

Promoting Connections in the Talent Development Pipeline Webinar

October 07, 2015

Agenda

Jeremy Eltz, Assistant Director of College and Career Readiness, Indiana Department of Education

- STEM Certification

Kimberly Frazier and Christi McBride, Region 8 Works Council

- CTE³ Summit – Engage, Educate, and Enlighten

Rena Broadnax, Manager of Statewide Quality Initiatives, Early Learning Indiana

- Partnerships for Early Learners

Indiana Department of Education -STEM-

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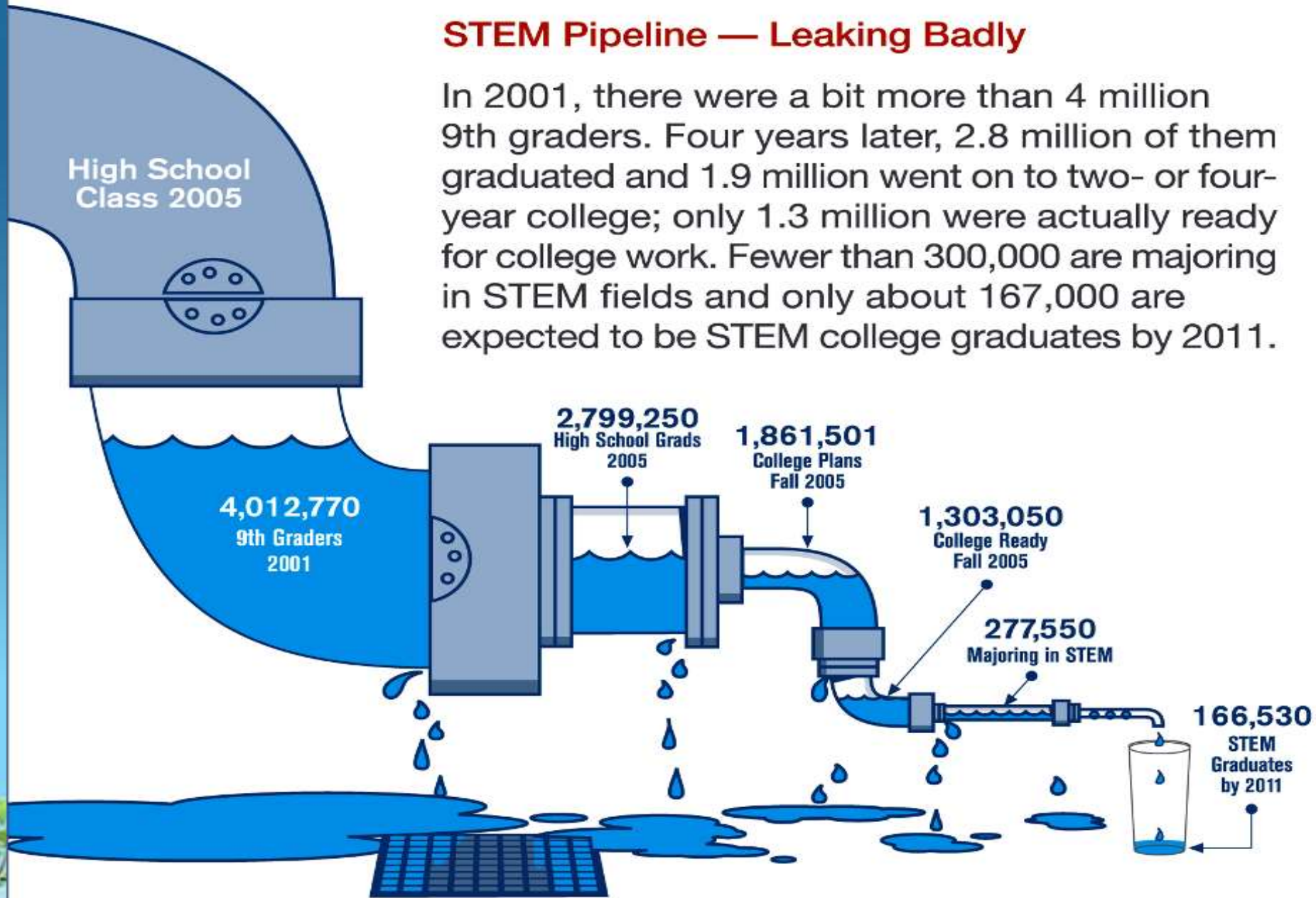
Why the focus on STEM?

- Increasing economic pressures
- Competition in the global marketplace
- Recognition of the importance of STEM for innovation and development



STEM Pipeline — Leaking Badly

In 2001, there were a bit more than 4 million 9th graders. Four years later, 2.8 million of them graduated and 1.9 million went on to two- or four-year college; only 1.3 million were actually ready for college work. Fewer than 300,000 are majoring in STEM fields and only about 167,000 are expected to be STEM college graduates by 2011.

