

EVERFI

www.inflekss.lv

RAS HOKEJA KLUBS

Using Sports to Engage Students in STEM



Poll:

What types of activities do your students most gravitate toward?

Collaborative Group Work

Interactive Online Activities

Independent Creative Problem-Solving

Hands-On Activities

But first, housekeeping.

Audio

Listen through your computer speaker or by calling 877-309-2071

access code:
647-540-459

Questions

Type in the questions box and we'll get to your questions in real time or address them during the Q&A

Social

Find us on Twitter
@EVERFIK12 and use
#EVERFIempowers
when you share out

A recording will be emailed to you following the webinar.

Today's Agenda

1

Introductions

2

The State of STEM Education

3

STEM in Sports
Engaging Students in STEM Education

4

Next Steps
Putting Lessons into Practice

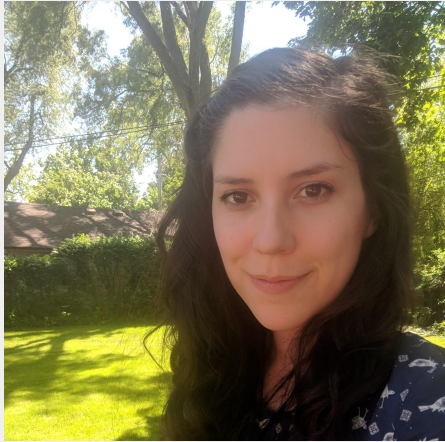
5

Q&A

Today's Hosts



Introductions



Samantha du Preez

Detroit, MI
Community Engagement



Ryan Trauger

Ann Arbor, MI
EVERFI Schools Manager

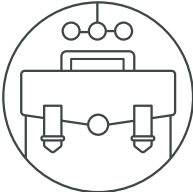


David Poore

Ellwood City, PA
STEM and Engineering Teacher

Whole Child Education

**Career
Readiness**



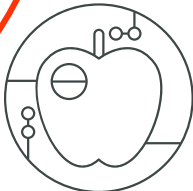
**Social and
Emotional
Learning**



**Financial
Capability**



**Health and
Wellness**



Future Goals - Hockey Scholar Math & Science

Grade Level: 4th -7th

Total Lessons: 6 lessons, 20-25 minutes each

Aligns with Common Core Math Standards, Next Generation Science Standards, State Academic Standards



