

Transitional Math in Illinois

PROFESSIONAL DEVELOPMENT FOR CLASSROOM TEACHERS

Objectives for Today

- Establish a common language and understanding for transitional math
- Explore the rationale for transitional math
- Access and understand available resources

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High School



Postsecondary and Workforce Readiness Act (PWR Act)

Public Act 99-0674 (HB 5729); signed by Governor on 7/29/16

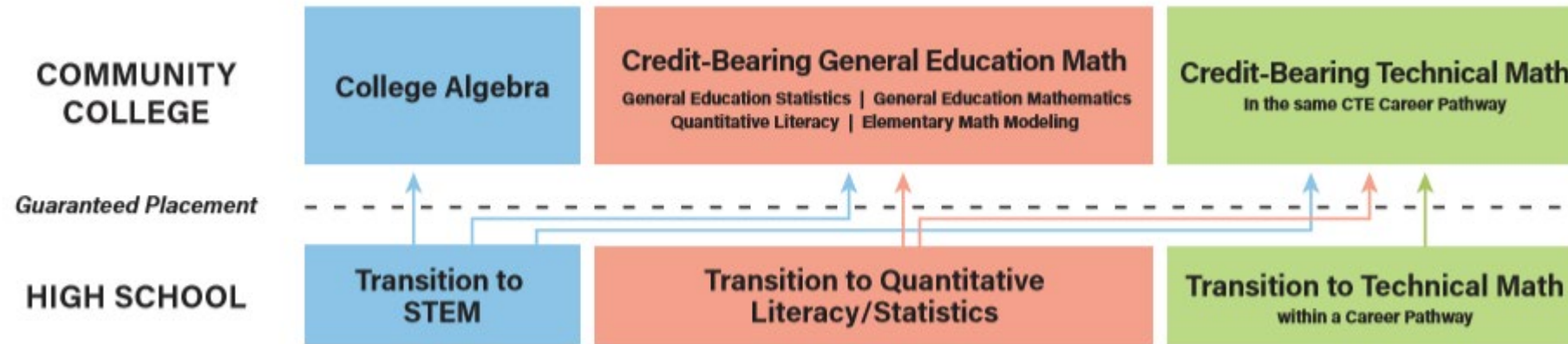
1. Postsecondary and Career Expectations (PaCE)
2. Pilot of Competency-based High School Graduation Requirements
3. College and Career Pathway Endorsements on High School Diplomas
4. **Transitional Math Courses**
 - 4th year high school math courses designed to smooth transition to college and reduce remediation rates
 - Not dual credit or AP courses
 - Not for college credit

Why do we need a law?

1. On average, **50%** of IL HS graduates are placed into remedial education.
1. Fewer than 40% of CC students complete any type of degree or certificate within six years (Source: Bailey, 2015). Remediation plays a role.
2. By 2020, **65%** of all jobs in the economy will require postsecondary education and training beyond high school.*
1. **8 out of 10** Illinois employers say they need employees with some postsecondary education (Source: 6oby25.org).

*Recovery: Job Growth and Education Requirements, Georgetown University

Transitional Math Pathways



- Algebra varies with pathway
- Contextualization throughout
- Default is QL Pathway

Transitional Math Experience

- Designed for seniors to give them a different experience their last year (from first 3 years or traditional dev math)
 - The content is not new, so the experience must be.**
- Integrate contextualized learning, problem solving, and college and career readiness
- Prepare students to be citizens, employees, and college students
- Students get to “do math”
 - See how math comes together and applies to their lives, work, and courses
 - Career exploration with authentic situations

Authenticity and problem solving are paramount.

If something is not contextual, it should be conceptual and cognitively demanding.

