# Teacher Facilitation Guide

Grade 2 **Math**

**Unit 1** Lesson 1


| Unit Plan | Scope and Sequence | Curriculum Map/Pacing Guide | Instructional Routines | Home Connections (English/Spanish) |
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# Grade 2, Unit 1, Lesson 1: Measuring Time and Digital Representation of Time

Skyline Playlist

**LESSON OVERVIEW:** Telling time, like many other mathematical concepts, requires children to recognize and use patterns. This first lesson establishes the patterns of hours, minutes, and seconds repeated throughout a day. Focusing on these patterns is essential to understanding time as a measurement displayed on a digital clock.

**Enduring Understandings:**

- Describe the whole hour as halves and fourths.
- Tell and write time from digital clocks to the nearest five minutes.

**Learning Objectives/Targets:**

- Students will reason with and partition rectangles into equal shares to describe and represent whole, halves, and quarters of units of time (hours and minutes).
- Students will tell and write time in digital form.
- Students will add within 20 to calculate units of time.

(Student Facing)

- I can divide rectangles into equal parts to relate standard units of time.
- I can represent units of time digitally as HH:MM.
- I can add and subtract within 20 to calculate units of time.

**Essential Questions: (Student Friendly Lang.)**

- How do I tell time to the hour? Half hour? Quarter hour? Minute?
- What are some time patterns?
- How does looking for patterns help me solve a problem?

**Technology/Materials/Resources:**

- Student E-Workbook
  - English
  - Spanish
- Blackline Master: Lesson 1 Monitoring Chart
- Blackline Master in Spanish: Lesson 1 Monitoring Chart
- Blackline Master: Stations of Time
- Blackline Master in Spanish: Stations of Time
- Blackline Master: Exit Ticket (for use with the primary lesson)
- Blackline Master in Spanish: Exit Ticket (for use with the primary lesson)
- Station Set-Up
- Station Set-Up in Spanish

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| | • Standard Units of Time Cards<br>• Standard Units of Time Cards in Spanish<br>• Fluency Games |
| **Learner Relevance:**<br>Telling time is an essential skill for daily activities such as setting an alarm clock and arriving places on time. We use the digital format of telling time most often when we are also writing time, such as a school schedule, and with electronics, such as a microwave. Time is divided into seconds, minutes, hours, days, etc. to help give us an accurate measure of time. | **Lesson Priority Vocabulary:**<br>• Divide<br>• Equal Groups<br>• Digital Clock<br>• Standardized Time Units: Hour, Minute, Second |

**Necessary Background Knowledge:**

- Partition circles and rectangles into equal parts.
- Determine the amount in a whole and parts using counting, addition, and subtraction.
- Recognize repeating patterns.

**Content Standards:**

- CC.2.G.3 Reason with shapes and their attributes. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.
- CC.2.MD.7 Work with time and money. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
- CC.2.OA.2 Add and subtract within 20. Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.

**Procedures & Routines: 90 minutes**

- Math Routine: 15 minutes
- Launch: 15 minutes
- Explore: 35 minutes
- Discuss: 20 minutes
- Check for Understanding: 5 minutes

**Opportunities for Discourse:**

- Math Routine: Students share and compare things they think may last a second, minute, and hour after reading A Second is a Hiccup by Hazel Hutchins.

- Launch: Students organize units of time from shortest to longest and share their solutions with partners. Students share and compare the patterns they notice in how a minute is divided up.
- Explore: Students use patterns of unifix cubes to represent the relationships between minutes and hours. Students share any patterns they notice to read, write, and tell time.
- Discuss: Students share their solutions and reasoning for representing units of time as well as listen and respond to other solutions and strategies shared. Students share the patterns they noticed in telling time.

