

PARK TUDOR MIDDLE SCHOOL

DISCOVERY

2026

WEEK

2027

Course Catalog



**Health
Horizons**



ARCADE LAB: PINBALL ENGINEERS

Dr. Carmody and Ms. Muller

Get ready to design, build, and play! In this hands-on class, you'll join a crew to build your very own fully functional pinball machine out of cardboard and everyday materials. To get inspired, we'll take a field trip to a real arcade to study game physics and layout in action. Throughout the week, you'll brainstorm themes, engineer working flippers, and tweak your designs. You'll even host exclusive beta-testing sessions for elementary and high school students to gather feedback before launching the ultimate Friday Arcade event, where everyone gets to play your final game!

BIOTECH INVESTIGATORS: GENES, GADGETS, & GENETIC ENGINEERING

Ms. Kesner

Join Ms. Kesner's weeklong crash course on biotechnology! You'll complete a gene-editing lab on campus; tour Butler University's Department of Engineering and check out 3D printers, robotic arms, a wind tunnel, and a bioreactor; visit IU Indianapolis to learn from genetic engineers and conduct hands-on zebrafish lab exercises; visit Purdue University to discover how biotechnology is transforming agriculture; and hear from renowned experts in the field. Get ready to experiment and explore the exciting world of genetic engineering!

ECHOES AND STAGES: CULTURE, STORIES, AND PERFORMANCE

Ms. Butler and Mrs. Rogers

Have you ever wondered how a single story can change a community? Join us for Echoes & Stages, an immersive five-day creative journey where you become the writer, actor, and visionary! We'll step off campus to explore the historic Indiana Avenue, uncover hidden histories at the Center for Black Literature & Culture, and work alongside real Indianapolis actors and storytellers. You will transform personal and historic stories into original scripts, build stage skills, and perform live in front of a real audience. If you love acting, writing, music, Black history, or making your voice heard, then this stage is yours!

BEHIND THE EXHIBIT: THE MUSEUM CURATOR CHALLENGE

Mrs. Nahmias

Ever wonder what makes a museum exhibit impossible to walk past? In Behind the Exhibit: The Museum Curator Challenge, you'll go behind the scenes of how museums grab attention, tell stories, and decide what deserves to be remembered. You'll investigate The Children's Museum and the NCAA Hall of Champions, hear from museum professionals, explore how CANDLES preserves powerful stories, and debate real questions about artifacts, ownership, and ethics. Then your team takes over: choose a topic, design the space, build an interactive feature, test it on real visitors, and revise it. By Friday, you'll open your own pop-up museum to the public.

BREAKING POINT: THE GREAT BRIDGE CHALLENGE

Mrs. Forrestal and Mrs. Hsiao

Think you can build something lighter than a bag of chips that can support the weight of a vending machine? In this engineering design challenge, you'll become a structural engineer, learning how forces, geometry, and materials affect bridge strength. You'll investigate famous bridge failures, collaborate with experts, build and test multiple prototypes, collect real engineering data, and compete in an in-house bridge building competition. Every design will be revised using evidence, and your final bridge will demonstrate both creativity and scientific thinking. Whether you enjoy building, solving problems, math, science, or competition, this course lets you engineer something amazing.

ENTOMOLOGY EXPLORERS: THE SECRET WORLD OF INSECTS

Mr. Andre and Ms. Allen

Did you know that insects basically run the planet? In Entomology Explorers, you won't just read about bugs—you'll get your hands dirty! Explore prehistoric insects, engineer your own alien insect, go behind the scenes at Purdue University's massive insect collection, and visit an apiary with 14 beehives at the Fitness Farm. Along the way, you'll create insects in amber, conduct a blind honey taste test, explore insect evolution, biodiversity, and conservation, and finish the week by testing your bravery with edible bug snacks!



FAST & PURR-IOUS: THE ART OF RODENT-POWERED ENGINEERING

Mr. Kowal

Ready to turn a humble mousetrap into a high speed race car? Step into the shoes of a race engineer in this thrilling Discovery Week course “Fast & Purr-ious: The Art of Rodent-Powered Engineering,” where you will transform basic household hardware into a custom precision vehicle. You will master the physics of energy conversion, torque, and friction to turn a single spring snap into maximum speed and distance. To supercharge your design, we will visit the historic Indianapolis Motor Speedway and IMS Museum to study real race car chassis and aerodynamics. Are you ready to dominate today?

