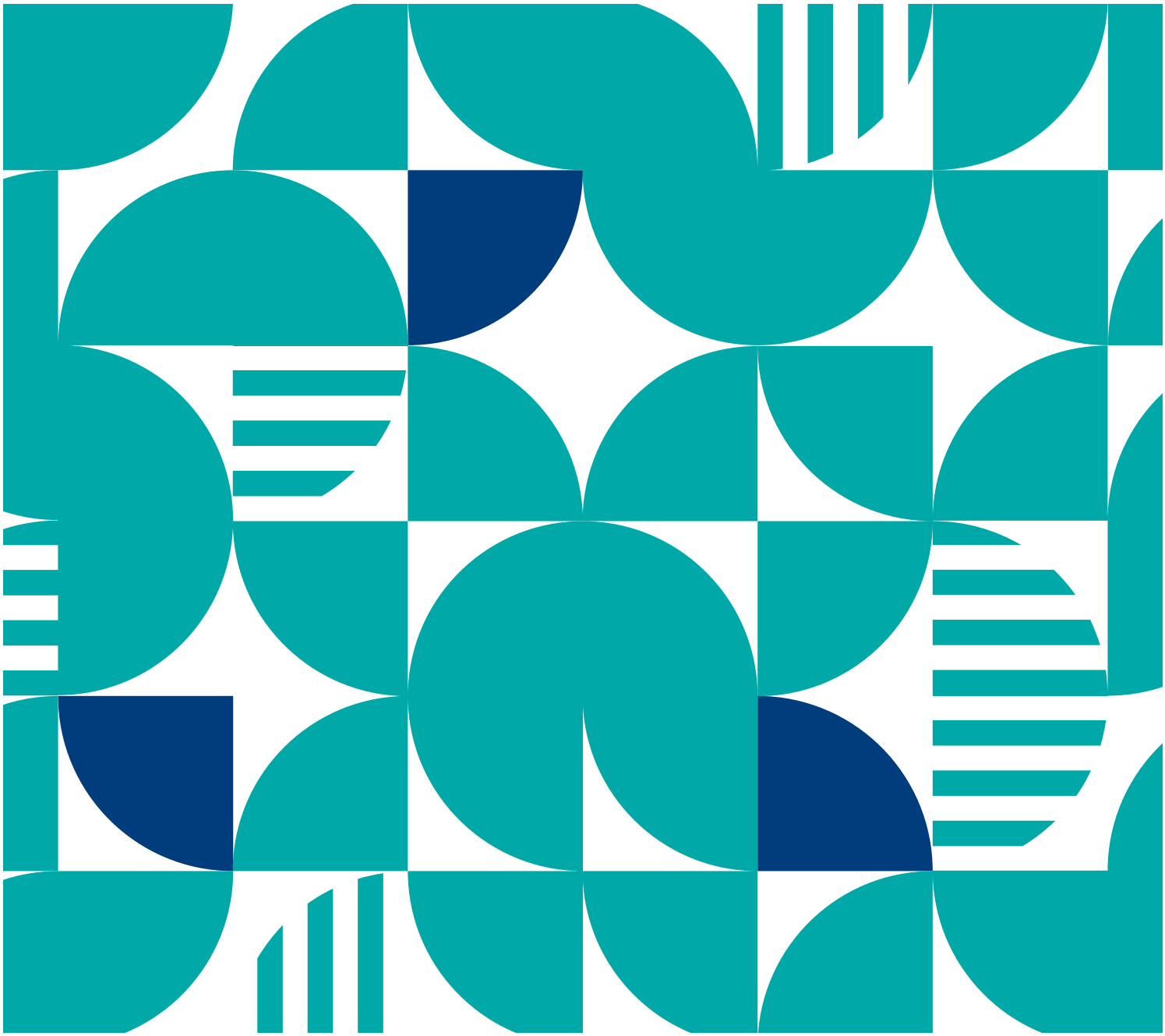


Grade 1 – Unit 3 – Module 1
Teachers Guide Sample

bridges® in mathematics

bridges®
in mathematics

Module 1
Sums Within & Beyond 10

Print Originals

Pages renumber with each module.

Student Book Pages

Page numbers correspond to those in the Bridges Student Books.

Home Connections Pages

Page numbers correspond to those in the Home Connections books.

Module 1

Sums Within & Beyond 10

Overview

Module 1 focuses on addition and subtraction facts within 20. The number rack is used strategically to help students conceptualize doubles and model problem situations. Three new Work Places encourage students to build fluency with foundational facts. The module includes two Home Connections.

Sessions	WU	P&I	WP	A	HC
Session 1 Drop the Beans: Introducing Work Place 3A The session begins with the teacher administering the written portion of the Unit 3 Screener. The teacher gains valuable information about prior skills students need to be successful in the unit. Then students observe a picture of a traditional Cherokee game played with butter beans and pose problems about it. The teacher introduces a similar game, Drop the Beans. Students drop seven double-sided beans and count how many land red side up and how many land white side up. They record the combinations on a graph. Students use this new Work Place starting in Session 2 to practice combinations of 7, 8, 9, and 10.		●		●	
Session 2 Make the Sum: Introducing Work Place 3B Students start by using number racks to figure out how many more are needed to score 10 in the Cherokee Butter Bean game. Then the teacher demonstrates a new game, Make the Sum. Players choose a target number from 5 to 10 and take turns drawing and combining cards to make that target sum. After the teacher plays a game with the class, students play in small groups and then go to Work Places. Finally, the teacher introduces and assigns the Double It Home Connection.	●	●	●	*	●
Session 3 Number Rack Doubles Students build their knowledge of doubles in a series of activities. First, they use fingers on both hands to show doubles. Then they use a number rack to explore doubles and discover that doubles can be arranged as equal groups of beads on the top and bottom rows. The class generates a definition of what a double is and writes equations for doubles within 10. Students then spend the rest of the session at Work Places.	●	●	●		
Session 4 Doubles Plus or Minus 1: Introducing Work Place 3C After playing the Cherokee Butter Bean game, students build doubles on their number racks. Then the teacher demonstrates a new game, Doubles Plus or Minus 1. Players roll a 1–6 dotted die and double the number. They spin an Add or Subtract Spinner to add or subtract 1. They cover the result on their side of the game board. The teacher plays against the class, and then the game becomes available as a Work Place.	●	●	●		
Session 5 Open Strategy Sharing In this session, students choose from a variety of tools to solve problems about the Cherokee Butter Bean game. The teacher introduces a new discussion structure, open strategy sharing, as students discuss their solutions. If time permits, students go to Work Places. Finally, the teacher introduces and assigns the Counting & Adding Practice Home Connection.	●	●	●		●

WU – Warm-Up, **P&I** – Problems & Investigations, **WP** – Work Places, **A** – Assessment, **HC** – Home Connection
*Optional assessment introduced

Materials Preparation

Each session includes a complete list of the materials you'll need and notes about any preparation you'll need to do. If you would like to prepare materials for the entire module ahead of time, you can use this to-do list.

Copies & Display

- [ ] Visit the Bridges Educator Site to review the Interactive Display Materials for this module. Decide whether you will use digital materials for display or copies of print originals and student pages. Make copies as needed.

Work Places

- [ ] Move the Unit 2 Work Place Log to the front of students' Work Place folders, and staple copies of the Unit 3 Work Place Log to the back of their folders.
- [ ] Prepare the materials for Work Places 3A–3C using the Work Place Guides.

Module 1 Optional Assessment Opportunities

Continue to use the Work Places observational assessment record sheets and checklists from previous modules to informally observe students. No new assessment opportunities have been added in Module 1.

Skills & Concepts Assessed	Assessment Name	Type
Relate counting to addition and subtraction	**PO P9** Work Place 2C Sort the Sum (Unit 2, Module 2)	**OA**
	PO P10 Work Place 2D Double It (Unit 2, Module 3)	**OA**
	PO P15 Work Place 2E Spin & Add (Unit 2, Module 3)	**OA**
	PO P19 Work Place 2F Spin & Subtract (Unit 2, Module 3)	**OA**
Add and subtract fluently within 10 Use strategies to add and subtract within 20	**PO P9** Work Place 2C Sort the Sum (Unit 2, Module 2)	**OA**
	PO P10 Work Place 2D Double It (Unit 2, Module 3)	**OA**
Read and write numerals within 120	**PO P15** Work Place 2E Spin & Add (Unit 2, Module 3)	**OA**
	PO P19 Work Place 2F Spin & Subtract (Unit 2, Module 3)	**OA**

OA – Observational Assessment Record Sheet, **WS** – Work Sample Checklist
Shaded cells indicate newly introduced assessments.

Concepts, Skills & Practices	Sessions					Work Places					
	1	2	3	4	5	2D	2E	2F	3A	3B	3C
1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions					**P&I**						
Supports 1.OA.2 Add three addends with sums to 20		**P&I**		**WU P&I**							
1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20					**P&I**						
1.OA.3 Apply properties of operations as strategies to add and subtract	**P&I**								●		
1.OA.4 Subtract by finding an unknown addend		**WU P&I**						●		●	
1.OA.5 Relate counting to addition and subtraction				**WU P&I**		●	●	●			●
1.OA.6 Add and subtract fluently within 10	**P&I**		**WU P&I**		**HC**				●	●	
1.OA.6 Add with sums to 20		**HC**				●					●
1.NBT.1 Represent a number of objects with a written numeral up to 120					**HC**						
1.NBT.1 Read and write numerals within 120					**HC**		●	●			
1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many are in each category, and how many more or less are in one category than another							●	●	●		
1.MP.1 Make sense of problems and persevere in solving them					**P&I**						
1.MP.2 Reason abstractly and quantitatively	**P&I**		**WU P&I**								
1.MP.4 Model with mathematics					**P&I**						
1.MP.6 Attend to precision			**WU P&I**								
1.MP.7 Look for and make use of structure	**P&I**	**WU P&I HC**		**WU P&I**							

WU – Warm-Up, **P&I** – Problems & Investigations, **A** – Assessment, **A*** – Optional Assessment, **HC** – Home Connection

Session 1

Drop the Beans: Introducing Work Place 3A

Summary

The session begins with the teacher administering the written portion of the Unit 3 Screener. The teacher gains valuable information about prior skills students need to be successful in the unit. Then students observe a picture of a traditional Cherokee game played with butter beans and pose problems about it. Next, the teacher introduces a similar game, Drop the Beans. Students drop seven double-sided beans and count how many land red side up and how many land white side up. They record the combinations on a graph. Students use this new Work Place starting in Session 2 to practice combinations of 7, 8, 9, and 10.

Module 1 Learning Goals

Students learn about doubles and combinations to 10 or more.

- ■ **Students explore addition combinations for a target sum within 10.**
- □ Students investigate representations of doubles as two equal groups.
- □ Students explore and connect 1 more and 1 less with doubles.
- □ Students investigate problem situations using addition facts and strategies.

Materials

Assessment Unit 3 Screener — Written	
Copies & Display	**PO P1** Unit 3 Screener — Written
Classroom Materials	privacy screens (optional)
Problems & Investigations Introducing Work Place 3A Drop the Beans	
Copies & Display	**PO P2** Cherokee Butter Bean Game **PO P3** Work Place Guide 3A Drop the Beans **PO P4** Work Place Instructions 3A Drop the Beans **PO P5** 3A Drop the Beans to Make 7 record sheet **SB 10** Drop the Beans to Make 7 record sheet
Kit Materials	bean counters (7 per student, plus 7 for display)
Classroom Materials	• chart paper (optional) • baskets (1 large and several small, see Preparation) • Unifix cubes in a single-color (24, see Preparation)

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

add*
addition
difference*
minus
plus
subtract*
subtraction
sum or total*

Preparation

- You will administer the written portion of the Unit 3 Screener today. To help students work independently, you can rearrange their seating or use privacy screens.
- Use bean counters and Unifix cubes to re-create the image on the Cherokee Butter Bean Game print original.
  - » In a large basket, place six bean counters — five red side up and one white side up. (You will use the seventh bean counter in the One More, One Less activity.)
  - » In a small basket, place 12 cubes. Arrange the cubes in two groups of five and a group of two.
- Make this physical depiction available as students explore the questions posed by the class.

Work Places

- Work Place 3B Drop the Beans is introduced in this session. It will become available as a Work Place in Session 2 and replace Work Place 2A Domino Top Draw. Read the Work Place Guide and Instructions, including suggestions for differentiating the activity to meet students' needs. Assemble the materials listed on the Guide, and place them in the bin. Optionally, print copies of the sentence frames for this Work Place from the Bridges Educator Site, and place them in the bin for students to use as needed.
- For each table or cluster of desks, prepare a basket of bean counters for use when students play Drop the Beans independently.

Assessment

Unit 3 Screener — Written

1 Introduce the written portion of the Unit 3 Screener.

- Display the screener and preview it together.
- Remind students that when you conduct an assessment like this, you need to see what they can do on their own.

