

Illinois Pathways Initiative

National Association of State Directors of CTE Consortium
October 18, 2011

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Illinois Pathways Initiative Background

- STEM Learning Exchanges were first advanced as part of the State of Illinois' Round 1 and 2 Race to the Top proposals as a college and career readiness strategy for STEM education.
- They were designed to build off of best practices and partnerships developed under ISBE's and ICCB's innovative career and technical education programs.
- While Illinois was not selected as a Race to the Top state, the need for reform persists. Public and private partners continued to convene and collaborate to advance the Illinois Pathways Initiative, including the scaling-up of P-20 STEM Programs of Study and the formation of STEM Learning Exchanges.
- The P-20 Council's College and Career Readiness Committee recently adopted a framework that identifies the continuing need to develop a new, public-private infrastructure for employer engagement and partnership.
- The Illinois Pathways Initiative provides a strategy to help achieve the P-20 Council's goal of 60 percent of all Illinois residents attaining a high-quality academic degree or industry recognized certificate or credential by 2025.

P-20 STEM Programs of Study

Promote models that are designed to: 1) improve academic achievement, 2) increase graduation rates, and 3) improve transition rates to postsecondary education and employment...

Scale-up Programs of Study starting in nine STEM application areas with alignment and articulation to post-secondary institutions and career opportunities.

- A model for restructuring high schools that focuses on college and career readiness and 21st century skills through adoption of the Common Core aligned curriculum.
- Expands the Program of Study model developed under the leadership of the Illinois State Board of Education's and Illinois Community College Board's Career and Technical Education programs.
- Enables students to choose a focused P-20 Program of Study related to their academic or career interests that includes a fully articulated curriculum across secondary and postsecondary education.
- Improves access and success for underrepresented populations in STEM fields such as women, minorities and low-income students.
- Promotes public-private partnerships between schools, communities, and business and industry.

P-20 STEM Programs of Study: Priority Clusters

Nine STEM Programs of Study—consistent with the National Career Cluster Framework—are identified in the RTTT application and will be supported by STEM Learning Exchanges (Note: Energy is a new cluster to be explored).

- 1. Agriculture, Food and Natural Resources:** development, production, processing, distribution, of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources;
- 2. Energy:** developing, planning and managing the production of energy including renewable energy and clean coal technology and its distribution through smart grid technologies;
- 3. Manufacturing:** product and process development and managing and performing the processing of materials into intermediate or final products and related support activities;
- 4. Information Technology:** designing, developing managing, supporting and integrating hardware and software system;
- 5. Architecture and Construction:** designing, planning, managing, building, and maintaining the built environment including the use of green technologies;
- 6. Transportation, Distribution and Logistics:** planning, management and movement of people, materials and goods across all transportation modes as well as maintaining and improving transportation technologies;
- 7. Research and Development:** scientific research and professional and technical services including laboratory and testing services, and research and development services;
- 8. Health Sciences:** planning, managing and providing therapeutic, diagnostic, health informatics, and support services as well as biomedical research and development; and
- 9. Finance:** securities and investments, business finance, accounting, insurance, and banking services.

P-20 STEM Programs of Study: Components

- **Personalization** - Assists teachers, parents, students, and counselors in creating personalized plans of study for a diverse student body that builds a P-20 portfolio.
- **Applied Learning** - Real-world skills and connections to career pathways through applied learning and access to a continuum of work-based learning opportunities.
- **College & Career Readiness Assessments** - Measured through a network of assessments, including 1) academic, 2) employability, and 3) pathways.
- **Broad Orientation** - Courses that introduce students to one or multiple clusters based on common foundational skills, e.g. Technology Orientation.
- **Shared Pathways** - Shared pathways across cluster areas to enable personalization of learning, build capacity and reduce switching costs.
- **Early College** - In advanced pathway courses students earn dual credit, advanced placement and articulated credit to improve transitions and reduce cost.
- **Diverse Delivery System** – Builds program capacity through academic core, CTE courses, electives, regional centers, virtual courses, and college courses.

