

Transitional Math in Illinois

High School Courses That Reduce Remediation While Increasing College Readiness

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Life transitions

- Former college math faculty
- Participated in many reform efforts, including pathways
- Worked at state and national levels
- New position in IL to support new legislation scale-up
- Working on doctorate
- Changing perspective on placement



Transitional (or transitions) courses

- Content delivered to high school seniors who are at risk of being placed into developmental courses.
- Can be for math, reading, or writing.
- Students may receive placement at a college or have placement determined with a college based on some agreement.



Poll question

Is your college working in partnership with any area high schools on courses or acceptance of placement?



Poll question

Is your state working on transitional courses (high school courses at the dev ed level that support college placement)?

If so, what state are you in?



Transitional courses nationally

CCRC conducted a nationwide scan of transitional (or transitions) courses.

Offered in 39 states, up from 29 states in 2012-13

Usually done at the local level instead of statewide

States changing focus to statewide implementations

Source: <https://ccrc.tc.columbia.edu/media/k2/attachments/ccrc-research-brief-how-states-implementing-transition-curricula-results-national-scan.pdf>



Table 1.**Scan Results: Implementation Scope and Subjects Offered**

State	Scope of Implementation				Subjects Offered		
	Statewide ^a	Local ^b	In Progress ^c	None	Math	English	Other
Alabama	X				X	X	
Alaska				X			
Arizona		X				X	
Arkansas	X				X	X	
California		X			X	X	
Colorado		X			X	X	
Connecticut		X			X	X	
Delaware		X			X	X	
Florida		X			X	X	
Georgia	X				X	X	
Hawai'i		X			X	X	
Idaho		X			X	X	
Illinois	X				X	X	
Indiana		X			X	X	
Iowa		X			X	X	X
Kansas	X				X		
Kentucky	X				X	X	X
Louisiana			X		X	X	
Maine				X			
Maryland		X					
Massachusetts		X			X	X	
Michigan				X			
Minnesota			X		X	X	X
Mississippi	X				X	X	
Missouri				X			
Montana	X				X	X	
Nebraska				X			
Nevada		X			X	X	
New Hampshire		X			X		
New Jersey	X				X	X	
New Mexico	X				X	X	
New York		X			X	X	
North Carolina	X				X	X	
North Dakota		X			X	X	
Ohio		X			X	X	
Oklahoma		X			X		
Oregon				X			
Pennsylvania		X			X	X	
Rhode Island		X					
South Carolina	X				X	X	
South Dakota		X			X	X	
Tennessee	X				X		
Texas	X				X	X	
Utah	X				X	X	
Vermont				X			
Virginia	X				X	X	
Washington		X			X	X	
West Virginia	X				X	X	
Wisconsin				X			
Wyoming			X		X	X	
District of Columbia				X			
TOTAL	17	22	3	9	39	36	3
Total From the 2012-13 Scan^d	8	21	9	13			

^a State: Indicates that there is a state initiative to offer this intervention across a state, which includes oversight from a state agency.^b Local: Indicates that this intervention is offered in specific schools using locally developed approaches, without oversight by a state agency.^c In Progress: Indicates that preparatory activities are underway to implement an intervention.^d See Barnett et al. (2013).

How TM fits in with other reforms

Transitional math aligns with and supports other reforms to have a comprehensive approach to help students be successful in college-level courses.

High School

Transitional
Courses

Developmental Level

Pathways
Courses

College Level

Co-requisite
Courses

Math Literacy
Quantway
Statway
DC Foundations



How the Illinois approach differs

The Illinois approach is not as simple as some state's efforts but it has the potential for greater buy-in and effectiveness

- Multiple pathways instead of a one-size-fits-all course

- Emphasis on contextualized content aligned to careers, not just algebra

- Not using a statewide curricula or text

- Equal partnerships between HS and CC to build trust and relationships

- Equal oversight between HS and CC

- Not funded with a large grant but being resourceful with a variety of funding sources



Illinois at a glance

1. Over 700 high schools - 3 years of required math
2. 48 community colleges within 39 community college districts
3. Local control state
4. Unionized faculty at HS and CC levels
5. Two-year budget stalemate which has led to reduced enrollment
6. Many initiatives to reduce remediation but nothing at scale

Moral: If you can do it in Illinois, you can do it anywhere.