At-a-Glance

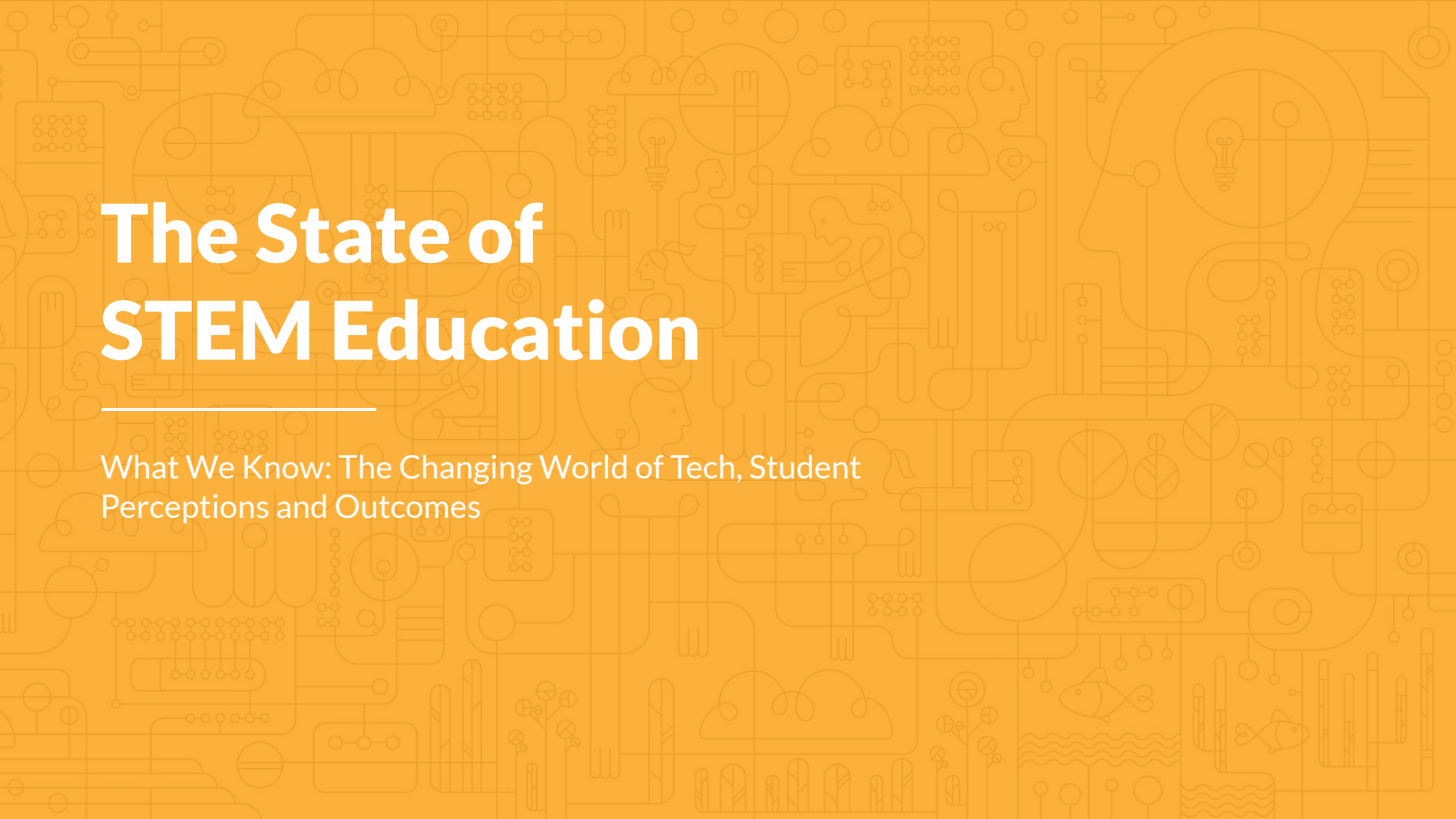
Hockey Scholar uses the game of hockey to teach students about important but difficult to teach math, science, and engineering concepts. Students apply their skills to real world scenarios in each of 12 lessons that scaffold students through problems of increasing complexity. Students receive tailored feedback along the way, and get an experience they both love and learn from.

Course Highlights

- Utilizes game of hockey to explore real-life STEM concepts
- Bonus STEM career video content

Course Topics

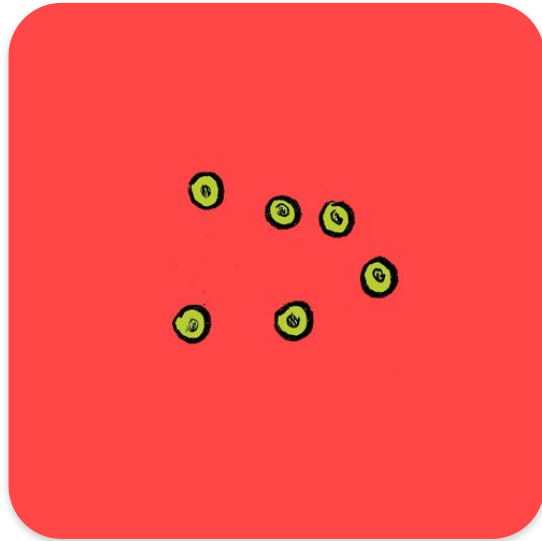
- Data and graphical analysis
- Calculating area
- Body systems
- Kinetic & potential energy