P-20 STEM Program of Study: Key Features

**Elementary
and Middle
School**



**Secondary
Education
9th and 10th**



**Secondary
Education
11th and 12th**



**Postsecondary
Education and
Careers**

- **Grades P-6: Build STEM skills through authentic learning experiences.**
 - **Grades 7-8: Career development and Explore assessment which assist with educational plan based on academic and career interest.**
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- **Strong focus on orientation level courses and career development.**
 - **Common course infrastructure across multiple pathways.**
 - **Assessments that measure academic, employability and pathway skills.**
 - **Work-based learning as central part of program completion.**
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- **Students begin college-level work in pathways by junior year, e.g. dual credit, advanced placement and articulated credit.**
 - **Coordination with adult bridge programs.**
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- **Transitions and credit articulation as part of pathway progression.**
 - **Portfolio through completing degree programs, attaining stackable credentials, and building lifelong and lifewide professional network.**

P-20 STEM Program of Study: Design

| Grade | Core Curriculum | Electives | Program of Study Pathway Courses | Work-Based Learning |
|--|--|--|--|---|
| Elementary and Middle School | EXPLORE Assessment and Education Plan Development | | | Career Awareness and Exploration |
| Secondary Education 9 th and 10 th | Required English, Language Arts, Math, Science, Social Science, and Physical Education Courses | Recommended Science, Social Science, Humanities, Art, and Foreign Language Courses | Orientation Level Courses across Multiple Career Pathways | Career Workshop, Mentor, Job Shadow |
| Secondary Education 11 th and 12 th | | | Placement Exam for Dual Credit Courses: COMPASS and PLAN | Mentor, Job Shadow, Internship, Sponsored PBL Challenge |
| Post-Secondary Education and Careers | | | Continuation of Career Pathway Development and Acquisition of Stackable Credentials (i.e. Certifications and Certificates/Degrees) | Mentor, Internship, Sponsored PBL Challenge |

STEM Learning Exchange Overview

Goal: To create a new, innovative public-private education infrastructure that can advance college and career readiness in STEM disciplines by coordinating statewide networks of P-20 education partners, business, labor, and other organizations based on career clusters.

- Learning Exchanges are designed to support local implementation of P-20 STEM Programs of Study where students can pursue programs that connect to their academic and career interests.
- Learning Exchanges coordinate nine functions; including planning, resource sharing, connections to professionals, managing transitions, and evaluation of results.
- A separate Learning Exchange is planned for each of the nine STEM areas, which align with the state's economic development objectives.
- To be hosted on the proposed cloud computing-based Learning and Performance Management System (LPMS) as a web-based portal linked to shared data systems.
- DCEO is currently working with ISBE to identify how Race to the Top Round 3 can support the formation of the first round of Learning Exchanges.

Learning Exchanges: Members

Who makes up a STEM Learning Exchange?

- Employers and employer-led organizations
- Labor unions
- Professional associations
- Secondary and postsecondary teachers and faculty
- Students and student organizations
- Community colleges
- Universities
- School districts and local education agencies
- State government P-20 education, economic development and workforce agencies
- STEM education researchers and experts
- Federal laboratories and research centers
- Local workforce investment boards
- Museums and related non-profit organizations
- Community-based organizations serving at risk student populations and other student populations underrepresented in STEM programs of study.