## Assessments

- Pre Assessment (English)
- Pre Assessment (Spanish)
- Launch: Students accurately organize units of time from shortest to longest and represent this by dividing rectangles. Students share and compare the patterns they notice in how a minute is divided up.
- Explore: Students represent the relationships between minutes and hours by dividing rectangles and using patterns.
- Discuss: Students share their solutions and reasoning for representing units of time as well as listen and respond to other solutions and strategies shared. Students identify patterns present in time: whole, halves, and quarters.
- Exit Ticket (English)
- Exit Ticket (Spanish)
- End of Unit Assessment (Checkpoint)
- End of Unit Assessment (Spanish)

## ENGLISH LEARNERS

| WIDA Language Standards | | | |
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| | **Essential Question(s)** | **WIDA Standard 1: Social and Instructional Language Standards**<br>**WIDA Standard 3: The Language of Mathematics** | |
| **Content Standard**<br>**2.G.3**<br>**2.MD.7**<br>**2.OA.2** | How do I tell time to the hour? Half hour? Quarter hour? Minute?<br><br>What are some time patterns?<br><br>How does looking for patterns help me solve a problem? | **Standard 1:**<br>Key Uses addressed in this lesson:<br>*Discuss: See oral language in the Can Do Descriptors by Language Domain, Proficiency Level, and Key Use of Language.*<br>• Students answer questions about the solution strategies as they are presented.<br><br>**Standard 3:**<br>Key Uses addressed in this lesson:<br>*Discuss: See oral language in the Can Do Descriptors by Language Domain, Proficiency Level, and Key Use of Language.* | |
| **Language Objective** | Students will use speaking and listening skills to discuss how to interpret a representation of the length of time using hours and minutes. | | |
| | **Level 1** | **Level 2-3** | **Level 4-5** |
| **MPI** | Express agreement or disagreement nonverbally when writing the length of time from unifix cubes using hours and minutes, using drawings and partners. | Express own ideas when writing the length of time from unifix cubes using hours and minutes, using drawings, word banks, sentence frames, and partners. | Express own ideas and support ideas of others when writing the length of time from unifix cubes using hours and minutes, using drawings and partners. |
| **Supports** | **Mathematical Representations** (drawings)<br>**Grouping Structures** | **Mathematical Representations** (drawings)<br>**Vocabulary** (word banks)<br>**Discussion Supports** (sentence frames)<br>**Grouping Structures** | **Mathematical Representations** (drawings)<br>**Grouping Structures** |

To determine what your students can do, go here. This resource assists teachers in determining what students can do within the Communicative Purposes called Key Uses. Use the WIDA Can Do Descriptors by Language Domain, Proficiency Level, and Key Use of Language: Grades 2-3.

## 💬 ENGLISH LEARNERS

| Support Mini Lessons |
| --- |
| 2U1L1-4 Mini Lesson A: Tell and Write Time (This mini-lesson can be used between Lessons 1-4)<br><br>• Mini Lesson A: Tell and Write Time Playlist<br>• Mini Lesson A: Tell and Write Time Spanish Playlist<br>**Learning Objective:**<br>• I can read, tell and write with time and money. Tell and write time from analog and digital clocks to the nearest five minutes, using AM and PM.<br>**Language Objective:**<br>• Explain by reading and writing about how to tell time to the nearest five minutes.<br>**Materials:**<br>• Teacher Facilitation Guide<br>• Blackline Master: Tell and Write Time<br>• Blackline Master in Spanish: Tell and Write Time |

## 💙 SOCIAL EMOTIONAL LEARNING

| ISBE Social and Emotional Learning Standards |
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| 7: Provide options for recruiting interest<br>7.2 Optimize relevance, value, and authenticity<br>• Telling time is connected to their daily lives such as recess and school.<br>8: Provide options for sustaining effort and persistence<br>8.3 Foster collaboration and community<br>• Students will work in groups to complete the task for the lesson.<br>• The class will share their strategies for reading and telling time. |

# ASSIGNMENTS & ACTIVITIES:

## Math Routine (15 minutes)

- As a class, set digital timers for 1 second, 1 minute, and 1 hour. Discuss as a class all that happened in the allotted time right after the timer goes off. Consider asking,
  - ⇒ What were we able to get done in a second/minute/hour?
  - ⇒ Did that feel like a short or long time?
  - ⇒ How did a second/minute/hour compare to a second/minute/ hour?
- Have students work with a partner. Explain to students that they are going to organize units of time from shortest to longest: seconds, minutes, hours, days, weeks, months, and years.
- Hand each group a set of Standard units of time cards
- After students finish sequencing the units of time, have students share how they decided their order. Questions to probe the students' thinking as they share include:
  - ⇒ How did you know seconds were the shortest?
  - ⇒ How do you know how long a year is?
  - ⇒ Did any other group have the same order but use a different reason to determine their order?
- Tell students we are going to work with hours and minutes today.

