Breaking Barriers: How BACs Use Emerging Tech to Connect Students to Careers
3-6-2025

Imagine giving students a front-row seat to in-demand careers— without ever leaving the classroom! The Montgomery County ESC's Business Advisory Council, representing 23 districts and 90,000 students, is using cutting-edge technology like VR to transform career exploration.

Join us to see how virtual reality and other emerging tech are breaking down barriers, creating immersive career experiences, and strengthening connections between students and local industries. Walk away with innovative ideas to bring these tools to your own district!

Who we are

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Montgomery County ESC Business Advisory Council

Ensuring our workforce can compete by enhancing partnerships between schools, higher education and employers

- Ensuring student success and career-readiness
- Helping existing and new businesses thrive
- Keeping talent in our region
- Making Montgomery County a great place to live and work

K	1	2	3	4	5	6	7	8	9	10	11	12

CAREER AWARENESS
Elementary Grades (K–5)

CAREER EXPLORATION
Middle Grades (6–8)

CAREER PLANNING
High School (9-12)

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COUNTY
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Industry Group Collaboration

Elevating Student Voice

Expanding K-5 Engagement

2024

BUSINESS ADVISORY COUNCIL

Excellence in Coordinating Career Development Experiences

Excellence in Developing Professional Skills for the Future

Utilizing Tools Like YouScience and Transfr
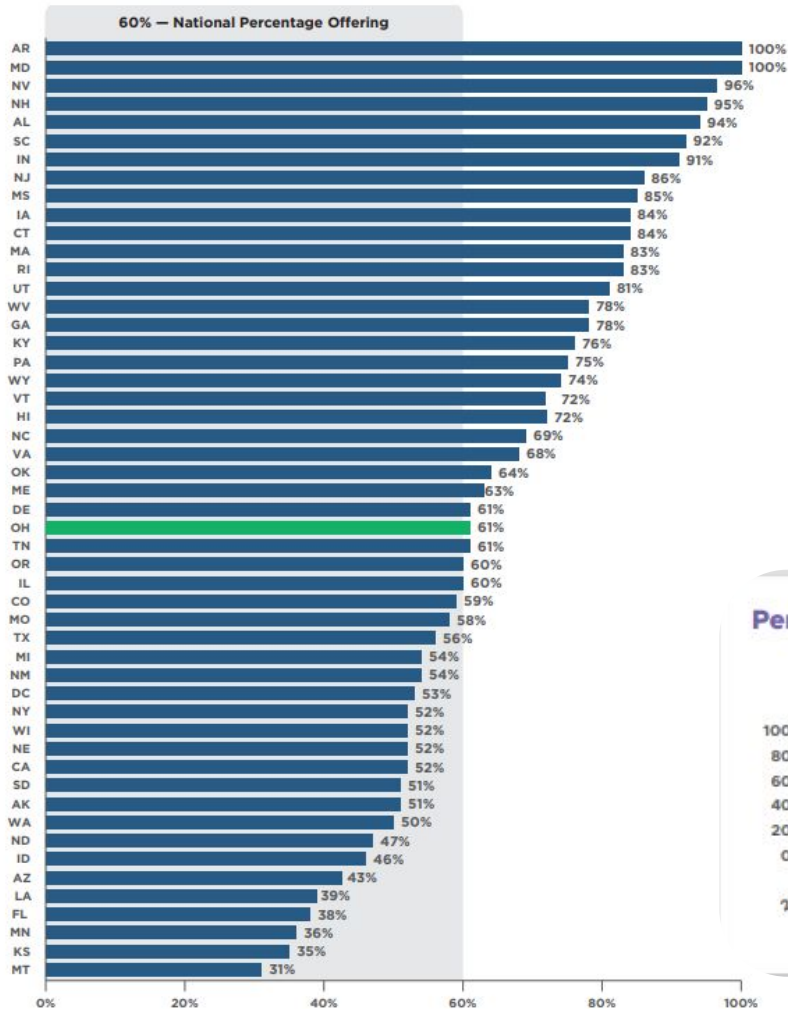
Sharing Regional Education Data

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60% — National Percentage Offering

State	%
AR	100%
MD	100%
NV	96%
NH	95%
AL	94%
SC	92%
IN	91%
NJ	86%
MS	85%
IA	84%
CT	84%
MA	83%
RI	83%
UT	81%
WV	78%
GA	78%
KY	76%
PA	75%
WY	74%
VT	72%
HI	72%
NC	69%
VA	68%
OK	64%
ME	63%
DE	61%
OH	61%
TN	61%
OR	60%
IL	60%
CO	59%
MO	58%
TX	56%
MI	54%
NM	54%
DC	53%
NY	52%
WI	52%
NE	52%
CA	52%
SD	51%
AK	51%
WA	50%
ND	47%
ID	46%
AZ	43%
LA	39%
FL	38%
MN	36%
KS	35%
MT	31%

2024 State of Computer Science Education

Comparative Access to Computer Science Courses (% of HS offering)