Learning Exchanges: Roles and Functions

1. **Provide e-learning curriculum resources**, including on-line courses, assessments and feedback systems, reference materials, databases, and software tools.
2. **Expand access to classroom and laboratory space, equipment, and related educational resources** necessary to support programs of study through regional partnerships and other strategies.
3. **Support student organizations and their major activities**, including conferences, internships and professional networking experiences, competitions, and community projects that build leadership, communication and interpersonal skills and provide professional and peer support networks.
4. **Provide internships and other work-based learning opportunities** that connect students with adult mentors.
5. **Sponsor challenges and project management resources** for students to work in collaborative teams addressing real-world interdisciplinary problems.
6. **Provide professional development resources for teachers and school administrators** integrated and aligned across middle school, high school, and community college instruction, including STEM externships, support for web-based networks, and integrated professional development for academic and CTE instructors.
7. **Provide career development and outreach resources** to expand awareness of STEM-related programs and careers to K-12 students.
8. Provide tools and resources to assist students and schools with implementing **personalized education plans and transitions to post-secondary academic and training programs**, including establishing course articulation and dual credit opportunities.
9. **Review performance** of STEM-related Programs of Study through performance reporting and work with partners to continuously improve performance.

Next Steps: P-20 STEM POS Working Groups

Work with public-private partners and stakeholders to develop Programs of Study models in priority STEM areas that will serve as implementation roadmaps.

- The goal of each working group is to develop a course sequence within a designated STEM area and provide a general model that reflects all of the P-20 components of a STEM Program of Study.
- This model is designed to establish a series of shared definitions that will support statewide networks and facilitate connections between statewide public-private partners in each of the nine areas. Components of the report include:
 - Career Profiles
 - Baseline Analysis
 - P-20 Course Sequence and Definition Model
 - Cluster Support Resources
- The final report will provide a guide for structuring the future STEM Learning Exchanges, which are charged with supporting Program of Study implementation.
- Working groups convened this past April and will continue through the summer.

Illinois Pathways Initiative

Preliminary Vision for a Governance Structure

Illinois Pathways Interagency Committee

- Established by IGA
- Membership: DCEO, ISBE, ICCB, IBHE, ISAC, IDES
- Functions:
 - Select Learning Exchanges
 - Data sharing across education and workforce systems
 - Establish Pathways Resource Center
 - Establish Illinois Pathways Advisory Council
 - Align programs and policies to support Pathways Resource Center and Learning Exchanges
 - Coordinate with LPMS

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Illinois Pathways Advisory Council

- Membership: IPIC, Learning Exchanges, P-20 Council, Business, and others
- Responsibilities:
 - Advises Agencies, Governor, and General Assembly
 - Advises Pathways Resource Center on projects
 - Submits annual talent pipeline reports and Learning Exchange benchmark reports to Governor and General Assembly
 - Plans annual STEM/Learning Exchange project sharing event

Pathways Resource Center

- One or multiple government or non-governmental entities
- Funded by Authority and submits reports to Adv Committee
- Categories of service:
 - External Outreach
 - Funding Center
 - Technology Platform
 - Performance Management

Learning Exchanges

- Membership: Broad public-private partners, including P-20 education institutions, industry, labor, museums, and community based organizations
- Selected by IPIC through submission of a 3 years strategic plan
- Submits annual talent pipeline and benchmark reports to IPAC
- Coordinates 9 Functions:
 1. E-Learning Resources
 2. Regional Resources & Assets
 3. Student Organization Supports
 4. Work-Based Learning Experiences
 5. Sponsor Challenges
 6. Professional Development
 7. Career Development
 8. Education & Career Planning
 9. Review Performance

Next Steps: Launching the STEM Learning Exchanges

The State of Illinois plans to solicit the first STEM Learning Exchanges in the fall.

- A separate Learning Exchange is planned for each of the nine STEM application areas, though priority will be given to areas based on the following:
 - Completion and support of statewide P-20 Program of Study framework;
 - Economic development potential and need;
 - District survey results;
 - Statewide public-private partner readiness; and
 - Funding availability
- Strategic review process:
 - Establish the organizational structure of the Learning Exchange, including a fiscal agent.
 - Identify and recruit steering group representatives.
 - Develop a three year strategic plan and budget to carry out the nine major functions of a STEM Learning Exchange through the 2012-15 school years.
 - Develop a sustainability plan for continued operations beyond 2012-15 that aligns with permanent governance structure.