



# Get to Know ST Math Texas

## Introduction

ST Math Texas is a visual instructional program that leverages the brain's innate spatial-temporal reasoning ability to solve mathematical problems. It's unique, patented approach provides all students access to standards-aligned learning through challenging puzzles, non-routine problem solving, and formative feedback.

This visual learning approach helps students solve unfamiliar math problems, recognize patterns, and develop conceptual understanding, regardless of skill level or language background.

In addition to solving puzzles independently, ST Math Texas utilizes Puzzle Talks. These teacher-facilitated mini-lessons use ST Math Texas puzzles in whole or small group settings to engage students in rich mathematical discourse.

## Experience ST Math Texas

Use the links on the right to provide guidance in accessing, understanding, and navigating the ST Math Texas curriculum and Puzzle Talks.

### Curriculum

[Get Started](#)

[Objective Overview](#)

[Games](#)

[Assessments and Standards](#)

[Auto-Assignments](#)

[Student View](#)

### Puzzle Talks

[Get Started](#)

[Overview Navigation](#)

[Lesson Navigation and Tools](#)

# Curriculum - Get Started

## STEP 1 - View All Learning Objectives

Click a grade level to expand it and view All Learning Objectives included with ST Math Texas.

Grade	Count	Actions
Kindergarten	3722	👍 28 🗑️
1st Grade	3748	👍 26 🗑️
2nd Grade	4019	👍 32 🗑️
3rd Grade	3626	👍 33 🗑️
4th Grade	3765	👍 30 🗑️
5th Grade	3743	👍 28 🗑️
6th Grade	4454	👍 27 🗑️

Included in Journey: 3158 👍 20 🗑️

- Negative Numbers and Absolute Value
- Coordinates and Distances
- Addition and Subtraction with Negative Numbers
- Proportional Reasoning
- Percents

Alternatively, use the Organize By, Grade, or search filters at the top to see objectives aligned to specific standards, Auto-Assignments\*, grade, or topic.

Organize By: ✓ ST Math Journey, Standards, Auto-Assignments

Grade: All Grades

\*Learn more about middle school Auto-Assignments on page

# Curriculum - Objective Overview

ST Math Texas objectives progress students from a conceptual to a symbolic understanding of a math concept. In the student console, objectives are represented by islands, each containing a series of games students play.

## STEP 1 - Open an Objective

With the grade level expanded, click a blue objective name to open it.

ST Math Home Curriculum Support What's New in ST Math?

All Learning Objectives

Organize By **ST Math Journey** Grade **All Grades** Search

Kindergarten	3722	28
1st Grade	3748	26
2nd Grade	4019	32
3rd Grade	3626	33
4th Grade	3765	30
5th Grade	3743	28
<b>6th Grade</b>	<b>4454</b>	<b>27</b>
Included in Journey	3158	20

**Negative Numbers and Absolute Value**

Coordinates and Distances

Addition and Subtraction with Negative Numbers

Proportional Reasoning

Percents

## STEP 2 - View the Objective Overview

From the Overview tab, you can view a summary of the objective content, the grade level, the number of puzzles in each, and play the objective.

Negative Numbers and Absolute Value

Overview Games Assess Standards

**At a Glance**

In this Objective, students:

- Locate positive and negative integers, fractions, and decimals on a number line, including numbers presented with two or more leading negative signs
- Compare integers and order multiple integers
- Identify and compute positive and negative changes in temperature measurements

6th Grade 245

Play This Objective

# Curriculum - Games

Each ST Math Texas game has multiple levels that increase in complexity. In each level, students play a series of puzzles and collect a puzzle piece for each upon the completion of the level. ST Math Texas is mastery based, so students must solve a puzzle correctly in order to move to the subsequent puzzle.

## STEP 1 - Open a game or game level

### Option 1 - from the Objective Overview

At the bottom of the Objective Overview, select Play This Objective. A new tab will open, taking you to the first game at the beginning of the objective island. From here, click on any green check to go to a specific game level.