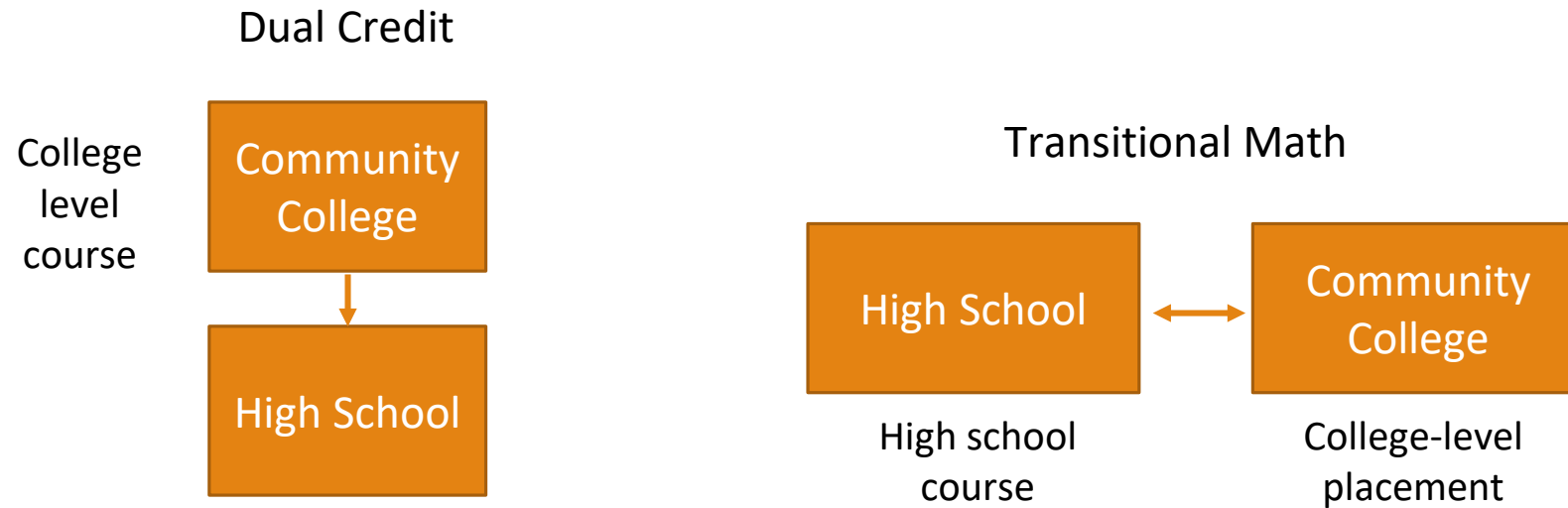
TM Approach to a Day: Playing music vs. playing scales

- Start with a realistic problem that students solve in groups
- As math concepts that need work become apparent, differentiate instruction and use just-in-time remediation.
- Continue to work on main problem and others to develop understanding

The goal is to USE math concepts, not just have them. Students will learn **through** problem solving instead of starting with skills and then eventually applying them to problems.

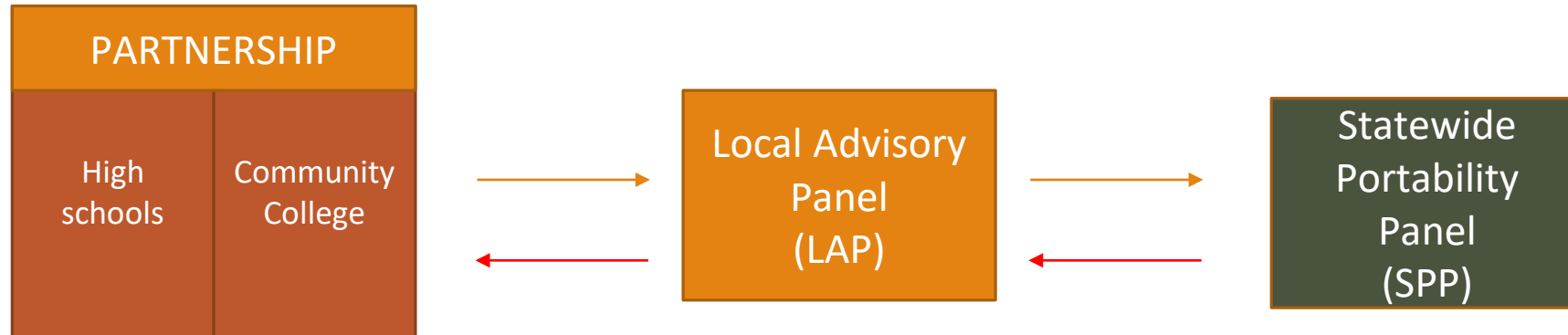
Partnerships & MOUs

High schools are equal partners with community colleges in this process.



For more information about any component of TM, see www.iltransitionalmath.org.

The Portability Process



HS: Creates a syllabus and competencies spreadsheet for each pathway offered and submits to LAP

HS: Incorporates changes based on feedback from LAP and SPP

HS: Records portability code, course end date, and grade on a student's transcript

HS & CC: Develop an MOU

CC: Submits representative courses & MOU to SPP

CC: Communicates additional portable courses to agencies

CC: Maintains records for portability codes in partnership

Collects syllabi and competency spreadsheets from high schools

Approves all partnership courses locally

Chooses representative courses for each pathway

Communicates to school principals information from SPP and changes to be made

Statewide Portability Panel (SPP)

Reviews representative course from each partnership for each pathway

Decides one of these:

- Approved
- Conditionally approved
- Not enough information
- Returned

Determines course approval criteria

Competencies: content in action

Postsecondary & Workforce Readiness Act

Statewide Transitional Math

Competencies and Policies

August 2018



Competencies define a core foundation with the ability to supplement for additional specific fields

NUMERACY COMPETENCIES

QL-N1. Students can apply, analyze, and evaluate the characteristics of numbers in authentic modeling and problem solving situations.