Alphabet soup:

Illinois Educational Structure and Mathematics

Board:

ISBE

ICCB

IBHE

High
School

Community
College

University

HS: High school

CC: Community College

TM: Transitional math

OER: Open (free) educational resources

ESSA: Every Student Succeeds Act

IAI: Illinois Articulation Initiative

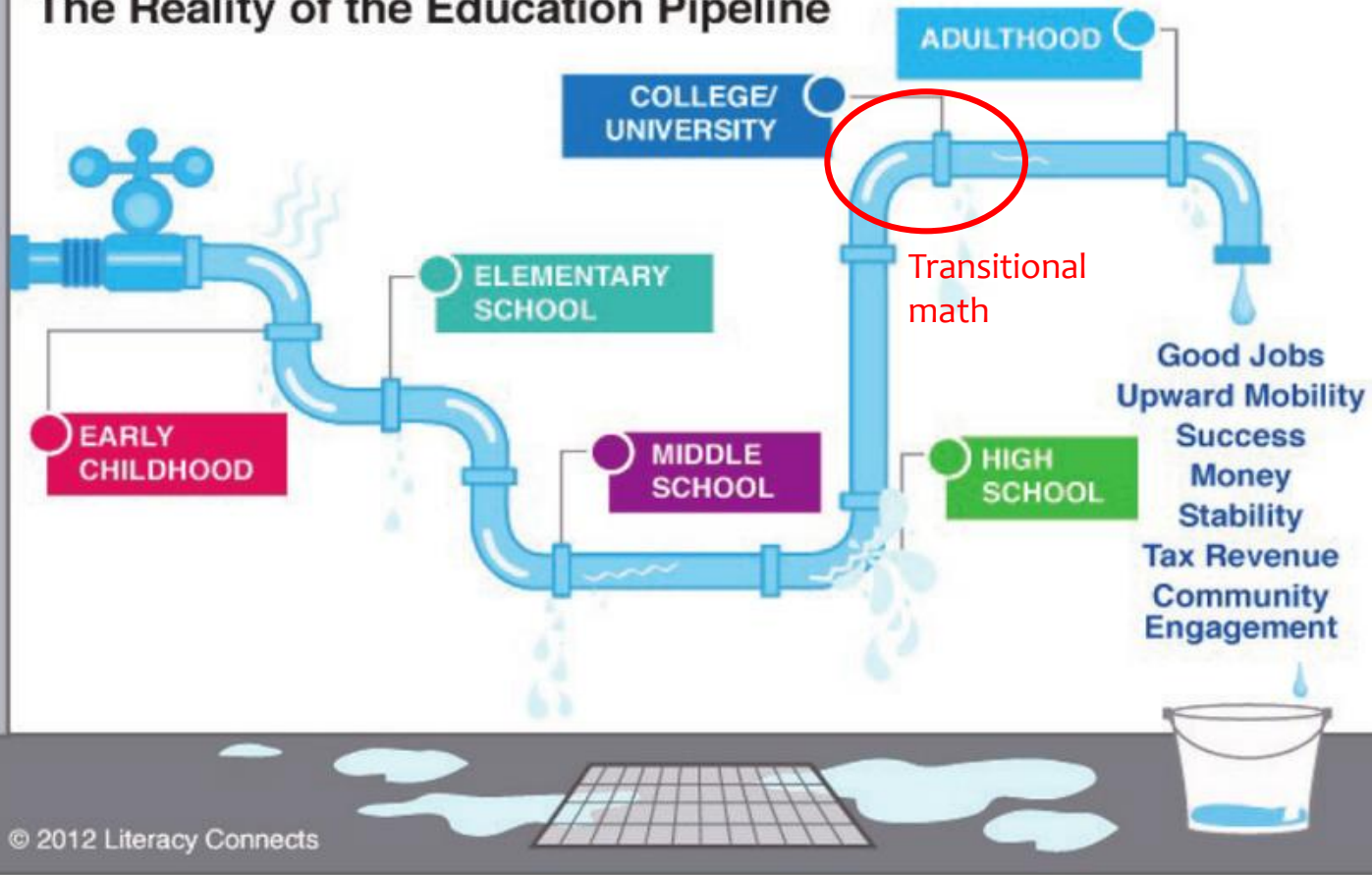


By the numbers

1. On average, **50%** of community college students are enrolled in dev ed.
High school students often meet state standards, but cannot combine and apply them effectively.
Single placement measures often underplace students.
2. Many students avoiding **4th** year of math or are in a course that does not serve their needs and goals.
3. Approximately **40%** of Illinois residents have a high-quality post-secondary college or career credential. Illinois goal is **60% by 2025**.