2 Conduct the written portion of the screener.

- Give each student a copy of the screener, and have them label it with their name and date.
- Help students locate the first problem, and ask them to write an equation to represent the number of dots for each pair of 10-frames.
- Direct the class to the second problem, and ask them to write a number that shows how many dots are on each pair of 10-frames. Make sure students understand that there is a 10-frame with 10 dots under each flap labeled *10*.
- Draw attention to the sets of dominoes in problem 3. Ask students to:
  - » Count and write how many dots there are on each domino
  - » Circle the domino that has more dots
  - » Write the correct symbol to compare the dots
- Point students to problem 4, and have them draw a domino that has more than 7 dots.

3 Collect students' papers.

Note

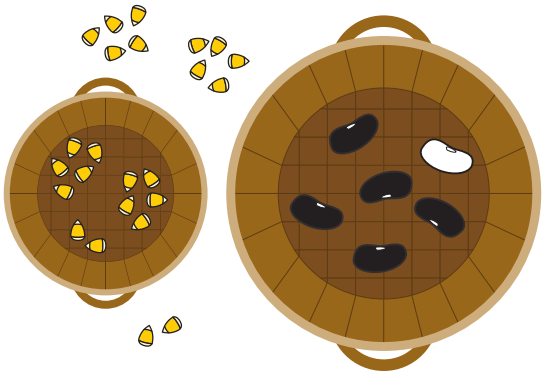
Based on students' screener results, make note of students you'd like to work with in small groups during future Work Place times. Refer to the Screener Record Sheet in the Assessment Guide for recommendations of specific Work Places or other activities to use to support student learning. For additional differentiation suggestions, refer to the Work Place game variations on the Work Place Guides.

Problems & Investigations

Introducing Work Place 3A Drop the Beans

Cherokee Butter Bean Game

4 Display the Cherokee Butter Bean Game print original. Ask students to look quietly at the picture and think about what they notice or wonder. Tell them to give a thumbs-up when they have something to share.



5 As students share what they noticed or wondered, record their reflections on the board or chart paper.

Some possibilities are given below, but use ideas generated by your own class.

- » Possible observations:
  - ► There are six beans in the large basket.
  - ► Some of the beans are black and some are white.
  - ► There are some corn kernels on the table and some in a smaller basket.
  - ► There are some piles of kernels on the table.
  - ► There are more kernels above the small basket than below it.
- » Possible wonders:
  - ► Why are some of the beans black and some white?
  - ► Did someone color some of the beans?
  - ► How many kernels are there in the small basket?
  - ► How many more kernels are in the basket than in the piles on the table?
  - ► How many kernels are there in all the piles together?
  - ► Is this some type of game?

6 Show students the re-creation of the image you prepared.

7 Ask students to think about which of the questions on the board or chart paper can be answered using math. Pursue at least one question with the class. Alternatively, let pairs select their own question to pursue and solve. Provide time for pairs to investigate and report back to the class.

8 Explain that the image they see is from a traditional Cherokee game that uses butter beans. Share some information about the game.

- Individuals or teams can play.

Equity-Based Practice

Leveraging multiple mathematical competencies

Inviting students to notice and wonder about the image of the Butter Bean game provides space to generate questions that interest them. This supports differentiation. They pose problems that are within reach of their individual abilities or accessible with their peers' support.

- Butter beans are split in half, colored on one side, and placed in a basket.
- Players earn points depending on how the beans land; they use corn kernels to keep score.
- Let students know that butter beans are also called lima beans. They are white and often used in soups and stews. They can also be found in succotash with corn and other vegetables.
- Share how one version of the game is played. Players toss six beans and then count to see how many land dark side up and how many light side up. Depending on the color combinations of the beans when they land, players collect corn kernels as points.
  - » For all 6 dark or 6 light side up: 6 kernels
  - » For 3 and 3: 4 kernels
  - » For either combination of 2 and 4: 2 kernels
  - » For either combination of 1 and 5: 0 kernels
- The game ends when there are no more corn kernels to collect. The player or team with more points wins.

9 Ask students to share any traditional games they play in their family or culture. Probe for any math connections in those games.

One Less, One More

10 Draw attention to the six bean counters you placed in the large basket. Ask students how many beans there would be if you took one bean away and how they know.

Teacher *How many beans will there be if I take one away?*

Students *It's five. See, you can cover one of them up and then count what's left 1, 2, 3, 4, 5.*

That's like what I did. I showed six fingers and then put one down. I knew it was five right away because there are five fingers on one hand. I don't need to count them.

You can look on the number line, too.

Teacher *Can you tell us more about how you used the number line to find 6 minus 1?*

Student *Minus 1 is the number that is just before 6, so it's 5.*

11 Remove one of the beans. Then count to confirm that 1 less than 6 is 5.

12 Ask students how many beans there would be if you added one more bean and how they know.

Teacher *How many will there be if I add one more bean?*

Students *There will be 7. I counted 6 fingers and then put up 1 more finger. That's 1, 2, 3, 4, 5, 6, 7* [counts each finger].

I just thought about the number that comes after 6. It's 7. Plus 1 is the number just after 6.

13 Add one more bean to the six beans. Then count them with the class to confirm that 6 plus 1 more is 7. Tell students that they will use these seven beans to play a new game.

Equity-Based Practice

Drawing on multiple resources of knowledge

Exploring a game traditional to the Cherokee people and the games in students' cultures highlights how math is used in daily life by people from all backgrounds. The Cherokee game also provides a mathematical connection to the Drop the Beans Work Place.

Playing 3A Drop the Beans

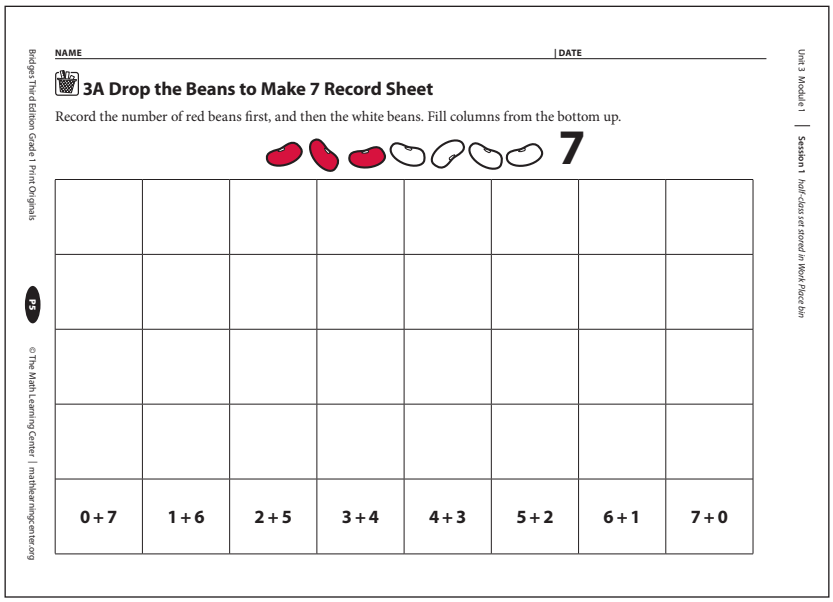
14 Let students know that the new game, Drop the Beans, is another one that can be played with beans. Tell them that you'll demonstrate how to play, and then they'll play it themselves.

15 Display the 3A Drop the Beans to Make 7 record sheet, and summarize the game.

Students work on their own to choose a target sum (7, 8, 9, or 10) and use bean counters to find different combinations for that number. They drop the beans and count how many come up red and how many white. Then they write a matching expression on the record sheet, starting at the bottom of each column. Play continues until they have filled two columns.

16 Explain that this record sheet says 7 in the title, and your target sum will be 7.

17 Give students a minute to examine the record sheet quietly. Ask them to share any observations.



NAME | DATE

3A Drop the Beans to Make 7 Record Sheet

Record the number of red beans first, and then the white beans. Fill columns from the bottom up.

7

0+7	1+6	2+5	3+4	4+3	5+2	6+1	7+0

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Unit 3 Module 1 | Session 1 *half-clips set stored in Work Place bin*

18 Play the game according to the Work Place Instructions 3A Drop the Beans with the following modifications:

- Each time you shake and drop the beans, first ask how many beans came up red and then how many came up white.
- Work with student input to write the expression.
- Repeat these steps six or seven times. By the third or fourth repetition, quickly cover the beans that land white side up with your hand. Have students report the number of reds and calculate how many whites there should be to bring the total to 7. Lift your hand to show them. Then have them give you the matching expression.

Teacher *How many white beans are hidden under my hand? How do you know?*

Students *I used my fingers to show 7. The five fingers on one hand are like the five red beans, and the two fingers on the other hand make seven. So two beans have to be hidden under your hand.*

I counted on until I got to 7. Five… 6, 7 [putting up fingers]. *I counted two more, so that makes two white beans.*

I can see five red beans, and there are seven beans altogether. I just know that 5 plus 2 more is 7.

MLL Write a sentence frame on the board to provide language support:
You have ____ red beans showing, so you have ____ white beans under your hand.

19 Continue to play, pausing occasionally to ask students whether there are any combinations of reds and whites that seem to come up more often. Ask: *Do you think that combination will keep coming up more often? Why? Which combinations seem harder to get? Why?*

20 When two columns are full, discuss which combinations filled up first and second. If the beans land in a combination that is already filled, toss the beans again.

Playing Drop the Beans Independently

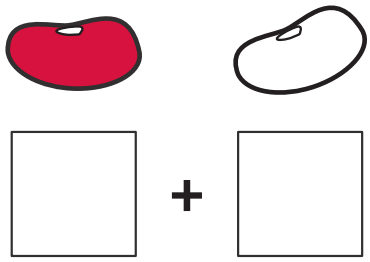
21 Ask students to find the Drop the Beans to Make 7 record sheet in their student books.

22 Give them a minute to each count out seven bean counters and then briefly review the instructions. Invite students to draw a star at the top of the column they think will fill first based on the results of the first game.

23 Once students understand what to do, let them get to work. Ask questions to support students as they use and connect mathematical representations.

- *What collection of beans goes with 5 + 2?*
- *I have four white beans and three red beans. What expression should I record?*

SUPPORT Sketch a simple visual reminder on the board that students can refer to as they write expressions for each combination. The image helps students remember to count and write an addend for the red beans first, and then the white beans.



24 Clean up the materials and let students know that Drop the Beans will be an option for Work Places in the next session.

Math Teaching Practice

Use and connect mathematical representations

Reporting the number of beans of each color supports students in using mathematical representations. They connect the bean counters of each color to the numbers in an expression. They also see the addition symbol as putting red and white beans together.

Session 2

Make the Sum: Introducing Work Place 3B

Summary

Students start by using number racks to figure out how many more are needed to score 10 in the Cherokee Butter Bean game. Then the teacher demonstrates a new game, Make the Sum. Players choose a target number from 5 to 10 and take turns drawing and combining cards to make that target sum. After the teacher plays a game with the class, students play in small groups and then go to Work Places. Finally, the teacher introduces and assigns the Double It Home Connection.

Module 1 Learning Goals

Students learn about doubles and combinations to 10 or more.

- ■ **Students explore addition combinations for a target sum within 10.**
- □ Students investigate representations of doubles as two equal groups.
- □ Students explore and connect 1 more and 1 less with doubles.
- □ Students investigate problem situations using addition facts and strategies.

Materials

Warm-Up How Many More to Score?	
Copies & Display	**PO P9** Cherokee Butter Bean Game Scoring Guide
Classroom Materials	student number racks (class set)
Problems & Investigations Introducing Work Place 3B Make the Sum	
Copies & Display	**PO P10** Work Place Guide 3B Make the Sum **PO P11** Work Place Instructions 3B Make the Sum
Kit Materials	• 10-Frame Dot Cards (6 decks, 0s removed) • Number Cards (1 deck or more, 0s and wild cards removed; optional)
Work Places	
Copies & Display	**PO P12** Unit 3 Work Place Log **PO P13** Unit 3 Screener — Optional Interview
Classroom Materials	• students' Work Place folders • Unifix cubes (10 loose, in a small container) • construction paper (1 sheet)
Work Places in Use	
2C Sort the Sum (introduced in Unit 2, Module 2, Session 4) **2D** Double It (introduced in Unit 2, Module 3, Session 2) **2E** Spin & Add (introduced in Unit 2, Module 3, Session 3) **2F** Spin & Subtract (introduced in Unit 2, Module 3, Session 4) **3A** Drop the Beans (introduced in Unit 3, Module 1, Session 1) **3B** Make the Sum (introduced in this session)	
Home Connection	
Copies & Display	**HC 33–38** Double It

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

add*
addition
double
equal*
plus
sum or total*

Preparation

- In today's session, you'll introduce Work Place 3B Make the Sum, which replaces Work Place 2B Domino Add & Compare. Read the Work Place Guide and Instructions and assemble the bin for Work Place 3B using the materials listed on the Guide. The Guide also includes suggestions for differentiating the game to meet students' needs. Optionally, print copies of the sentence frames for this Work Place from the Bridges Educator Site, and place them in the bin.
- If you have not already done so, staple the new Unit 3 Work Place Log to the *back* of students' Work Place folders. Keep the Unit 2 Log on the folder for now as students will continue to use some Work Places introduced during Unit 2 for several more weeks.
- Administer the Unit 3 Screener — Optional Interview during Work Places over the next few sessions. It is not necessary to interview every student. Suggestions for selecting students are provided in the Assessment Guide with the Screener Scoring Guide.