FUEL AND FLAVOR: NUTRITION AND CULINARY ARTS

Mrs. Odmark and Mrs. VanderPlaats

Ready to become more confident in the kitchen? In this hands-on course, you'll learn how food affects your body and well-being while building real-life cooking skills. You'll explore nutrition, read food labels, discover the science behind cooking, prepare delicious foods, and learn how to make smart choices for yourself. Most importantly, you'll become more independent in the kitchen—a skill you can use for the rest of your life!

GLOBAL ART STUDIO

Mrs. Razzino and Ms. Brosius

What can a sculpture, portrait, or giant installation say about who we are? In Global Art Studio, you'll explore identity and artistic expression through the work of four bold contemporary artists: Fernando Botero, Claes Oldenburg, Yayoi Kusama, and Kehinde Wiley. Each day, you'll experiment with a different artist's ideas and create your own studio project using unexpected materials, from larger-than-life sculptures to vivid portraits and immersive installations. We'll wrap up the week with a visit to Newfields, where you'll explore works of art in person and see how artists around the world turn big ideas into unforgettable experiences.

HOLLYWOOD AND HISTORY: FACT, FICTION, AND FILM

Dr. Bogan

Love movies? Love history? Love both? This Discovery Week course is about enjoying history movies as entertainment while also considering why they were made, how they were made, how close to factual they are, and what decisions filmmakers make when creating movies. We will take a field trip to a TV news station, watch a movie of our choice at home, and create a video to add to Mr. B's library of history film reviews.

THE INDY 500 CHALLENGE: SPEED. STRATEGY. TEAMWORK.

Mr. Gee and Mr. Valencia

Think you have what it takes to compete in the Indy 500? In this high-octane Discovery Week experience, you'll form your own race team and take on a series of challenges inspired by the world's most famous race. Visit the Indianapolis Motor Speedway, go behind the scenes at Dallara and the IMS Museum, meet a real Indy 500 driver and engineer, and test your skills on race simulators and hands-on challenges. You'll earn points throughout the week as you put speed, strategy, and teamwork to the test. At the end of the week, only one team can take home the Discovery Week Championship!

PEAK: THE PERFORMANCE PROJECT — TRAIN. MEASURE. RECOVER. DISCOVER.

Ms. Roth and Ms. Venturi

What makes you feel your best—and perform your best? In PEAK, you'll become your own performance scientist! You'll TRAIN by trying different ways to move, from hiking and basketball to water fitness, yoga, strength training, and more. You'll MEASURE what happens to your body and mind by tracking heart rate, effort, energy, mood, recovery, and enjoyment. You'll RECOVER by exploring the science of sleep, hydration, fueling, mobility, and rest. Then you'll DISCOVER which combination of exercise and recovery works best for YOU. No competing against each other—just discovering what helps you reach your own PEAK!



THE SECRET LIFE OF THE FOREST

Ms. Cosman

Let's get outside. Step into The Secret Life of the Forest, where curiosity turns every trail into a discovery. You will learn to become a thoughtful forest detective as you identify local plants, trees, fungi, animal signs, and other natural wonders. You will learn the practice of safe, responsible foraging while discovering how plants connect to food, medicine, history, and everyday life. Just as importantly, you will appreciate the ability to slow down, observe closely, and experience the forest with patience and respect. Through hands-on exploration and guidance from local experts, come build confidence in the outdoors, deepen your connection to nature, and understand why wild places deserve our care.

Discover More



Course Flyers Ahead

BUILD YOUR OWN PINBALL MACHINE!

ARCADE LAB-PINBALL ENGINEERS

FROM CARDBOARD TO ARCADE!



WEEK'S EVENTS

1. Join a team to use physics and math to design and produce a pinball game.
2. Field trip to an arcade for inspiration and fun.
3. Beta-testing sessions with 2nd grade and Upper School customers.
4. Time to refine and design.
5. Showcase your final playable machine at our end-of-week Arcade Event. Can your group earn the most customer tokens?

Flippers - Bumpers - Spinners
What will you design?