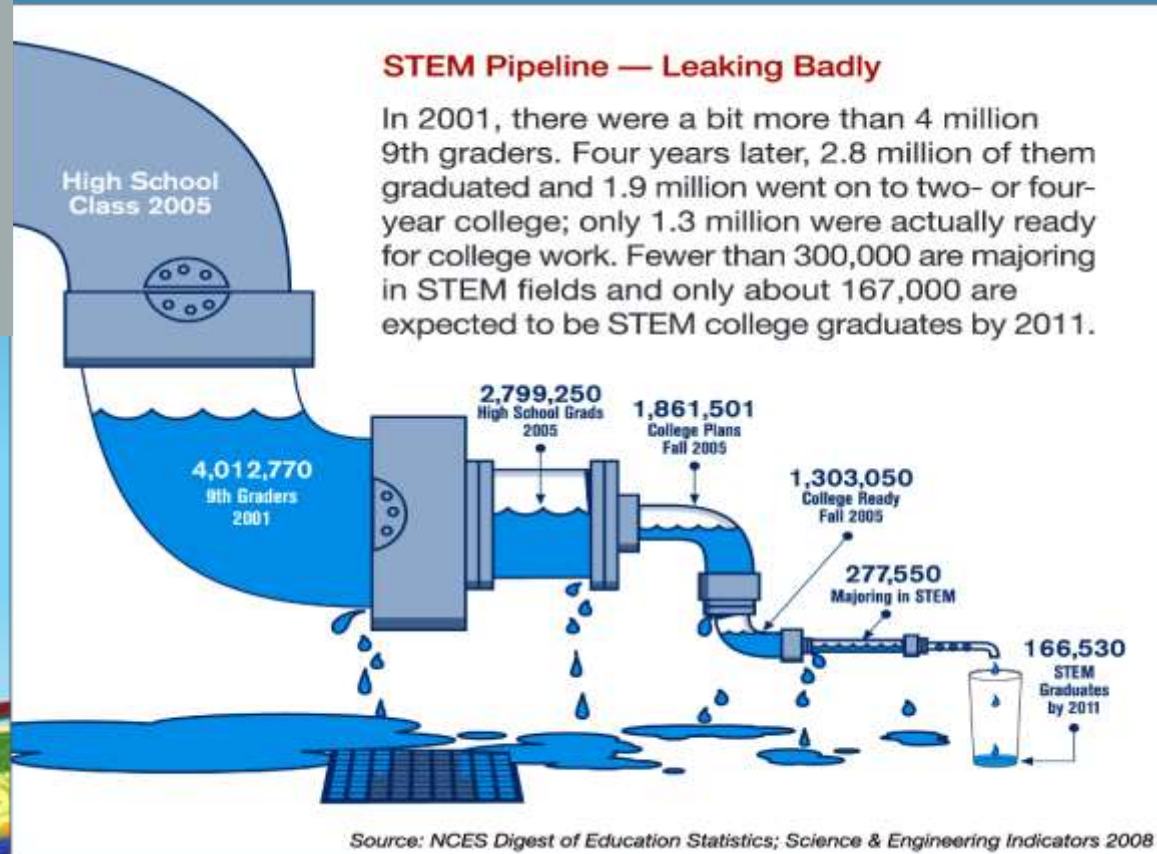


Source: NCES Digest of Education Statistics; Science & Engineering Indicators 2008

Pre-K

Elementary School

Middle School



Why is STEM Important to Indiana?

VITAL SIGNS INDIANA



Business leaders in Indiana have sounded an alarm. They cannot find the science, technology, engineering and mathematics (STEM) talent they need to stay competitive. Students' lagging performance in K-12 is a critical reason why.

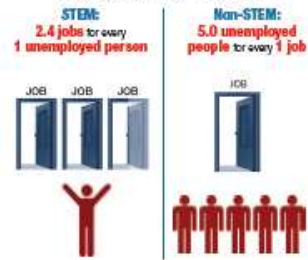
To address this challenge, Indiana is raising the bar. The state has joined 44 others in adopting high math standards for K-12—the Common Core State Standards—and is working with other states to create rigorous assessments aligned to those standards. These are promising steps, but the state must do more to succeed amid profound political, practical and financial challenges.

Indiana will need to ensure that schools and students have opportunities to meet higher expectations. Students have made progress in math over the past decade. Yet not enough students—least of all minorities—get the chance to learn challenging content that prepares them for college and careers. Gender disparities are also troubling: Eighth-grade boys outperform girls in science, and women earn about a fourth of college certificates and degrees in STEM fields. Nearly two-thirds of Indiana community college students require remediation in math, costing the state millions of dollars.

To its credit, the state stretches its math and science education dollar farther than other states do. Smart investments will be critical as business leaders work with educators and states to tackle new reforms in lean times.

STEM SKILLS ARE IN DEMAND

In Indiana, STEM skills have stayed in demand even through the economic downturn.



CAN INDIANA MEET THE DEMAND FOR STEM SKILLS?

Students have made real academic strides in most states, but no state is on track to getting all students the STEM skills they need to succeed in college and careers. Low-income and minority students lag farthest behind.

Students have improved in math

Since 2003, eighth graders in Indiana have made some gains on the National Assessment of Educational Progress (NAEP), also known as "the nation's report card." Yet most still have far to go to reach a score of 250, NAEP's cutoff for "proficient" performance.

8th Grade NAEP scale scores, 2003 & 2011

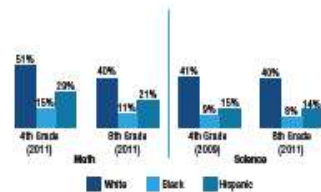
	NAEP Scale Score		Change Since 2003	
	2003	2011	Diff	Most Improved State
All	261	285	+24	+17 (DC)
Low Income	225	242	+17	+19 (AK)
White	286	300	+14	+17 (HI)
Black	251	264	+13	+19 (NJ)
Hispanic	261	275	+14	+24 (AR)

Totals may not sum due to rounding errors

Closing achievement gaps must remain a priority

No state has closed the persistent achievement gaps among racial and ethnic groups.