Make the Sum

- When students play the game in groups, have no more than four students in a group. There are six decks of 10-Frame Dot Cards, which can accommodate 24 students. If you have more than 24 students, use the Number Cards for additional groups as necessary. Be intentional when forming groups, so students who would benefit most from visual support play with the 10-Frame Dot Cards. Remove any 0s or wild cards from the decks.

Warm-Up

How Many More to Score?

1 Tell students they will play a version of I Have, You Need, called How Many More to Score?, in the context of the Cherokee Butter Bean game.

2 Remind students that in the traditional Cherokee Butter Bean game, players take turns tossing beans and collecting corn kernels until all 24 kernels, or points, have been collected. Explain that the class will pretend to be in the middle of a game, trying to get to 10 points.

Let them know that you'll tell them the current score and need their help figuring out how many more points are needed to score 10.

3 Display the Cherokee Butter Bean Game Scoring Guide print original. Remind students of the possible ways to score points:

- If all the beans land on the red or white side, players score 6 points.
- If a combination of three and three is tossed, players score 4 points.
- If the beans land two of one color and four of the other, players score 2 points.
- Combinations of one and five score 0 points.

4 Ask students to use their number racks or fingers to find how many more points are needed to score 10 when you give them each current score:

- *I have 6 points; how many more do I need to make 10?*
- *I have 3 points; how many more do I need to make 10?*
- *I have 5 points; how many more do I need to make 10?*

5 Have students keep their number racks for the next activity.

Problems & Investigations

Introducing Work Place 3B Make the Sum

6 Explain to the class that you have a new card game, Make the Sum, which will give them more practice with addition combinations.

Let them know that you'll demonstrate how to play and then they will play in small groups.

7 Summarize the game.

Partners decide on a target sum from 5 to 10. They take turns drawing from a stack of 10-Frame Dot Cards and laying those cards face-up next to the stack. The object is to make the target sum with any available cards. If a player makes the sum, they take those cards. When all the cards have been played and any unclaimed cards cannot be combined to total the target number, each player counts their cards. The player with more cards wins.

8 Show students a deck of 10-Frame Dot Cards, and work with their help to prepare the deck.

- Decide on a target number with class input. This example will use 7 as the target number, but use whatever number your class decides on.
- Let students know that when they choose a target number less than 10, they have to prepare the deck by removing all the cards greater than the target number. For example, in this case, you would remove all the cards that are greater than 7.
- Ask a couple of students to help you remove all the cards greater than 7 from the deck. Set those cards aside, then shuffle the deck and set it face-down.

9 Play the game according to the instructions on the 3B Make the Sum Work Place Instructions.

- You can play against the whole class and invite a different student to draw a card each time it's the class's turn. Alternatively, you can choose a single student to play against you with input from the rest of the class.
- Before a student draws a card on their turn, ask the class to think-pair-share about which card they'd most like to see come up.

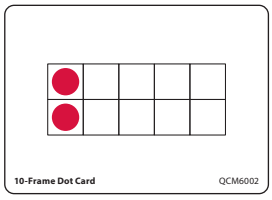
Teacher *I took the first turn and got a 2. Can I make a total of 7 with only a 2 card?*

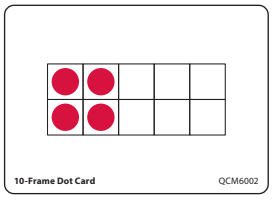
Students *No!*

Teacher *It's your turn next. Discuss with a neighbor what card you most hope your team draws.* [Gives students a few moments to think-pair-share.] *What number do you hope your team draws? Why?*

Students *Five. See. Five red beads and 2 white beads make 7.*

Teacher *You drew a 4. Can you combine 2 and 4 to make 7?*





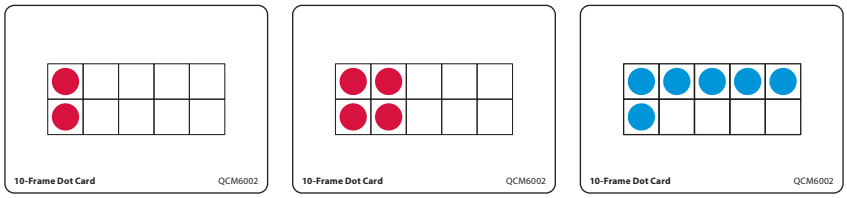
Equity-Based Practice

Going deep with mathematics

Asking students what number they hope to draw when playing Make the Sum increases the cognitive demand of the game. Students must consider multiple combinations that would make the target sum.

Student *No! Just count all the dots 1, 2, 3, 4, 5, 6* [points to the dots on the cards]. *That makes 6, not 7.*

Teacher *I got a 6. Is there any way for me to use these cards to make a total of 7?*



Students *No. 6 and 4 make 10, that's too many.*

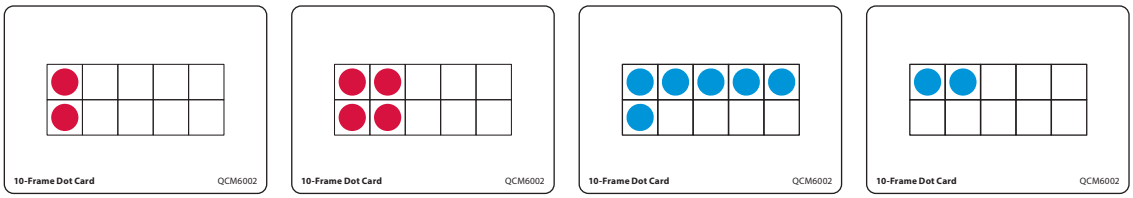
Six and 2 more is 8, not 7. So that doesn't work either.

Teacher *It's your turn again. Talk to your neighbor, everyone. What number do you most hope to draw? Why?*

Students *One! If we get a 1, we can go 6 plus 1.*
Or if we get a 3, we could have 3 and 4. That makes 7.
If we got a 5, we could combine it with the 2.

10 During the game, discuss these particular points as they arise:

- Play always continues back and forth — a player doesn't get an extra turn when they collect a combination.
- If you had a collection of cards like the ones shown and then drew a 1, you could combine it with 2 and 4 to make 7. Explain that combinations involving more than two cards are very desirable. That's because the player who has more cards at the end of the game wins.



11 Take the time to play the game all the way through to the end.

Playing Make the Sum in Small Groups

12 Invite groups of three or four students to play the game several times.

- Depending on the size of your class, you might need to use both the 10-Frame Dot Cards and Number Cards. Make sure to give the 10-Frame Dot Cards to groups that will most benefit from the visual support of the 10-frames.
- You can either have students continue to play for 7s or remind them that the game can be played for any number, 5 through 10.
- Have students start by "setting the deck." In other words, have them take out cards above the number they're playing for, just as you discarded all the cards for 8, 9, and 10 to play for 7. Be sure to clarify that when they play for 10, they'll need the entire deck.

13 Have them play as many games as they can get through in about 10 minutes, and then regroup.

14 Explain that during Work Places, Make the Sum will be a partner game.

Work Places

15 Show students one of the Work Place folders. Explain that Work Place 3A Drop the Beans and Work Place 3B Make the Sum are the first of a new set of Work Places. You have attached a new Work Place Log for them to use, along with the previous one.

16 Review the instructions for Work Place 3A Drop the Beans, which was introduced in Session 1.

- Each player chooses a target sum (7, 8, 9, or 10), carefully counts out that number of plastic beans, and selects the corresponding record sheet.
- The player cups the beans in their hand, drops them gently, and counts how many came up red and how many came up white.
- The player records an expression in the correct column on the record sheet, listing the red beans first and then the white beans. They start each column at the bottom.
- Play continues until they have filled two columns.

17 Invite students to spend the rest of the session at Work Places.

Unit 3 Screener — Optional Interview

18 Administer the Unit 3 Screener Optional Interview during Work Places over the next few sessions. It is not necessary to interview every student. Suggestions for selecting students are provided in the Assessment Guide with the Screener Scoring Guide.

Meet with students individually.

» Read each prompt, and give the student time to respond.

» If a student requests, lift the paper so they can count, touch, or move the cubes.

» Circle the indicator that best reflects the student's response to each prompt.

19 Send the student back to Work Places and call additional students, one at a time.

20 Close the session. Remind students to mark their Work Place Logs to show any activities they completed today.

Home Connection

21 Introduce and assign the Double It Home Connection, which provides more practice with the following skills:

- Add with sums to 20
- Look for and make use of structure

Consider sending home a paper clip for students to use as a spinner. Give a brief demonstration. Thread the tip of the pencil through one end of the paper clip, and set the tip in the center of the spinner. Hold the pencil steady while you spin the paper clip around its tip.

Digital Resources

An interactive version of Double It, complete with a digital spinner and game markers, is available on the Bridges Educator Site. You might share the interactive version with students and families as an alternative to the Double It Home Connection. If you choose to do this, introduce it first by playing it with students during class.

Session 3

Number Rack Doubles

Summary

Students build their knowledge of doubles in a series of activities. First, they use fingers on both hands to show doubles. Then they use a number rack to explore doubles and discover that doubles can be arranged as equal groups of beads on the top and bottom rows. The class generates a definition and writes equations for doubles within 10. Students then spend the rest of the session at Work Places.

Module 1 Learning Goals

Students learn about doubles and combinations to 10 or more.

- ☐ Students explore addition combinations for a target sum within 10.
- ■ **Students investigate representations of doubles as two equal groups.**
- ☐ Students explore and connect 1 more and 1 less with doubles.
- ☐ Students investigate problem situations using addition facts and strategies.

Materials

Warm-Up Splitting Butter Beans	
Kit Materials	bean counters (6, optional; see Preparation)
Classroom Materials	• butter (lima), beans (3, see Preparation) • adhesive putty (optional, see Preparation)
Problems & Investigations Number Rack Doubles	
Copies & Display	**PO P14** Doubles Chart
Kit Materials	demonstration number rack
Classroom Materials	• student number racks (class set) • student whiteboards, markers, and erasers (half-class set)
Work Places in Use	
2C Sort the Sum (introduced in Unit 2, Module 2, Session 4) **2D** Double It (introduced in Unit 2, Module 3, Session 2) **2E** Spin & Add (introduced in Unit 2, Module 3, Session 3) **2F** Spin & Subtract (introduced in Unit 2, Module 3, Session 4) **3A** Drop the Beans (introduced in Unit 3, Module 1, Session 1) **3B** Make the Sum (introduced in Unit 3, Module 1, Session 2)	

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

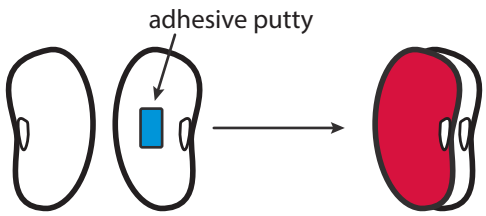
Vocabulary

**Word Resource Card available*

double
equation*
half*

Preparation

Soak three butter beans (lima beans) in water for a few hours prior to the session. This will make the beans easy to split with a fingernail during the warm-up. Alternatively, use adhesive putty to attach six bean counters, in pairs, back-to-back. Keep the red sides facing out.



Warm Up

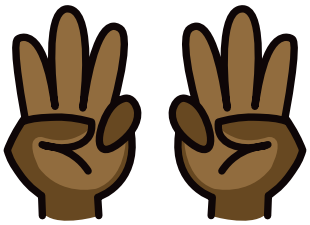
Splitting Butter Beans

1 Explain that the Cherokee split butter beans to play the Cherokee Butter Bean game.

2 Show students one of the butter beans you soaked.

- *Ask students to think-pair-share, How many halves will there be after splitting one bean? What about after splitting two beans? After splitting hree beans?* Invite a few students to share, then separate the beans to confirm students' predictions.
  - » If you affixed pairs of bean counters to create "butter beans," pull them apart to make six halves. Remove the adhesive putty and set it aside.

3 Continue the discussion of doubling by asking students to hold up three fingers on one hand. Then ask them to double the quantity by holding up three fingers on their other hand as well.