Michigan 54%
- ✗ State plan
- ✓ Funding
- ✗ CS required for graduation

Ohio 61%
- ✓ State plan
- ✓ Funding
- ✗ CS required for graduation

Pennsylvania 75%
- ✗ State plan
- ✓ Funding
- ✗ CS required for graduation

West Virginia 78%
- ✓ State plan
- ✗ Funding
- ✗ CS required for graduation

Indiana 91%
- ✓ State plan
- ✓ Funding
- ✓ CS required for graduation
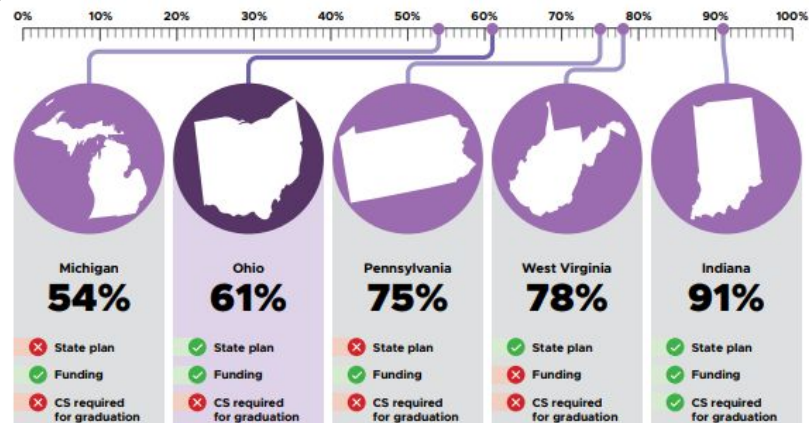
Percentage of Public High Schools Offering Foundational Computer Science

Access by School Year
- 2018–2019: 42%
- 2019–2020: 50%
- 2020–2021: 48%
- 2021–2022: 62%
- 2022–2023: 61%
- 2023–2024

Access by Geography*
- Urban: 62%
- Suburban: 70%
- Rural: 56%

Access by School Size*
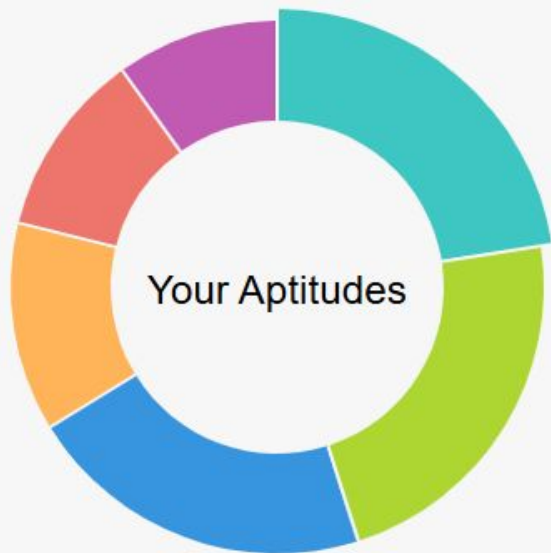- Small: 47%
- Medium: 82%
- Large: 98%
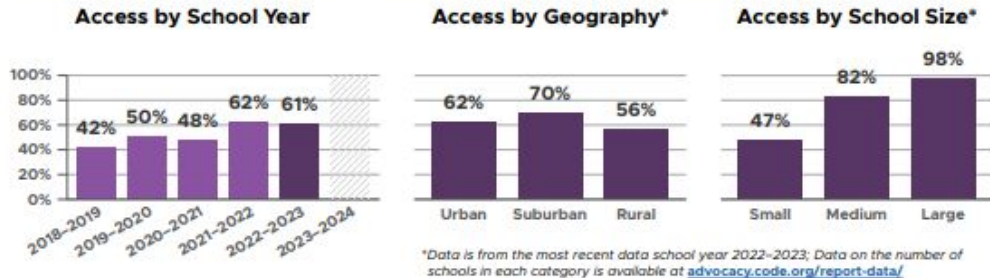
*Data is from the most recent data school year 2022–2023; Data on the number of schools in each category is available at advocacy.code.org/report-data/

Source: code.org

Bryan, you crushed it!

You have some serious talent and awesome career opportunities!

Explore more of your talents

You are **a Sequential Thinker.**

- You can easily organize ideas and concepts in your head.
- You're good at fitting steps into a process, or activities into a schedule, so you excel as a planner.
- Developing systems that do not exist or making existing systems more efficient is where you will shine.

Explore

Your Aptitudes

View Career Matches

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Strong Aptitude Fit

Computer & Information Systems Manager

🎓 Education investment		4+
✂ Projected openings		> 47K
$ Average salary		174k

💡 **Idea Generation**   📷 **Work Approach**

Introduction to this career

A Day in the Life

Computer and Information Systems Managers, often called information technology managers (IT managers or IT project managers), plan, coordinate, and direct computer-related activities in an organization.

As an IT Manager you help determine the information technology goals of an organization and are responsible for implementing the appropriate computer systems to meet those goals.

Core Tasks 1 of 3

○ Provide users with technical support for computer problems.

○ Evaluate data processing proposals to assess project feasibility and requirements.

○ Recruit, hire, train and supervise staff, or participate in staffing decisions.

○ Prepare and review operational reports or project progress reports.

○ Review project plans to plan and coordinate project activity.

○ Develop and interpret organizational goals, policies, and procedures.

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Computer & Information Systems Manager

How This Career Fits You

This graph shows how good of a fit you are on an aptitude by aptitude basis. You'll want your aptitude score to match up with the ideal fit, otherwise it might be too challenging or not stimulating enough for you.