The Reality of the Education Pipeline



Existing TM Approaches

- Occur at HS's throughout the state in local partnerships
 - Often are Math Literacy, intermediate algebra, or a tech math course
 - Usually use the same text and grading as the college with same results
 - Placement is often based on placement test or final exam results. Some are moving to the final grade as placement.

Issues

- No consistency
- Not at scale
- No portability
- Cost model not scaleable



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



TM: A simple, but not easy solution

Determine projected readiness in college math in junior year of HS instead of freshman year of college

HS student takes co-developed and portable course

Student receives college-level placement in math



Transitional Math Overview

Comprised of **3 pathways** related to career pathways (**meta majors**):

STEM (College Algebra)

Quantitative Literacy (QL)/Statistics

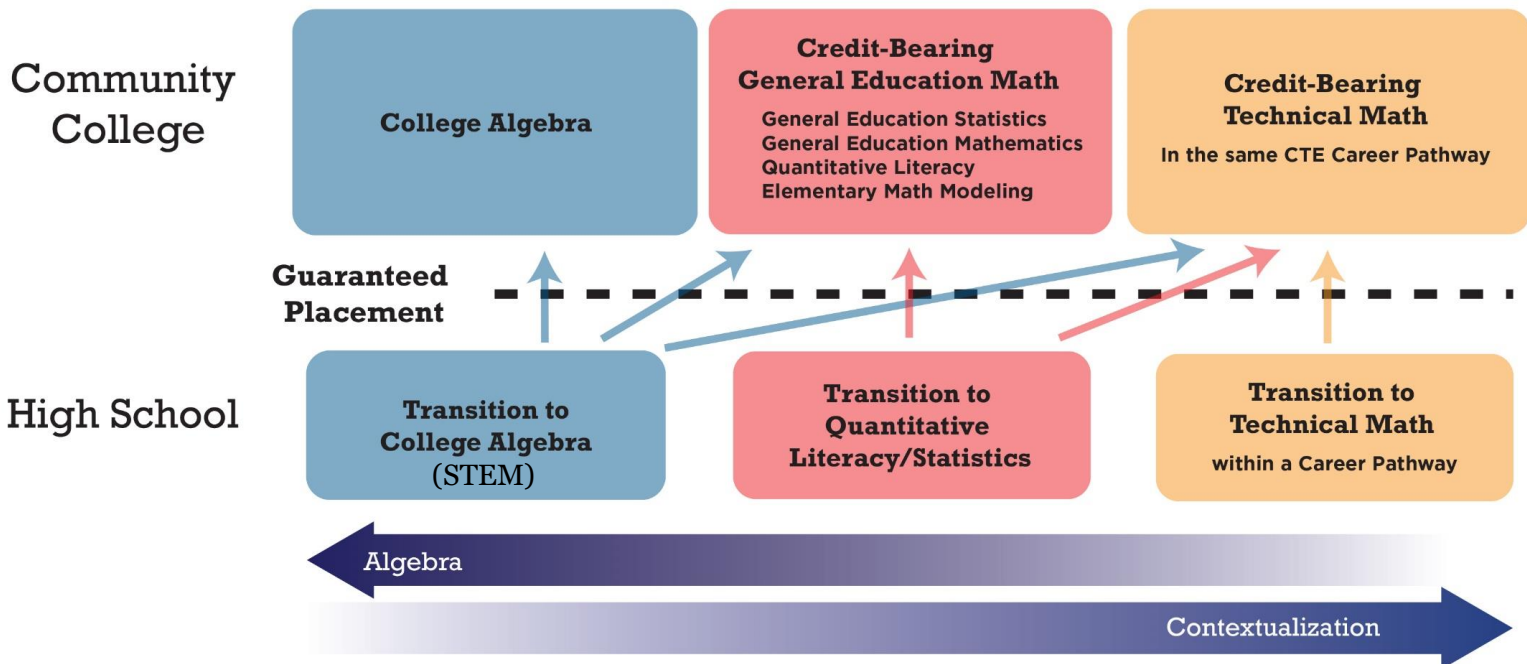
Technical Math

- High school courses designed to provide **guaranteed placement** at all IL community colleges and accepting 4-year universities
 - Placement determined by grade, not a placement test so HS students are held to same standards as CC students
 - Flexibility with implementation
- **Portability** beyond local colleges when courses meet statewide criteria (**see link**)
 - Policies
 - Competencies