The screenshot shows the 'Objective Overview' page for 'Negative Numbers and Absolute Value'. At the top, there are tabs for 'Overview', 'Games', 'Assess', and 'Standards'. Below the tabs, there is a section titled 'At a Glance' with a number line icon. The text states: 'In this Objective, students:'. Below this are three bullet points: 'Locate positive and negative integers, fractions, and decimals on a number line, including numbers presented with two or more leading negative signs', 'Compare integers and order multiple integers', and 'Identify and compute positive and negative changes in temperature measurements'. At the bottom left, it says '6th Grade' and '245'. A 'Play This Objective' button is highlighted with an orange box. To the right, there is a small inset image of a game scene with a character on a path and a green checkmark icon.

### Option 2 - from the Games tab

Click the Games tab to the right of the Overview tab.

Here, you will see all games and corresponding levels within an Objective. Below the level numbers, you will find Game in a Minute videos. These videos provide quick tutorials for teachers.

To open and play through a level, click a level number. When you do, the Play Level Variant options appear. Each variant showcases a set of puzzles students could play within a given level. Click the first variant to begin.

The screenshot shows the 'Games' tab for 'Negative Numbers and Absolute Value'. It displays '7 Game(s) in This Objective'. The first game is '1. Temperature Changes', which includes a thermometer icon showing 20, 10, and 0 degrees. The description is: 'Determine the temperature change or the new temperature by reading and comparing the temperature on two thermometers, or by reading the original temperature and the description of the change.' Below the description are 'Play Levels' (1-6) and 'Play Level Variant' (1-8) buttons, with the first variant button highlighted in orange. The second game is '2. Negative Number Line Trap', which includes a number line icon with the expression  $-(-(-2))$ . The description is: 'Plot positive and negative integers on a number line, presented in simplest form or with two or more leading negative signs.' Below the description are 'Play Levels' (1-6) and a 'Game in a Minute' button highlighted in orange.

\* Continued on the next page.

[Return to contents](#)



ST Math  
Texas

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# Curriculum - Games *cont.*

## STEP 2 - Play a game

ST Math Texas games are designed without instructions so utilizing the Problem Solving Process is a helpful way to work through puzzles.

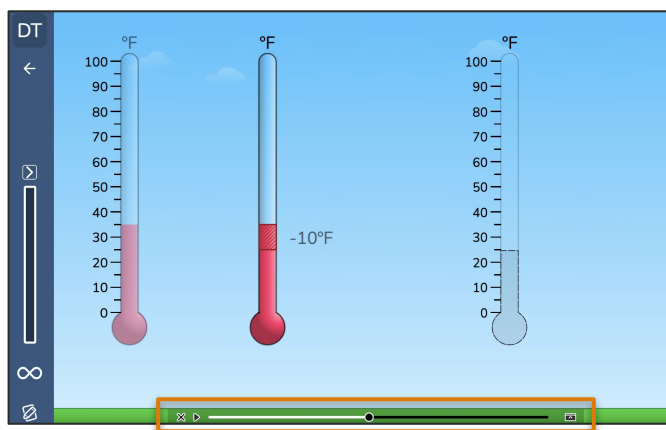
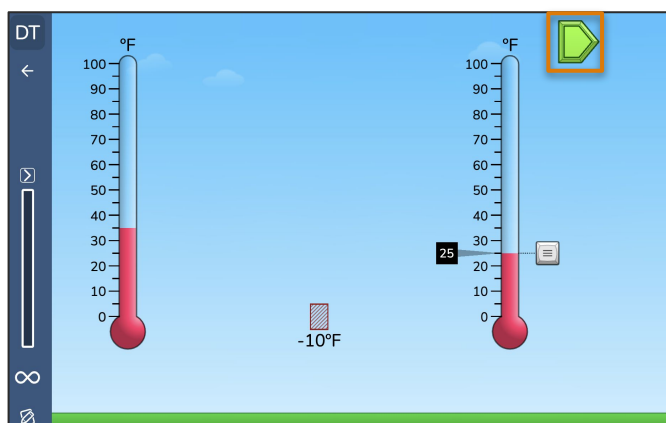
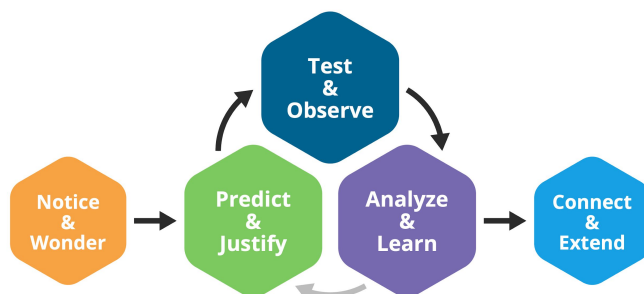
Start by noticing elements of the puzzle. What do you think you are supposed to do to solve it? What can you click on or move?