- Your Aptitudes ○ Aptitude Rankings for This Career

Learn More
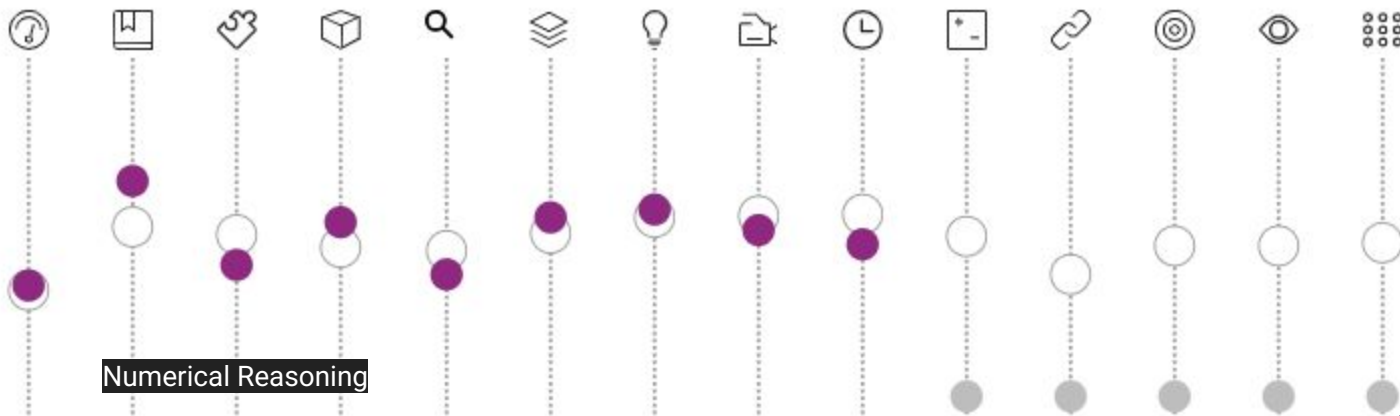
Numerical Reasoning

Your ability in seeing numerical relationships is a strength with this career.

Computer & Information Systems Manager

How Your Interests Match This Career

Your interest in a career can help you decide which careers seem like a better fit for you when the abilities are similar

● Your Interests   ○ Interest Rankings for This Career

Realistic   Investigative   Artistic   Social   Enterprising   Conventional
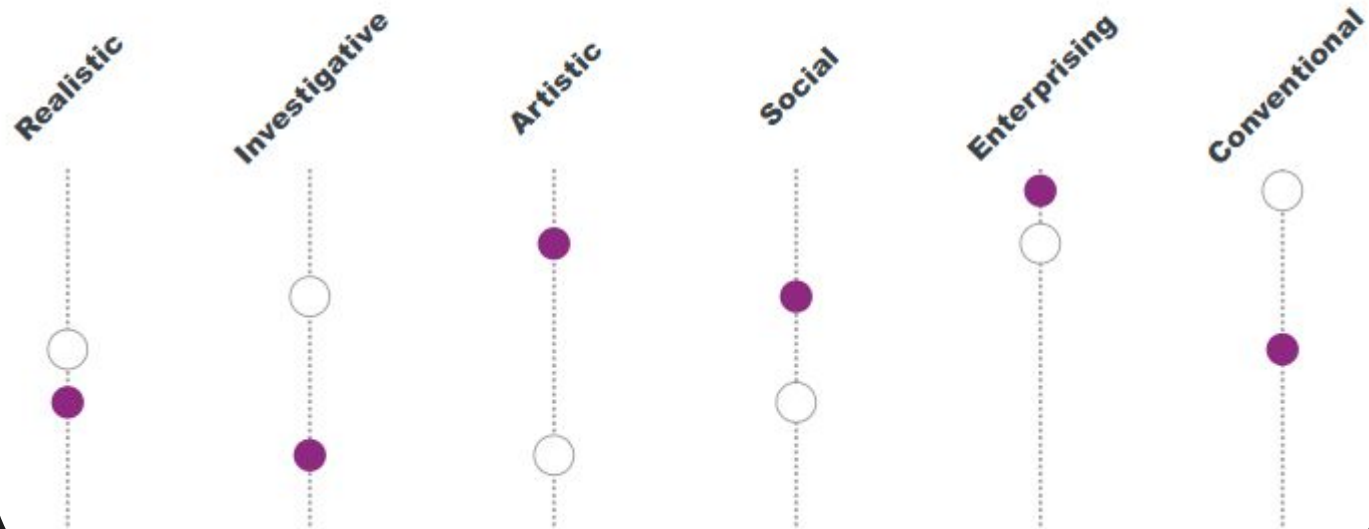
The higher your interest in Investigative work, the more likely you are to enjoy work that allows you to explore ideas, conduct research, and gain knowledge to solve problems.

The higher your interest in Conventional work, the more likely you are to enjoy work with clearly defined rules and processes.