Key performance indicators

- a. Demonstrate operation sense and the effects of common operations on numbers in words and symbols.
- b. Apply mathematical properties in numeric and algebraic contexts.
- c. Use different types of mathematical summaries of data, such as mean, median, and mode.
- d. Read, interpret, and make decisions based upon information from various data displays.
- e. Demonstrate competency in the use of magnitude in the contexts of place values, fractions, and numbers written in scientific notation.
- f. Demonstrate measurement sense that includes predicting, estimating, and then solving problems using appropriate units.

QL-N2. Students can perform operations on numbers and make use of those operations in authentic modeling and problem solving situations.

Key performance indicators

- a. Perform arithmetic operations on whole numbers, integers, fractions, and decimals including basic operations without a calculator.
- b. Apply quantitative reasoning to solve problems involving quantities or rates.

QL-N3. Students can propose various alternatives, determine reasonableness, and then select optimal estimates to justify solutions.

Key performance indicators

- a. Use estimation skills.
- b. State convincing evidence to justify estimates.

www.iltransitionalmath.org

Exploring the Competencies & KPIs

What do we mean by competency?

In the context of transitional math, a competency is a broad learning goal that illustrates what a student can do. That is, how he/she can integrate and apply skills in context.

Each competency has a set of key performance indicators.

NUMERACY COMPETENCIES	
QL-N1. Students can apply, analyze, and evaluate the characteristics of numbers in authentic modeling and problem solving situations.	<i>Key performance indicators</i> <ul style="list-style-type: none">a. Demonstrate operation sense and the effects of common operations on numbers in words and symbols.b. Apply mathematical properties in numeric and algebraic contexts.c. Use different types of mathematical summaries of data, such as mean, median, and mode.d. Read, interpret, and make decisions based upon information from various data displays.e. Demonstrate competency in the use of magnitude in the contexts of place values, fractions, and numbers written in scientific notation.f. Demonstrate measurement sense that includes predicting, estimating, and then solving problems using appropriate units.
QL-N2. Students can perform operations on numbers and make use of those operations in authentic modeling and problem solving situations.	<i>Key performance indicators</i> <ul style="list-style-type: none">a. Perform arithmetic operations on whole numbers, integers, fractions, and decimals including basic operations without a calculator.b. Apply quantitative reasoning to solve problems involving quantities or rates.
QL-N3. Students can propose various alternatives, determine reasonableness, and then select optimal estimates to justify solutions.	<i>Key performance indicators</i> <ul style="list-style-type: none">a. Use estimation skills.b. State convincing evidence to justify estimates.

Exploring the Competencies & KPIs

Additional process competencies were established for all three pathways. These include:

- Standards of Mathematical Practice
- College Readiness Competencies
- Non-cognitive skills outlined in the Illinois Essential Employability Skills Framework.

Please review page 6 of the Competencies & Policies document.

Personal Ethic	Work Ethic
Integrity Respect Perseverance Positive attitude	Dependability Professionalism
Teamwork	Communication
Critical thinking Effective and cooperative work	Active listening Clear communication

Hurricanes!

Look at the first page data set only.

What is the data telling us?

What do you notice?

What do you wonder?



Hurricanes!

Now read the article “Are Female Hurricanes Deadlier than Male Hurricanes?”

As you read, note any answers to questions we have posed.



Hurricanes!

What is the question we are compelled to answer based on the data and text?



Hurricanes!

- Use the information presented from the article and your data set to conduct a statistical analysis.
- Use the tools in your stats toolbox - including Desmos - to make sense of the data.
- Construct an argument to answer the question. Use your analysis as your evidence.
- Represent your findings.
- Be prepared to share.



Hurricanes!

Wall walk

Using your post-its, review the arguments and data presented. Your group must ask one question AND provide one piece of feedback or a connection on at least one display during your walk.



Hurricanes!

Extension: What are your biases?



Hurricanes Task

<https://www.desmos.com/calculator/mrlh7iaqcj>

Our Data: <https://www.desmos.com/calculator/h2r9r5ry4m>

TM Website Resources

Password: (case sensitive)

PWRpathways3

Notes

1. Any unit maps, rubrics, and/or scope/sequence charts made at the state level are optional for school use.
1. Schools have local control and can edit what the state provides or create their own.
1. Resource development using OER items removes the cost issue many districts would face, but they are not required for use.

Questions:

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