Once you make a prediction, adjust the puzzle accordingly and select the green button to test out your idea.

Analyze and learn from the animation that plays. It may take multiple attempts to answer the puzzle successfully. That's okay! Your brain is primed for learning when it encounters challenges.

**Note:** This experience allows for an infinite number of attempts to solve a puzzle. In the student experience, students have two tries to solve a puzzle. If both tries are unsuccessful, they will begin the level again.

**Tip:** If you need more time to process and learn from the animation, you can use the animation control feature. To make it appear, click the background of the game while the animation is playing. Doing so will allow you to pause, play, and rewind to move at your own pace.



\* Continued on the next page.

[Return to contents](#)



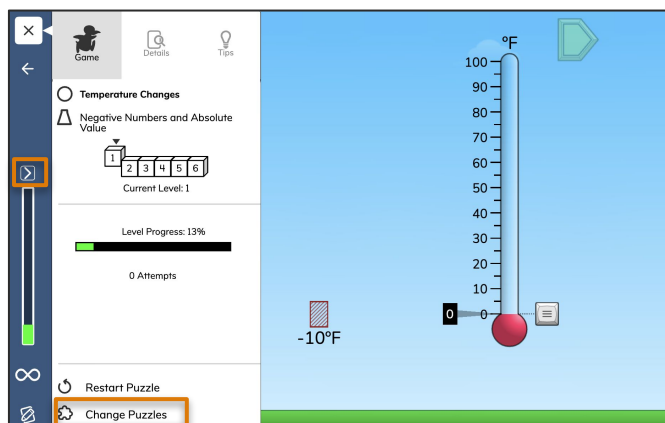
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## Curriculum - Games *cont.*

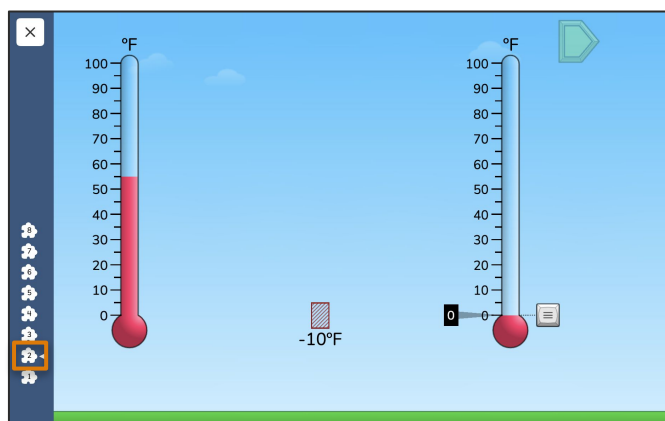
### STEP 3 - Change puzzles within a level

To explore all the puzzles within a level variant, select the arrow just above the progress bar on the left side, then click Change Puzzles.