Percentage of students scoring at or above proficient in math and science, 2009 & 2011



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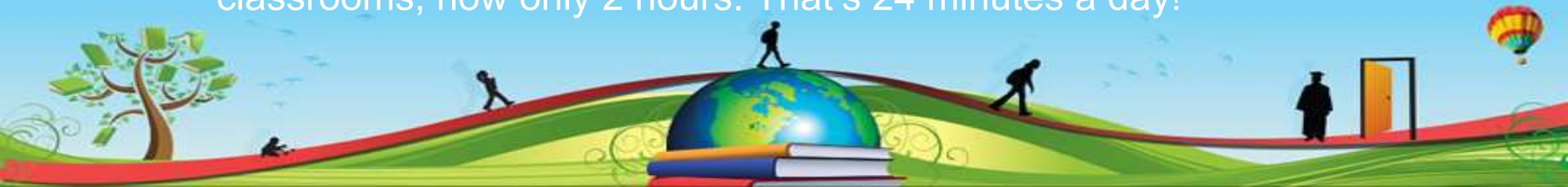
STEM:
2.4 jobs for every 1 unemployed person

Non-STEM:
5.0 unemployed people for every 1 job

<http://changetheequation.org/>

Indiana STEM Vital Signs

- 2.4 STEM jobs for every unemployed STEM person, 5 unemployed people for every 1 job outside of STEM
- Only 12% of college graduates receive a degree in the STEM fields
- 64% of Indiana's first time community college students need remediation in math
- In 1994 science was taught 3 hours per week in elementary classrooms, now only 2 hours. That's 24 minutes a day!



What does a STEM classroom look like?

- A STEM classroom is a non-traditional classroom that shifts students away from learning discrete bits and pieces of phenomenon and rote procedures but works toward investigating and questioning the interrelated facets of the real world.



How do STEM students perform?

- STEM education aims to develop a student's ability to think logically, solve problems, innovate in both academic and real-world contexts, engage in inquiry, collaborate with peers, and self-motivate.



Key Elements of Effective Instruction

1. A coherent set of standards and curriculum
2. Teachers with high capacity to teach in their disciplines
3. A supportive system of assessment and accountability
4. Adequate instructional time
5. Equal access to high-quality learning opportunities



School Conditions that Support Learning

1. School leadership as the driver for change
2. Professional capacity of faculty and staff
3. Parent-community ties
4. Student-centered learning climate
5. Instructional guidance for teachers



State Certified STEM Schools

- The IDOE plans to begin providing an IDOE approved STEM Certification for schools that want to be recognized as STEM
- Our Goal is to create a STEM school network promoting collaboration of best practices in STEM classes
- A pilot application period should be opened in the fall of 2014 with certifications being awarded in spring of 2015



Purpose of Recognizing STEM Schools

- Increase the number of our graduates that are prepared to enter college and careers in the science, technology, engineering, and mathematics fields
- Form a network of IDOE recognized STEM schools that will be able to share resources and best practices in addition to collaborating on professional development, standards and curriculum
- IDOE STEM certified schools will have credibility within the community to enable partnerships with STEM businesses and industry
- Publically recognize the great and challenging work our schools are doing to educate our children for the 21st Century



Process 2015-16

- **Step 1: School should perform a self-evaluation using the STEM School Rubric and submit the pre-application to the IDOE STEM Coordinator. (July-September)**
- **Step 2: School makes adjustments based on self-evaluation and determine level of preparedness for full application. (September-October)**
- **Step 3: Complete the full application and submit to the STEM Coordinator.(November-December)**
- **Step 4: Site visit to the school from the STEM Review Team (January - April)**
- **Step 5: Review application and compare it with the evidence and supporting documentation from the site visit. (April - May)**
- **Step 6: If recommended for certification, school will develop an award ceremony where the IDOE will present you with a banner. (May - June)**

All certified STEM schools will be expected to reapply for certification every 5 years.
Evidence of growth in the STEM attributes will be expected.



Self- Evaluation Using the STEM Implementation Rubric

- School will evaluate themselves in four areas
 - Infrastructure – 8 Attributes
 - Instruction – 6 Attributes
 - Curriculum – 5 Attributes
 - Extended Learning – 3 Attributes
- Each Area and Attribute has detailed descriptors that show what level of implementation your school is currently achieving
- STEM Certified School will demonstrate full implementation of all the Indiana Department of Education Essential STEM Attributes (1.1, 1.3, 1.5, 1.8, 2.3, 3.5, 4.3).



STEM Implementation Rubric

- **Full STEM Implementation:** Highest level of implementation of a STEM program
- **Approaching STEM Implementation:** Quality program meeting expectations
- **Developing STEM Implementation:** Program has met some components, but still needs further development
- **Initial STEM Implementation:** STEM program discussions have occurred and program implementation in infancy



STEM Implementation Rubric – Infrastructure –

1 – Infrastructure: Is a structure and process in place to support the program’s mission, vision, and goals? STEM school requires several leadership teams that collaborate and dialogue frequently about the program’s design and effectiveness. Teachers are highly collaborative and community members are included in decision-making.

INDIANA DEPARTMENT OF EDUCATION STEM ATTRIBUTES	Initial IMPLEMENTATION	Developing IMPLEMENTATION	Approaching IMPLEMENTATION	FULL IMPLEMENTATION
1.1 Leadership Teams at the district and school levels				
1.2 School schedules				
1.3 Community Engagement				
1.4 School Environment				
1.5 Technology Resources				
1.6 Data (state, district, school, classroom)				
1.7 Evaluation				
1.8 Equity				