The State of STEM Education

What We Know: The Changing World of Tech, Student
Perceptions and Outcomes

STEM Careers Are Evolving



65-85% of the jobs our students will have in the future don't exist yet

Analytics

Creativity

Evaluation

Decision-making

Processes

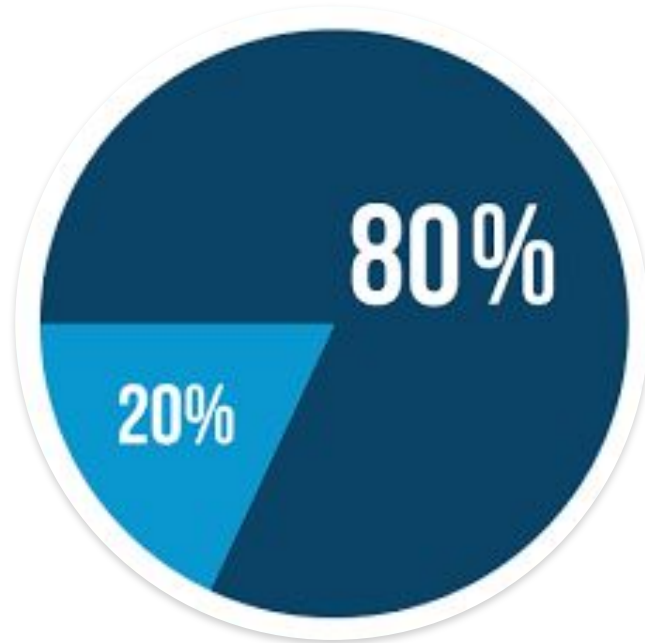
Planning & Org

Troubleshooting

Critical Thinking

Student Interest is Lacking

80% of U.S. high school students are either uninterested or non-proficient in STEM subjects



Need Has Never Been Higher

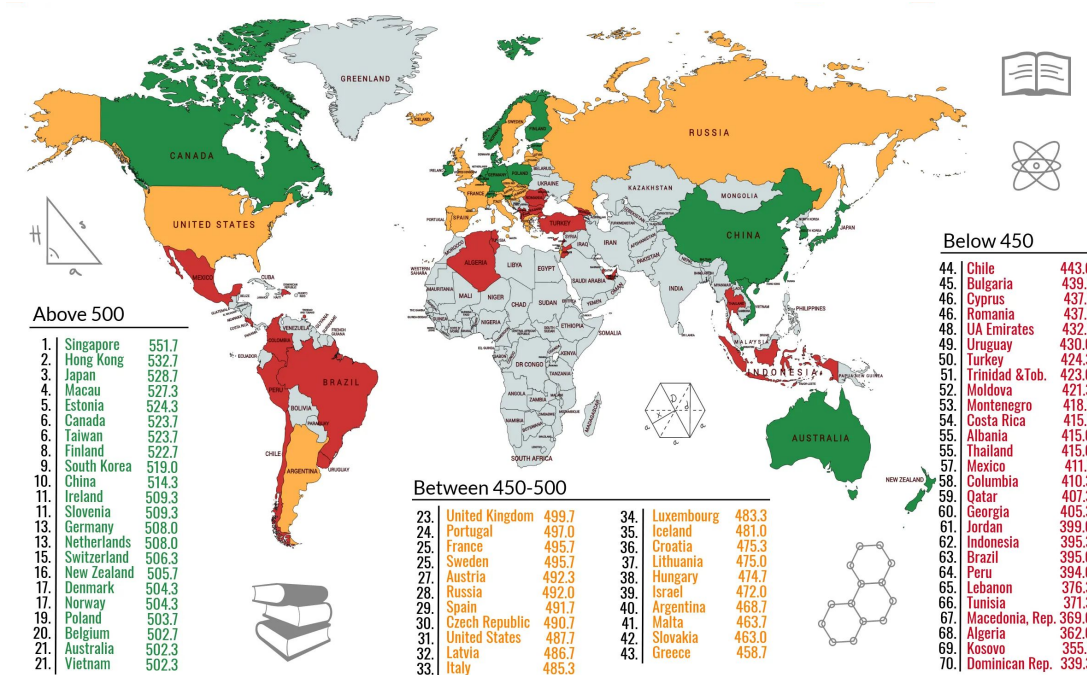
As early as 2016, there were **3 million more STEM jobs than workers** to fill them



- Data Scientist
- Business Analyst
- Electromechanical Technician
 - UI Designer
- Research Coordinator

Competing in a Global Environment

Out of 71 nations participating in the PISA, the largest cross-national test to measure scientific literacy, U.S. placed 24th in Science and 31st in Math



New Approaches in STEM Education

Technology Integration

Makerspace

Cross-Curricular
Connections

Community Partnerships



STEM Careers: Student Experience Impacts Perception

“Seeing woman going out there and doing these jobs... Seeing them really had me thinking of going into a STEM career.”

- Student, Houston Middle School: Hobbs, NM

“I never realized just how important STEM is to everyday tasks and jobs. It is how we can understand how things work, how to problem solve, and how to advance in life,”

- Student, Sidney Gutierrez Middle School:
Roswell, NM



The background is a dense, repeating pattern of orange-toned line art. It features various icons related to science, technology, and sports, such as human heads with gears, lightbulbs, circuit boards, and stylized figures. The overall aesthetic is clean and modern.