Rethinking Math: 12th Grade to 1st Year College

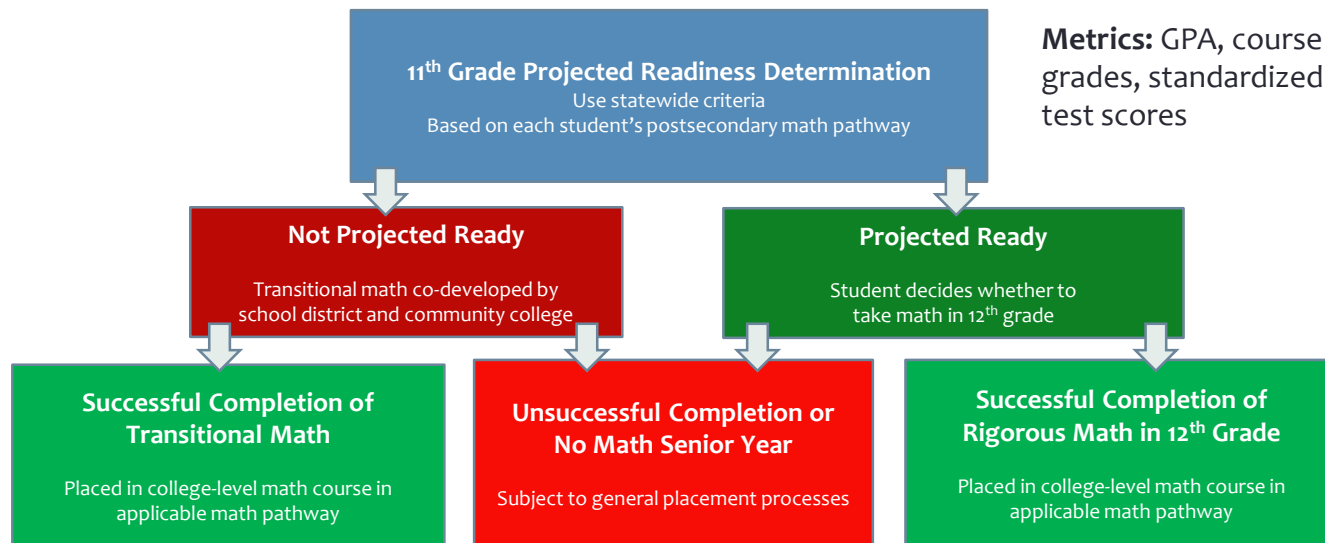
Transitional Math Pathways



Students who change to a path requiring more algebra may take a placement test or use alternative options, such as bridge courses or co-requisite courses, to accelerate that change.



Junior year: determine college readiness



Transitional math logistics

- Students must have met graduation requirement to take transitional math
- Placement lasts 18 months after receiving it
- Courses will be transcribed at high school level using a course code
- Courses can be one semester or one year (allows for senior year dual credit)



Questions?



TM: A new experience

Designed for seniors to give them a different experience their last year (from first 3 years or traditional dev math)

Integrate contextualized learning, problem solving, and college and career readiness