4 Ask questions to help students think about doubles.

- *How many fingers are there in all?*
- *What happens when you split 6 into 2 equal parts?*
- *What is 3 and 3 more?*
- *What addition equation could we write to represent what we're showing on our fingers?* (3 + 3 = 6)
- *How is this similar to splitting three butter beans to make six halves?*

5 Then ask students to share additional doubles by using fingers on both hands. Start with 2 (i.e., students show 1 finger on each hand). Next, ask students to show 10 (5 fingers on each hand), then 8 (4 fingers on each hand).

Problems & Investigations

Number Rack Doubles

6 Explain that you're going to work with doubles and other addition facts today, and then students will have time to visit Work Places.

7 Ask students to get their number racks, and make sure all the beads are over to the far right side, in the ready position. Then ask:

Is it possible to use the same number of beads on the top and bottom rows of the number rack to show 6 in all?

8 Give students a few moments to think-pair-share their ideas.

9 Look for students who showed 3 on top and 3 on the bottom. Ask them to use the demonstration number rack to share.

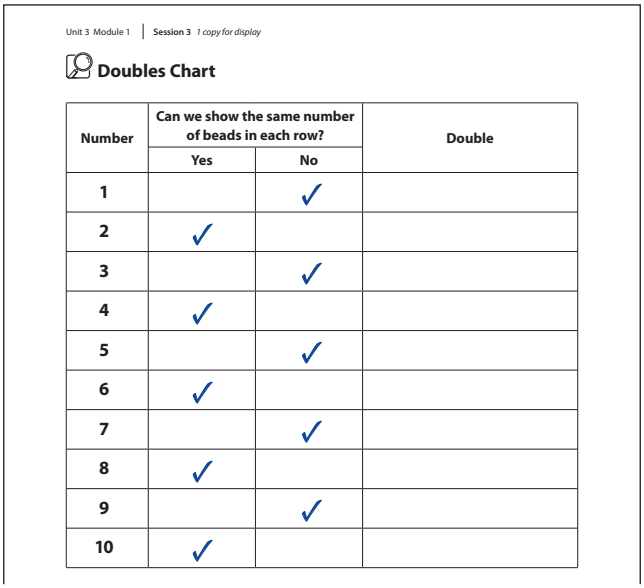
10 Pass out whiteboards and markers to pairs of students. Ask partners to find other numbers from 0 to 10 that they can show using the same number of beads on the top and bottom rows of the number rack. Have them record the numbers on the whiteboards.

11 Display the Doubles Chart print original, and explain that you will use it to keep track of students' discoveries.

12 Call on volunteers to share. Place a check mark in the appropriate space on the chart for each number.

If there is disagreement on any numbers, provide time for discussion. Encourage students to model the numbers on the number rack until the class is in agreement on whether they can use the same amount of beads on top and bottom to show the number.

13 Ask students to share any observations about the numbers that have a check mark in the Yes column. Some students might notice that the numbers they can show with the same number of beads in each row alternate with those they cannot. In other words, the chart highlights the counting-by-2s structure of doubles. Acknowledge this and other observations, but focus the discussion on how each number can be split into two equal groups.



Unit 3 Module 1 | Session 3 *1 copy for display*

Doubles Chart

Number	Can we show the same number of beads in each row?		Double
	Yes	No	
1		✓	
2	✓		
3		✓	
4	✓		
5		✓	
6	✓		
7		✓	
8	✓		
9		✓	
10	✓		

Students *They're all counting-by-2s numbers, like 2, 4, 6, 8, 10. You can split them in half, like 10 is 5 and 5.*

Note

The class will generate a definition of doubles later in this session. But if a student mentions it here, ask them to elaborate. Use their explanation to lead into the next part of the session.

What is a Double?

14 Take a closer look at one of the numbers that cannot be built with an equal number of beads in each row.

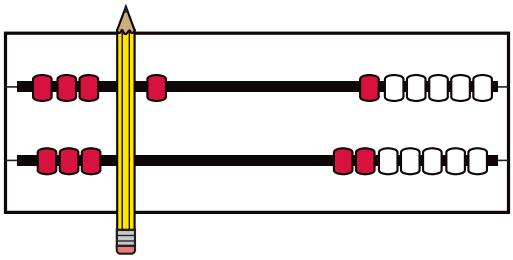
- Ask a student to select one of these numbers and build it on the demonstration number rack. Tell the rest of the class to build it on their student number racks.
- Ask several students to explain in their own words why they cannot use an equal number of beads in both rows to build that number.

Some students may observe that there is an extra bead in one of the rows while others may see a missing bead.

15 Explain that numbers that can be built with an equal number of beads in both rows can also be described as doubles. Ask students to think-pair-share what the term *double* might mean based on the chart and their exploration with the number rack in this session. Invite several students to share.

> ***Students*** *You can build doubles with the same number of beads on each row of the rack. The rows are equal.*
>
> *Doubles have to have a partner, like fingers or halves of beans.*
>
> *They can't have an extra bead or be missing one.*
>
> ***Teacher*** *Could I use a 10-frame or trains of Unifix cubes to build doubles?*
>
> ***Students*** *Sure! If you had six cubes, you could make two stacks of three cubes.*
>
> *Or on a 10-frame, you can put three on top and three on bottom.*
>
> *Just make sure the groups are the same, no extras.*
>
> ***Teacher*** *Let me see if I understand correctly. So a double is any number that can be split into two groups without any extras or missing partners. Is that right?*
>
> ***Students*** *Yes!*

MLL & SUPPORT One way to help students visualize doubles is to use a pencil with the number rack. Place the pencil next to the extra (or missing) bead. Explain that if there is one remaining bead to the right of the pencil, then the number is not a double. They cannot build it by sliding the same number of beads over to the left in both rows.



16 Reinforce the structure of doubles by asking students to close their eyes and visualize how doubles look on a number rack. (two equal groups of beads with no extra or missing bead)

Doubles Equations

17 Work with input from the class to write an equation for each double between 1–10.

Math Practices in Action

Attend to precision

Generating a definition for doubles helps students attend to the defining characteristic of a double. That is, a double can be split into two equal whole groups without any extras.

Math Practices in Action

Look for and make use of structure

Visualizing doubles on the number rack supports students in looking for and making use of structure. They can think of a double as an equal number of beads in each row of the number rack.

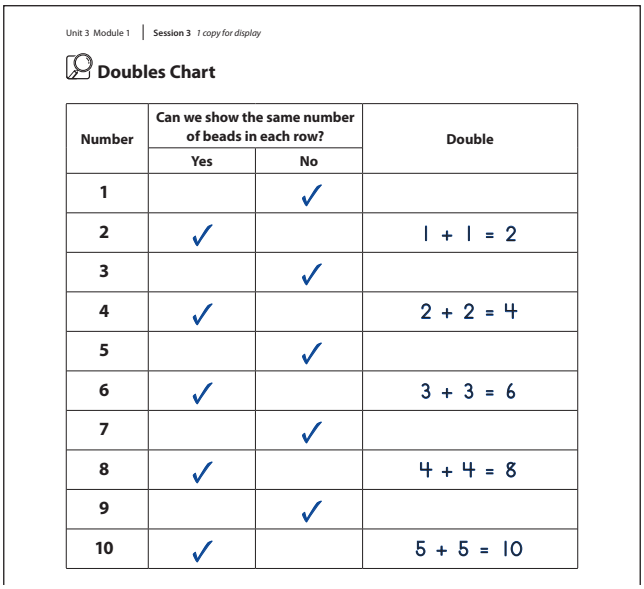
Math Teaching Practice

Establish mathematics goals to focus learning

Helping students understand the structure of doubles is a building block to understanding

- Have students push all the beads on their racks to the far right. Ask them to show the double for number 2 by distributing the beads equally between both rows.
  - » *How many beads are on the top row?* (1)
  - » *How many beads are on the bottom row?* (1)
  - » *How many beads are there in all?* (2)
- Write the equation 1 + 1 = 2 on the Doubles Chart.
- Repeat with the remaining doubles.

18 Once all of the equations have been written, ask students to share observations. Expect students to notice that the equations for each double have the same addends. Also expect them to notice that these addends represent the equal number of beads on the top and bottom rows.



Unit 3 Module 1 | Session 3 *1 copy for display*

Doubles Chart

Number	Can we show the same number of beads in each row?		Double
	Yes	No	
1		✓	
2	✓		1 + 1 = 2
3		✓	
4	✓		2 + 2 = 4
5		✓	
6	✓		3 + 3 = 6
7		✓	
8	✓		4 + 4 = 8
9		✓	
10	✓		5 + 5 = 10

CHALLENGE Encourage students to use number racks, Unifix cubes, bean counters, or game markers to explore doubles from 11 to 20.

- *How many doubles are there between 0 and 20?*
- *How many of the numbers from 11 to 20 are not doubles?*
- *If you had to explain to a friend what a double is, what would you say?*

Work Places

19 Have students spend the rest of the session at Work Places.

While students are working, complete the optional interview portion of the Unit 3 Screener with students individually.

20 Close the session.

- Remind students to mark their Work Place Logs to show any activities they completed today.
- Have students put away the Work Place materials and hand in their folders.

Session 4

Doubles Plus or Minus 1: Introducing Work Place 3C

Summary

After playing the Cherokee Butter Bean game, students build doubles on their number racks. Then the teacher demonstrates a new game, Doubles Plus or Minus 1. Players roll a 1–6 dotted die and double the number. They spin an Add or Subtract Spinner to add or subtract 1. They cover the result on their side of the game board. The teacher plays against the class, and then the game becomes available as a Work Place.

Module 1 Learning Goals

Students learn about doubles and combinations to 10 or more.

- ☐ Students explore addition combinations for a target sum within 10.
- ☐ Students investigate representations of doubles as two equal groups.
- ■ **Students explore and connect 1 more and 1 less with doubles.**
- ☐ Students investigate problem situations using addition facts and strategies.

Materials

Warm-Up Playing the Cherokee Butter Bean Game	
Copies & Display	**PO P9** Cherokee Butter Bean Game Scoring Guide
Kit Materials	bean counters (6)
Classroom Materials	• Unifix cubes in a single color (24) • basket (optional)
Problems & Investigations Introducing Work Place 3C Doubles Plus or Minus 1	
Copies & Display	**PO P15** Work Place Guide 3C Doubles Plus or Minus 1 **PO P16** Work Place Instructions 3C Doubles Plus or Minus 1
Kit Materials	• die dotted 1–6 • Near Doubles game board • Add or Subtract Spinner • game markers in 2 colors (7 of each color)
Classroom Materials	• student number racks (class set) • classroom number line (optional)
Work Places in Use	
2D Double It (introduced in Unit 2, Module 3, Session 2) **2E** Spin & Add (introduced in Unit 2, Module 3, Session 3) **2F** Spin & Subtract (introduced in Unit 2, Module 3, Session 4) **3A** Drop the Beans (introduced in Unit 3, Module 1, Session 1) **3B** Make the Sum (introduced in Unit 3, Module 1, Session 2) **3C** Doubles Plus or Minus 1 (introduced in this session)	

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

add*
addition
difference*
double
equal*
minus
plus
subtract*
subtraction
sum or total*

Preparation

In today's session, you'll introduce Work Place 3C Doubles Plus or Minus 1, which replaces Work Place 2C Sort the Sum. Read the Work Place Guide and Instructions and assemble the bin for Work Place 3C using the materials listed on the Guide. The Guide includes suggestions for differentiating the game to meet students' needs. Optionally, print copies of the sentence frames for this Work Place from the Bridges Educator Site and place them in the bin.

Warm Up

Playing the Cherokee Butter Bean Game

Use the game to emphasize +0 and +2 foundational facts when a team scores 0 or 2 points. As both teams compete to collect more Unifix cubes from the set of 24, they will connect the first 10 cubes into a 10-train. Observe which students use combinations of 10 when making their 10-trains. Also look for students who use 10 and more facts when the score becomes greater than 10.

1 Tell students they will play the Cherokee Butter Bean game in two teams against each other. You will help the teams keep score.

2 Review the directions for playing the game and scoring.

- Players take turns dropping six beans.
- Teams collect Unifix cubes from a set of 24. They make 10-trains when possible to track their points:
  - » If all the beans land on the red or white side, score 6 points.
  - » If the beans land three of each color, score 4 points.
  - » If the beans land two of one color and four of the other color, score 2 points.
  - » Combinations of one and five score 0 points.
- When all 24 cubes have been collected, the game ends. The team with more points wins.
- Teams must collect the exact number of cubes based on the bean toss. If there are not enough cubes to match the full points, play passes to the other team. For example, there are four cubes left to collect and the beans land all red after the toss. Since there are not enough cubes to collect six points, play passes to the other team.

