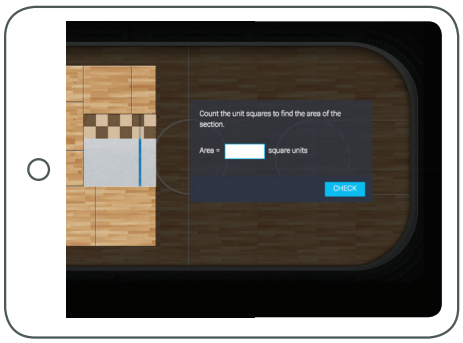
Future Goals—Hockey Scholar

Math Edition

Total Lessons: 6 lessons, approximately 25 minutes each
Subject Fit: Math, STEM
Standards Alignment: Common Core Math Standards, State Academic Standards



Future Goals - Hockey Scholar™: Math Edition uses the game of hockey to teach students about important, but difficult to teach Math concepts. From the pythagorean theorem to various area formulas, students apply their math skills to real world scenarios. In one lesson, students collect distance and time data to calculate a player's average speed. Each of the 6 lessons scaffolds students through problems of increasing complexity, giving tailored feedback along the way. The result is an experience that students both love and learn from.

Key components

Digital Lessons

Self-paced digital activities give students a safe and differentiated place to build new knowledge and skills.

Lesson Plans

Classroom-ready lessons provide educators with standards-aligned guides to integrate effortlessly into classroom instruction.

Reporting

See where your students are mastering concepts or where more support might be needed with a gradebook that updates as they move through the course.

Example Topics

- Measuring Angles
- Speed and Distance Formula
- Coordinate Planes

Course Flow

- **Prediction**
- **Introductory Video**
- **Experiment**
- **Analysis**
- **Conclusion**

For more information about bringing this program to your school or district, visit **https://everfi.com/k-12/hockeyscholar**

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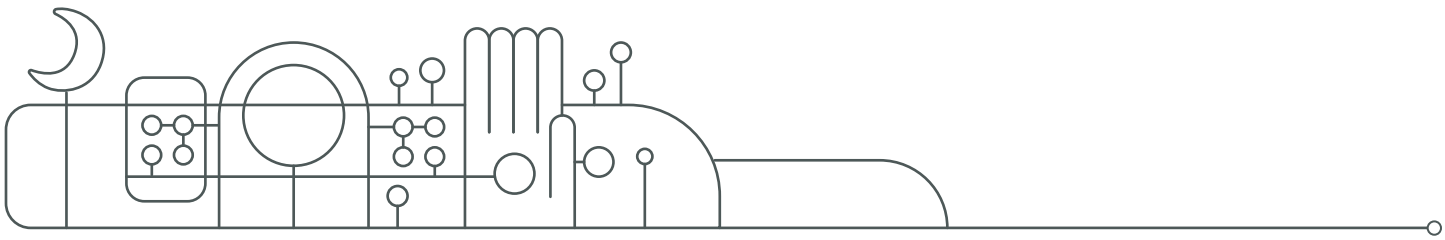
FUTURE GOALS™ Math Edition