**Main Task: Standard Units for Measuring Time**

- Students will use unifix cubes to represent the relationships between seconds, minutes, hours, and days. Students will share any patterns they notice in measuring time.
- Use the Blackline Master Lesson 1 Monitoring Chart to plan anticipated strategies and questions for monitoring.

**Launch, Explore, Discuss (LED)**

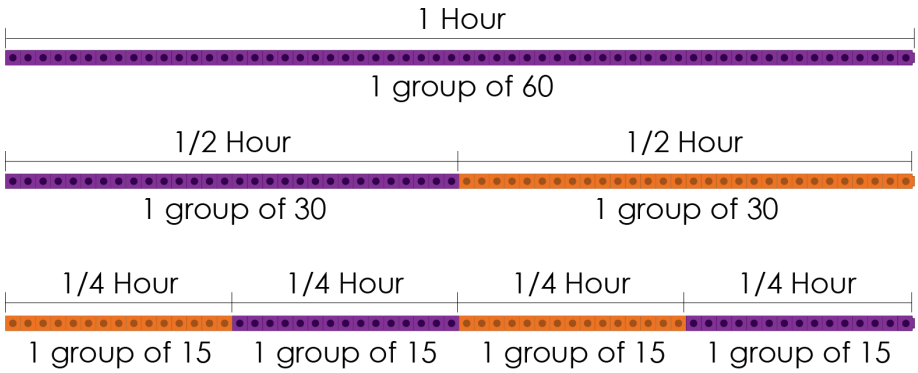
## Launch (15 Minutes)

- Ask students if they know what a pattern is. Have students share examples of patterns (some students may say a rhyme, do a clap pattern, or a color pattern such as red, blue, red, blue, red…). Tell students the units of time are related to one another through patterns.
- Have students work with a partner, and give them some unifix cubes, and ask them to choose one color to create one row of 60. Show students a sample stack of 60 unit cubes you created using one color. (Note: it is important to display the stack horizontally, parallel to the ground.) Explain

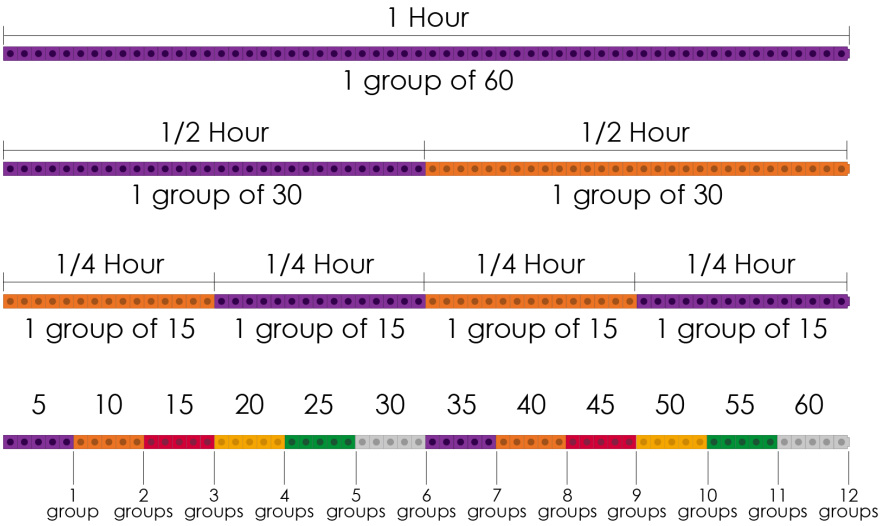
there are 60 minutes in an hour just like there are 60 unit cubes in one stack. Each cube is like a minute and the whole stack is like an hour.