YouScience Computers & Technology Career Results
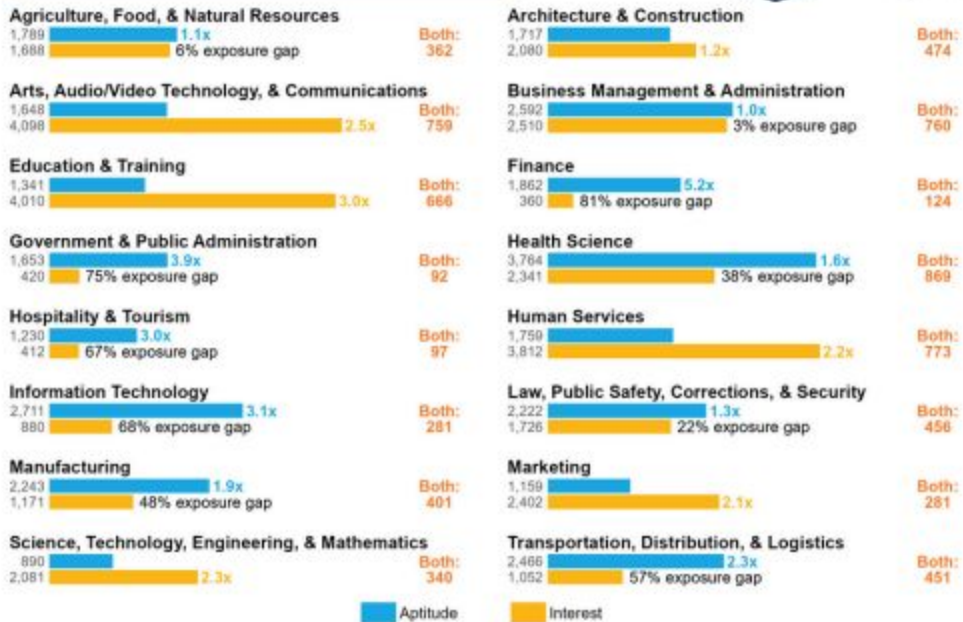**All Active Assessed Students Grades 6-12**

# of Individual Students Assessed
10,349

Business Intelligence Analysts
(Annual Openings Not Listed)
54
88 1.6x
Both: 32

Computer and Information Systems Managers
(72 Annual Openings)
165 1.7x
97 41% exposure gap
Both: 52

Computer Hardware Engineers
(16 Annual Openings)
70 3.9x
18 74% exposure gap
Both: 15

Computer Network Architects
(18 Annual Openings)
323 2.6x
122 62% exposure gap
Both: 102

Computer Network Support Specialists
(30 Annual Openings)
426 6.0x
71 83% exposure gap
Both: 55

Computer Programmers
(16 Annual Openings)
193 2.1x
94 51% exposure gap
Both: 70

Computer Systems Analysts
(126 Annual Openings)
209 2.9x
73 65% exposure gap
Both: 64

Computer User Support Specialists
(159 Annual Openings)
448 12.8x
35 92% exposure gap
Both: 26

Database Administrators
(41* Annual Openings)
268 7.9x
34 87% exposure gap
Both: 21

Database Architects
(41* Annual Openings)
301 4.0x
76 75% exposure gap
Both: 61

Information Security Analysts
(39 Annual Openings)
179 4.3x
42 77% exposure gap
Both: 32

Information Technology Project Managers
(Annual Openings Not Listed)
122 1.1x
111 9% exposure gap
Both: 73

Network and Computer Systems Administrators
(61 Annual Openings)
135 2.8x
48 64% exposure gap
Both: 36

Software Quality Assurance Analysts and Testers
(610** Annual Openings)
553 3.2x
173 69% exposure gap
Both: 152

Video Game Designers
(Annual Openings Not Listed)
252
857 3.4x
Both: 199

Web Developers
(70*** Annual Openings)
617 3.2x
195 68% exposure gap
Both: 154

Aptitude   Interest

Data pulled February 13, 2025
Annual Openings are from ODJFS's Dayton MSA Employment Projections Report (2020-2030)
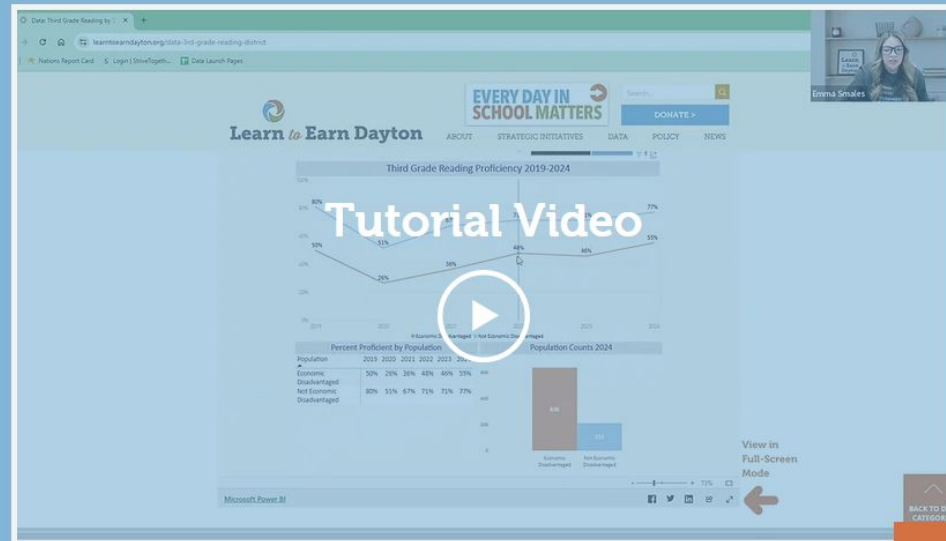*Combined Projection for Database Administrators and Architects
**Combined Projection for Software Developers and Software Quality Assurance Analysts and Testers
***Combined Projection for Web Developers and Digital Interface Designers

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Data Dashboard

Welcome!