Course Outline

Lesson	Game Description	Learning Objectives *Students will be able to...*	Key Terms
Uncover the Ice	Students derive area formula and proper units of measurement to calculate the area of each section of ice as they remove covering.	○ Identify and explain the units of measurement used for area calculations. ○ Describe how unit squares can be combined to create an object of a given area. ○ Analyze area calculations to derive the area formula. ○ Apply area formulas for whole-number edge lengths.	Area, units, unit square, square meters, formula
Paint the Ice	Students apply knowledge of geometric figures and coordinate planes to paint the ice rink.	○ Define and identify points, parallel & perpendicular lines, line segments, radius, diameter, chords, and congruent figures. ○ Identify, compare, and construct circles of a given radius and diameter. ○ Use ordered pairs to describe and find the location of a point.	Point, coordinate, x/y-axis, parallel lines, perpendicular lines, right angle, line segment, radius, chord, diameter, center, congruent
The Pass	Students measure and find patterns between angles lying on a straight line, by setting up a pass that bounces off the boards. Students discover the Law of Reflection based on their angle data.	○ Measure angles in whole-number degrees using a protractor. ○ Analyze data in tables to reveal patterns that indicate relationships (e.G. Additive angles and the law of reflection) and to predict future results. ○ Describe the law of reflection and list real-life examples where it occur.	Protractor, degrees, right angle, straight angles, Law of Reflection, adjacent angles
The Shot	Students explore the interaction between two unbalanced forces – applied force and frictional force – and use this knowledge to hit specific targets on the ice.	○ Define force, magnitude, direction, and friction. ○ Explain how different forces (ex: friction, applied force) will influence the motion of the puck. ○ Identify the differences in an object's motion when forces are balanced or unbalanced. ○ To describe newton's 1st law (an object in motion will stay in motion unless acted upon by an outside force) and how it applies to real-life scenarios.	Force, magnitude, direction, friction, Newton's 1st Law



Lesson	Game Description	Learning Objectives *Students will be able to...*	Key Terms
Speed	Students record and calculate a player's average speed (using d = vt formula) over short and long sprint distances.	○ Identify correct units of measurement for time, distance & speed. ○ Calculate average speed using distance and time data from multiple trials. ○ Identify and utilize the formula for speed. ○ Explain the importance of performing multiple trials in a scientific experiment.	Rate, units of distance (m, km, mi), trials, average, formula
The Skate Blades	Students help players stop on a certain target based on the radius of hollow (curve between the edges) of their skate blades, and use this data to figure out the correlation between radius of hollow and stopping distance.	○ Define and identify independent variables, dependent variables, and controls in an experiment. ○ Define and describe correlations. ○ Identify the radius of a circle. ○ Construct, analyze and describe patterns from scatterplot graphs.	Variables, radius, correlation

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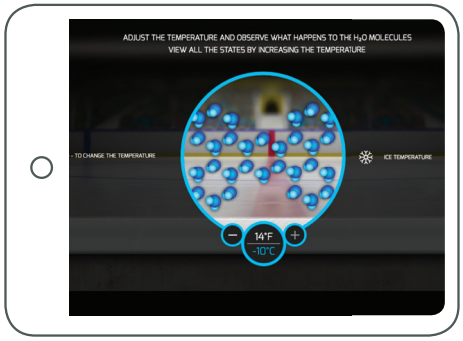
Future Goals—Hockey Scholar

Science Edition

Total Lessons: 6 lessons, approximately 25 minutes each
Subject Fit: Science, STEM
Standards Alignment: Next Generation Science Standards, State Academic Standards



Future Goals - Hockey Scholar™: Science Edition uses the game of hockey to teach students about important, but difficult to teach Science concepts. From calculating kinetic and potential energy to understanding phases of matter, students apply their scientific understanding to real world scenarios. In one lesson, students examine how friction affects a player's speed. Each of the 6 lessons uses the Scientific Method framework to scaffold students through the process of making predictions, collecting data, and conducting analysis. The result is an experience that students both love and learn from.

Key components

Digital Lessons

Self-paced digital activities give students a safe and differentiated place to build new knowledge and skills.

Lesson Plans

Classroom-ready lessons provide educators with standards-aligned guides to integrate effortlessly into classroom instruction.

Reporting

See where your students are mastering concepts or where more support might be needed with a gradebook that updates as they move through the course.