BEHIND THE EXHIBIT: THE CURATOR CHALLENGE

What makes one museum exhibit unforgettable and another easy to walk past? This week you'll visit real museums, learn from curators and museum professionals, investigate artifacts and archives, debate big questions about ownership, memory, and ethics, and see how stories become experiences. Then it's your turn: design, build, test, and open an interactive exhibit of your own.



EXPLORE MUSEUMS

Study how professional exhibits use objects, space, technology, and interaction to shape the visitor experience.



INVESTIGATE STORIES

Examine artifacts, archives, labels, and preservation choices to uncover how museums build meaning.



QUESTION THE DECISIONS

Debate who owns the past, who gets to tell the story, and what should be preserved, displayed, returned, or reinterpreted.



THINK LIKE A DESIGNER

Plan visitor flow, object placement, labels, accessibility, and interactive experiences.



BECOME A CURATOR

Build, test, revise, and open your own interactive exhibit to real visitors.

**STEP BEHIND THE EXHIBIT.
ASK BIG QUESTIONS.
CREATE SOMETHING PEOPLE WILL REMEMBER.**



BEYOND THE CLASSROOM

-  The Children's Museum of Indianapolis
-  NCAA Hall of Champions
-  CANDLES Holocaust Museum
-  Virtual Museum & Archive Exploration
-  Park Tudor History & Archives
-  Museum-Themed Film Night



IF YOU LIKE...

- solving mysteries
- debating ethical ideas
- telling stories
- designing experiences
- creating with your hands
- solving real-world problems
- making people stop and say,
"Wait...that's actually really interesting"

...YOU'RE A NATURAL CURATOR



BIOTECH INVESTIGATORS

GENES, GADGETS, &
GENETIC ENGINEERING



JOIN MS. KESNER FOR A WEEKLONG CRASH COURSE
IN BIOTECHNOLOGY!

You'll explore cutting-edge labs, meet scientists and engineers, and discover how biotechnology is changing our world.

WHAT WILL YOU INVESTIGATE?



GENE-EDITING LAB

Roll up your sleeves and get hands-on with a gene-editing lab right on campus. Explore how scientists can change DNA and investigate the possibilities of genetic engineering.



IU INDIANAPOLIS DEPARTMENT OF BIOLOGY

Meet genetic engineers and conduct hands-on zebrafish lab exercises while discovering how scientists use living organisms to study genetics and biology.



PURDUE UNIVERSITY COLLEGE OF AGRICULTURE

Discover how biotechnology is transforming agriculture. Explore the science behind the food we grow, the crops we develop, and the technologies shaping the future of farming.



BUTLER UNIVERSITY DEPARTMENT OF ENGINEERING

Get up close with the gadgets and technology engineers use to turn ideas into reality, including 3D printers, robotic arms, wind tunnels, bioreactors and more!



MEET THE EXPERTS

Hear from renowned professionals in the biotechnology field and learn what it's really like to work at the intersection of biology, engineering and technology.

BREAKING POINT: THE GREAT BRIDGE CHALLENGE

Can you build a bridge that is
LIGHT, STRONG, and SMART?

5-DAY ENGINEERING CHALLENGE

**REAL TESTING.
REAL DATA.
REAL IMPACT.**

THE CHALLENGE

Design and build a lightweight bridge that maximizes strength while optimizing efficiency.

YOUR MISSION

- Build it.
- Test it.
- Break it.
- Learn from it.
- Improve it.

WHAT YOU'LL DO

- Explore forces and bridge types.
- Design a prototype.
- Test and collect data.
- Redesign using evidence.
- Compete and showcase.

ENGINEERING SKILLS

Collaboration	Creativity	Measurement
Data Analysis	Structural Thinking	Communication

5 DAYS

MON	TUE	WED	THU	FRI
Explore & investigate	Design & prototype	Test & improve	Build your best	Compete & showcase

BIG QUESTION

“How can we design the lightest bridge possible that safely supports the greatest load?”

WHY JOIN?

- ✓ Real engineering challenge
- ✓ Work with a partner
- ✓ Meet and learn from engineers
- ✓ Compete in a hands-on STEM design challenge
- ✓ See your design tested

FINAL EXPERIENCE

Championship bridge competition + engineering showcase

READY TO FIND YOUR BREAKING POINT?