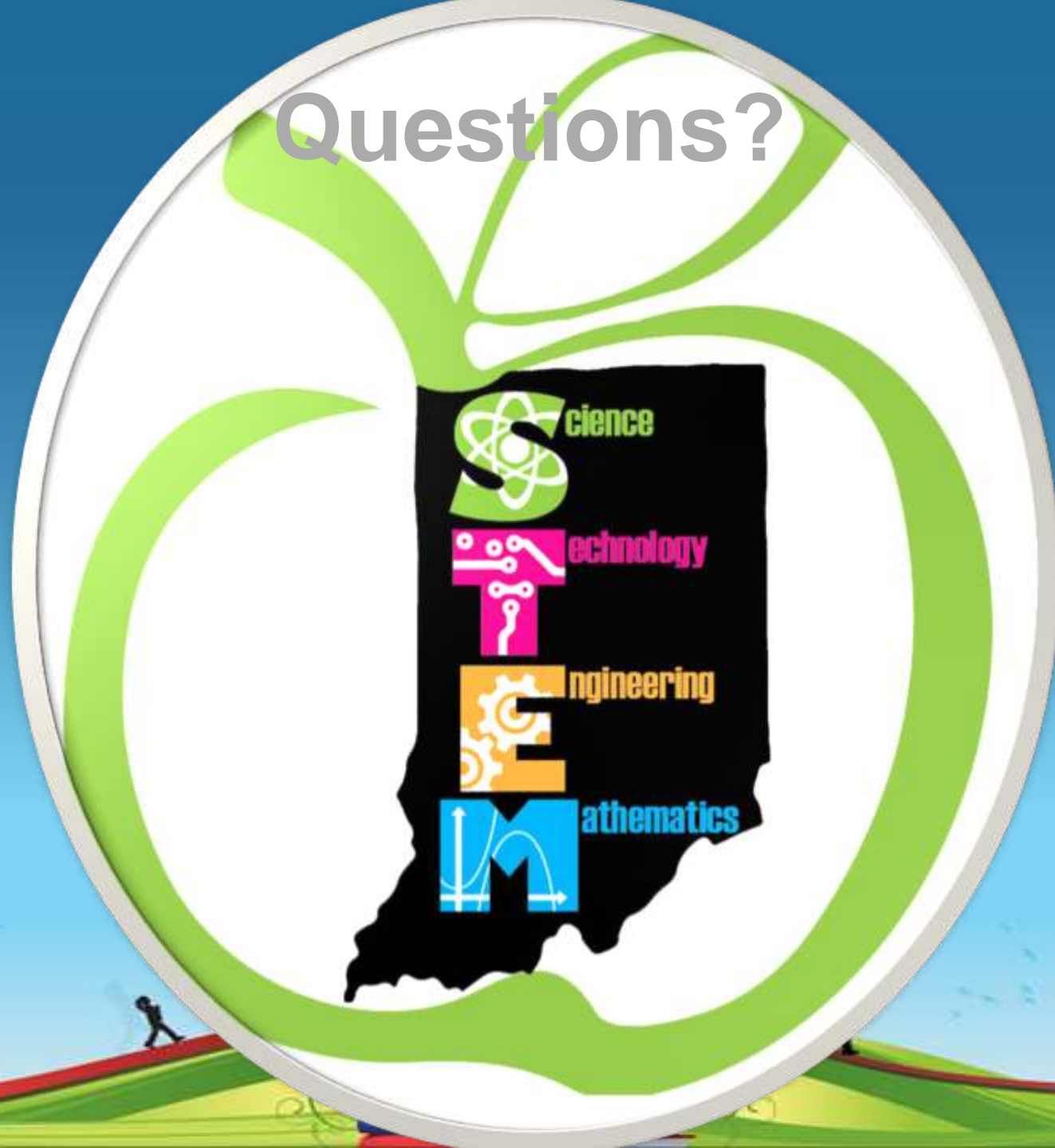
STEM Implementation Rubric – Infrastructure –

1 – Infrastructure: STEM programming requires leadership teams that collaborate and engage in dialogue frequently about the STEM program’s design and effectiveness. Teachers are highly collaborative and community members are stakeholders in decision-making. Is a structure in place that supports the program’s mission, vision, and goals?

Key Element	Initial IMPLEMENTATION	Developing IMPLEMENTATION	Approaching IMPLEMENTATION	FULL IMPLEMENTATION	
1.1 Leadership Teams at the district and school levels	<ul style="list-style-type: none"> - Administrative leadership and/or STEM teacher teams have determined the program’s purpose and content - Leadership provides support to STEM teacher teams by allocating resources towards implementation and professional development - Decision making is made by less than 25% of staff 	<ul style="list-style-type: none"> - Administrative leadership provides support to STEM teacher teams by allocating resources towards implementation and professional development - STEM teacher teams meet with administration regularly to discuss program implementation. - Decision making is made by 25 - 50% of staff 	<ul style="list-style-type: none"> - STEM leadership team in place to define and monitor and evaluate entire program - PLCs or teacher teams address expectations of program set by the leadership team. - Teams meet regularly to discuss program goals and progress, research, best practices, and opportunities for improvement. - Decision making is made by greater than 50% of the school’s staff 	<ul style="list-style-type: none"> - STEM Leadership team in place to define, monitor, and evaluate entire program - PLCs and teacher teams address specific expectations of the program set by the leadership team - Leadership teams meet regularly to discuss research, best practices, successes, and opportunities for improvement towards STEM program goals. - Decision making is made by all school staff, classroom, and special area teachers 	Description of your program /Supporting Documentation



Questions?