Example Topics

- Force and Friction
- Potential and Kinetic Energy
- Phases of Matter

Course Flow

- **Prediction**
- **Introductory Video**
- **Experiment**
- **Analysis**
- **Conclusion**

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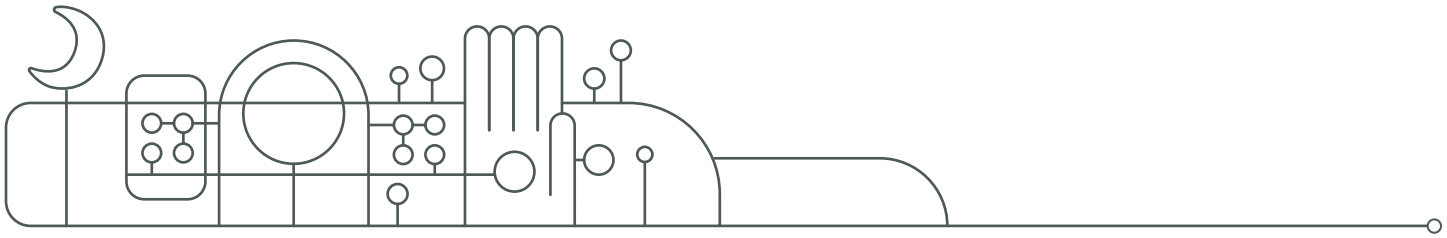
FUTURE GOALS™ Science Edition

Course Outline

Lesson	Game Description	Learning Objectives *Students will be able to...*	Key Terms
Prepare the Surface	Students explore the particle motion of different phases (solids, liquids and gases) and use that to set the air and ice temperature for the arena.	○ Explain that matter is made up of particles that are too small to see (i.E. Molecules). ○ Describe how changes in temperature affect molecular motion and kinetic energy. ○ Describe and compare the phases of matter (solid, liquid, and gas) based on temperature and molecular motion.	Molecules, atoms, H_2O, O_2, phases, solid, liquid, gas, volume, kinetic energy, Celsius, Fahrenheit, freezing, melting
The Face-Off	Students explore the relationship between potential and kinetic energy during a puck drop.	○ Explain the difference between kinetic energy (ke) and potential energy (pe). ○ Identify the relative amount of ke and pe in a system, based on an object's speed and position relative to the ground. ○ Explain the relationship between ke and pe in a closed system (i.E. Energy is conserved).	Kinetic energy, potential energy, energy transformation, conservation of energy
Strength	Students explore the effect of mass and speed on a player's kinetic energy by adding removing their equipment and adjusting their skating speed.	○ Identify and define independent and dependent variables. ○ Recognize patterns and correlations in data sets. ○ Explain the positive relationships between mass, speed (velocity), and kinetic energy. ○ Identify that changes in speed (velocity) have a greater impact on kinetic energy than changes in mass.	Independent variable, dependent variable, kinetic energy, mass, speed
Endurance	Students train players in their target heart rate zone during an on-ice shift to see the effect of exercise on heart rate and breathing rate.	○ Describe the components and function of the respiratory and circulatory system. ○ Collect data to analyze the relationship between physical exercise and heart rate and breathing rate. ○ Describe the relationship between cells, tissues, organs and organ systems.	Specialized cells, tissue, rate, organ, organ system, circulatory system, respiratory system, red blood cell, capillaries, heart rate, breathing rate



Lesson	Game Description	Learning Objectives *"Students will be able to..."*	Key Terms
The Stick	Students make observations about player's stick design preferences based on their skating, shooting, and passing styles and use this observational data to design the best stick for a new player.	○ Define and identify variables and criteria in an engineering design task. ○ Analyze data tables to discover patterns and correlations. ○ Select an optimal design solution to meet given criteria.	Observation, criteria, variable, qualitative data, quantitative data
The Goalie Pads	Students isolate and control variables to see how different pad materials affect protection & maneuverability.	○ To define and identify controls (or controlled variables) in an engineering design task. ○ Perform controlled experiments by adjusting experimental variables. ○ Analyze data tables to find patterns and correlations. ○ Select an optimal design solution based on given requirements.	Criteria, independent/ dependent/controlled variables, optimization

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