3 Display the Cherokee Butter Bean Game Scoring Guide print original, and play the game all the way through one time.

Problems & Investigations

Introducing Work Place 3C Doubles Plus or Minus 1

Building Doubles on the Number Rack

4 Invite students to build the doubles 4, 8, 2, 10, and 6 on their number racks. Tell students to distribute the beads equally between both rows. For each double made, have students say the doubles fact.

5 Ask students to review the meaning of the term *double* by explaining it to a partner. (A double is a number that can be split into two equal groups without any extras or missing partners.) Invite a few students to share.

Some students may want to keep their number racks to use in the next activity.

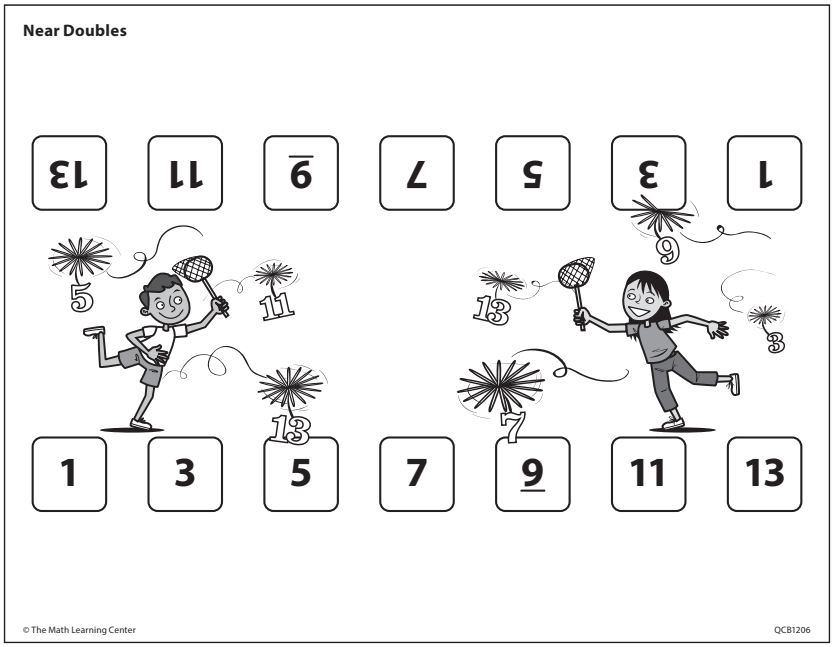
Introducing Doubles Plus or Minus 1

Doubles Plus or Minus 1 provides practice with two foundational fact sets — doubles and +1, –1. Played on the Near Doubles game board, the game supports intuitions that often lead to students discovering they can use doubles to solve combinations with addends that are nearly the same. For example, a student solving 6 + 7 might use the near doubles strategy by thinking of a doubles fact and reasoning that, "6 + 6 = 12, and since 7 is 1 more than 6, then 6 + 7 is 12 plus 1 more, and that's 13."

6 Introduce Work Place 3C Doubles Plus or Minus 1.

- Let students know that the new game will give them more practice with addition and subtraction facts.
- Tell them that you'll play against the class, and then it will be available as a Work Place.

7 Show the class the Near Doubles game board and invite observations. They might notice that it's like the Double It game board but the numbers are different.



8 Explain that the new game is very similar to Double It, but it has a new feature — a spinner. Show students the Add or Subtract Spinner, and summarize the game.

Players take turns rolling a die dotted 1–6 and doubling the number they roll. Then they spin the Add or Subtract Spinner to add or subtract 1 from the double. They use a game marker to cover the total on their side of the game board. If a number has already been covered, the player must wait for the next turn to try again. The first player to cover all the sums on their side of the board wins.

9 On your first turn, roll the die, and ask students to find the double of the number. As needed, encourage students to use their number racks.

Teacher *I rolled 5. What is the double of 5?*

Students *It's 10!*

Digital Resources

To make the game more visible and accessible for playing with the class, consider using the Interactive Display Material for Work Place 3C Doubles Plus or Minus 1. The digital version includes the game board, markers, spinner, and a die on a single screen.

Interactive Display Materials are available on the Bridges Educator Site.

It's like my fingers — five here and five here [places fingers together to match 5 and 5] *and 10 altogether.*

You can use the number rack. See — five on top [counts out five beads 1, 2, 3, 4, 5] *and five on the bottom* [counts another five beads 1, 2, 3, 4, 5] *makes 10 altogether* [counts all 1, 2, 3, 4, 5, 6, 7, 8, 9, 10].

10 Spin the Add or Subtract Spinner to either add 1 or subtract 1. Ask students to share their strategy.

Teacher *Now I'll spin the Add or Subtract Spinner. It landed on Add. What is 10 plus 1?*

Students *It's 11! Eleven comes after 10.*

You can show 10 on a number rack and then add one more bead.

11 Call on a student to roll the die, and report the double. Then choose a different student to spin the spinner, and ask students to share their strategies for finding + 1 or – 1.

Teacher *Your spinner landed on Subtract. We doubled 3 to get 6. What is 6 minus 1?*

Students *One less than 6 is 5. You can show 6 fingers* [puts up 5 fingers and then one more] *and then put 1 finger down. That leaves 5 fingers.*

Minus 1 is just the number that comes before. That's 5. Look at the number line.

That's like how I did it. I counted backward. Like this 6… 5.

I pushed back one bead on the number rack.

12 Continue to play the game according to the 3C Doubles Plus or Minus 1 Work Place Instructions, choosing different students for each turn.

Work Places

13 Once you have played the game all the way through, have students spend the rest of the session at Work Places.

- Hand out Work Place folders and point out the picture for the new Work Place on the Work Place Log.
- Remind students that they should visit every Work Place at least once.

14 While students are engaged, continue to administer the optional interview portion of the Unit 3 Screenerr to select students.

15 Close the session.

- Remind students to mark their Work Place Logs with the games or activities they completed today.
- Have students clean up and hand in their Work Place folders.

Session 5

Open Strategy Sharing

Summary

In this session, students choose from a variety of tools to solve problems about the Cherokee Butter Bean game. The teacher introduces a new discussion structure, open strategy sharing, as students discuss their solutions. If time permits, students go to Work Places. Finally, the teacher introduces and assigns the Counting & Adding Practice Home Connection.

Module 1 Learning Goals

Students learn about doubles and combinations to 10 or more.

- ☐ Students explore addition combinations for a target sum within 10.
- ☐ Students investigate representations of doubles as two equal groups.
- ☐ Students explore and connect 1 more and 1 less with doubles.
- ■ **Students investigate problem situations using addition facts and strategies.**

Materials

Warm-Up Playing the Cherokee Butter Bean Game	
Copies & Display	**PO P9** Cherokee Butter Bean Game Scoring Guide
Kit Materials	bean counters (6)
Classroom Materials	• Unifix cubes in a single color (24) • basket (optional)
Problems & Investigations Open Strategy Sharing	
Copies & Display	**PO P17–P18** Butter Bean Game Points
Kit Materials	game markers (see Preparation)
Classroom Materials	• student number racks (class set, see Preparation) • 5″ × 8″ index card or half-sheet of paper (1, for cover) • student whiteboards, markers, and erasers (class set, see Preparation) • Unifix cubes (see Preparation)
Work Places in Use	
2D Double It (introduced in Unit 2, Module 3, Session 2) **2E** Spin & Add (introduced in Unit 2, Module 3, Session 3) **2F** Spin & Subtract (introduced in Unit 2, Module 3, Session 4) **3A** Drop the Beans (introduced in Unit 3, Module 1, Session 1) **3B** Make the Sum (introduced in Unit 3, Module 1, Session 2) **3C** Doubles Plus or Minus 1 (introduced in Unit 3, Module 1, Session 4)	
Home Connection	
Copies & Display	**HC 39–40** Counting & Adding Practice

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

add*
addition
compare*
difference*
minus
plus
strategies
subtract*
subtraction
sum or total*

Preparation

In this session, students use tools of their choice to solve problems. Have a variety for each group of students, such as game markers, Unifix cubes, student number racks, and sets of student whiteboards, markers, and erasers.

Warm Up

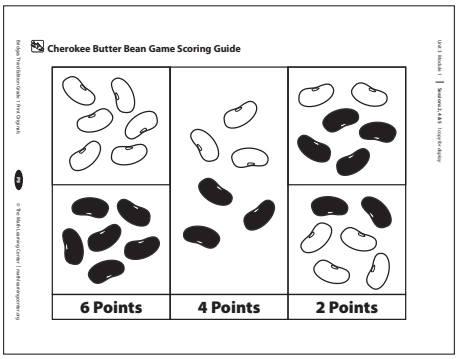
Playing the Cherokee Butter Bean Game

Look for opportunities to emphasize +0 and +2 facts, combinations of 10, and 10 and more facts.

1 Tell students that they will play the Cherokee Butter Bean game again in two teams. You will help the teams keep score.

2 Display the Cherokee Butter Bean Game Scoring Guide. Review the directions for playing the game and scoring.

- Players take turns dropping six beans.
- Teams collect Unifix cubes from a set of 24. They make 10-trains when possible to track their points:



- When all the cubes are collected, the game ends. The team with more points wins.
- Teams must collect the exact number of cubes based on the bean toss. If there are not enough cubes to match the full points, play passes to the other team.

3 Divide the class into two teams, and play the game all the way through one time.

Problems & Investigations

This session allows students to explore problem situations with the unknown in different positions. For more information on the different types of problems, see the Unit Introduction.

Open Strategy Sharing

4 Introduce a new discussion structure called open strategy sharing. Summarize the process for students.

- The teacher poses a problem.
- Students solve the problem in a way that makes sense to them. They choose from a variety of tools, such as whiteboards, game markers, cubes, or number racks.
- Students share their strategy and listen to their classmates.
- Students retell their classmates' strategies in their own words or make connections between strategies.

5 Explain that the problems they will be working with are about the Cherokee Butter Bean game.

Math Practices in Action

Use appropriate tools strategically

When students are able to select the tool to use for problem solving, they are using appropriate tools strategically. Strategic use of tools inherently implies choice.

6 Show the class the tools you have put together. Let students know that they can choose whichever tool they would like to use and can switch tools as needed.

7 Remind students of the Cherokee Butter Bean Game scoring guide, and keep it posted for reference.

8 Display the first page of the Butter Bean Game Points print original, keeping the second problem covered.

Join with Three Addends, Result Unknown

9 Read the first problem, and ask students to visualize what happened when Alona used cubes to play the Cherokee Butter Bean game. If needed, prompt students that Alona is adding three numbers together to find her score, similar to adding three numbers in the Make the Sum Work Place.

Problem 1: On the first toss, Alona scored 4 points. On the second toss, she scored 2 points, and on the third toss, she scored 4. How many points does Alona have in all?

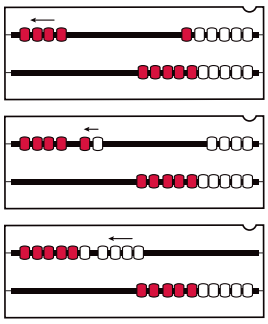
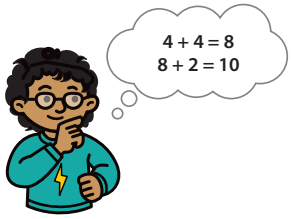
10 Have pairs or small groups of students model and solve the problem using a tool of their choice. Invite them to share their solution and strategy with a partner.

11 When most pairs or groups have solved the problem, invite several volunteers to each share their answer and their thinking with the class.

Math Practices in Action

Make sense of problems and persevere in solving them

Presenting challenging problems to students and supporting their efforts helps them grow accustomed to devoting time and energy to finding solutions. In this case, collaboration and choice of tools enables them to make sense of the problem and persevere in solving it.

Anticipated Student Responses		
Strategies	**Representations**	**Explanations**
Uses direct modeling by 1s	 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	*We drew 4 squares to look like cubes, then 2 more, and 4 more. Then we counted them all 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.*
Uses the structure of 5 and 10		*We pushed 4 beads to the left on the number rack, then 2 more beads, and then 4 more. That's all the beads on the top row. Five red and 5 white beads make 10!*
Counts on		*We started with 4 and then added 2 more, 4 . . . 5, 6. Then we added 4 more, 6 . . . 7, 8, 9, 10.*
Knows the addition fact or uses a derived fact strategy		*I know double 4 is 8, and 2 more makes 10.*

12 Pause after each strategy is shared, and ask another student or two to restate the strategy in their own words.

13 Ask questions such as the following to help students make connections between the physical and symbolic representations:

- *Where do you see each of the points Alona got in the drawing?*
- *Why did Alona add twice?*
- *Where do you see all 10 points on the number rack?*
- *How can knowing your doubles or combinations of 10 help you solve this problem?*

14 Repeat steps 9–13 for the remaining problems on the Butter Bean Game Points print original.

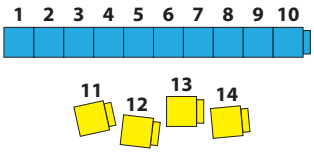
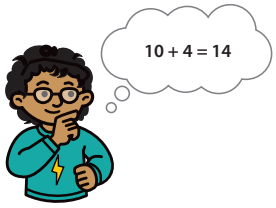
Instructional Routine

Discussion structure

Open strategy sharing allows students to hear different ways of solving the same problem. This helps students build a repertoire of strategies, and provides an opportunity for teachers to formatively assess how students are thinking about and solving problems.