STEM in Sports

Engaging Students in STEM Education

Successfully Integrating STEM Education

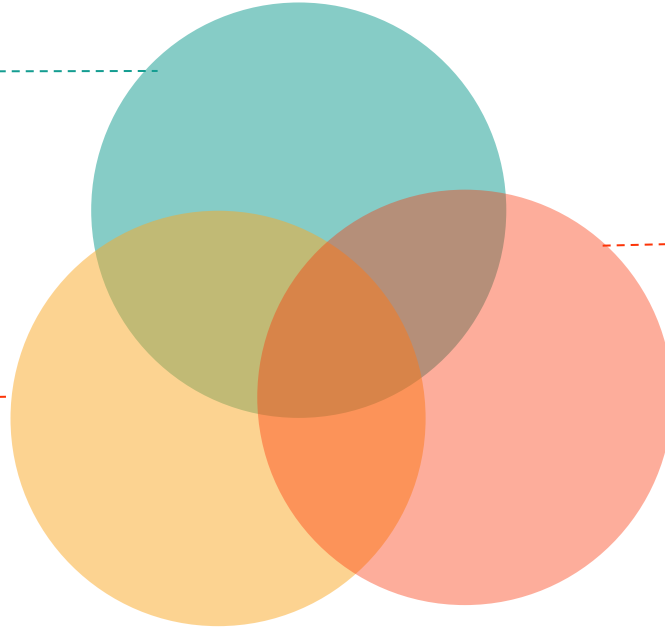
FIND PARTNERSHIPS

Find partners within your schools and outside of classroom walls.

- Co-Teachers, Specials
- Seek donations, field trip opportunities

HIGHLY ENGAGING CONTENT

Curriculum that has an impact is highly engaging, centered in the real world, where the application is clear.



HANDS-ON

Lessons should be rooted in the real world, and be discovery-based.

- Designing
- Building
- Creating
- Role-playing

Graphing Coordinate Planes

The image shows a digital interface for a geometry problem. At the top left, there is a home icon and the text "ROUND 1/10". Below this, the instruction reads: "Draw a blue line segment on (8, 6) that is parallel to the end boards. Re-size the line segment to have a length of 12 units." The main area is a coordinate grid with a vertical dashed red line at x=12. The y-axis is labeled "End boards : Y-Axis" and ranges from 1 to 12. The x-axis is labeled "Side boards : X-Axis" and ranges from 0 to 24. On the right side, there is a toolbar with a "BLUE" tab and a "RED" tab. The "RED" tab is active, showing a palette of red shapes: a circle with a plus sign, a semi-circle with a plus sign, a horizontal line with a plus sign, a vertical line with a plus sign, and a red circle with a plus sign. At the bottom right, there are three icons: a plus sign, a paint bucket, and a minus sign.