This dashboard serves as a central hub, providing partners with access to academic achievement metrics and progress toward community outcomes.

Tutorial Video

View in Full-Screen Mode

COMPUTER SCIENCE EDUCATION WEEK IS AN ANNUAL CALL TO ACTION TO INSPIRE K-12 STUDENTS TO LEARN COMPUTER SCIENCE, ADVOCATE FOR EQUITY, AND CELEBRATE THE CONTRIBUTIONS OF STUDENTS, TEACHERS, AND PARTNERS TO THE FIELD.

EXPLORE OUR NEW

Generative AI curriculum

Designed to inspire and equip the next generation of creators, thinkers, and innovators.

In partnership with amazon

Explore course

Every student in every school should have the opportunity to learn computer science

99M	**42M**	**332M**	**2.9M**	**50**
students on Code.org	of our students are young women	projects created on Code.org	teachers use Code.org	All 50 states support computer science

So we can identify which students have an aptitude for an in-demand sector like computer science and IT... now what?

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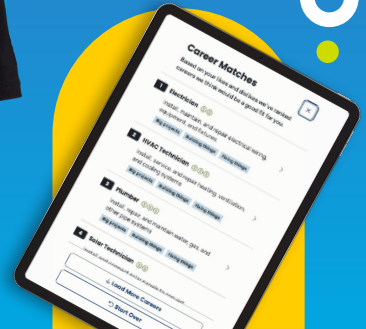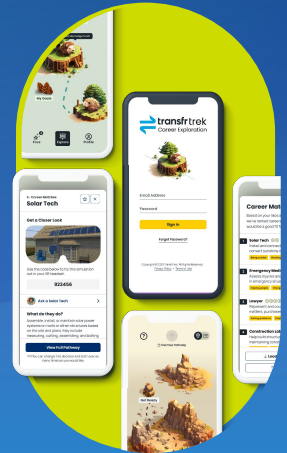
Transfr Trek

Redefining career exploration for a new generation of learners

3/6/2025

Discover How Transfr Trek Transforms Career Exploration
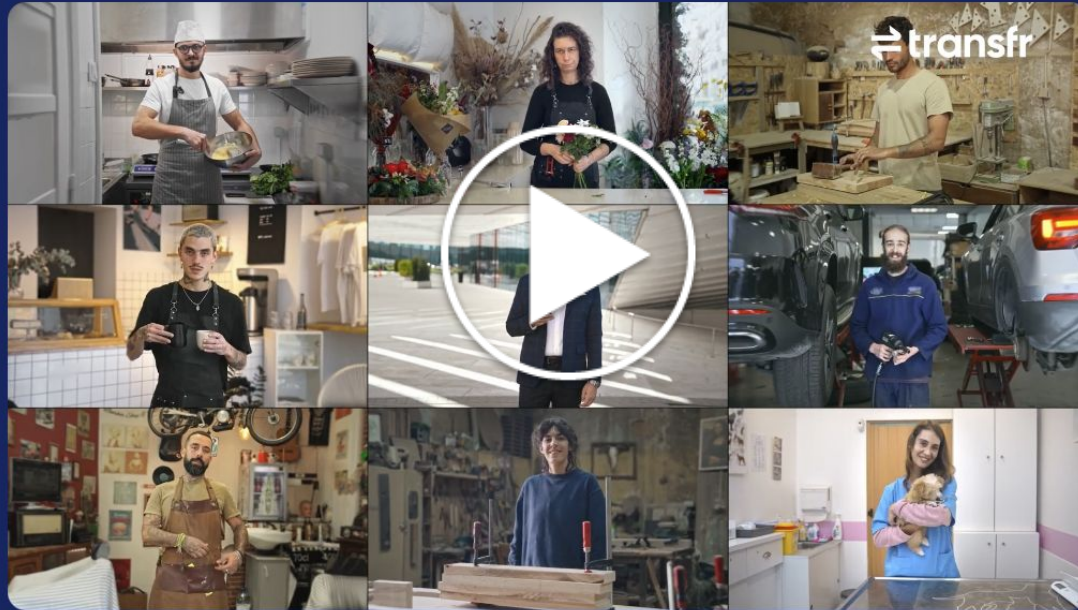
3 Takeaways

Flexibility

Hands-On Experience

Digital Coach

Supporting the Classroom-to-Career Pathway

Career Awareness

Career Exploration

Career Preparation

Career Training

Career Placement

Discover Careers

NEW! Transfr Trek's mobile experience has 100+ careers in 16 career clusters with robust planning tools.

Experience a Career

32 VR simulations enable an individual to experience a day in the life of a career, available with CC and in Spanish.

Develop Foundational Skills

Our VR-based Skills Training aligns to national standards set for safety, measurement, and other foundational skills such as OHSA, Precision Measurement, and more.

Train for a Career

With 300+ VR simulations in 8 high-growth sectors, our Skills Training enhances career programs or offers turnkey Pre-Employment solutions

Join the Workforce

With the skills and confidence to succeed, start the journey to upward mobility!