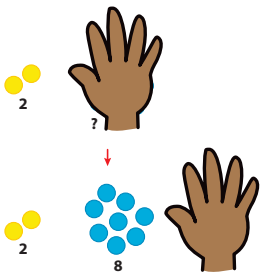
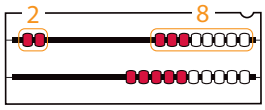
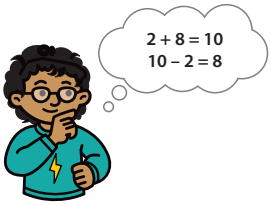
Join, Result Unknown

Problem 2: Xavier has 10 points and scores 4 more. How many points does Xavier have now?

Anticipated Student Responses		
Strategies	**Representations**	**Explanations**
Uses direct modeling by 1s		*We got 10 cubes and then 4 more. Then we counted them all, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.*
Counts on		*We started with 10 and then counted 4 more, 10 . . . 11, 12, 13, 14.*
Uses a 10 and more fact		*I just knew that 10 and 4 more is 14.*

Part-Part-Whole, Part Unknown

Problem 3: At the end of the game, Erik had collected 10 cubes. The basket is covering some of the cubes, so only 2 are visible. How many cubes are under the basket?

Anticipated Student Responses		
Strategies	**Representations**	**Explanations**
Acts it out and counts by 1s		*We counted 10 game markers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. I put two of the markers in a pile and then hid all the rest under my hand. Then I lifted my hand. We counted the ones that were hidden 1, 2, 3, 4, 5, 6, 7, 8. Eight!*
Counts all		*We started by showing 10 beads on the number rack. Those are Erik's points. We kept taking away beads until there were only 2 beads on the left. Then we counted the beads that we took away 1, 2, 3, 4, 5, 6, 7, 8.*
Uses a combination of 10 or a known subtraction fact		*I just know that 2 and 8 is 10, so 8 cubes have to be hidden under the basket.* *I know that 10 – 2 is 8.*

Join with Three Addends, Result Unknown

CHALLENGE Problem 4: Naomi had scored some points. In the second round, Naomi scored 6 points, and in the third round, she scored 4. She now has a total of 16 points. How many points did Naomi have at the beginning of the game to bring the total to 16?

Work Places

15 If time allows, invite students to spend the rest of the session at Work Places.

16 Administer any optional Unit 3 Screener interviews, or work with individuals or small groups as needed.

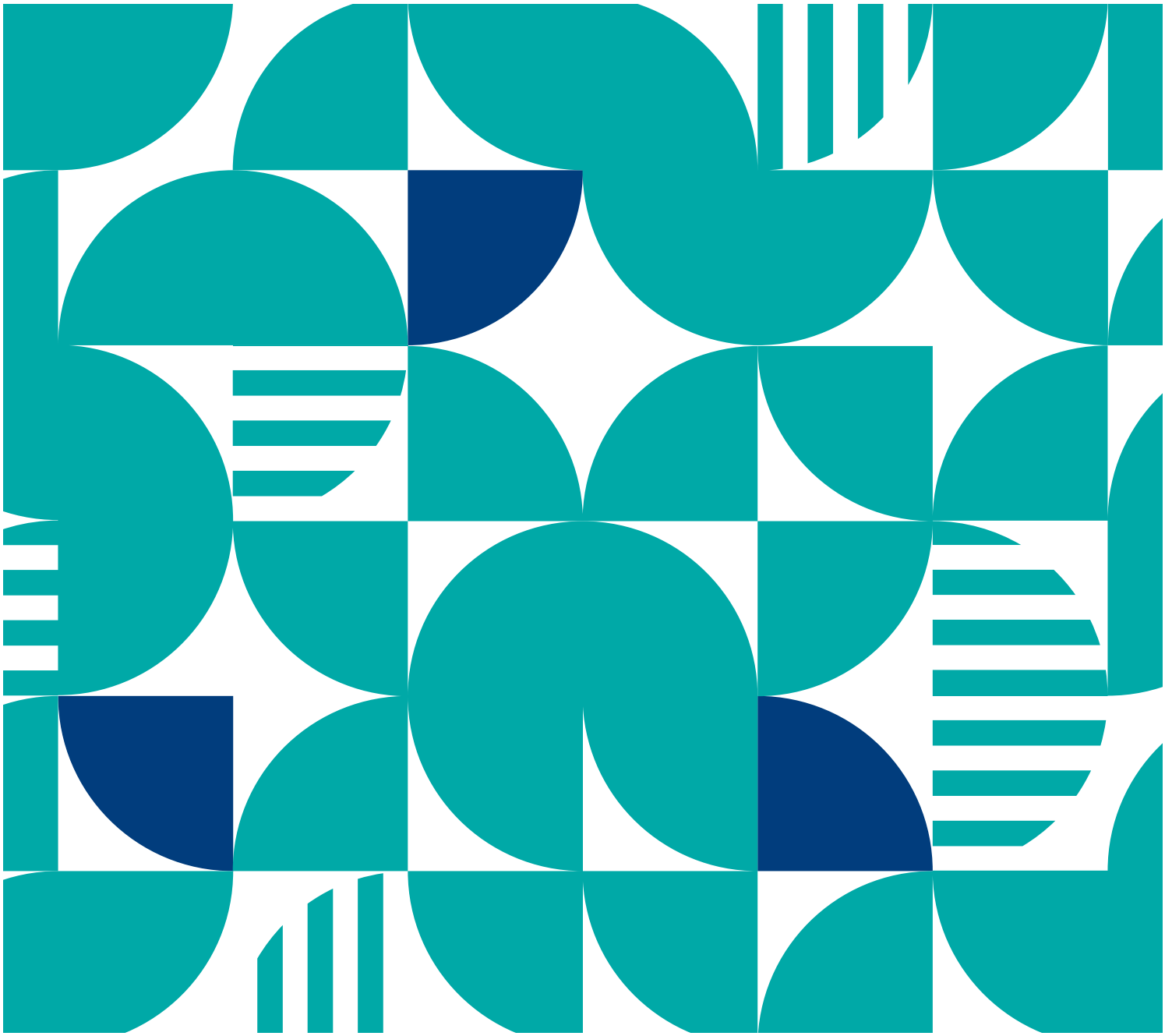
17 Close the session.

- Ask students to mark their Work Place Logs with completed activities.
- Have students clean up and hand in their folders.

Home Connection

18 Introduce and assign the Counting & Adding Practice Home Connection, which provides more practice with the following skills:

- Add and subtract fluently within 10
- Read and write numerals within 120
- Represent a number of objects with a written numeral up to 120



Grade 1 – Unit 3 – Module 1
Teachers Guide Sample

bridges® in mathematics

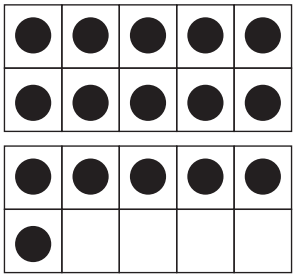
NAME | **DATE**

Unit 3 Screener — Written

I know that the teen numbers are 10 and some more.

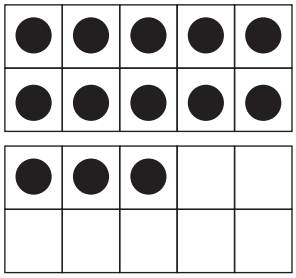
1 Write a "10 and more" equation for each pair of 10-frames.

a



_____ + _____ = _____

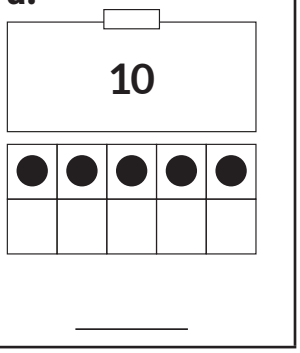
b



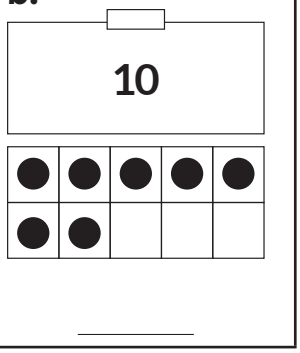
_____ + _____ = _____

2 Write a number to show how many dots are on each pair of 10-frames. Remember to include the 10 dots hiding under the flap.

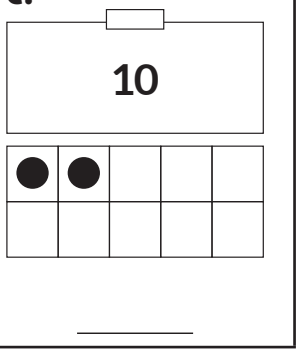
a.



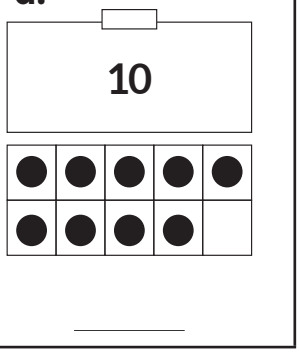
b.



c.



d.



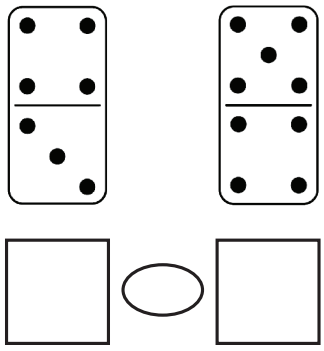
I can compare numbers and label them to show *more* or *less*.

3 For each pair of dominoes:

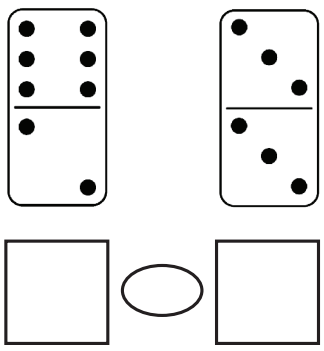
- Count and write how many dots there are on each domino.
- Circle the domino that has more dots.
- Write the correct sign (<, =, or >) in the oval to compare the number of dots.

4 Draw a domino that has more than 7 dots.

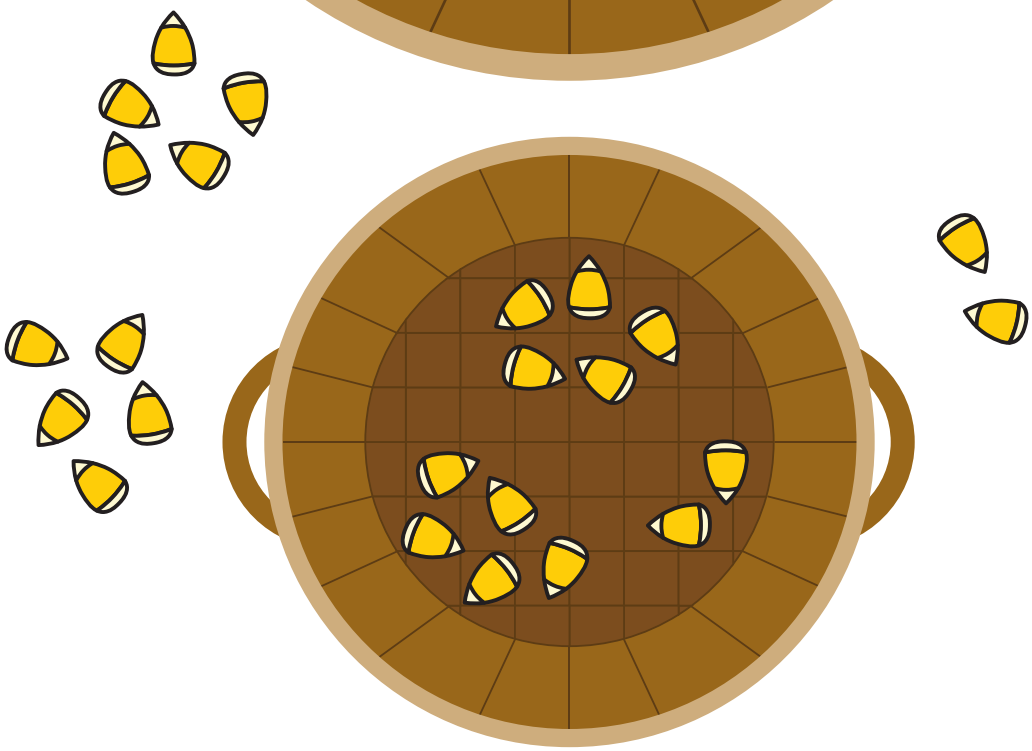
a



b



Cherokee Butter Bean Game



Work Place Guide 3A Drop the Beans

Summary

Students work on their own to choose a target sum (7, 8, 9, or 10) and use bean counters to find different combinations for that number. They drop the beans and count how many come up red and how many white. Then they write a matching expression on the record sheet, starting at the bottom of each column. Play continues until they have filled two columns.

