

QUICK REFERENCE GUIDE

MEGA MINI GAMES

DESIGN CAMP 1





Welcome to 10story's fractions project! In this role-playing adventure, your students will attend design camp at MEGA MINI GAMES, the world's coolest game design company. As the teacher, you'll be taking on the role of Camp Director. Here's a message from Chance, the lead designer.

*Hello, Camp Director! Welcome to MEGA MINI GAMES.
We're thrilled to have you on board!*

Over the course of the 10 sessions of Design Camp, your students will have a chance to play some of our best fraction games. They'll hone their fraction skills, then get to work on our newest project, GAME X! The design team here at MEGA is stuck and can't figure out how to finish the game, so your campers will need to help out and create an awesome GAME X.

*As Camp Director, you're responsible for making sure the campers work together, help each other out, and have fun. Everything you need, including teaching videos, printables, and step-by-step instructions for your campers, is at **10storylearning.com/mega**.*

Let's play!

Good luck,

Chance

Lead Designer

MEGA MINI GAMES





Students get to know their Mega Building Kits through a 2-part design challenge.

Learning Objectives

Recognizing fractions as parts of a set and parts of a whole 3.NF.A.1

Before the Session

Find **Design Camp 1: Welcome** on **10story**. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project.

Materials

FROM KIT

Card Bag
1 Mega Building Kit
per group
Teamwork Guidelines

IN CLASSROOM

Pencils / Markers
2 sheets of paper + **1** ruler
per group

DISPLAY

Teamwork Guidelines

Leading the Session

AS A CLASS

Click “Start Activity” and watch the opening video with the students. The website will guide you through each step, such as making name cards and organizing students into groups. Make sure students understand the jobs - this will be part of every session.

IN SMALL GROUPS

Continue following the website for step-by-step guidance. Give every group an area to build their structures. You’re in charge of the timer. We recommend 6 minutes for the first task and 10 minutes for the second task, but use your judgment. Circulate in the room as students work, using the guiding questions on the reverse side of this sheet to start conversations.

AS A CLASS

Lead a whole-class discussion during the Campfire Chat. Use the questions provided, or create your own questions based on what you noticed as you met with students.





As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“How’s your buliding coming?”**
- **“How are you dividing up the jobs?”**
- **“What problem are you trying to solve right now?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

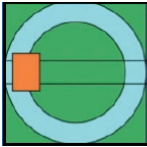
- **“How do you know ...**
 - **... you’re using 1/2 medium and 1/2 short straws?”**
 - **... you’re covering 1/2 the sheet of paper?”**
- **“I notice that _____ is making 2 piles of straws. How might that help?”**
- **“Is figuring out 1/2 a sheet of paper the same as figuring out 1/2 short straws?”**
- **“I wonder what would happen if you ...**
 - **... counted the straws first.”**
 - **... folded the paper.”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“Can you add to the structure and still keep it 1/2 medium and 1/2 short?”**
- **“If you added more paper, how would you change the house so that it still covered 1/2 of a sheet?”**
- **“Are there different ways to make the house cover 1/2 of the paper?”**
- **“How would you teach another group to make 1/2?”**





LINE UP

SESSION 2

Players build card holders, then play a game of comparing and ordering fractions.

Learning Objectives

Comparing fractions with different numerators and denominators 4.NF.A.2

Before the Session

Find Design Camp 1: Line Up on 10story. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project.

Materials

FROM KIT

1 Mega Building Kit,
1 Line Up kit, 2 Building
Instructions per group
Card bag

IN CLASSROOM

Pencils

PRINT

1 Fraction Comparison
sheet per student

DISPLAY

Teamwork
Guidelines

Leading the Session

AS A CLASS

Watch the opening video with the students. The website will then take you through each step of the activity. Remind students about the teamwork guidelines they created, and go over the jobs again.

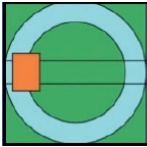
IN SMALL GROUPS

Each group will build 2 cardholders. Make sure each student is involved in building – there are many ways to divide up the work. Once the cardholders are built, watch the “How to Play Line Up” video. The website provides gameplay examples you can discuss with the class. Circulate in the room as students play.

IN SMALL GROUPS

Lead a whole-class discussion during the Campfire Chat. Use the questions provided on the website as a guide. Notice the “Line Up World Championships” question – if you have time, you can invent other World Championships scenarios.





As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“How’s the game going?”**
- **“What card would help you on the next turn?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

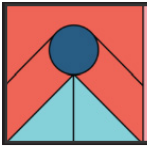
- **“How do you know ...**
 - **... whether a fraction is out of place?”**
 - **... whether a fraction is more or less than $1/2$?”**
- **“Does the card in this spot need to be a larger or smaller fraction to make sense here?”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“Is it possible to play without the comparison sheet?”**
- **“Is it possible to play without using the picture on the card? What if we covered it up?”**
- **“What happens if we play with 7 cards instead of 5?”**





In Session 3, players practice adding fractions, using either like or unlike denominators.