Click on any of the puzzle pieces on the left side to navigate to puzzles within a level without playing them.

**Note:** Students need to solve the puzzle correctly in order to progress; they do not have the ability to jump to any puzzle of their choosing.



# Curriculum - Assessments and Standards

In 2nd grade and up, students take a short pre-quiz and post-quiz before and after each Objective. Post-quizzes are provided as a growth measure and help educators identify students who have strong conceptual models but may struggle to link the model to symbolic math.

Each ST Math Texas Objective is labeled as recommended or related to given mathematics standards. Because of this, standards are grouped as Addressed and Partially Addressed.

**Note:** Students in grades 6-8 also have the opportunity to take a pre- and post-test to auto-assign personalized ST Math Objectives and evaluate their growth upon assignment completion. Learn more about this on the [Curriculum - Auto-Assignments](#) page.

## STEP 1 - View quiz questions

From an Objective page, click on the Assess tab.

Use the Language or Quiz Type filters to adjust the questions accordingly.

Select the question number to change the question preview.

The screenshot shows the 'Assess' tab selected in the 'Negative Numbers and Absolute Value' objective page. The 'Assess' tab is highlighted with an orange box. Below the tabs, there are filters for 'Language' (set to 'English') and 'Quiz Type' (set to 'Pre-Quiz'), both highlighted with orange boxes. A 'Print' button is also visible. Below the filters, a row of question numbers (Question 1 through Question 6) is shown, with 'Question 1' highlighted by an orange box. The main content area displays a question: 'Which point is located at -3 on the number line?' Below the question is a number line with points A, B, C, and D marked. To the right of the number line are four input boxes labeled A, B, C, and D. A 'Next' arrow button is at the bottom right.

## STEP 2 - View standards

Select the standards tab to view all standards addressed in the Objective.

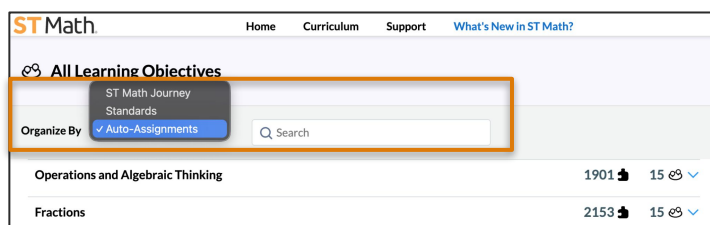
The screenshot shows the 'Standards' tab selected in the 'Negative Numbers and Absolute Value' objective page. The 'Standards' tab is highlighted with an orange box. Below the tabs, the 'Addressed Standards' section is visible. It states: 'This is a recommended Objective for:'. Underneath, the 'Number and Operations' standards are listed: '6.2B: Identify a number, its opposite, and its absolute value.', '6.2C: Locate, compare, and order integers and rational numbers using a number line.', and '6.2D: Order a set of rational numbers arising from mathematical and real-world contexts.'

# Curriculum - Auto-Assignments

In grades 6-8, ST Math provides the opportunity to have a personalized set of objectives for students who may need additional support. This is done through a pre-test that is roughly 40 questions and is automatically available to students. Once completed, students will receive Auto-Assignments based on their needs in up to six mathematical topics. When students finish their Auto-Assignments, the Post-Test will be given to assess their learning.

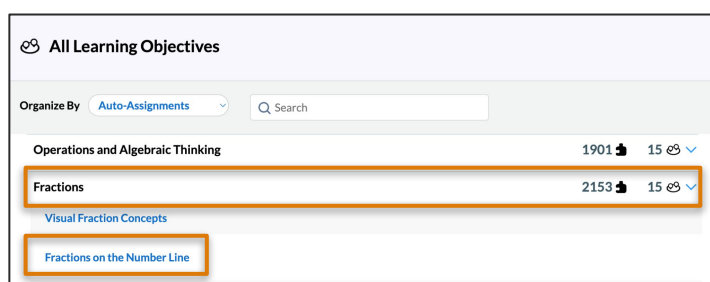
## STEP 1 - View Auto-Assignments Objectives

From an All Learning Objectives page, select Auto-Assignments from the Organize By dropdown.