Skills & Concepts

- Apply properties of operations as strategies to add and subtract
- Add and subtract fluently within 10
- Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many are in each category, and how many more or less are in one category than another

Materials

Copies	Kit Materials	Classroom Materials
PO P3 Work Place Guide 3A Drop the Beans **PO P4** Work Place Instructions 3A Drop the Beans **PO P5–P8** 3A Drop the Beans to Make 7, 8, 9, and 10 record sheets	bean counters (60)	red crayons (6; optional for support)

Assessment & Differentiation

If you see that . . .	Differentiate	Example
Students need support adding the bean combinations	SUPPORT Gather students in a group, and play with a lesser target sum.	Use a target sum of 5 or 6, or even 4 if necessary. Have students take turns around the circle to drop the beans, so the whole group can concentrate on one combination at a time.
Students need support recording the bean combinations	SUPPORT Use a red crayon to circle the first addend in each expression on the recording sheet, and group the red and white beans into groups after each drop.	Before playing, have students circle the first addend in each expression with a red crayon as a reminder to record the red beans first. After each drop, ask them to gather the red beans in one group and the white beans in another. Then have them record the number of red beans first and then the white beans to create an expression.
A student is proficient with combinations of 7, 8, 9, and 10	CHALLENGE Pair students working at roughly the same level, and invite them to try game variation A.	
Multilingual learners		
Get students get started by assisting them with picking a record sheet and counting out the correct number of beans. Play a round or two with them.		

Work Place Instructions 3A Drop the Beans

Object of the Game

Choose a target sum — 7, 8, 9, or 10. Get that number of plastic bean counters and the corresponding record sheet. Drop the beans and count how many come up red and how many come up white. Record an expression in the matching column on the record sheet and continue until you have filled 2 columns!

Get Ready to Play

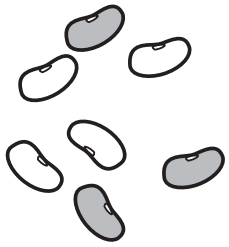
- You need a **3A Drop the Beans to Make 7, 8, 9, or 10 record sheet** and a matching number of **bean counters**
- Draw a star at the top of the column that you think will be the first to fill.

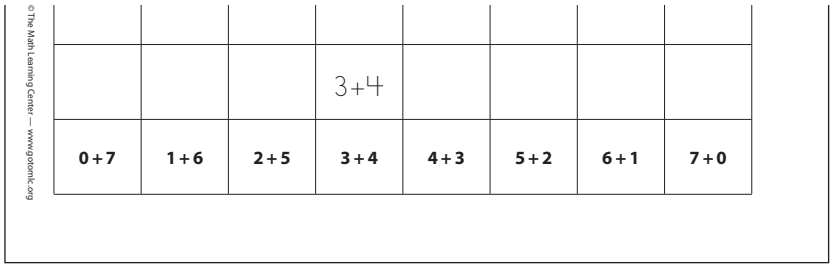
Play

1 Shake the bean counters with two hands. Drop them on the playing space.

2 Count how many beans land red side up. Count how many beans land white side up.

3 Record the number of reds and the number of whites in the column that matches your combination.
If you get 3 reds and 4 whites, you would record 3 + 4 in the lowest empty space for that column the record sheet.





4 Continue playing until you have filled 2 columns.

Ending the Game

Write "1st" below the column that filled first. Write "2nd" below the column that filled second.

Variation

A Play with a partner. Choose a target number together, preferably 8, 9, or 10, and get your own record sheets. Close or cover your eyes while your partner drops the beans and hides the ones that land white side up. Open your eyes and tell your partner how many beans are hidden. Have your partner show you the white beans to confirm. Record the expression for the red and white beans on your record sheet. Switch roles, and continue until you both have filled two columns.

NAME | DATE

3A Drop the Beans to Make 7 Record Sheet

Record the number of red beans first, and then the white beans. Fill columns from the bottom up.

7

0 + 7	**1 + 6**	**2 + 5**	**3 + 4**	**4 + 3**	**5 + 2**	**6 + 1**	**7 + 0**

NAME | DATE

3A Drop the Beans to Make 8 Record Sheet

Record the number of red beans first, and then the white beans. Fill columns from the bottom up.

8

0 + 8	**1 + 7**	**2 + 6**	**3 + 5**	**4 + 4**	**5 + 3**	**6 + 2**	**7 + 1**	**8 + 0**

NAME | DATE

3A Drop the Beans to Make 9 Record Sheet

Record the number of red beans first, and then the white beans. Fill columns from the bottom up.

9

0 + 9	**1 + 8**	**2 + 7**	**3 + 6**	**4 + 5**	**5 + 4**	**6 + 3**	**7 + 2**	**8 + 1**	**9 + 0**

NAME | DATE

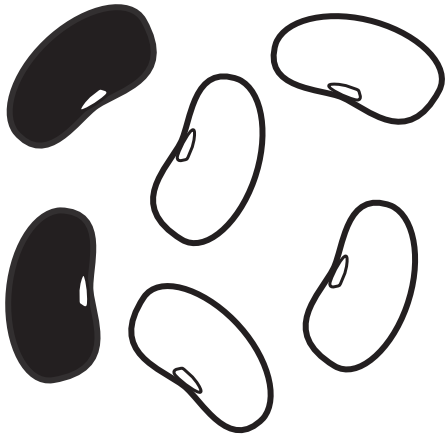
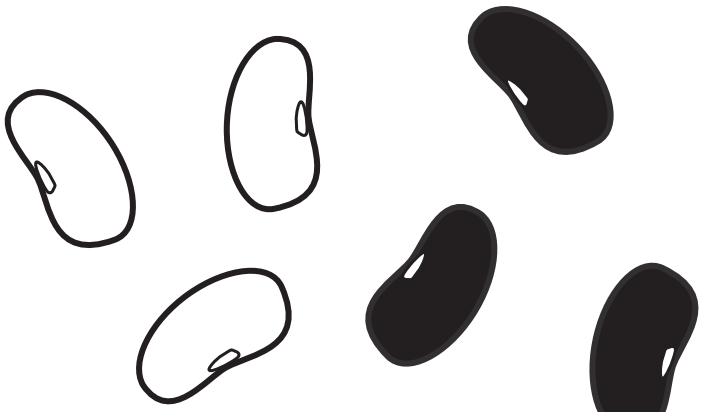
3A Drop the Beans to Make 10 Record Sheet

Record the number of red beans first, and then the white beans. Fill columns from the bottom up.

10

0 + 10	**1 + 9**	**2 + 8**	**3 + 7**	**4 + 6**	**5 + 5**	**6 + 4**	**7 + 3**	**8 + 2**	**9 + 1**	**10 + 0**

Cherokee Butter Bean Game Scoring Guide

		**2 Points**
		**4 Points**
		**6 Points**

Work Place Guide 3B Make the Sum

Summary

Partners decide on a target sum from 5 to 10. They take turns drawing from a deck of 10-Frame Dot Cards and laying those cards next to the stack. The object is to make the target sum with any available cards. If a player makes the sum, they take those cards. When all the cards have been played and any unclaimed cards cannot be combined to total the target sum, each player counts their cards. The player with more cards wins.

Skills & Concepts

- Subtract by finding an unknown addend
- Add and subtract fluently within 10

Materials

Copies	Kit Materials	Classroom Materials
PO P10 Work Place Guide 3B Make the Sum **PO P11** Work Place Instructions 3B Make the Sum	• 10-Frame Dot Cards (3 decks, 0s removed) • Number Cards (3 decks, 0s and wild cards removed; for game variation A)	student number racks (optional, for support)

Assessment & Differentiation

If you see that . . .	Differentiate	Example
A student needs support adding the numbers to reach the target sum	SUPPORT Suggest they count on or make use of a fact they already know to derive an unknown sum.	Given a target of 7: • Suppose there is a 5 in play, and the student draws a 3. The student can count on, "6, 7, 8 — no, that's too many!" • Suppose there is a 3 in play, and the student draws a 4. The student can make use of the double 3 + 3 if they know it, "That's 7, because 3 and 3 is 6, and 1 more is 7."
Several students need support adding the numbers to reach the target sum or determining what number they need to reach the target sum	SUPPORT Encourage students to use a number rack while playing the game. You might also gather several students together and play a game with them.	Given a target of 10: • Suppose there is a 5 in play, and the student draws a 3. They can use a number rack to see that there are 5 red beads and 3 white beads in play, with 2 white beads left. Ask them to determine which card will help them reach the target number. (2 dots)
Two students are able to complete the activity efficiently and are becoming proficient with their addition facts	CHALLENGE Pair students working at roughly the same level, and invite them to try game variations A, B, or C.	
Multilingual learners		
Play the game with a small group to provide an opportunity for students to practice using academic language. On your turn, think aloud, "I have 6. I need 2 to make the target sum."		

Work Place Instructions 3B Make the Sum

Object of the Game

Collect cards that make a target sum from 5 to 10. The player who collects more cards wins!

Get Ready to Play

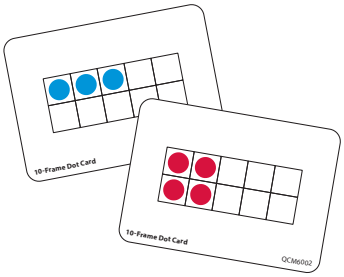
- Pairs need a deck of **10-Frame Dot Cards**, with cards for 0s removed.
- Choose together a target sum from 5 to 10. Remove all cards greater than the target sum from the deck, and set them aside. Shuffle the deck.
- The player wearing more pockets goes first.

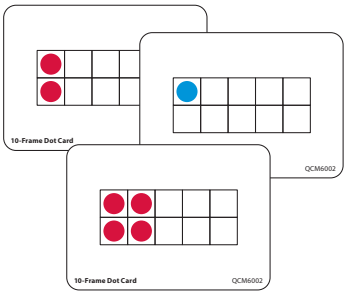
On Your Turn

1 Draw a card from the deck.

2 If the card is the target sum or combines with other visible cards to make the target sum, collect those cards.

- If the target sum is 7 and you draw a 7, you collect that card.
- If the target sum is 7 and you draw a 3, you can combine it with the 4 to make 7. You collect both cards.
- You can combine more than 2 cards to make the target sum.





3 If you can't use the card to make the target sum, lay it down in a row next to the draw pile. The card can be used in another round. Make sure all the cards are visible.

Ending the Game

When all the cards have been played and no more target sums can be made, the game is over. Count the cards you have collected. The player with more cards wins!

Variations

A Play with Number Cards instead of 10-Frame Dot Cards. Remove all wild cards and 0s.

B Play for a target sum from 11 to 15.

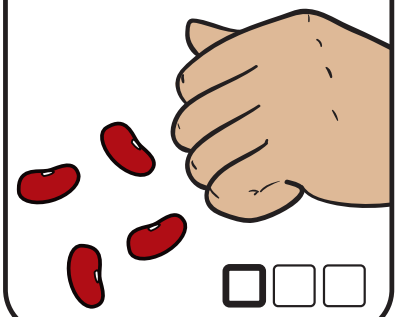
C At the end of the game, count the combinations you made, instead of the number of cards you have. The player with more combinations of the target sum wins!

D Play on your own to collect as many combinations as you can. Go through the deck once, turning over cards one at a time. Collect any combination of cards that add up to the target sum. Continue until no more combinations can be made. Count how many combinations you were able to make.