**NO EXPERIENCE NEEDED —
JUST CURIOSITY,
CREATIVITY & TEAMWORK!**

*Our stories.
Our history.
Our future.*

ECHOES & STAGES

*Every
story
leaves an
echo.*

DISCOVERY WEEK

AFRICAN AMERICAN HISTORY AND STORYTELLING IN INDIANAPOLIS

**Have you ever wondered how
a single story can change a
community?**

- ★ Join us for an immersive
5-day creative journey.
- ★ Become the writer, actor,
and visionary.
- ★ Uncover hidden histories that have
shaped the city and state.
- ★ Explore historic Indiana Avenue
- ★ Work alongside Indianapolis
historians, actors, and storytellers.
- ★ Transform personal and historic
stories into original scripts.
- ★ Perform live for a real audience.



**If you love acting, writing,
Black history, and making
voices heard,**

THIS STAGE IS YOURS!

ENTOMOLOGY EXPLORERS

Explore the World of the Planet's Tiny Workforce!

In Entomology Explorers, go beyond reading—get hands-on! Discover ancient bugs, go behind-the-scenes at Purdue's collection, meet Indianapolis Zoo specialists, and explore bee behavior. Create your own "fossil" and finish with a tasty challenge!

SIGNATURE EXPERIENCES



BEHIND-THE-SCENES TOUR OF PURDUE ENTOMOLOGICAL RESEARCH COLLECTION & LAB!



VISIT FROM THE INDIANAPOLIS ZOO!

Bugs conservation, anatomy, and pollination with a special team.

FOSSIL-MAKING



HANDS-ON LABS

HANDS-ON LABS INSECT IN AMBER CRAFT



HANDS-ON LABS

ROTTEN LOG ANALYSIS



HANDS-ON LABS

TEST YOUR BRAVERY!

EDIBLE BUG SNACKS!



FINISH THE WEEK BY TASTING REAL ROASTED INSECTS!

THE FRIDAY INSECT EXPO!

PRODUCE & EXHIBIT AN "INSECT ACTION PLAN"!

THE FRIDAY INSECT EXPO!



3D Physical Habitat Diorama



PUBLIC AWARENESS POSTER

How do insects shape our world, and what can we do to stop their global decline?

Insects are the invisible workforce driving our global terrestrial ecosystems, but they are facing unprecedented threats and need human advocacy to survive.

FAST & PURR-IOUS:

THE ART OF RODENT-POWERED ENGINEERING

Dive into the world of mechanical engineering, energy transformation, and motorsport design!

In this hands-on Discovery Week course, race engineers will design, construct, and optimize custom self-propelled vehicles powered entirely by standard spring mousetraps.

Throughout the week, participants will explore fundamental STEM and physics principles, including potential energy storage, kinetic energy release, mechanical advantage, friction, torque, and rotational inertia.



INDIANAPOLIS MOTOR SPEEDWAY & IMS MUSEUM

Students will explore real-world engineering at the legendary IMS. We'll study chassis design, lightweight materials, and race car aerodynamics—connecting classroom learning to the world of motorsport.



PARK TUDOR DISCOVERY WEEK GRAND PRIX

The course concludes with our official Grand Prix—a multi-category tournament evaluating:



MAXIMUM DISTANCE



TOP SPEED



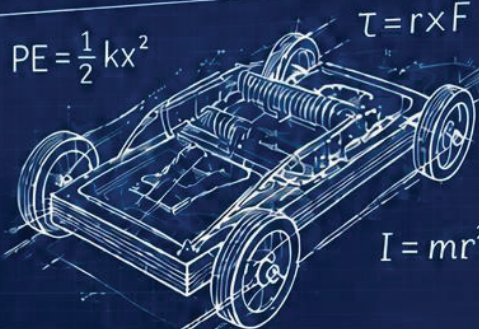
TARGET STOPPING PRECISION



ENGINEERING AESTHETICS

$$PE = \frac{1}{2} kx^2$$

$$\tau = r \times F$$



$$I = mr^2$$

$$MA = \frac{L_e}{L_r}$$

$$KE = \frac{1}{2} mv^2$$



LEARNING OBJECTIVES & CORE SKILLS



ENGINEERING DESIGN PROCESS:

Apply iterative design methods—prototyping, testing, logging data, analyzing performance bottlenecks, and refining mechanics.