**CTE³ SUMMIT – ENGAGE, EDUCATE, AND
ENLIGHTEN**

Kimberly Frazier

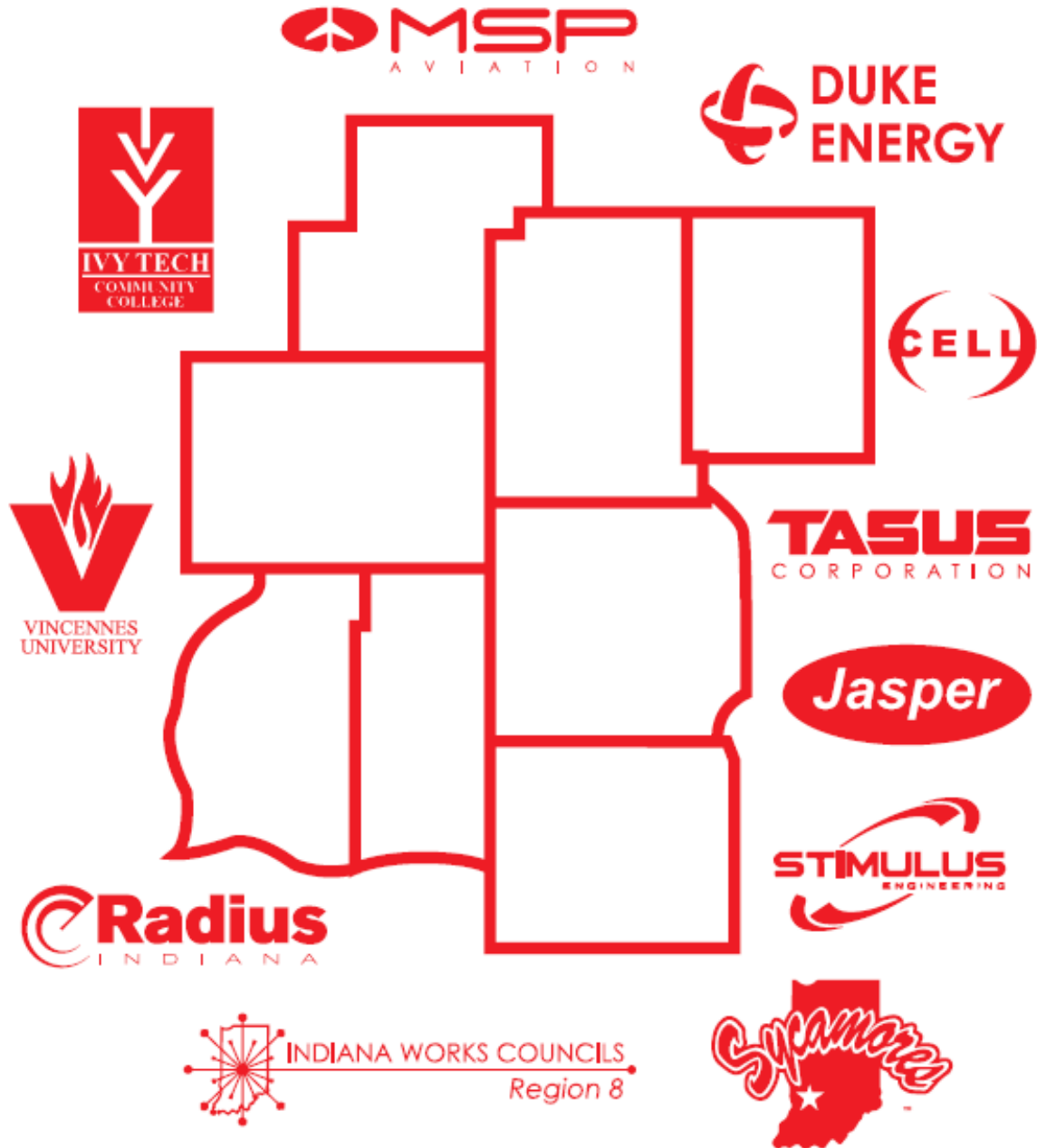
Christi McBride

Region 8

CTE³ SUMMIT - REGION 8

- Outreach opportunities brought by the passion of education and industry partnerships
- Creating of vision for a student focused event around Career Pathway Awareness for Career and Technical Education in Region 8
- Linear Presentations with connections to high school, post secondary and industry career options within the region





- Outreach focused on STEM and more in the region. Hosted at Westgate Academy outside Crane Naval Base as a central location within Region 8. Supported initially by Stimulus Engineering, Hoosier Hills Career Center and Region 8 Works Council



CTE³ SUMMIT REGION 8

Engage

- Linear presentations by high school students in 8 top career pathways for our region



Educate

- Post-Secondary connections to high school curriculum by various institutions



CTE³ SUMMIT REGION 8

Enlighten

- Career opportunities represented by regional industry



Rap Sessions

- Presentations by industry, Post-Secondary, and Work One



CTE³ SUMMIT REGION 8

STEM – PLTW

- Robotics, IT and National Defense



Interactions Galore

- Agriculture, and Hospitality & Human Services



CTE³ SUMMIT REGION 8

Connections

- Advanced Manufacturing, Automotive and Construction



Mock Interviews



CTE³ SUMMIT REGION 8 LUNCH CO-SPONSORED BY VU AND IVY TECH

CNC/Aviation - Vincennes



ASAP/ Design – IVY Tech





CTE³ SUMMIT - NOV 13TH

- Collaborate with 500+ students, 130+ vendors, 30+ chaperones, 20+ volunteers/staff from Region 8.
- To Register, Go To: ctesummitnov2015.eventbrite.com
- Held once again at Westgate Academy outside of Crane Naval Base.

Thanks for your time!





PARTNERSHIPS FOR EARLY LEARNERS

The Early Childhood Workforce in Indiana:
*A growing profession and essential support
for working families*



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115 years of Early Learning Indiana



We exist because Hoosier families need quality child care and early childhood education

INDIANA
EARLY LEARNING
NEEDS ASSESSMENT

2015

Key Findings

509,000 children
ages 0-5 in Indiana

66% of families have
all parents in the
workforce

334,000 children
ages 0-5 require
care



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Today's Goals

*Understand the early
childhood workforce*



*Learn how high-quality early
childhood is needed to
support Hoosier talent*



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The Early Childhood Workforce