Focus on complex problems, not just complex procedures

Students get to “do math” while they address math weaknesses

See how math comes together and applies to their lives, work, and courses



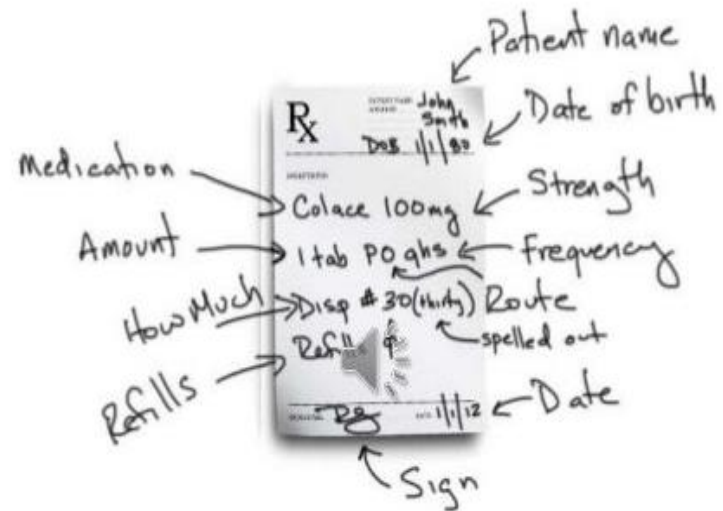
Curriculum contextualized to a high school senior

A doctor orders dicloxacillin sodium 125 mg p.o. q.6.h. for a child who weighs 55 lb. The recommended dosage of dicloxacillin sodium for children weighing less than 40 kg is 12.5 to 25 mg/kg/day p.o. in equally divided doses q.6.h. for moderate to severe infections. Is the dosage safe?

Abbreviation definitions

p.o. – medication is taken orally

q.6.h. – frequency of medication taken (every 6 hours in this case)



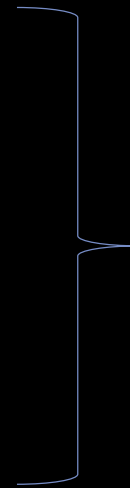
Content aligns with the **Common Core** and incorporates **21st century skills**



Readiness from a college math perspective: a working knowledge of content

Students can:

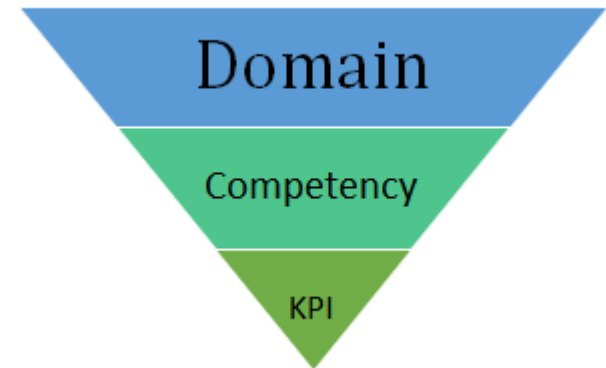
- Read and think critically
- Use mathematical skills
- Use technology
- Solve problems with words



CONNECT
APPLY
RETAIN

Competencies vs. Standards

- Competencies are broad learning goals for a mathematical area called a domain
- Competencies illustrate how a student can integrate and apply skills in context for a domain
- Key performance indicators (KPI's) are more like standards
 - Emphasize higher elements of Bloom's taxonomy



*See transitional math website

<http://www2.iccb.org/iltransitionalmath/>



Benefits of transitional math

Better serve underrepresented groups and increase equity and access

Improve a school's ESSA score in the college & career readiness category

Reduce number of students in dev ed

- increase number of students in college math
- increase completion rates
- may increase college enrollment

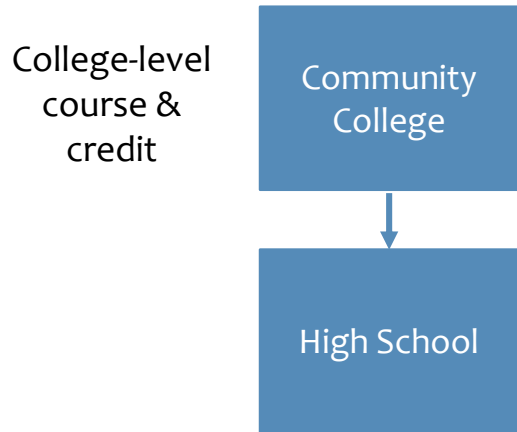
Build relationships and alignment between K-12 and colleges