Topic	Objectives	Resources
Operations and Algebraic Thinking	1901	15
Fractions	2153	15

Select a topic to view all ST Math Objectives a student might receive. Note that the objective quantity and type assigned depends on the Pre-Test results.



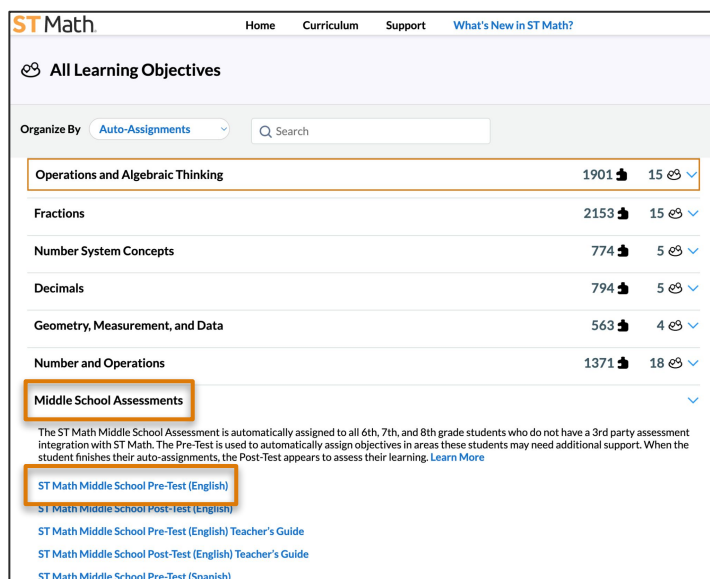
Topic	Objectives	Resources
Operations and Algebraic Thinking	1901	15
Fractions	2153	15

Visual Fraction Concepts

Fractions on the Number Line

## STEP 2 - View Pre- and Post-Tests

Select Middle School Assessments to view the Pre- and Post-Tests and corresponding Teacher's Guides in English and Spanish.



Topic	Objectives	Resources
Operations and Algebraic Thinking	1901	15
Fractions	2153	15
Number System Concepts	774	5
Decimals	794	5
Geometry, Measurement, and Data	563	4
Number and Operations	1371	18
Middle School Assessments		

The ST Math Middle School Assessment is automatically assigned to all 6th, 7th, and 8th grade students who do not have a 3rd party assessment integration with ST Math. The Pre-Test is used to automatically assign objectives in areas these students may need additional support. When the student finishes their auto-assignments, the Post-Test appears to assess their learning. [Learn More](#)

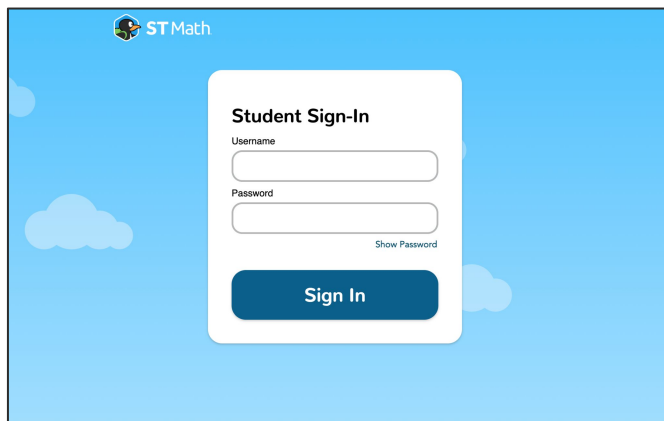
ST Math Middle School Pre-Test (English)  
ST Math Middle School Post-Test (English)  
ST Math Middle School Pre-Test (English) Teacher's Guide  
ST Math Middle School Post-Test (English) Teacher's Guide  
ST Math Middle School Pre-Test (Spanish)