Introducing Transfr Trek:
A Connected Experience Across All Phases of Career Exploration

Career Awareness

Career Experience

Career Planning

Mobile

VR

Curriculum Resources

Career Awareness

- 100+ careers
- Career interest assessments
- Personalized career matching
- Local and national wage data

Career Matches

Based on your likes and dislikes we've ranked careers we think would be a good fit for you.

1 Electrician ⓢⓢ

Install, maintain, and repair electrical wiring, equipment, and fixtures.

Big projects   Building things   Fixing things

2 HVAC Technician ⓢⓢⓢ

Install, service, and repair heating, ventilation, and cooling systems

Big projects   Building things   Fixing things

3 Plumber ⓢⓢⓢ

Install, repair, and maintain water, gas, and other pipe systems

Big projects   Building things   Fixing things

4 Solar Technician ⓢⓢ

Install and connect solar panels to convert

↓ Load More Careers

↺ Start Over

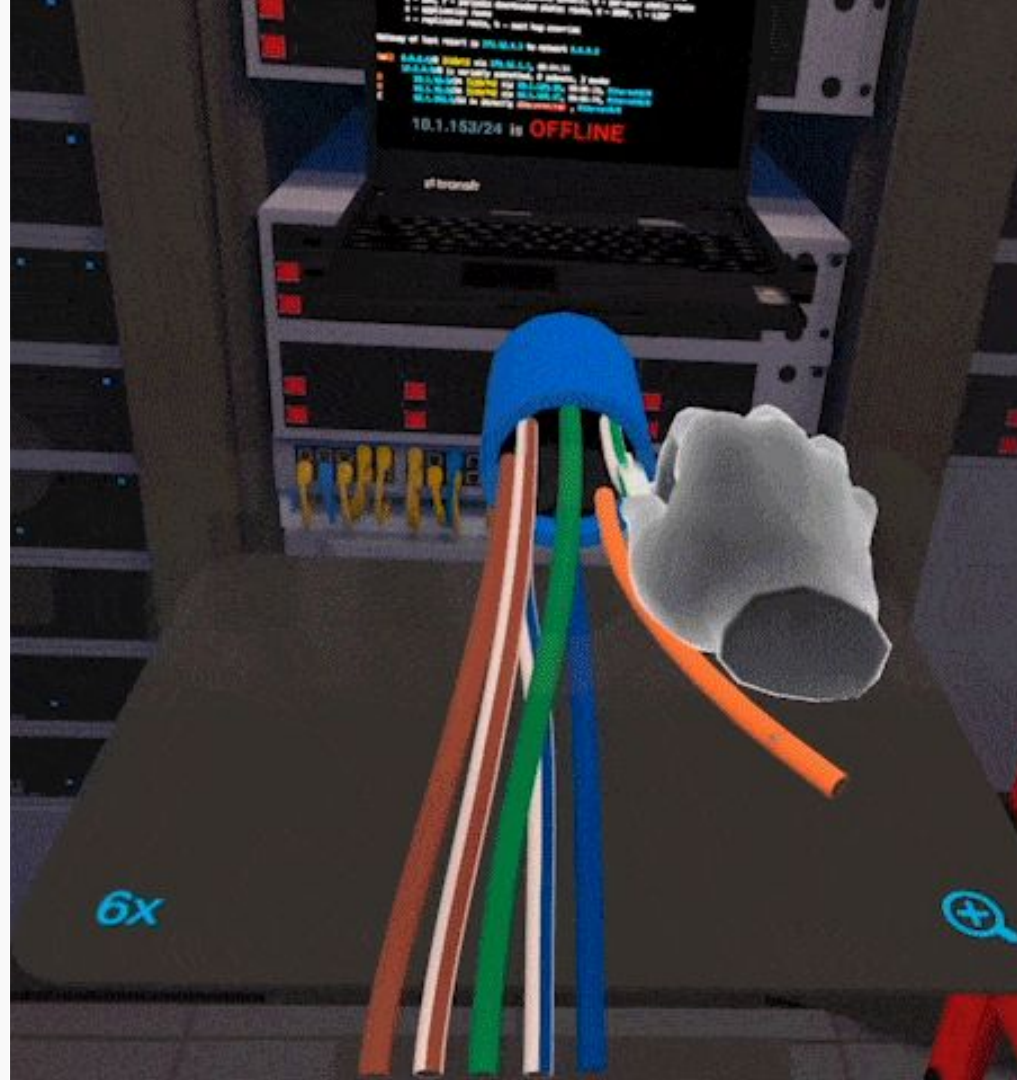# Key Features

VR

- Short, immersive VR job simulations
- Role-specific learning modules
- Guided experiences via virtual coach

Experience 30+ VR Simulations in Transfr Trek

Experience a day in the life of each career

Architecture & Construction:
Broadband Utility Construction
Broadband Tower Technician
Broadband Technician, Fiber
Transmission Line Worker
Distribution Line Worker
Construction Laborer
HVAC Technician - NEW!
Solar Technician
Electrician
Pipefitters
Carpenter

Information Technology:
Network Technician

Science, Engineering, Mathematics & Technology:
Electrical Engineer - NEW!