Learning Objectives

In Version A of this game, students will score by **adding with like denominators** 4.NF.B.3

In Version B, students will score by **adding with unlike denominators** 5.NF.A.1

Before the Session

Find Design Camp 1: Launchball on 10story. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project. Note: there are two different versions of Launchball, using either like or unlike denominators. Decide which version you will use with your students.

Materials

FROM KIT

- 1 Mega Building Kit,
- 1 Launchball kit, 1 Launchball mat,
- 1 Building Instructions per group
- Card bag

IN CLASSROOM

- Pencils

PRINT

- 1 Launchball scorecard per student, either Version A (like denominators) or Version B (unlike)

Leading the Session

AS A CLASS

Click “Start Activity” and watch the opening video with the students. As you review the Jobs slide, you might ask students to reflect on how they worked together as teams in the first 2 sessions of Design Camp.

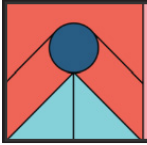
IN SMALL GROUPS

Each group will build a Launchball court. Watch the “How to Play Launchball” video, then **select Version A (like denominators) or Version B (unlike)** and talk through the gameplay examples. Circulate in the room and use the guiding questions as needed.

IN SMALL GROUPS

Lead a whole-class discussion during the Campfire Chat. Use the questions provided on the website as a guide.





As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“What's going on in the game?”**
- **“What's been the hardest thing so far?”**
- **“Are the models helping you keep score?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

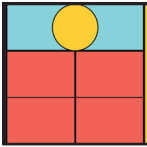
- **“How do you know ...**
 - **... what fraction of the tiles you covered?”**
 - **... whether a fraction needs to be changed to a mixed number?”**
- **“I wonder what would happen if you ...**
 - **... played with only one target square.”**
 - **... covered both targets completely on both turns.”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“As you play more, see if you notice a pattern in your scores. Are they higher with a smaller denominator or a larger denominator? Why do you think that is?”**





FINISH LINE

SESSION 4

In Session 4, players play Finish Line and approach multiplication of whole numbers by unit fractions as repeated addition.

Learning Objectives

Extend previous understandings to multiply a fraction by a whole number 4.NF.B.4

Understand a fraction as a number on the number line 3.NF.A.2

Before the Session

Find Design Camp 1: Finish Line on 10story. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project.

Materials

FROM KIT

1 Mega Building Kit,
1 Finish Line kit,
1 Finish Line
gameboard, 1 Building
Instructions, 1 set of
dice templates
per group
Card bag

IN CLASSROOM

Pencils
Tape
Scissors

PRINT

1 Move Chart and
1 Player Space per
student

Leading the Session

AS A CLASS

Click “Start Activity” and watch the opening video with the students. Remind students about the teamwork guidelines they created, and go over the jobs again.

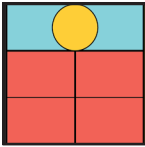
IN SMALL GROUPS

Each group will build Fraction and Dot Dice. Students will also have to cut out the red and blue Finish Line cards. Then, watch the “How to Play Finish Line” video and discuss the gameplay examples as a class. Circulate in the room and use the guiding questions as needed.

IN SMALL GROUPS

Lead a whole-class discussion during the Campfire Chat using the questions on the website and “Finish Line World Championships” image as a guide.





As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“What's the most interesting thing that has happened in the game?”**
- **“Who has had the biggest dice roll? What were their numbers?”**
- **“What strategies are you using to figure out where to move?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

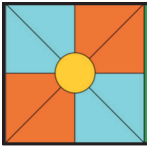
- **“How do you know ...**
 - **... how many 12ths apart the red lines are? How many 1/4ths is that?”**
 - **... how many 12ths apart the blue lines are? How many 1/3rds is that?”**
- **“Is there a way to move our game pieces without finding an equivalent fraction?”**
- **“I notice fractions on the side of the board. I wonder if those could be useful?”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“Can you play without using the move chart?”**
- **“I wonder what the best possible roll is.”**





GAME X

SESSION 5

In Session 5, students start their design project by playing the unfinished GAME X. Students will compare fractions with unlike denominators.

Learning Objectives

Comparing fractions with unlike denominators 4.NF.A.2

Before the Session

Find Design Camp 1: GAME X on 10story. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project.

Note that in Session 10, teams will be presenting their commercials and sharing their games with others. This can include the students in the class, or you can invite guests. If you plan to invite guests, you may want to send out the invitations now.