# Curriculum - Student View

## STEP 1 - Log in as a student

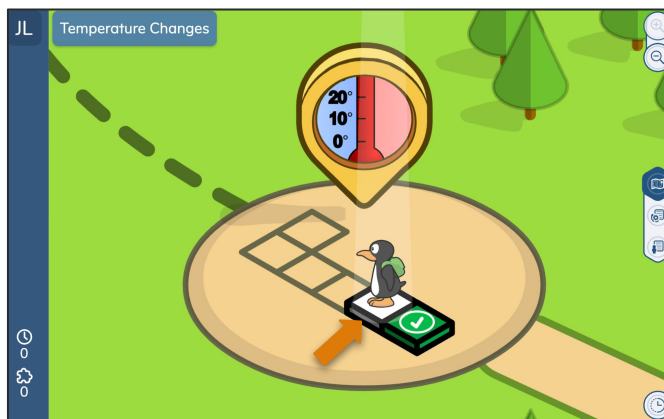
To explore ST Math Texas as a student, use the provided link, username, and password to log in.



## STEP 2 - Play a game level and return to the home screen

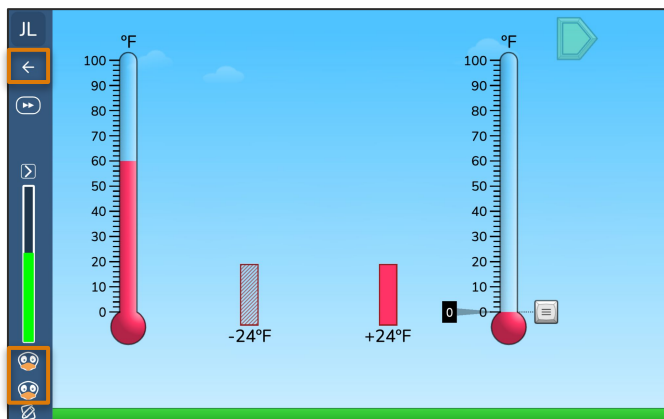
Click the white game level tile where Jiji the penguin stands.

As you begin the level, you may start at the beginning or where another person left off.



On the bottom left, you will notice that there are two Jiji the penguin heads. These represent the number of attempts students have to make it through the level. If both attempts are used, students restart the level.

Select the arrow below the user initials to return to the home screen.

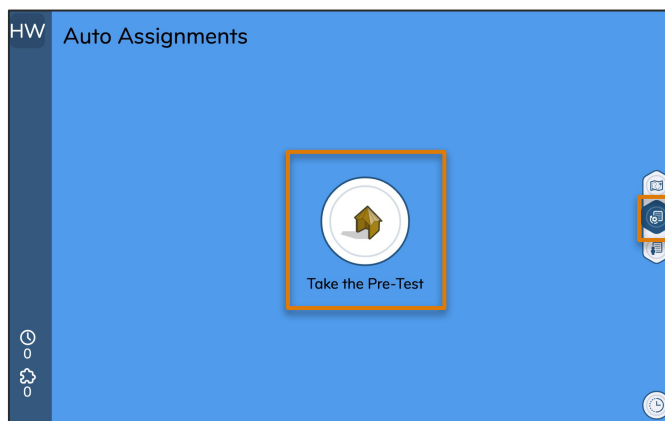


## Curriculum - Student View *cont.*

### STEP 3 - Locate the Middle School Pre-Test

From the student home screen, select Auto-Assignments on the toggle located on the right side of the screen.

If the Pre-Test is incomplete, students will select Take the Pre-Test to begin. If needed, students can complete the test over multiple sessions as their progress is saved along the way.