IDEATE



DESIGN



BUILD



TEST



IMPROVE



PHYSICS & MECHANICS CONCEPTS:

Calculate and optimize lever arm lengths, gear/wheel ratios, potential-to-kinetic energy conversion, and rotational friction.



LEVER ARM



GEAR RATIOS



POTENTIAL TO KINETIC



ROTATIONAL FRICTION

DESIGN. BUILD. TEST. RACE. ENGINEER THE FUTURE.

PARK TUDOR SCHOOL • DISCOVERY WEEK



Discovery Week

FUEL AND FLAVOR: NUTRITION AND CULINARY ARTS

Cook. Create. Thrive.



APPETIZERS

Explore how food
impacts your body and
well-being

- Play nutrition facts label detective
- Identify macronutrients and their importance
- Learn about vitamins and minerals
- Understand how food is used as fuel in your body

ENTRÉES

Build cooking skills
and confidence in
the kitchen

- Learn about food and equipment safety
- Prepare a variety of foods from scratch
- Experiment with flavors and ingredients
- Become a trustworthy, independent chef

SIDES

Work with
professionals

- View cooking demonstrations
- Visit a working kitchen and do a hands-on activity
- Hear from guest speakers such as professors from the IU School of Public Health
- Understand how food is used as fuel in your body



Real Food.
Real Skills.
A Healthier, Happier You.



GLOBAL ART WEEK

**SRA. RAZZINO
AND
MS. BROSIUS**

EXPLORE THE ART OF CLAES
OLDENBURG

- CREATE YOUR OWN 2D
SCULPTURE CONSTRUCTION
- VISIT NEWFIELDS MUSEUM
- DISCOVER "GIANTS": ART FROM
THE DEAN COLLECTION OF
SWIZZ BEATZ & ALICIA KEYS
 - CREATE YOUR OWN ARTWORK
INSPIRED BY THE EXHIBIT

**NOV 30–
DEC 4**

**FIVE DAYS OF BOLD CREATIVITY,
GLOBAL INSPIRATION, AND HANDS-
ON ART-MAKING**

AN UNFORGETTABLE WEEK OF ART,
CULTURE, AND CREATIVE
EXPLORATION



★ **DISCOVERY WEEK** ★

HOLLYWOOD AND HISTORY

REAL EVENTS. REEL STORIES. YOUR TURN.






GO BEYOND THE MOVIE.
 Discover the real stories behind the films—and decide for yourself what's fact, what's fiction, and why Hollywood makes those choices.

DURING THE WEEK, YOU WILL...



WATCH & ANALYZE
POWERFUL FILMS
BASED ON TRUE
HISTORICAL EVENTS.



INVESTIGATE THE TRUTH
USE PRIMARY SOURCES
AND RESEARCH TO
SEPARATE FACT FROM
HOLLYWOOD.



GO BEHIND THE SCENES
FIELD TRIP TO A LOCAL
TV NEWS STATION FOR
A TOUR AND HANDS-ON
EXPERIENCES!



CREATE YOUR OWN
WRITE, FILM, AND EDIT A
3-5 MINUTE "HISTORY VS.
HOLLYWOOD" VIDEO
SEGMENT.



PRESENT & SHINE
SHOW YOUR FINISHED
PROJECT AT OUR
HOLLYWOOD AND HISTORY
FILM FESTIVAL!

WHAT THIS COURSE IS ALL ABOUT

- ✓ Understand the line between documentation and entertainment.
- ✓ Explore why filmmakers change history.
- ✓ Learn how to question movies and do historical research.
- ✓ Think critically. Work creatively. Have fun.
- ✓ Become a smarter viewer—for life.

**HISTORY
IS REAL.
THE STORY
IS YOURS.**

HOMEWORK (ONE NIGHT)

Watch a movie of your choice from our approved list of historical films with your family.

Bring back:

- ★ One thing you learned
- ★ One thing you think might not be accurate



WHEN?
5 DAYS
8:15 AM – 3:15 PM
(INCLUDES LUNCH)



EXPECT
MOVIES, DISCUSSIONS,
RESEARCH, HANDS-ON
ACTIVITIES, CREATIVE
PROJECTS, AND
PHYSICAL ACTIVITY!



FINAL PRODUCT
A 3-5 MINUTE VIDEO
SEGMENT THAT
COMPARES A HISTORICAL
EVENT TO ITS HOLLYWOOD
PORTRAYAL.



