MINDSETS CURRICULUM

ALIGNED TO COMMON CORE MATH STANDARDS*

Mindsets Challenges is a modular curriculum for real-world problem-solving in Math & STEAM

April 2019- Version 4

* based on the engage® curriculum https://www.engageny.org
Teaching with the Mindsets Challenges

There are many ways to use Mindsets Challenges! Most Challenges take around 45-60 minutes and can be completed in 1 to 2 class periods. Teachers have the flexibility to also use any of the grade-level Mindsets Challenges, together with their matching project-based extension over a week or a month throughout the school year.

Here’s how we suggest using Mindset Challenges:

1 class period
- 1 Challenge
- Supplement your existing lesson with real-world problems or hands-on, inquiry-based activities
- Focus on a mathematical or science standard

1-2 class periods
- 1 Challenge
- Break up student work into shorter time periods by asking students to log back into the Challenge
- Focus on a mathematical or science standard

Over 1 week
- Assign 1 Challenge in 1-2 class periods as an introduction or review of content standards
- After completing the Challenge, add on a project-based extension
- Using the project-based extension, students can take time over multiple classes to develop their skills

Over 1 month
- 1-2 Challenges per week with a focus on adding project-based extensions
- Challenges are aligned to high-frequency standards and can be used as an introduction or as reinforcement during a lesson or review
- Use project-based extensions to assess students and support high-achieving learners

Over the school year
- 1-2 Challenges per month
- Follow the Suggested Sequence calendar (contact us to create a custom one for your school)
- Incorporate project-based extensions as the school schedule allows or use to differentiate for enrichment programs
Suggested Sequence Grade 6:

September
Ratios & Proportions

Choose a career and see what salary you’ll earn each month. We’ll learn how your career choice affects what you decide to spend and buy!
6.RP.A.3c

October
The Number System

You’re a party planner hired by a local high school to plan their graduation party. Keep track of money spent and stay within budget!
6.NS.B.3

November
The Number System

This summer, you’ve bought a make your own sundae bar! You’ll calculate costs of ice cream, delicious toppings and supplies to determine a profit.
6.NS.1

December
The Number System

National Geographic has hired you to create graphs for a story on the negative effects climbing Mount Everest has on your body.
6.NS.7, 6.NS.8

January
Expressions & Equations

Your school will be hosting an upcoming International Art Fair! Create and design special patterned bands for sale using a basic design.
6.EE.A.2, 6.EE.A.3, 6.EE.A.4

February
Expressions & Equations

Six Flags needs your help creating a cost calculator app, which supports visitors planning and enjoying their theme park visit.
6.EE.2, 6.EE.6

March
Expressions & Equations

You’re raising money to save African Elephants. Use inequalities to work out the value of the gifts and help save the elephants!
6.EE.B.8

April
Geometry

You’ve helping out Antique Athletes, a supplier of vintage and historic sports memorabilia. Balance volume and cost to decide which box is the most cost-effective for the job.
6.G.2

May
Statistics & Probability

You are a scout for the Boston Celtics. Use player data and statistics to decide who would add the most to your team
6.SP1, 6.SP2
<table>
<thead>
<tr>
<th>Month</th>
<th>Subject</th>
<th>Project Description</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>Expressions &amp; Equations</td>
<td>You’re a producer for the exciting TV show, The Amazing Race: Teen Edition. You’re in charge of booking flights, converting $ and then choosing a city for final competition.</td>
<td>7.EE.3, 7.EE.4, 7.RP.3</td>
</tr>
<tr>
<td>October</td>
<td>Expressions &amp; Equations</td>
<td>Help Nike to relaunch one of its best selling sneakers! You’ll pick a retro sneaker, then work out costs and a range of sales and profits.</td>
<td>7.RP.3, 7.EE.4</td>
</tr>
<tr>
<td>November</td>
<td>Ratios &amp; Proportions</td>
<td>University of California has hired you as a design engineer to power key buildings through solar panels. Determine the number of solar panels needed to keep key buildings running.</td>
<td>7.RP.1, 7.G.6</td>
</tr>
<tr>
<td>December</td>
<td>Ratios &amp; Proportions</td>
<td>Are you happy with your school lunches? Whole Foods is partnering with your school to test a new pizza dish, and they’d like your help. Predict which pizza will be the most popular!</td>
<td>7.RP.3, 7.EE.4</td>
</tr>
<tr>
<td>January</td>
<td>Geometry</td>
<td>Packaging is expensive! As the Packaging Engineer at Amazon, use surface area calculations to lower costs by packaging goods effectively.</td>
<td>7.G.B.6</td>
</tr>
<tr>
<td>February</td>
<td>Ratios &amp; Proportions</td>
<td>On the TV show, House Hunters, you sell the most amazing homes in the world. Apply ratios to calculate your sales commission.</td>
<td>7.RP.3</td>
</tr>
<tr>
<td>March</td>
<td>Statistics &amp; Probability</td>
<td>As a sports statistician, your job is to record data, determine probabilities and make predictions on games and players using statistics.</td>
<td>7.SP.5, 7.SP.6</td>
</tr>
<tr>
<td>April</td>
<td>Statistics &amp; Probability</td>
<td>Nike is considering partnering with schools to help teens get fit and stay fit! You’ll survey students to learn about their sports interests and plan for gyms across the country.</td>
<td>7.SP.1, 7.SP.2</td>
</tr>
<tr>
<td>May</td>
<td>Statistics &amp; Probability</td>
<td>As a video game designer for Nintendo, compare and contrast data for different games. You’ll look at information collected from video game testers and then make decisions about each video game.</td>
<td>7.SP.3, 7.SP.4</td>
</tr>
</tbody>
</table>
Suggested Sequence Grade 8:

**September**
Expressions & Equations

You’ve been hired to design sports’ platforms for this event. Let’s calculate exactly the dimensions for sports like Judo, Weightlifting and Gymnastics.

- 8.EE.1, 8.EE.2, 8.NS.1, 8.NS.2

**October**
Geometry

Design and create eye-catching images using rigid transformations for a new marketing campaign for LeBron James.

- 7.RP.1, 7.G.6

**November**
Geometry

You are an aeronautical engineer working with NASA on the next generation of spacecraft. Use your understanding of volume and ratio to send astronauts and their guests into space!

- 8.G.7

**December**
Expressions & Equations

You’ve been offered two jobs - one by Google and one by Amazon. Which will you pick? Use salary and company data to make a decision!

- 8.EE.5, 8.SP.3

**January**
Expressions & Equations

As a member of Verizon’s elite marketing team, you are working to determine which plan is the best for each client. Use linear equations to create the best possible cell plans.

- 8.EE.7

**February**
Expressions & Equations

You’ve perfected your skills as a forensic accountant. Use clues from digital receipts and financial records, and analyze them using systems of equations to detect if someone is stealing.

- 8.EE.C.8, 7.RP.A.1

**March**
Functions

You’re the head of marketing for McDonald’s and will use functions to track the sales of new Sunset menu items in your San Diego restaurant.

- 8.F.1, 8.F.2, 8.F.3

**April**
Functions

You’re working for Tesla to create an ad to promote the operating efficiency of the new electric car! Let’s analyze data from the Model 3 using arithmetic & geometric sequences.

- HSF.BF.A.1, 1a, 2

**May**
Geometry

You’re an architect designing a baseball stadium in Tampa Bay, Florida. Use Pythagorean Theorem to determine the dimensions of the field.

- 8.G.7