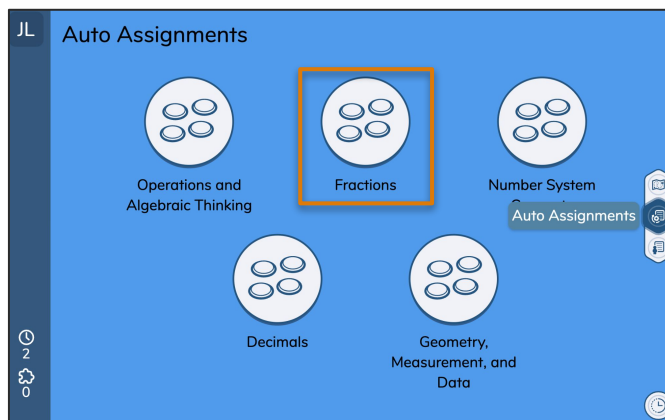


### STEP 4 - View Auto-Assignments

Once the Pre-Test is complete, the next time students log in and select Auto-Assignments, they will see personalized topic pathways that correspond with their Pre-Test results.

Students can select a topic pathway of their choice to begin.

Note that the number of topic pathways and the objectives within each depends on the Pre-Test results.

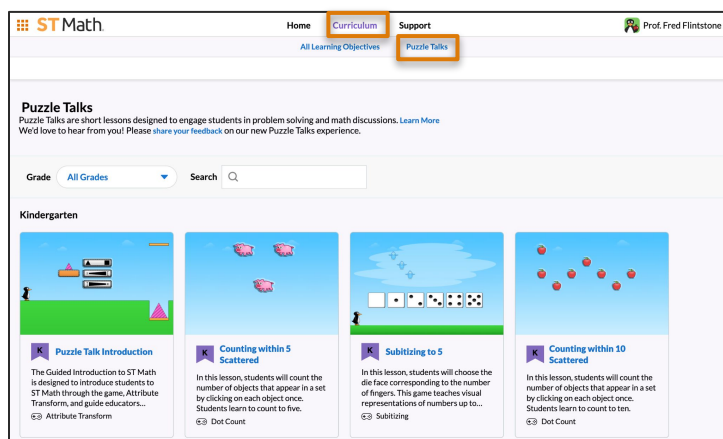


# Puzzle Talks - Get Started

Puzzle Talks are teacher-facilitated mini-lessons that use ST Math Texas puzzles in whole or small groups to engage students in rich mathematical discourse. The Puzzle Talk platform is used to launch a projected lesson and guide students in discussion related to a series of scaffolded puzzles. Provided teacher notes, questions, and optional materials guide the conversation along the way.

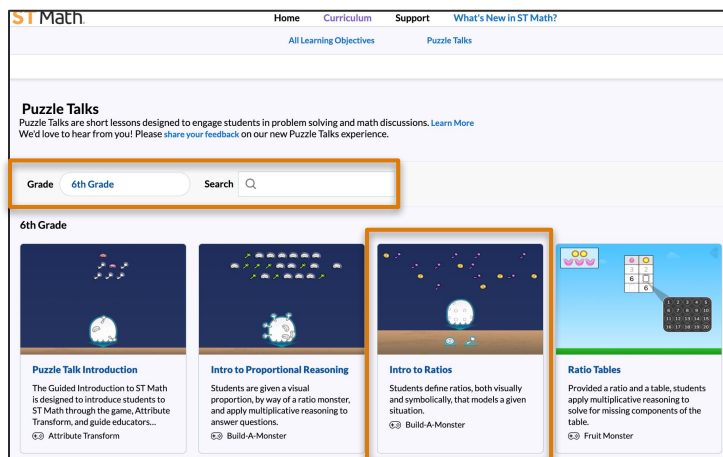
## STEP 1 - Open Puzzle Talks

Select Curriculum from the menu at the top of the page. Then select Puzzle Talks to begin your exploration.



## STEP 2 - Select a Puzzle Talk

Scroll and click a Puzzle Talk tile of your choice, or use the Grade and Search filters at the top to narrow your options.