YOU'LL LEAVE
WITH NEW SKILLS,
A FINISHED PROJECT,
AND A NEW WAY OF
SEEING EVERY HISTORICAL
MOVIE YOU WATCH.

LOVE MOVIES? LOVE HISTORY? THIS CLASS IS FOR YOU!

THINK CRITICALLY. CREATE BOLDLY. TELL THE TRUTH.




DISCOVERY WEEK

THE **INDY 500** CHALLENGE

SPEED. STRATEGY. TEAMWORK.

Join a race team, meet a real Indy 500 driver and engineer, test your skills on race simulators, and go behind the scenes at the **Indianapolis Motor Speedway, Dallara**, and the **IMS Museum**. Earn points all week and compete for the Discovery Week championship.

REAL-WORLD EXPERIENCES



THE CHALLENGE



PEAK

THE PERFORMANCE PROJECT

Train. Measure. Recover. Discover.

A hands-on exploration of how training, recovery, and wellness strategies can work together to help us perform at our best.

**MOVE
LEARN
EXPLORE
DISCOVER
YOUR PEAK!**

**DIFFERENT
PEOPLE.
DIFFERENT PATHS.
SAME GOAL:
A HEALTHIER,
HAPPIER YOU!**

TRAIN

Try different ways to move!

- Basketball training
- Water fitness
- Hiking/walking
- Yoga
- Strength training
- And more!

**MOVE MORE
FEEL STRONGER!**

MEASURE

Track what happens!

- Heart rate
- Effort (RPE)
- Steps
- Energy
- Mood
- Recovery
- Enjoyment

**REAL DATA.
REAL INSIGHTS.
REAL YOU!**

RECOVER

Explore what helps you recharge!

- Sleep
- Hydration & fueling
- Mobility
- Rest and recovery
- Mindfulness & stress management

**REST FUELS
YOUR BEST!**

DISCOVER

Find what works for YOU!

- Analyze your results
- Look for patterns
- Explore different needs and goals
- Build your own performance insights

**SAME SCIENCE.
DIFFERENT PEOPLE.
AMAZING
POSSIBILITIES!**

REAL-WORLD EXPERIENCES

VISIT THE COLTS TRAINING CENTER!

Go behind the scenes and learn how professional athletes train, recover, and perform at the highest level.

EXPLORE THE HUMAN PERFORMANCE LAB!

See how scientists use data to measure performance and learn about movement, fitness, recovery, and overall wellness.

ESSENTIAL QUESTION: How can we use science and evidence to determine what helps different people feel, function, and perform at their best?

THERE ISN'T ONE "BEST" WORKOUT—JUST A BEST WORKOUT FOR YOU!

FINAL PRODUCT SHOWCASE: Build the Human Performance Formula

Throughout the week, you'll analyze your data and look for patterns in heart rate, effort, energy, mood, recovery, and enjoyment. You'll tackle the question, "Which was the best workout?" and discover that the answer depends on "Best for what?" Teams will then become human performance consultants, using evidence collected during the week to create a personalized Human Performance Blueprint for a fictional client. At the Human Performance Summit, teams will present their recommendations, explain their evidence, and describe how they would measure progress—showing that effective wellness and performance are not one-size-fits-all.

TRAIN. MEASURE. RECOVER. DISCOVER.

REACH YOUR PEAK!

THE SECRET LIFE OF THE FOREST: READING THE WOODS LIKE A NATURALIST



WITH BETHANIE COSMAN



- Slow down. Look closer. Discover more.
- Step into Indiana's woodlands and learn to read the forest like a naturalist. A hands-on outdoor learning experience for the curious and caring.



WHAT YOU'LL EXPLORE



- Identify local trees by bark, leaf, and seed
- Read animal tracks and signs in the wild
- Explore ethical foraging and wild plant basics
- Learn about indigenous plants and their uses
- Discover the hidden stories in a living forest



SKILLS YOU'LL BUILD



- Keep a personal nature journal
- Build confidence with your identification abilities
- Develop sharp observation skills
- Connect with the natural world around you
- Become an advocate for protecting indigenous species



IS THIS COURSE FOR YOU?



- For those who appreciate the natural world and want to interact with it!
- For those who like being outside in cool November!
- For those ready for memorable meaningful moments in the Indiana outdoors!