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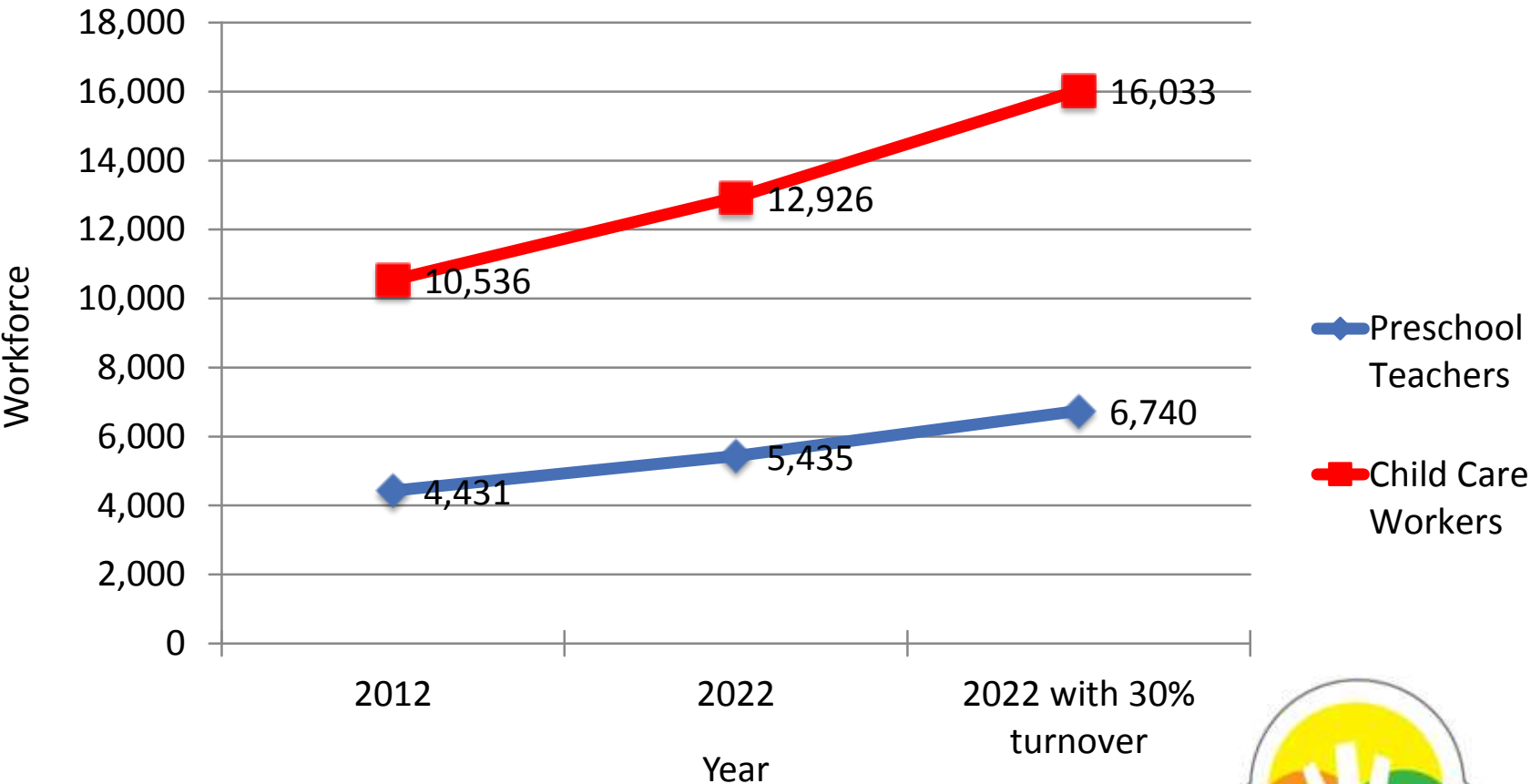
There are over 15,000 ECE teachers in Indiana.

Occupational Title	2012 Emp.	2022 Emp.	Percent Change	2014 OES Avg. Annual Wage
Education Administrators, preschool and child care centers	790	962	22%	\$43,560
Preschool Teachers, except Special Education	4,431	5,435	23%	\$27,600
Kindergarten Teachers, except Special Education	2,877	3,153	10%	\$48,480
Special Education Teachers, preschool	253	305	21%	\$49,630
Special Education Teachers, kindergarten and elementary school	2,762	3,020	9%	\$51,750
Teacher Assistants	24,436	27,170	11%	\$22,340
Child Care Workers	10,536	12,926	23%	\$19,830



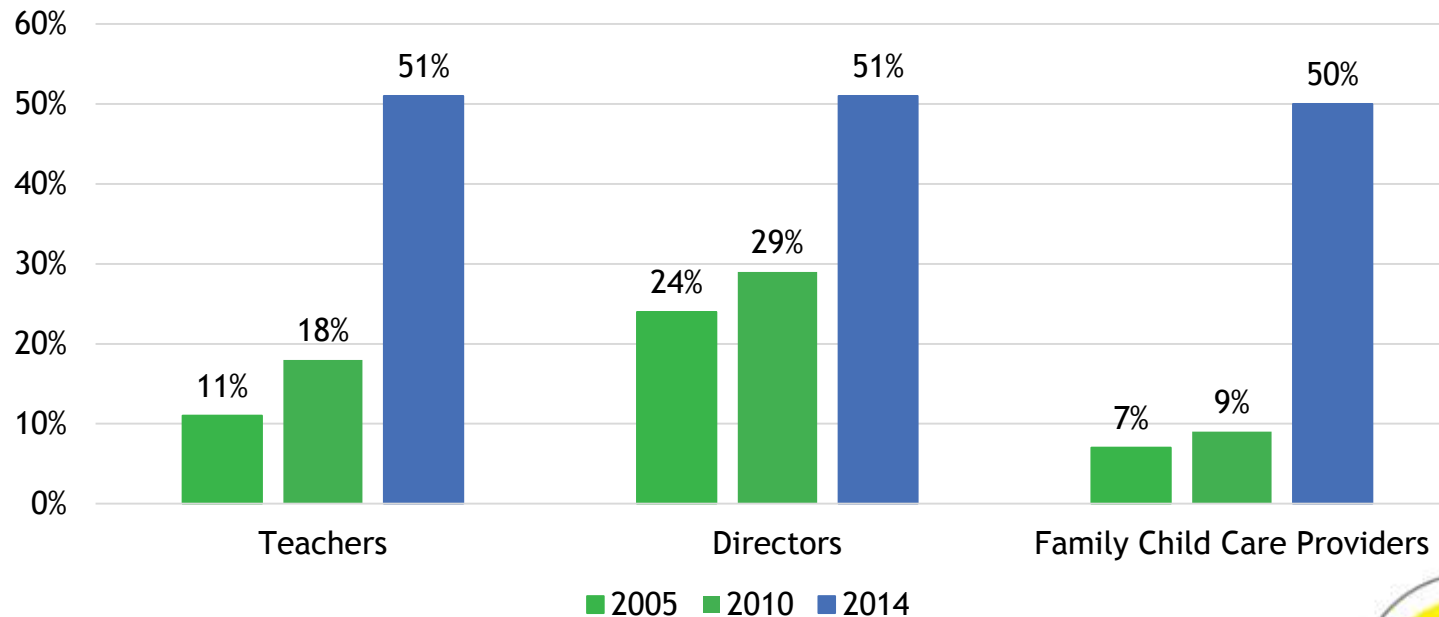
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Demand is set to rise significantly.