Materials

FROM KIT

1 Mega Building Kit,
1 GAME X kit, 1
GAME X board
per group
Card bag

IN CLASSROOM

Pencils
Scissors

PRINT

1 Fraction Comparison
sheet per student

Leading the Session

AS A CLASS

Click “Start Activity” and watch the opening video with the students. Remind students about the teamwork guidelines and group jobs.

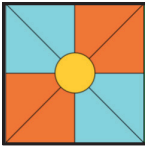
IN SMALL GROUPS

Each group will cut out Game X cards and make game pieces. Then, watch the “How to Play” video and talk through the gameplay examples. Circulate in the room once the students begin playing.

IN SMALL GROUPS

Lead a Campfire Chat for your class, using the questions on the website. Talk through the Mega Mini Designers’ problem.





GAME X

SESSION 5 (CONT'D)

As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“How's the game going?”**
- **“Remind me how GAME X works.”**
- **“How do you win a card battle?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

- **“How do you know ...**
 - **... which path gives you the best chance to win?”**
 - **... when 2 fractions are the same?”**
- **“What are some ways to make the comparison easier?”**
- **“Why do you think you get to advance more spaces with some cards?”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“Think about the risks and rewards of each path.”**
- **“Talk with each other about different strategies for comparing the fractions.”**
- **“Can you think of any rules you could add to make the game easier or harder?”**





In Session 6, you will lead a whole-class brainstorming session to help students imagine different game worlds.

Learning Objectives

Students will define a design problem and create a solution based on specified criteria for success. NGSS 3-5-ETS1-1

Before the Session

Find Design Camp 1: Create a World on 10story. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project.

Materials

FROM KIT

1 Game Worlds poster

IN CLASSROOM

Pencils

PRINT

1 Game World Selection sheet per student

DISPLAY

Game Worlds poster

Leading the Session

AS A CLASS

Click “Start Activity” and watch the opening video with the students. The website will guide you through each step of the Game World brainstorming process. **As students call out their ideas, write them on the poster.**

Once students have generated enough ideas to fill up the poster, pass out a Game World Selection sheet to each student. Give everyone time to write down their **top 3 choices** for game worlds they’d like to work on. Students don’t need to be limited to the ideas on the poster.

Collect the selection sheets so that you can **create the design groups before Session 7.** Students will stay with their design group for the remaining sessions.





As you lead the whole-class brainstorming session, let students take the lead and share as many ideas as they can.

THE CONNECTION

Your students already know a lot about games. Encourage them to share what they know.

- **“What are some of your favorite games that take place in a 'world'?”**
- **“What parts of that world do you see in the game?”**
- **“What's the goal of that game? What are the obstacles?”**

THE CONVERSATION

Ask questions in which students can generate their own ideas.

- **“If our game world is _____, what might be a goal?”**
- **“If our game world is _____, what might be some obstacles in that world?”**

THE NEXT STEP

At the end of class, encourage students to think about their game world before the next session.

- **“Keep thinking of ideas! You'll need a lot of obstacles in your game world.”**





In Session 7, students will break into their Game X design teams and decide on key elements of their game.

Learning Objectives

Designing using specified criteria NGSS 3-5-ETS1-1

Before the Session

Find **Design Camp 1: Make Your Plan** on **10story**. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project. *Before the activity, assign students to their design teams based on their preferences from Session 6.*

We recommend teams of 3-4 students. Your kits include materials for up to 10 teams. It’s OK for multiple teams to work on the same idea. Students will stay in these teams for the rest of design camp.

Materials

FROM KIT

Game Worlds
Poster from Session 6

IN CLASSROOM

Pencils
Markers

PRINT

1 Game Planner
sheet per group

DISPLAY

Game Worlds
poster from
Session 6

Leading the Session

AS A CLASS

Click “Start Activity” and watch the opening video with the students. The website will prompt you to **organize students into their design teams.**

IN SMALL GROUPS

Watch the video reviewing the game elements they will create: setting, goal, game pieces, and obstacles. Teams can work on the sheets independently. The planner will offer more examples of each game component.

IN SMALL GROUPS

Lead a Campfire Chat for your class, using the questions on the website. Ask teams to share their ideas and the process of creating the game.





As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“How's the planning going?”**
- **“Remind me all of the parts that go into a game.”**
- **“How are you going to come up with all of these obstacles?”**
- **“What are we doing to make sure everyone's voice is included?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

- **“How do you know ...**
 - **... whether everyone who plays will understand this world?”**
 - **... which of the obstacles are easy, medium or hard?”**
- **“Close your eyes and picture your game world in your mind. What are things you see that can be obstacles?”**
- **“How do you want people to feel when they play your game? How can the game elements make them feel that way?”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“I wonder how you could make the obstacles different and interesting.”**
- **“What are some ways you might design the gameboard using these ideas?”**





In Session 8, students will create a custom game board, game pieces, and cards with their design teams.