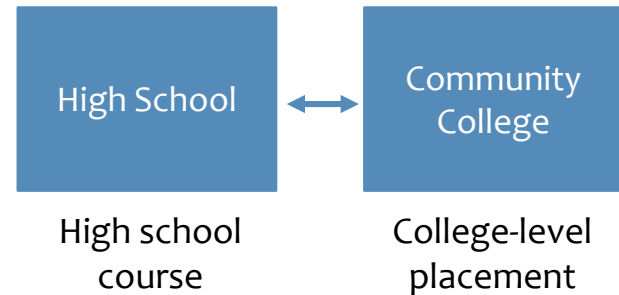
Making TM happen:

A different approach to high school partnerships

Dual Credit Course



Transitional Course



Keys to success: communication and trust



Partnerships, not blame



Factors critical to transitional math success

MOU establishing expectations that have been agreed upon by HS and CC

Training and ongoing support for teachers, including a CC liaison

Comprehensive advising approach

Evaluation and improvement of courses over time

Working relationship between HS and CC and between faculty and administrators



Summits: Efficient way to start process

Format:

- 3 hours with HS and CC teams
- Gets everyone acquainted and up to speed
- Individual support for high schools
- MOU discussion

13 held so far; 13 coming later this year



Major components of MOU

1. Grading standards that adhere to statewide policies (testing, grades, etc.)
 - At least 25% of the overall grade must come from problem or project-based learning tasks.
 - A single assessment may not be more than 50% of the final grade in the course.
 - No more than 25% of the course grade can come from formative assignments such as homework

NOTE: HS courses, not college courses but policies should **transition** students

2. Placement specifics in line with statewide placement policies
3. Any path-specific policies
4. Information on teaching structure with embedded courses (if applicable)



Sample process of constructing an MOU

1. CC has a summit with its high schools to familiarize everyone with process and partners
2. CC begins drafting an MOU based on feedback from summit, known issues, etc.
3. CC meets and/or distributes draft MOU for discussion and edits until consensus is reached.
4. CC reviews all curriculum maps from high schools and chooses a representative one.
5. CC will submit the MOU and a representative curriculum map to portability panel.



Portability process: emulating what works



Portability of courses to be determined at the state level
Verify competencies and policies are met



Curriculum and professional development

Have secured funding to develop resources and find existing ones.

- Curriculum maps workgroup underway
- Illinois OER already has PWR TM libraries and some free resources.

Website development with resources is underway.

Professional development to come

- Current efforts are dedicated to getting resources, meeting legislative requirements, and developing course supports.
- PD will include face-to-face trainings as well as an online course that HS teachers can get PD credits for.
- Training will be created for teachers and counselors.



Implementation status: significant engagement & fast pace

- State educational agencies supporting statewide implementation of transitional math through grants and staffing (including additional staffing)
- Draft policies and competencies accepted by agencies this summer
- Universities are being engaged
- An assessment process will be developed
- A monitoring and scaling approach is being developed
- Support coming for existing pilots to convert



Scaling Transitional Math

Colleges or high schools implementing, or planning to implement TM

Community College Districts	Public High schools
2017: 31 out of 39 (79%)	2017: 95 out of 721 (13%)
2018: 32 out of 39 (82%)	2018: 171 out of 721 (24%)
2019: 39 out of 39 (100%)	2019: 278 out of 721 (39%)

Statewide scaling over next 4-5 years

Goal: 100% of public high schools and community colleges

NOTE: All high schools are opted in by the law by default. Schools can opt out through their school boards provided they meet the law's requirements to do so.



Initial Data

More data will be collected at the state level. But pilots are promising:

College of Lake County (pass rates of QL TM course with a grade done over a year)

HS 1: 16/29 (55%)

HS 2: 18/29 (62%)

TOTAL: 34/58 (58.6%)

City Colleges of Chicago (One semester QL TM course in Spring 2018)

84 out of 154 (54.5%) students taking the TM course passed with a C or better.

Harper College (TM course is in STEM track)

In the initial years they tracked students who had taken the senior math course AND then came to Harper AND took a college-level course at Harper (Stats, Quant Lit or College Alg)

260/360 \approx 72.2% got a C or better in that Harper class (this percentage for Harper students has historically been 48-52%)



Questions?



For more information

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Current website: www2.iccb.org/iltransitionalmath

Contains public commenting summary and recommendations as well as policies and competencies document

Illinois Open Educational Resources (IOER) website: <http://ioer.ilsharedlearning.org>