Force and Motion

ROUND 1/9

8 FORCE N

0.13 FRICTION N

0 DISTANCE M

1

FORCE

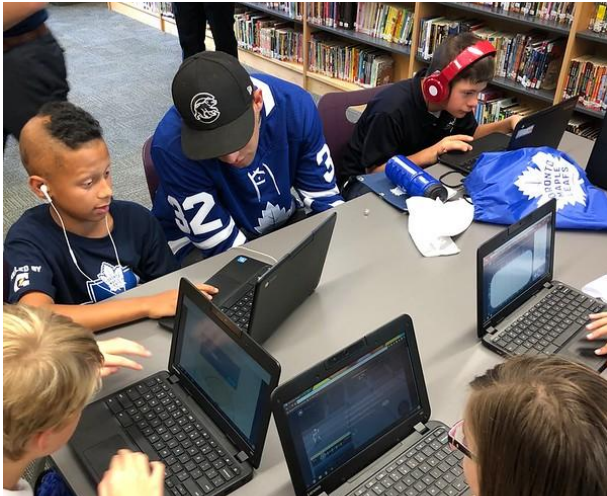
WEAK POWERFUL

FRICTION

NO FRICTION HIGH FRICTION

SHOOT PUCK

Engaging Students



Hockey Scholar - Science Edition



Prepare The Surface

Phases of matter, particle motion



Endurance

Heart and breathing rate



The Face-Off

Potential and kinetic energy



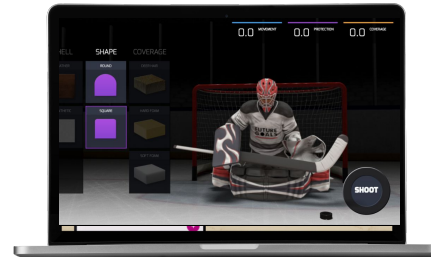
The Stick

Engineering design



Strength

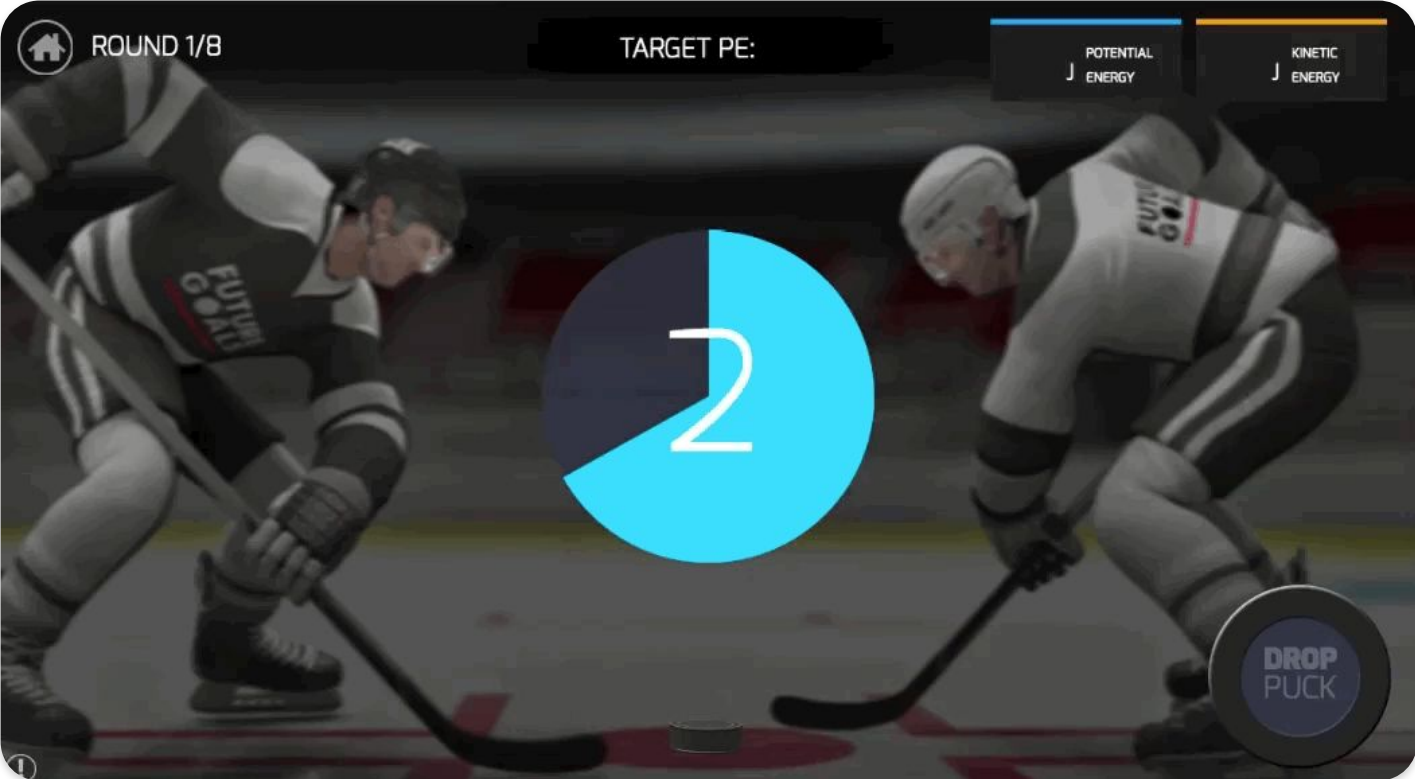
Mass and speed



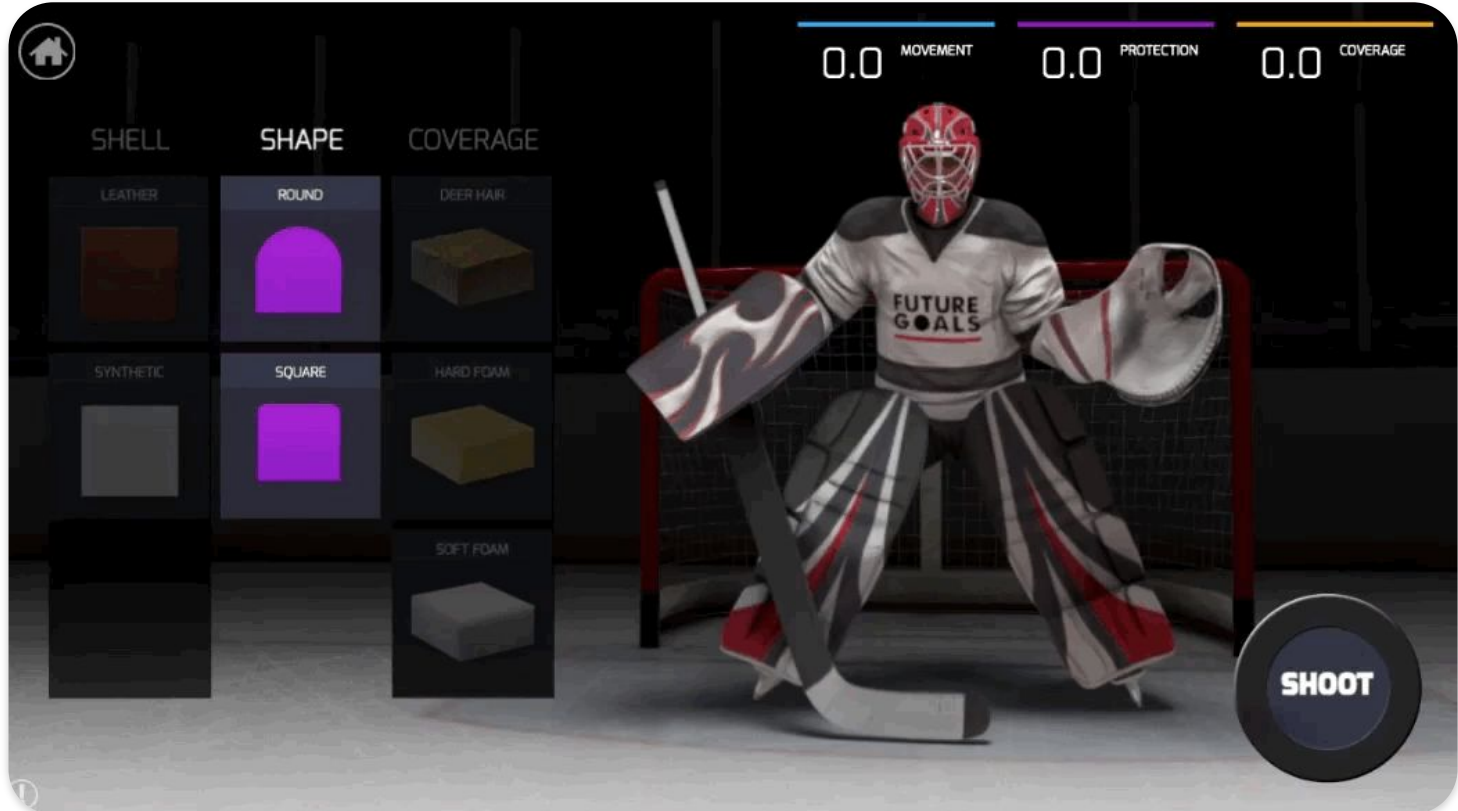
The Goalie Pads

Engineering design

