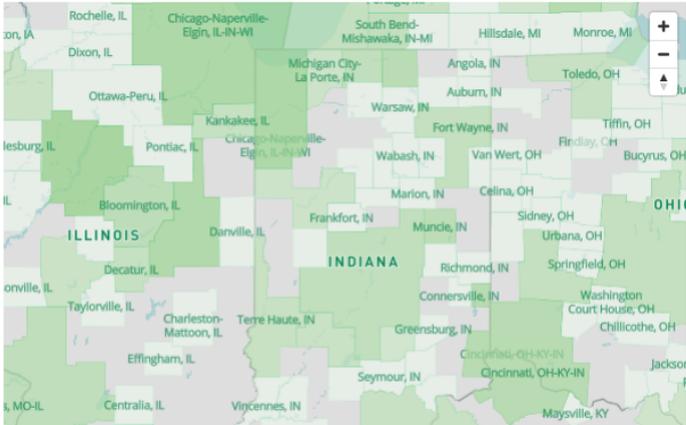
This career is aligned to the Advanced College and Career Readiness Range, Fundamental College and Career Readiness Range

[← Edit Measure and/or Career](#)

HOW DOES THIS CAREER COMPARE NATIONALLY??



JOB DEMAND



SEE CAREER INFORMATION IN A SPECIFIC REGION

State * Metropolitan Statistical Area *

Graphic Designers

JOB SUMMARY

Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.

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ESSENTIAL EDUCATION

Design, Communications and Media, Fine Arts, Computers and Electronics

GROWTH PLANNER

The Student's Estimated Quantile Measure for grade 12 indicates that they may need to devote extra attention to be prepared for the complexity of entry-level materials for Graphic Designers.

1360Q

1120Q

This career is aligned to the Advanced College and Career Readiness Range, Fundamental College and Career Readiness Range

[← Edit Measure and/or Career](#)

HOW DOES THIS CAREER COMPARE NATIONALLY?



MEDIAN PAY

\$50,370 Annually
\$24.21 Hourly

LOWER THAN MEDIAN PAY OF
RELATED CAREERS



PROJECTED CAREER GROWTH

4% Increase
(2016 - 2026)

SLOWER THAN AVERAGE



PROJECTED CAREER OPENINGS

277,400 Jobs
(2016 - 2026)

HIGHER THAN MEDIAN JOB
OPENINGS OF RELATED
CAREERS

SEE CAREER INFORMATION IN A SPECIFIC REGION

State *

Indiana

Metropolitan Statistical Area *

Indianapolis-Carmel-An

Search

Clear

Showing results for Indianapolis-Carmel-Anderson, IN



MEDIAN PAY
\$47,152 Annually

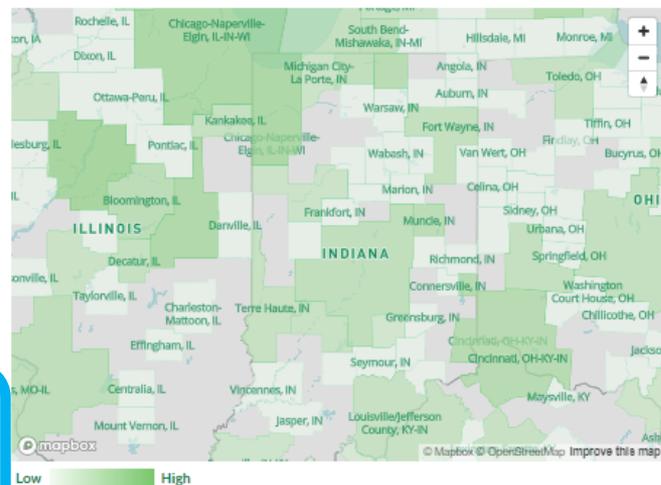


**AVERAGE TIME TO
FILL A POSITION**
35 Days



**CURRENT
EMPLOYMENT (2018)**
1,530 Jobs

JOB DEMAND





A COUPLE OF KEY TAKEAWAYS...



**MAKE THE QUANTILE
FRAMEWORK FOR
MATHEMATICS WORK
FOR YOU**

Quantile Measures of a *Knowledge Cluster* Guide Instruction

My Quantile measure is **670Q**.
I'm ready for today's
instruction.