Manufacturing:
Semiconductor Manufacturing Technician
EV Battery Manufacturing Technician
Industrial Maintenance Technician
Robotics Specialist
Welder

Health Sciences:
Certified Nursing Assistant - NEW!
Radiologic Technologist
Surgical Technologist
Registered Nurse
Pharmacy Technician
Medical Assistant

Law, Public Safety, Corrections & Security
Emergency Medical Technician

Finance:
Financial Analyst

Transportation, Distribution & Logistics:
Airframe and Powerplant Technician
Electric Vehicle Service Technician
Automotive Service Technician
CDL Truck Driver

Agriculture, Food & Natural Resources
Diesel Farm Equipment Mechanic
Veterinary Technician

Hospitality & Tourism:
Restaurant Manager
Chef

Arts, A/V Technology, & Communication:
Graphic Designer

All sims are available in English and Spanish

Key Features

Career Planning

Curriculum Resources

- Graduation and career goal setting
- Training, certification, & college pathways
- Plan tracking and career plan sharing

My Goals for...

Avionics Technician

Select at least one short-term and long-term goal

Short Term (0-6 Months)

| Discuss becoming an avionics ... | ✕ ⌄ |

| Discuss related coursework for ... | ✕ ⌄ |

| Research companies that hire ... | ✕ ⌄ |

Long Term (6+ Months)

| Select a goal... | ⌄ |

| Select a goal... | ⌄ |

⌲ **Send to Counselor**

↺ **Start Over**

Disclaimer: Enlarged for display purposes

Transfer Trek | Career Exploration

CE Demo 1

Demo 24   Code: ET2JZZG

Progress   Explorers 117   Quick Sign Up (QR)   Sim Pass

Product   CE Career Exploration ▾

Top Careers Rated 4-5 Stars

21 Registered Nurse   16 Welder   15 Surgical Technologist   +11 View All

Insights

Feedback ⧉   Export Data (.csv)

| | ACTIVE EXPLORERS ⓘ 80 | | TIME IN HEADSET ⓘ 12hr 46min | | CAREERS EXPLORED ⓘ 238 | | CAREERS 4-5 STARS ⓘ 108 |

Career Exploration Curriculum Resource
By Transfr

Quick Reference: Lesson Plan Topic Overview

Note: Each Day in this Guide links to its corresponding Lesson at a Glance

Learning Plan

Career Awareness (CA): By developing a basic understanding of various careers, students can make a plan for their WBL journey and career pathway. The first two weeks of instruction focus on the career awareness piece of the WBL continuum.

Week 1: Establishing Foundations
- Day 1: Introduction to Career Awareness
  - This lesson introduces career awareness and explores why it's important for middle and high school students to become career aware. Students begin building the skills they need to plan their future.
- Day 2: Introduction to Portfolios
  - Students are introduced to portfolios as a tool for self-reflection and showcasing their learning. They will set up a portfolio and complete a practice reflection activity as a model portfolio artifact. The class will begin work on the My Career Sphere interview project, which is due at the end of Lesson 5.
- Day 3: Introduction to Transfr
  - Students are introduced to the station model (that is recommended for this class). They are also introduced to the Transfr headset (either Oculus (Quest 2) or Pico) via video. They will take notes using a Guided Notes handout, following along with the teacher's slideshow and headset video. They will be able to practice the station rotations and play their first simulation in Lesson 4.
- Day 4: Station Rotations (Goals, My Career Sphere, and Simulations)
  - Students participate in their first Station Rotation activity series, where they complete a teacher-led goal setting exercise, work independently on their Career Sphere art project, and complete their first Transfr Career Exploration sims.
- Day 5: Station Rotations and Vision Board
  - Students will complete their first Station Rotation activity series, completing a teacher-led goal setting exercise, working independently to complete their Career Sphere art project, and playing their first Transfr Career Exploration simulation. After finishing the rotations, students create a SMART goal aligned vision board.

Week 2: Exploring Career Clusters
- Day 6: Self Assessment
  - Students begin the process of translating skills, values, and interests into a career option by exploring

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1 ▾ Help an Emergency Patient (Registered Nurse) ⓘ

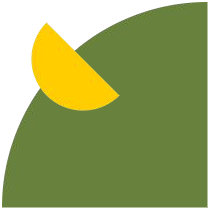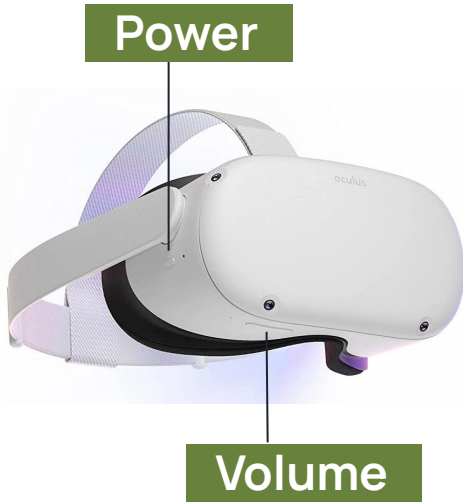|	LAST NAME ⇅	FIRST NAME ⇅	USERNAME ⇅	DATE ⓘ ⇅	TOTAL TIME ⇅	ATTEMPTS ⇅	RATING ⓘ ⇅	COMPLETE ⓘ ⇅
00	0991c0fa	0e31491c	DemoUser389335	5/30/23	2min	1	★★★★☆	✓
02	09f26e93	239157b6	bharani	5/30/23	6min	3	★★☆☆☆	✓
20	204e42ba	05ed81a6	DemoUser389329	5/30/23	3min	1	★★★☆☆	✓