- Ask students if we want to share the 60 minutes (show the 60 unit rectangle strip) in two equal groups, how many minutes will be in each group. Give students time to work on the problem. Ask students how many minutes will be in each group (30). Ask students what they did with the 60 minutes to get 30 minutes (split it in half). Show students two more stacks of 60 unit cubes: A) 30 brown and 30 red, and B) 15 black, 15 orange, 15, green, and 15 red. Ask students to share the patterns they notice about the stacks with their partner (the first one is one whole, the second one is divided into two groups, and the third one is divided into four equal groups)

- Have students share what they noticed. As students share, label the stacks 1 group of 60, 2 groups of 30. Ask students how many minutes are in each group of four - if needed have them divide their strip of 60 into 4 equal groups (15), and four groups of 15.
- Explain to students that in order for us to tell time more accurately and efficiently, we divide hours into halves and quarters. Tell students another way to say 30 minutes is ½ hour and another way to say 15 minutes is ¼ hour. Label the stacks: 1 hour = 1 group of 60, half (½) hour = 2 groups of 30, quarter (¼) hour = 4 groups of 15.




- Show students a new stack of cubes that divide the hour into 12 groups of 5 cubes each using different colors to represent each group of 5. Ask the students what they notice (12 different colors,each group has 5). Ask students how many are in one group (5). Ask students a way we can figure out the total number (count all of the cubes, count by 5s). Have the class skip count by 5s to find the total (60). Label the new stack by counting by 5 in each group and showing there are 12 groups of 5 cubes. (This last step is critical because it will make connections to the lesson on analog clocks tomorrow.)




- Ask students how we could write 1 hour and no minutes. Allow students to respond, and build on their responses:
  - ⇒ There are 60 minutes in an hour or one whole big stack.
  - ⇒ Write on the board and say, “We could write 0:60 to show 60 minutes, but we can also write it like this 1:00 to show 1 whole hour and 0 minutes. Both represent 60 minutes or an hour

1:00

- Show students one five-minute stack, and ask what unit of time it represents (5 minutes). Tell students one 2nd grader represented 5 minutes as 0:50 and another represented it as 0:05. Which one was correct and why? Give students individual time to think and reason through the problem. Then have the students discuss strategy with a partner.

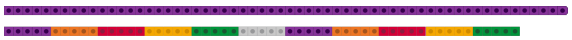
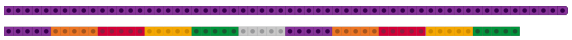
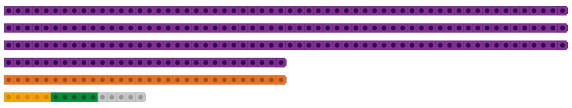
- Explain to students they will visit stations that have unit cubes representing units of time. Demonstrate how groups will move from station 1 to 2 to 3 and so on. Make sure students understand station 6 moves to station 1. Tell students they will be at each station for 5 minutes. Students will write the unit of time represented in digital form using hours and minutes and show another way to represent the unit of time on the Blackline Master Stations of Time handout. Prior to the lesson, set up stations around the room using the Set Up attachment sheet as a guide.

## Explore (35 Minutes)

- Use the Lesson 1 Monitoring Chart to monitor, select, and sequence student strategies and solutions.
- For students struggling to start
  - ⇒ Possible Monitoring Questions: What patterns do you notice in the problem? What are some ways you could use the way the cubes are grouped to help you find the unit of time? How could you use the pattern to help you figure out the unit of time?
  - ⇒ Possible Sentence Stems: There are ____ groups of ____ which means it is ____ unit of time. I added _____ to _____ to get the total minutes. There are ____ hours and ____ minutes.
- For students who finish and may need an extension
  - ⇒ Possible Monitoring Questions: How do you know your units of time are equal? What other ways can you represent the time? Have students figure out the unit of time represented by 2 groups of 60 minutes, 1 group of 30 minutes, 3 groups of 15 minutes, and 4 groups of 5 minutes.
  - ⇒ Possible Sentence Stems: This unit of time can be represented as _____ because_____.
- Monitor: Give groups about 2 minutes to work at each station individually without talking to their group. Check in with a few students asking relevant questions. Then, have students share their strategies and solutions with the group. Check in with groups by asking relevant questions to individual students and groups to elicit and assess student thinking. Protocols or structures for working in groups may need to be modeled if students are not familiar with collaborative conversations.
- Select: While monitoring, look for and determine students who are using the anticipated or other pertinent strategies. Select 3-5 students and ask the students if they are willing to share their strategies with the class.
- Sequence: Determine an order for the selected strategies and solutions to be shared with the class.