Kinetic & Potential Energy



Engineering the Goalie Pads



Hockey Scholar: Math Edition



Uncover the Ice

Calculating area



The Shot

Force, magnitude, and friction



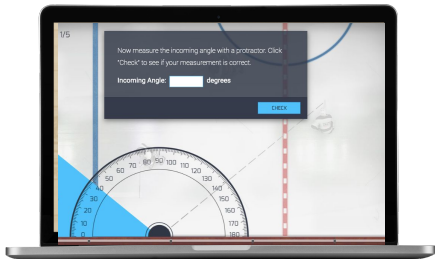
Paint the Ice

Graphing coordinate planes



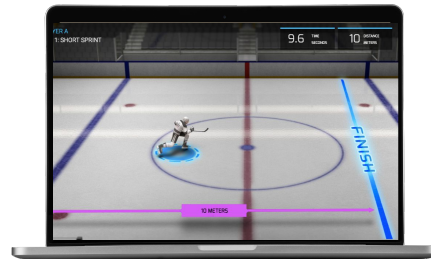
Speed

Calculating rate, distance, and speed



The Pass


Measuring angles



The Skate Blades

Correlation between radius and other variables

Uncover the Ice



INSTRUCTIONS

Ready for a challenge? Count the marks on the bottom to measure how many square units are in a row. This is the length - 7.