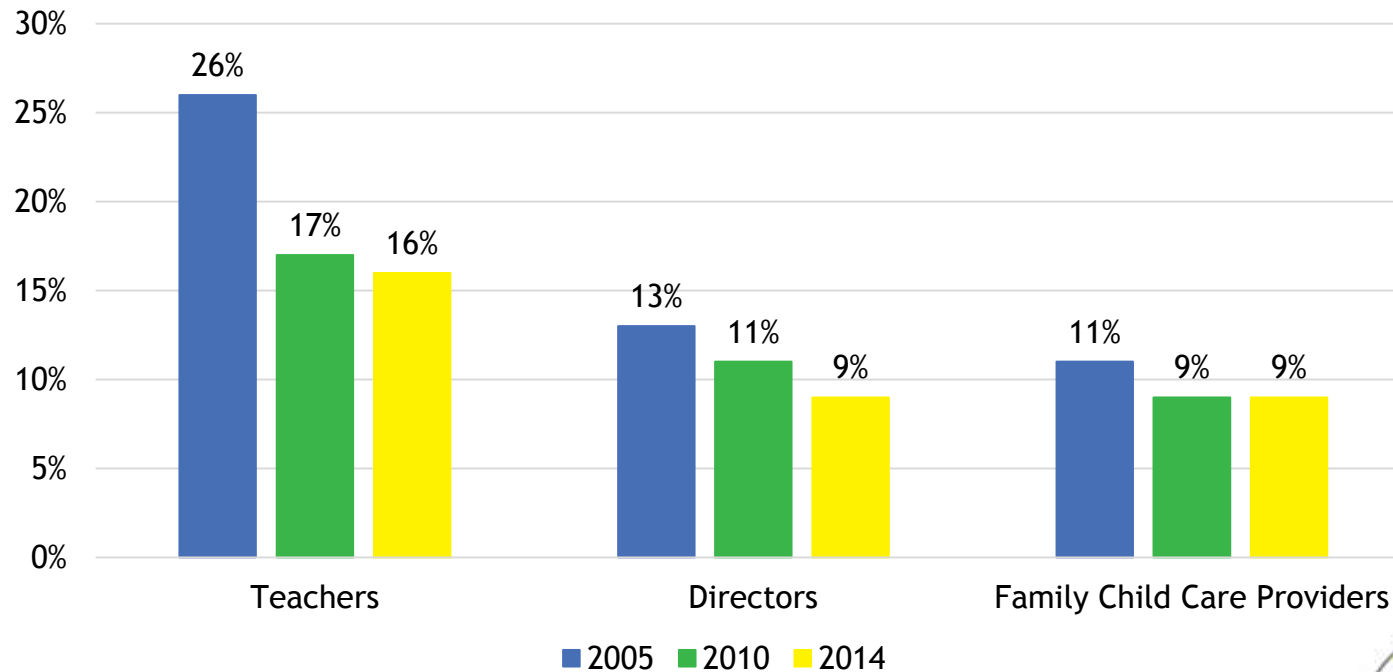
Only half of the workforce has a child-focused AA or BA.

Child Care Workforce With Early Childhood/Child Development Degrees (Associate and Bachelor)



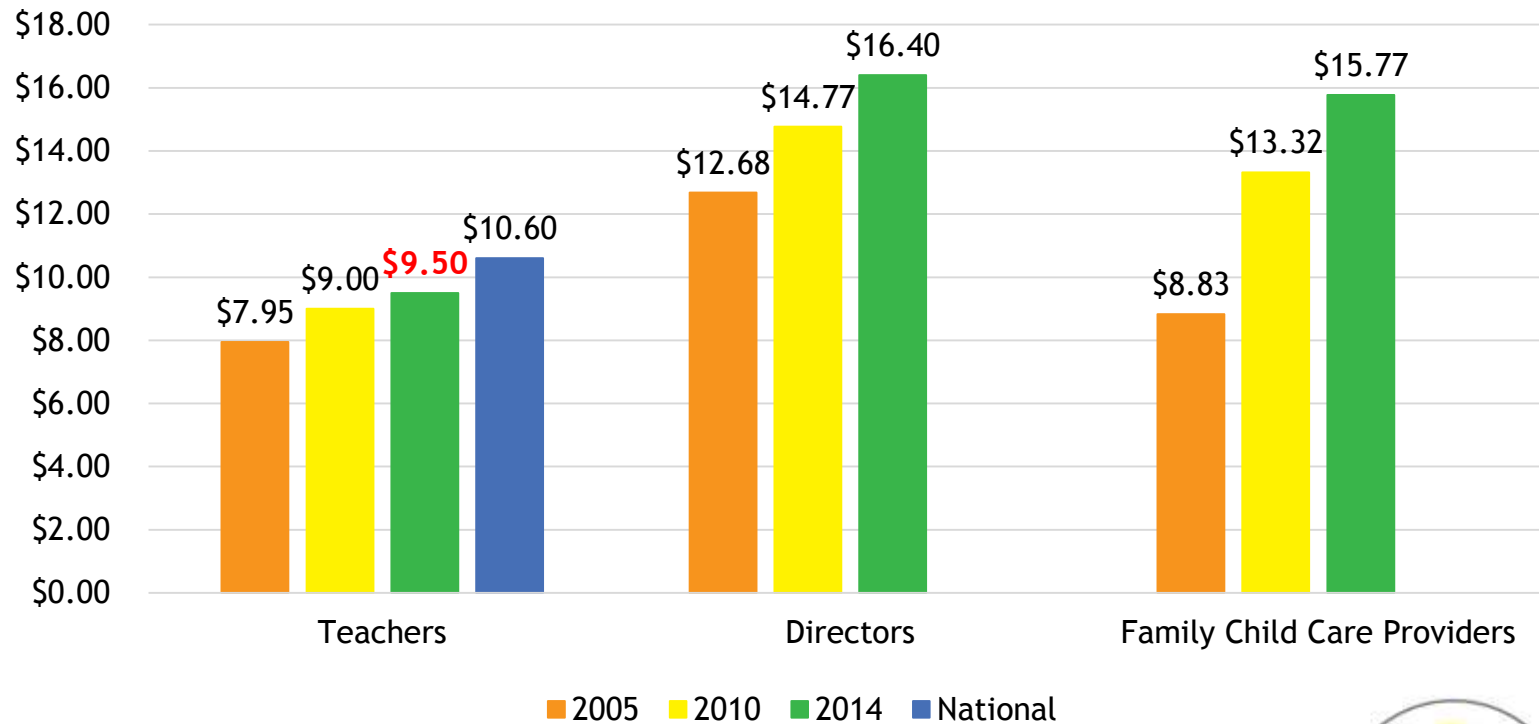
Turnover is a major issue in early childhood.