Solutions: (Note students' representations of times may vary)

- Station 1 Time - 1:55
- Station 2 Time - 4:15
- Station 3 Time - 3:45
- Station 4 Time - 5:20
- Station 5 Time - 1:35
- Station 6 Time - 3:35

| Anticipated Strategy | Possible Monitoring Questions | Possible Sentence Stems |
|---|---|---|
| Counted the whole hours. Counted minutes one by one. Combined the hours and minutes to get 1:55<br>  | Assessing: How did you count the hours and minutes? How did you know how to write the hours and minutes in digital form?<br><br>Advancing:<br>What other ways could you count the minutes? | I have _____ hours and _____ minutes.<br><br>I counted the minutes by _____. |
| Counted the whole hours. Skip counting the minutes by fives. Combined the hours and minutes to get 1:55<br>  | Assessing: How did you count the hours and minutes? Why did you decide to skip count by fives? How did you represent the hours and minutes in digital form?<br><br>Advancing:<br>What other ways could you count the minutes? | I have _____ hours and _____ minutes.<br><br>I counted the minutes by _____.<br><br>I noticed the pattern _____. |
| Noticed it was almost two hours. Counted the number of minutes missing, 5, and subtracted 5 from 60 to get 1:55.<br>  | Assessing: Tell me about your strategy. Why did you decide to use subtraction? How did this strategy help you figure the minutes?<br><br>Advancing:<br>Will the subtraction strategy always work? What other ways could you figure out the minutes? | I have _____ hours and _____ minutes.<br><br>I counted the minutes by _____.<br><br>I noticed the pattern _____.<br><br>To find the minutes, I subtracted _____. |

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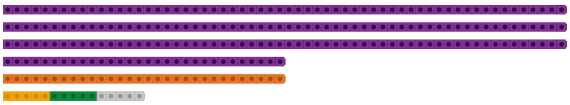
| Counted the whole hours. Counted minutes one by one.<br>  | Assessing: How did you count the hours and minutes? How did you know how to write the hours and minutes in digital form?<br><br>Advancing: What other ways could you count the minutes? | I have _____ hours and _____ minutes.<br><br>I counted the minutes by _____. |
| Counted the whole hour. Recognized two halves make a whole and combine the two 30 minutes to get a whole hour. Counted the remaining minutes by fives. | Assessing: Tell me about your strategy. Why did you combine these two (referring to halves)? How did this strategy help you figure the minutes?<br><br>Advancing: What other ways could you figure out the minutes? | I have _____ hours and _____ minutes.<br><br>I counted the minutes by _____.<br><br>I noticed the pattern _____. |
| Counted the whole hour. Recognized two halves make a whole and combine the two 30 minutes to get a whole hour. Recognized the remaining minutes were 15 or ¼ of the hour. | Assessing: Tell me about your strategy. Why did you combine these two (referring to halves)? How did you know this represents 15 minutes?<br><br>Advancing: How could you use this strategy to write the unit of time for this problem: 1 group of 60 minutes, 3 groups of 30 minutes, 3 groups of 15 minutes, and 2 groups of 5 minutes. | I have _____ hours and _____ minutes.<br><br>I counted the minutes by _____.<br><br>I noticed the pattern _____. |
| Teachers may add additional strategies. | | |

Solutions: (Note students' representations of times may vary)

- Station 1 Time - 1:55
- Station 2 Time - 4:15
- Station 3 Time - 3:45
- Station 4 Time - 5:20
- Station 5 Time - 1:35
- Station 6 Time - 3:35