# Puzzle Talks - Overview Navigation

## STEP 1 - View the Overview page

The Puzzle Talk Overview page contains the mathematics objectives, optional materials, vocabulary, and lesson notes for each puzzle.

The screenshot shows the 'Intro to Ratios' overview page on the ST Math website. At the top, there are navigation links for Home, Curriculum, Support, and What's New in ST Math?. Below this, there are links for 'All Learning Objectives' and 'Puzzle Talks'. The main content area features a title 'Intro to Ratios' with a dropdown arrow. A 'Back to Grade and Lesson List' link is on the left. The main text states: 'Students define ratios, both visually and symbolically, that models a given situation.' Below this is a small image of a night sky with stars and a moon, labeled 'Build-A-Monster'. To the right of the image are 'Start' and 'Print' buttons. Underneath, there is a section for 'Puzzle Talk Objectives' with two bullet points: 'Build a concept of a ratio.' and 'Find equivalent ratios for a given ratio.' At the bottom, there are two columns: 'Preparing for This Puzzle Talk' with 'Materials' (Whiteboard and marker, Ratio Monster Game Mats, Optional Exit Ticket Questions) and 'Additional Resources' (Objective: Proportional Reasoning, Game: Build A Monster, Game in a Minute).

Scroll down to view the lesson notes. Here you will see an image of each puzzle and corresponding details, look fors, and discourse questions. Click the tabs for each to view the related content.

The screenshot shows the 'Puzzle Talk' page on the ST Math website. It features a header with navigation links and a 'Puzzle Talk' title. Below the title, there are three puzzle cards labeled P1, P2, and P3. Each card has a small image of the night sky puzzle and a set of three tabs: 'Details', 'Look Fors', and 'Discourse'. The 'Details' tab is selected for each card, showing three numbered steps: '1. Students share what they see on the screen (notice & wonder).', '2. Students share what they think they should do and explain their thinking (predict & justify).', and '3. Try different solutions and discuss what happened (test & observe, analyze & learn).'

## STEP 2 - Start a lesson

On the top right of the Overview page, click the blue Start button to begin the lesson.

This is a close-up screenshot of the 'Start' button on the Overview page. The button is blue with white text and is highlighted with an orange border. It is located in the top right corner of the page, next to a 'Print' button.

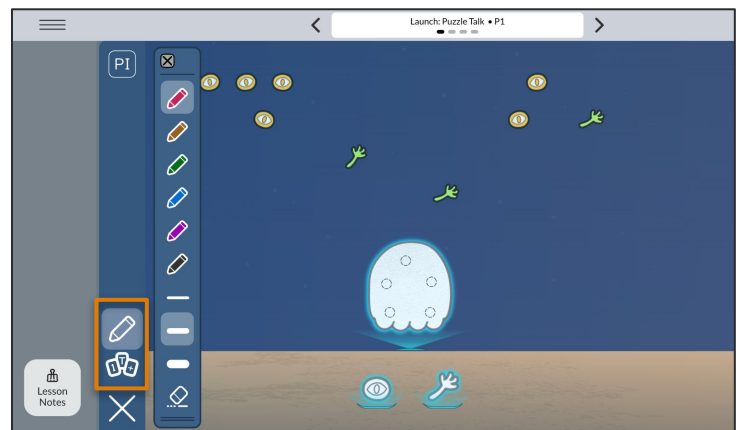
# Puzzle Talks - Lesson Navigation and Tools

## STEP 1 - Navigate lesson puzzles and tools

The lesson opens to a title slide. At the top of the lesson slide, use the navigation bar to move within a lesson. Use the left and right arrows or click the middle title to open the navigation panel and select a specific puzzle.



As you do so, notice the available drawing and expression tools on the left.



On the bottom left, click Lesson Notes to view details, look fors, and discourse questions that adjust to each slide.