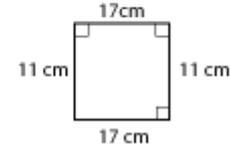
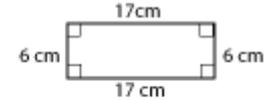
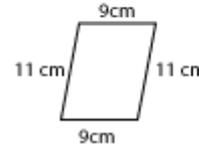
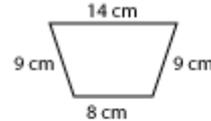


**On
Target**



**Today's Lesson
(680Q)**

Which quadrilateral is a rectangle
and a rhombus?



Quantile Measures Guide Instruction:

My Quantile measure is **500Q**.
I need help preparing for this topic. I
will review angles.

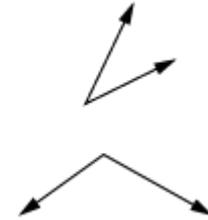


**Below
Target**



Today's Lesson (680Q)
Prerequisite Activity (530Q)

Which angle appears to be an
acute angle?



Quantile Measures Guide Instruction:

My Quantile measure is **950Q**.
I'm going to be challenged with
an **enrichment activity**.

Today's Lesson (680Q)

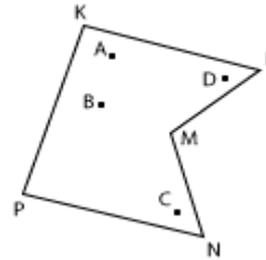
Enrichment Activity (1000Q)

Polygon KLMNP is concave.

Which segment, with endpoints on
The interior of the polygon, shows
That KLMNP is concave?



**Above
Target**



Key Takeaways

With Quantile measures, we can...

1. Gauge the degree of challenge between the ability of individual students and the difficulty of material.
2. Access free tools and resources to connect students with websites, activities, and other learning materials at the place where they are ready to learn.
3. Take a longitudinal view of student growth toward our goals of college and career readiness.
4. Communicate more effectively with parents and communities about children's learning and progress.
5. Math Instruction becomes equitable for all.



Learn about the Quantile Framework for Mathematics and tools in the Lexile and Quantile HUB!

Join us to learn more about
the Hub!

Tour of the Lexile® and Quantile® Hub

**Thursday, July 23
9:00 – 10:30 a.m. ET**

Participants are encouraged
to [create an account](#) before
the session.

The screenshot shows the top navigation bar of the Quantile Framework for Mathematics website. The navigation bar includes links for "About Us", "For Researchers", and "My Account". A "Navigate to: Select a Site" dropdown menu is open, showing a list of options: "Quantile Tools", "Site Search", "The Lexile® & Quantile® Hub" (highlighted with a red box), "New Growth Planner", "New! Summer Math Challenge", "Math Skills Database", "Math@Home", "Teacher Assistant", "Grade Level Charts", "Career Database", "Measures Manager", and "Find Your Lesson". Below the navigation bar, the main header features the Quantile logo and the text "QUANTILE FRAMEWORK FOR MATHEMATICS" and "Linking Assessment with Mathematics Instruction". At the bottom, there are two promotional banners: "For Parents & Students" and "For Educators".

QUANTILE FRAMEWORK FOR MATHEMATICS
Linking Assessment with Mathematics Instruction

For Parents & Students
Quantile® measures help your child grow and improve math skills.

For Educators
Quantile measures help personalize instruction, monitor growth and predict future success.

Join us to Learn about Projected Lexile and Quantile Measures

Wednesday, August 12 9:00 - 10:00 a.m. ET

Thursday, August 13 10:00 - 11:00 a.m. ET

Thursday, August 20 12:00 - 1:00 p.m. ET

MetaMetrics will provide an overview of how forecasted measures were calculated for each student and how educators can use them to help inform next steps ahead of the 2020-2021 school year

You can request a flyer of these sessions and dates by emailing:

INassessments@doe.in.gov



Questions?

Join us for Office Hours

Every Monday 2:00 - 3:00 p.m. ET

<https://zoom.us/j/94460177886>

Every Friday 11:00 a.m. - 12:00 p.m. ET

<https://zoom.us/j/98795024861>

We will be online to answer your questions!

Feel free to contact us with questions outside of
our office hours:

Jscott@lexile.com or
Mcopeland@lexile.com



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+1.919.547.3400

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[Lexile.com](https://www.Lexile.com)
[Quantiles.com](https://www.Quantiles.com)
[Lexile.Global](https://www.Lexile.Global)

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www.linkedin.com/company/metametrics-inc-