**Launch, Explore, Discuss (LED) continued**

## Discuss (20 Minutes)

- Purposefully have groups share their strategies based on who was selected and the sequence determined in the explore phase. As the students share, the teacher guides students to make connections.
- Use the determined sequence to have groups share their strategies and solutions with the class. Use questioning and talk move strategies to support students in understanding strategies and making connections across strategies.
- As selected groups share, students who are listening are expected to make sense of the strategies shared, be prepared to agree/disagree, ask questions, respond to questions, make connections to their own strategies, make connections across shared strategies, etc.
- Possible questions to ask as students share strategies:
  - ⇒ What questions do you have about this strategy?
  - ⇒ Raise your hand if your group used the same strategy.
  - ⇒ Raise your hand if your group got the same answer but used a different strategy.
  - ⇒ How does this strategy relate to the strategy before?
  - ⇒ What is the same among all of the strategies?
- Sample of what the Discuss Phase may look like:
  - ⇒ Strategy 1 and 2: Counting by Ones and Skip Counting

T: _____ please share the strategy you used for finding the time represented at station #1.

S: I first counted the number of hours: 1. Then I counted the minutes: 1, 2, 3, 4… I wrote down 1 hour and 53 minutes like this 1:53.

T: Thank you for sharing your thoughts. Did anyone use a similar strategy?

S2: My strategy is kind of similar. I counted the hours first like _____. But, then I counted by fives: 5, 10, 15 to get the minutes, and I got 1:55.

T: Interesting. How is your (S1) strategy similar to _____'s? What is different?

S: At first when I counted by ones, I got 53 instead of 55. I made a mistake in counting.

T: Ahhh. I see.

S: I like how _____ counted by 5s. You are less likely to make a mistake.

T: Class, how can using patterns like the groups of 5 help us tell time more accurately?

⇒ Strategy 3: Using Subtraction

T: _____ please share the strategy you used for finding the time represented at station #1.

S: I noticed there was almost two hours, but there were a few cubes missing for two whole hours. I counted the number of minutes missing and subtracted that from 60, and I got 1:55.

T: Interesting. What questions do you have about this strategy?

T: How is _____ strategy similar to _____'s? What is different?

Reflection Questions

- How many halves make up a whole?
- How many fourths make up a whole?
- How can we use what we know about halves to find our unit of time?
- What are some of the patterns we can use to tell time?
- Why might it be important to skip count when telling time?
- How is counting by ones challenging with big numbers?

## Check for Understanding (5 minutes)

Exit Ticket

- Students complete problems independently.
- Write the amount of time represented by the shaded area of rectangles.

## UNIVERSAL DESIGN FOR LEARNERS

**Supporting students with multiple means of...**

### Action and Expression/Modes of Communication

4: Provide options for physical action

4.1 Vary the methods for response and navigation

- Students can show how they built or decomposed the unit cubes to find the time represented.

## Representation

2: Provide options for language, mathematical expressions, and symbols

2.1 Clarify vocabulary and symbols

- Terms hours and minutes are explicitly discussed and explained using visual representations.

2.2 Clarify syntax and structure

- Unit cubes used to show the parts and whole of telling time using hours and minutes.

3: Provide options for comprehension

3.2. Highlight patterns, critical features, big ideas, and relationships

- Unit cubes are color coded to emphasize patterns critical in telling, writing, and reading time.

## Engagement

7: Provide options for recruiting interest

7.2 Optimize relevance, value, and authenticity

- Telling time is connected to their daily lives such as recess and school.

8: Provide options for sustaining effort and persistence

8.3 Foster collaboration and community

- Students will work in groups to complete the task for the lesson.
- The class will share their strategies for reading and telling time.

## Accommodations for students with an Individual Education Program (IEP) or 504 Plan

*For students with an Individual Education Program or a 504 Plan, consult that student's individual document to plan and implement individual accommodations for this lesson.*

## 👥 UDL Supports

### Review Mini Lessons

The focus of this mini-lesson is on the duration of one minute.

- Review Mini Lesson 1: Can You Do It In a Minute? Playlist
- Review Mini Lesson 1: Can You Do It In a Minute? Spanish Playlist

**Learning Objective:**

- Students will get a "feel" for how long a minute is.
- Students will identify activities that can be completed in a minute.

**Materials:**

- Review Mini Lesson Teacher Facilitation Guide to use in planning. This document describes how to facilitate the review mini lesson: Can You Do It in a Minute?
- Blackline Master: Could You Do It in a Minute?
- Blackline Master in Spanish: Could You Do It in a Minute?

### Challenge Mini Lessons

None