Workforce Planning To Leave The Field In 3 Years



Wages are a major factor in turnover.

Indiana Child Care Median Hourly Wage Comparison



A five-year, \$20-million statewide campaign funded by the Lilly Endowment



PARTNERSHIPS FOR EARLY LEARNERS

EARLY LEARNING INDIANA

Improve 400
early
childhood
programs

Create 1,000
new high-
quality seats

Engage 7,000
families in
early learning

Support 300
new
credentials

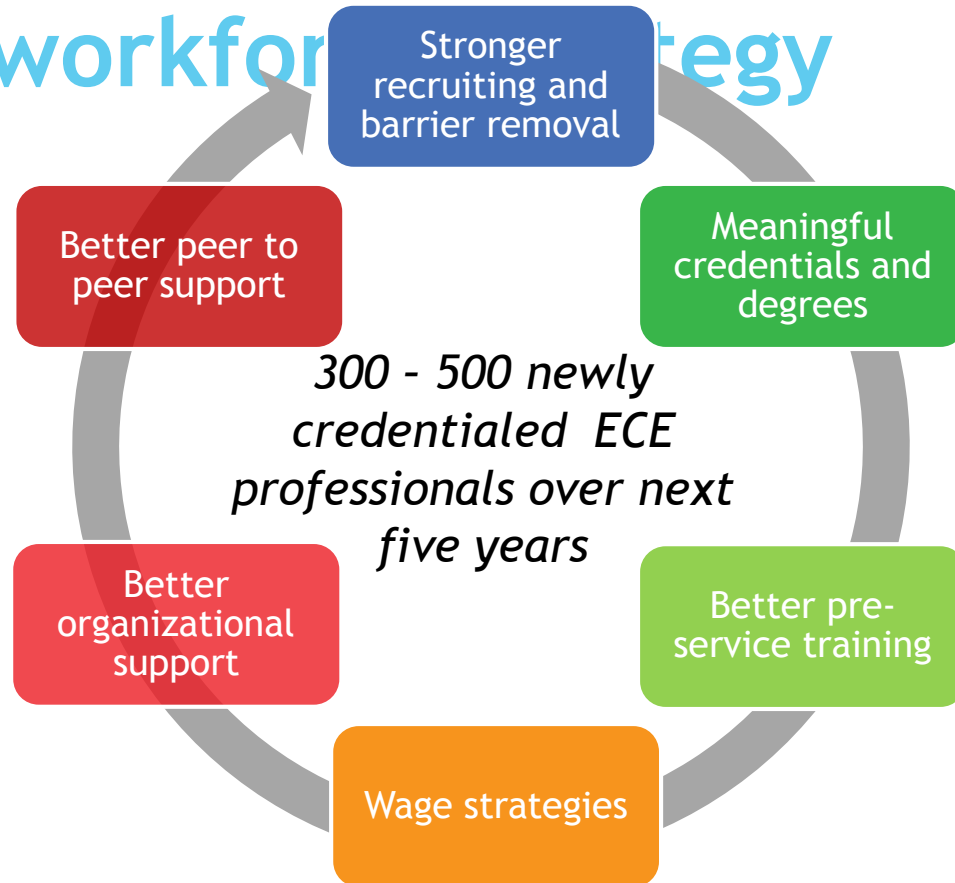
Establish 12
new
innovative
partnerships



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Our campaign is investing over \$3 million in a workforce strategy



- CDA+
- BA's
- Master teachers
- Directors
- Coaches



We need more partners!



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High-quality ECE is needed to support Hoosier talent



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High-quality ECE helps children to develop and parents to go to work



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Lack of quality care inhibits the Hoosier economy



“Approximately one in four low-income families report having to turn down, change or quit a job in the past year due to inadequate child care.”



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Source: Indiana Early Learning Needs Assessment, 2015

There is too little high-quality care in Indiana...



**Indiana Children Ages 0-5
Enrolled in High Quality Care**

- No high quality programs
- Less than 40%
- 40% to 74%
- 75% or more

...and preschool programs cost an average of \$7,300/year



We are supporting quality and capacity through \$9 million in investments, including ...



Coaching



**Financial
Incentives**



**Business
Training**



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Can we support your region? Join our campaign!

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Thank You

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