To find the width, count the number of rows - 4. Instead of adding 7 four times, multiply the length (7) times the width (4) to get the area, which is 28.

4							
3							
2							
1	2	3	4	5	6	7	

Click any section to start!

Lesson Plan Format



Pre-Quiz

Activate background knowledge and prior learning



Careers

Make a connection to real world careers that utilize these concepts every day



New Learning

Introduce a new concept in the same topic area



Practice

Engage in activities to deepen understanding



Evaluation

Demonstrate understanding

Elements of Support

Game 4: The Final Practice The Face-Off

Introduction

During the face-off, the kinetic and potential energy level falls to the ice. In this experiment, we are going to calculate certain points during the fall.

Take a look at the images and analysis below.

At Release



Analysis: Potential and kinetic energy levels are measured in Joules (J). When the puck is released, the potential energy is 29J.

During the Fall



Analysis: As the puck falls, the potential energy is converted into kinetic energy. The kinetic energy is 29J.

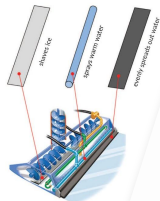
During this face-off, when the puck is released, the potential energy is 29J.

INTERMISSION

Now you've played on your ice, your ice is scratched up. Did you know kinetic energy is the reason that hockey games have three 20 minute periods? The kinetic energy of the players damages the condition of the ice as the game goes on. Playing for long periods scratches up the ice, making it hard to play on. Hockey arenas solved this problem by using an ice resurfacing machine called a Zamboni® machine to resurface the ice between periods.



A Zamboni® machine uses the kinetic energy of motion to shave ice off of the rink surface. It also uses heat energy by laying down a layer of warm water which freezes clearer and faster and helps the water to bond better by melting the top layer of ice. After the Zamboni machine passes by, kinetic energy from the liquid water transfers through the ice to the coils below the ice rink. When the kinetic energy of the thin layer of liquid water is low enough, it turns into ice. This makes the surface ready for game play. Here is a picture that shows the inside of a Zamboni machine.



Now you can prepare your hockey rink like a Zamboni machine does!

Level: Easy

Time: Approximately 30 minutes

MATERIALS

- 9x13 "Ice Rink"
- Timer
- A Library/Credit
- Rag or Sponge
- Warm Water

- 1 Place your s collect you
- 2 Take you
- 3 Scrape using hour your
- 4 Pl s
- 5

Data Analysis:

Which sensory system reacted the fastest? How can you tell? Was it the same for both you and your partner?

Did you notice any problems during your experiment that might have affected your results? Explain.

Conclusion:

Was there a difference in the reaction time between sight, hearing, or touch? Is this what you expected? Explain why or why not.



Student Companion Guides



Student Lab Packets



Hands-on Activities



Glossary, Planning Guides

More About This Partnership



FUTURE GOALS™





Sports & Technology Engagement

Health and PE

Character Education

Technology

Engineering

Career Exploration



Next Steps:
Putting Lessons into Practice

Future Goals - Science

Grade: 5, 6, 7

Subject: CTE, Math, Science



Future Goals - Math

Grade: 5, 6, 7

Subject: CTE, Math, Science



Resources



- [Answer Keys](#)
- [Course Outline](#)
- [Curriculum Guide](#)
- [FAQ](#)
- [Future Goals Hands-On Science Activity](#)

This is an activity for students to take home and complete with a parent or guardian. In this activity, learners build, play, and prepare a miniature ice rink as they explore science concepts.
- [Future Goals Hands-On Science Activity \(Canada\)](#)

Students take home this activity to complete it with a parent or guardian.
- [Glossary](#)
- [Letter to Parents \(English\)](#)
- [Letter to Parents \(Spanish\)](#)
- [Module 1: Preparing the Surface - Companion Guide \(English\)](#)
- [Module 1: Preparing the Surface - Companion Guide](#)

Q & A

Next Steps

Learn

Visit everfi.com/k12-courses

Use everfi.com/k12-calendars to plan ahead.

Try

Register for an account at www.everfi.com/newteacher

Try a new course. You can add from your teacher dashboard.

Share

Share with colleagues.

Share about your class on social media - tag @EVERFIk12 and/or use #EVERFIempowers