Career Exploration Curriculum Resources

Access an 8-week Career Exploration Curriculum Resource for teachers to facilitate VR experiences into an existing learning program.
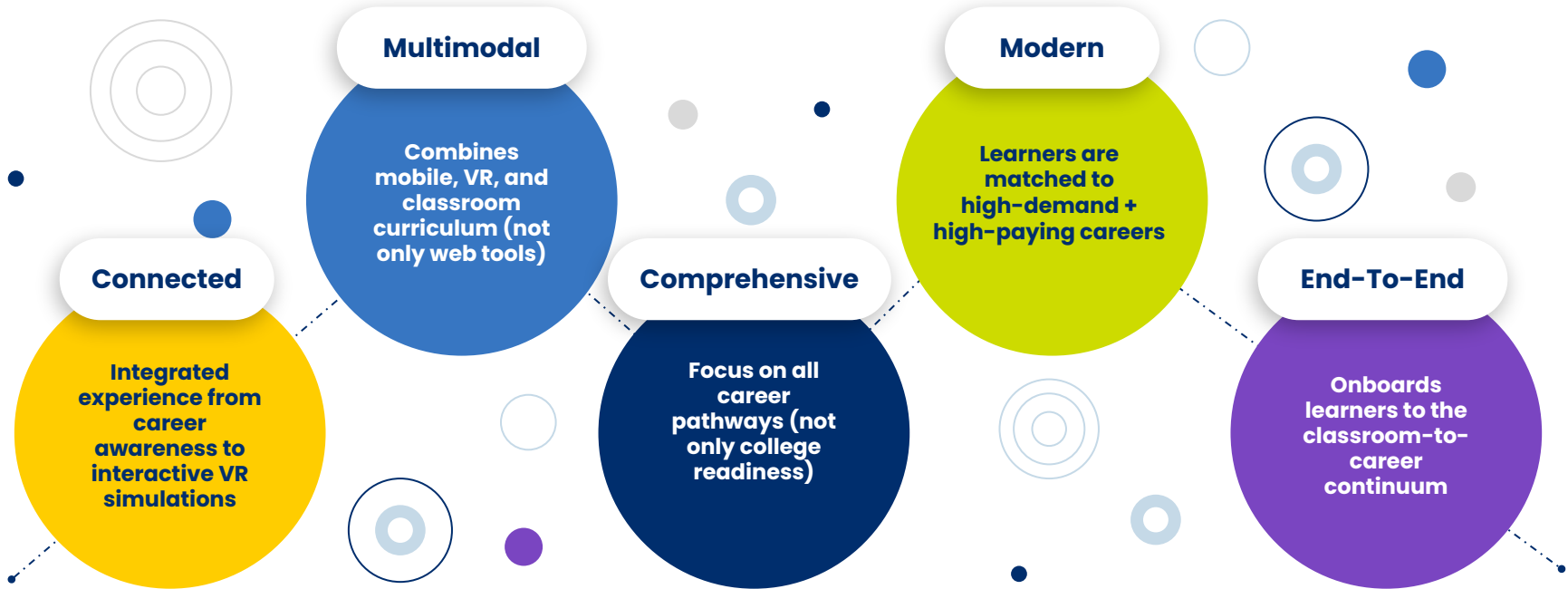
What's included

- Daily lessons
- Weekly overviews
- Student handouts
- Instructional materials
- Standards based unit plan
- Student facing slide decks
- Differentiated instructional practices
- Formative, summative and portfolio assessments

Transfr Experience

Transfr Trek Stands Apart from Legacy Platforms

Multimodal

Combines mobile, VR, and classroom curriculum (not only web tools)

Connected

Integrated experience from career awareness to interactive VR simulations

Comprehensive

Focus on all career pathways (not only college readiness)

Modern

Learners are matched to high-demand + high-paying careers

End-To-End

Onboards learners to the classroom-to-career continuum

We Support Your Success

Transfr is the leading partner to enable a classroom-to-career pathway in your community.

Curriculum Resource

Access an 8-week, standards-aligned Career Exploration Curriculum Resource filled with lesson plans, handouts, slides, and instructional guides to help implement VR exploration into any existing learning program.

Implementation Support

Transfr Customer Success Managers support our customers with implementation, support, professional learning, and ongoing account management.

Professional Learning

Transfr's professional learning series helps build facilitator confidence in using VR as an immersive tool to support the classroom-to-career pathway. It fosters collaboration among educators and provides a platform to share ideas and best practices for VR integration.

Grant Funding Guidance

Transfr can help you navigate available funding opportunities to help you grow your career exploration programs.

Bridge Career Connections

Through our national partner footprint we can help bridge career pathways by connecting schools with colleges, employers, and organizations looking to train or hire.

Roadmap Collaboration

We may be the market leader, but we're still nimble and love to get input from our customers to shape our roadmap. We attend industry events (ERDI, ETSI, SkillsUSA) and hold an annual customer conference (XR Futures), as well as webinars and launch events.

Thank You!

Lori Byrne

State Workforce Manager

Lori@transfrvr.com

216.926.9732