Learning Objectives

Designing using specified criteria for success and constraints on materials and time NGSS 3-5-ETS1-1

Before the Session

Find **Design Camp 1: Make Your Game** on **10story**. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project.

Materials

FROM KIT

Completed Game
Planners, **1** Game X kit
per group

IN CLASSROOM

Pencils
Markers

Leading the Session

AS A CLASS

Click “Start Activity” and watch the opening video with the students. The website will prompt you to organize students into their design teams.

IN SMALL GROUPS

A video will show students how to **transfer what they have written in their planners to materials they will create for the game.** After watching the video, students can work with their teams to design the game board, cards, and game pieces.

Consider **setting a timer** for your students and announcing how long you want them to spend making their materials before starting. Give them reminders throughout of how much time they have left.

AS A CLASS

Lead a Campfire Chat for your class, using the questions on the website. Ask teams to share their games and talk about how they divided their tasks.





As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“Tell me about your game world.”**
- **“What's the hardest part of this to draw?”**
- **“What's the most fun part to draw?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

- **“Are there ways to make the lines and circles that are already on the gameboard part of your drawing?”**
- **“How can we divide up jobs so everyone is contributing?”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“Can you get inspiration from seeing other teams' gameboards?”**
- **“Keep your eye on the clock and think about timing. How you will be able to finish all of the elements in the time you have available?”**





In Session 9, teams will play their new games and create a commercial to teach others about them.

Learning Objectives

Comparing fractions with unlike denominators 4.NF.A.2

Before the Session

Find **Design Camp 1: Play** on **10story**. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project. Note that in the Session 10, teams will be presenting their commercials and sharing their games with others. This can include the students in the class, or you can invite guests. The website includes an invitation you can print out.

Materials

FROM KIT

Each team's
gameboard, cards,
and game pieces

IN CLASSROOM

Pencils
Markers

PRINT

1 Commercial Planner
per group

Leading the Session

AS A CLASS

Click “Start Activity” and **watch the opening video** with the students. The website will prompt you to organize students into their design teams.

IN SMALL GROUPS

Students should **play their games** and have a chance to make a few final revisions. Then, it's time to **make a commercial**. The planner will guide them through the steps of crafting a promotional message for their game. The commercial can be as simple as a short speech or a skit.

IN SMALL GROUPS

Lead a Campfire Chat for your class, using the questions on the website. Ask teams to share their games and talk about how they divided their tasks.





As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“How's your game going?”**
- **“What's your idea for the commercial?”**
- **“What's the hardest thing about making the commercial?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

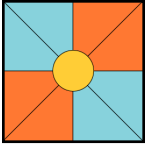
- **“If you're stuck, it's OK to check in with other groups and see what they're working on for their commercial. How can you get inspired by their ideas?”**
- **“What would make you want to play this game?”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“What are your favorite commercials? Do any of them give you ideas?”**





In Session 10, teams will present their game commercials and have a chance to play each other's games.

Learning Objectives

Comparing fractions with unlike denominators 4.NF.A.2

Before the Session

Find **Design Camp 1: Game Expo** on **10story**. Click “Teaching” and watch the Teacher’s Guide video. Click “Start Activity” and click through the project.

Materials

FROM KIT

Each team's
gameboard, cards,
and game pieces

Leading the Session

AS A CLASS

Click “Start Activity” and **watch the opening video** with the students. The website will prompt you to organize students into their design teams.

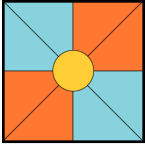
IN SMALL GROUPS

Students should **present their commercials**. Then, it's time to **play**. One student should stay with the board and explain their game to visitors. Do as many rotations as time allows.

IN SMALL GROUPS

Lead a Campfire Chat for your class, using the questions on the website. Ask teams to share what they liked best about MEGA MINI GAMES and what advice they would have for students who were about to start.





As you circulate the room and visit with each group, think of your encounters with students as having 3 parts.

THE CONNECTION

Have an attitude of genuine curiosity. Your goal is to discover what's going on for each group, what they understand, and where they are challenged.

- **“How is it different playing other people's games?”**
- **“Do you feel like you're getting better at the game?”**

THE CONVERSATION

Ask questions and make observations that move students toward discoveries.

- **“What have you learned from the way other people designed their game?”**
- **“How would you teach someone else to play?”**

THE NEXT STEP

As you leave each group, ask a question that advances students' exploration.

- **“See if you can find something interesting and different in every game you try.”**