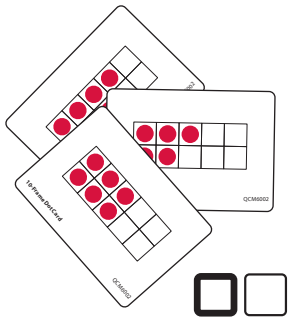
NAME | **DATE**

Unit 3 Work Place Log

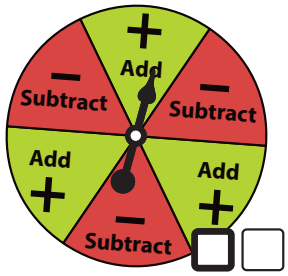
3A Drop the Beans



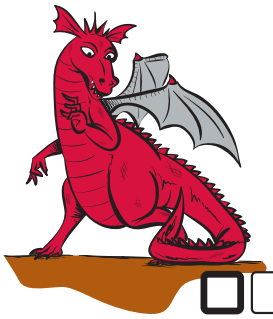
3B Make the Sum



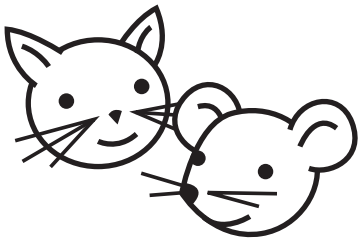
3C Doubles Plus or Minus 1



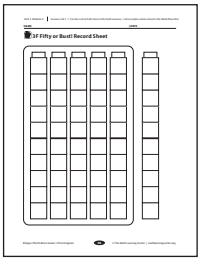
3D Tower Race



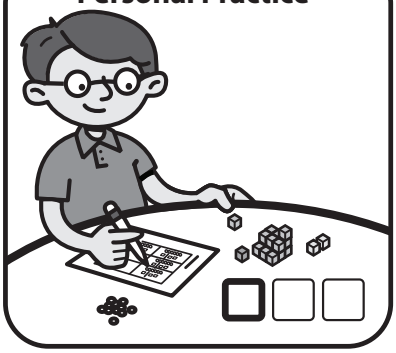
3E Cats & Mice



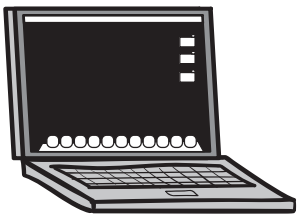
3F Fifty or Bust!



Personal Practice



Digital Activity



NAME | **DATE**

Unit 3 Screener — Optional Interview

Materials

- 10 Unifix cubes in a small container
- a piece of construction paper

Note

Administer this interview only on an as-needed basis. As requested by students, lift the paper to allow them to count, touch, or move the cubes.

1 Show the student a group of 5 Unifix cubes. Say, "I have 5 cubes. I am going to cover them with this paper and put 3 more cubes under the paper." Slide 3 more cubes under the construction paper as the student watches. Say, "How many cubes are under the paper now? How do you know?"

Student adds 3 to a covered quantity of 5. Circle the student's response.			
Counts all*; gives an answer other than 8	Counts all* to get the correct answer	Counts on from 5 (or 3) to get the correct answer	Gives the correct answer automatically

Additional Notes:

2 Point to the paper under which you still have 8 cubes. Say, "How many more cubes do I need to get up to 10?" If the student gave an answer other than 8 to problem 1, say instead, "There are 8 cubes under the paper. How many more do I need to get to 10? How do you know?"

Student determines how many more need to be added to a covered quantity of 8 to get to a total of 10. Circle the student's response.			
Counts all*; gives an answer other than 2	Counts all* to get the correct answer	Counts on from 8 (or 2) to get the correct answer	Makes use of a related fact (e.g., 8 + 2) or gives the correct answer automatically

Additional Notes:

3 Place a row of 10 cubes on the table and ask the student to count them. Then cover the 10 cubes with the construction paper and slide 3 of them out from under the paper for the student to see. Ask, "How many cubes are under the paper now? How do you know?"

Student subtracts 3 from the covered quantity of 10. Circle the student's response.			
Counts all*; gives an answer other than 7	Counts all* to get the correct answer.	Counts back from 10 to get the correct answer.	Makes use of a related fact (e.g., 7 + 3) or gives the correct answer automatically

Additional Notes:

**Counts all* means that the student solves the problem using a strategy that involves counting every quantity by 1s rather than counting on or counting back. For example, a student who counts all to solve question 1 might ask you to lift the paper so they can touch and count each cube by 1s to get 8 in all. A student who counts all to solve question 3 might count all of their fingers one by one, then count 3 of those fingers one by one, put them down, and re-count the remaining fingers by 1s to get the answer of 7.

Doubles Chart

Number	Can we show the same number of beads in each row?		Double
	Yes	No	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Work Place Guide 3C Doubles Plus or Minus 1

Summary

Players take turns rolling a die dotted 1–6 and doubling the number they roll. Then they spin the Add or Subtract Spinner to add or subtract 1 from the double. They cover the total on their side of the game board. The first player to cover all the sums on their side of the board wins.

Skills & Concepts

- Relate counting to addition and subtraction
- Add with sums to 20

Materials

Copies	Kit Materials	Classroom Materials
PO P15 Work Place Guide 3C Doubles Plus or Minus 1 **PO P16** Work Place Instructions 3C Doubles Plus or Minus 1	• Near Doubles game boards (3) • 3 Add or Subtract Spinners (3) • 3 dice dotted 1–6 • game markers in 2 colors (21 of each color)	• Unifix cubes (optional, for support) • student number racks (optional, for support)

Assessment & Differentiation

If you see that . . .	Differentiate	Example
A student needs support to double the numbers	SUPPORT Give the student Unifix cubes, a number rack, or both to use for doubling. Another option is to count the dots on the die, and then model how to count on using the same dots.	If the student rolls a 3, have them set out 3 Unifix cubes and then 3 more. Tell them to count the cubes to get the total. Alternatively, have the student use their number rack. Tell them to slide 3 beads to the left in each row and find the total. If the student rolls a 3 on the die, count "1, 2, 3," and then keep counting "4, 5, 6," pointing to the same dots again. Invite the student to try.
A student needs support to add or subtract 1	SUPPORT Give the student Unifix cubes, a number rack, or both to use for adding or subtracting 1.	Tell them to use the cubes or number rack to double 3 to get 6. Then have them add 1 more cube (or bead) or take 1 cube (or bead) away.
Students are very proficient doubling numbers and adding or subtracting 1.	CHALLENGE Pair students working at roughly the same level and invite them to try game variation A.	

Work Place Instructions 3C Doubles Plus or Minus 1

Object of the Game

Take turns rolling a die dotted 1-6 and doubling the number rolled. Spin the Add or Subtract Spinner to add or subtract 1 from the double. Then cover the result on your side of the game board. The first player to cover all of the numbers on their side of the game board wins!

Get Ready to Play

- You need a **Near Doubles game board**, an **Add or Subtract Spinner**, a **die dotted 1–6**, and **14 game markers** in 2 colors (7 of each color).
- Place the game board between you and your partner.
- Take turns rolling the die. The player with the lesser number chooses which color game markers they would like. The player with the greater number goes first.

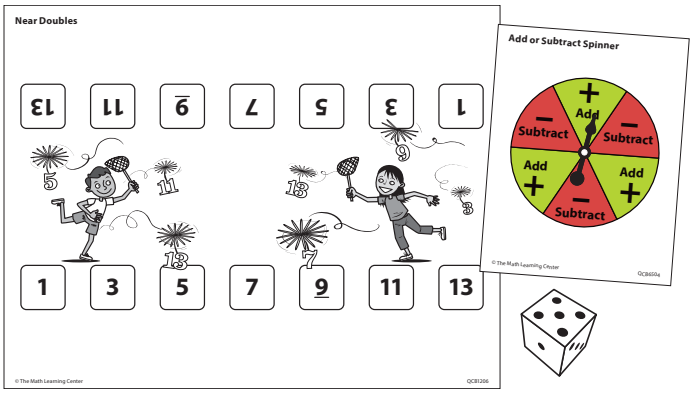
On Your Turn

1 Roll the die and double the number of dots.

2 Spin the Add or Subtract Spinner.
- If it lands on Add, add 1 to your double.
- If it lands on Subtract, subtract 1 from your double.

3 Cover the result on your side of the game board.

If you get a number that you have already covered, wait until your next turn to try again.



5 + 5 = 10
10 + 1 = 11

Ending the Game

The first player to cover all 7 numbers on their side of the game board wins!

Variations

A On your turn, cover any number on your game board. Roll the die and double the number of dots. If you can make the number you covered by adding or subtracting 1, leave your game marker. If you can't, remove your game marker. Wait until your next turn to try again. The first player to cover all 7 numbers wins.

Note: You do not need an Add or Subtract Spinner.

B Play independently by covering the doubles on both sides until you have filled the game board.

Butter Bean Game Points page 1 of 2

1 On the first toss, Alona scored 4 points. On the second toss, she scored 2 points, and on the third toss, she scored 4. How many points does Alona have in all?

2 Xavier has 10 points and scores 4 more. How many points does Xavier have now?

(continued on next page)

Butter Bean Game Points page 2 of 2

3 At the end of the game, Erik had collected 10 cubes. The basket is covering some of the cubes, so only 2 are visible. How many cubes are under the basket?

4 **CHALLENGE** Naomi had scored some points. In the second round, Naomi scored 6 points, and in the third round, she scored 4. She now has a total of 16 points. How many points did Naomi have at the beginning of the game to bring the total to 16?

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Drop the Beans to Make 7 Record Sheet

Record the number of red beans first, and then the white beans. Fill columns from the bottom up.

7

0 + 7	**1 + 6**	**2 + 5**	**3 + 4**	**4 + 3**	**5 + 2**	**6 + 1**	**7 + 0**

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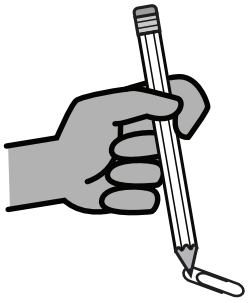
Double It page 1 of 3

Note to Families

Your child has played this game in school and can teach you how to play. There are two versions of the game: Double It (players double the numbers 1–6) and Double It Challenge (players double the numbers 1–10). Consider playing this game several times over the next couple of months to help your child become comfortable and confident with these foundational facts.

Materials

- Double It pages 1–3
- game markers — any small item will do: pennies, dry beans, Legos, and so on (6 of each for the regular game; 10 of each for the challenge game)
- a pencil and a paper clip to use as a spinner arrow



Instructions

1 Choose one of the game boards, and collect your game markers.

2 Use the paper clip as an arrow. Thread the tip of the pencil through one end of the paper clip, and set the tip in the center of the spinner. Hold the pencil steady while you spin the paper clip around its tip.

3 Take turns to spin. Find the double for each number spun. Then use a game marker to cover the sum on your side of the game board. (For example, if you spin 3, double it to 6, and cover the 6 on the game board.)

4 If you have already covered a double on your side of the game board, wait until your next turn to try again.

5 The first person to cover all six of their numbers is the winner!

6 **CHALLENGE** For the Double It Challenge game, spin the 0–5 spinner twice, add the numbers, and then double the sum. (For example, if you spin 3 and 5, you add them to get 8 and then double the 8 to get 16. Cover the 16 on your game board.)

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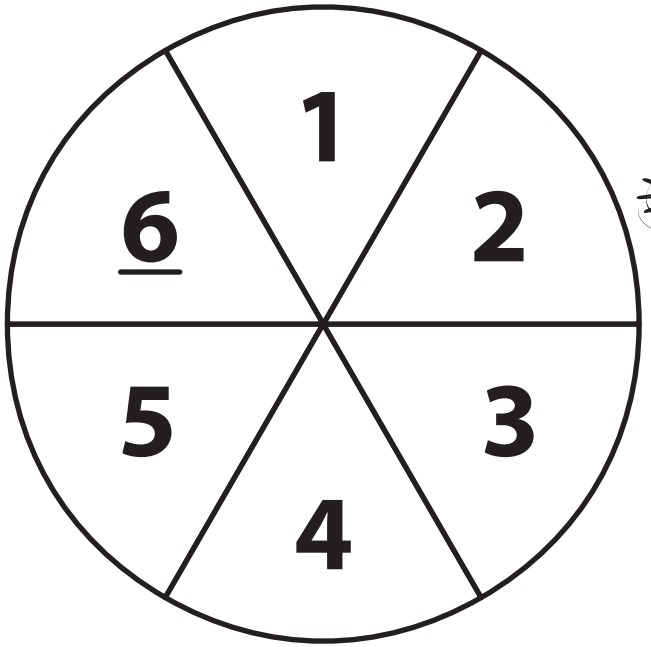
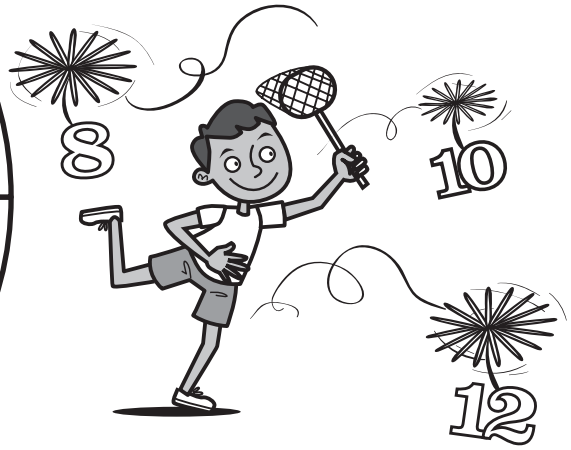
NAME | DATE

Double It page 2 of 3

12	10	8	6	4	2

Double It





2	4	6	8	10	12

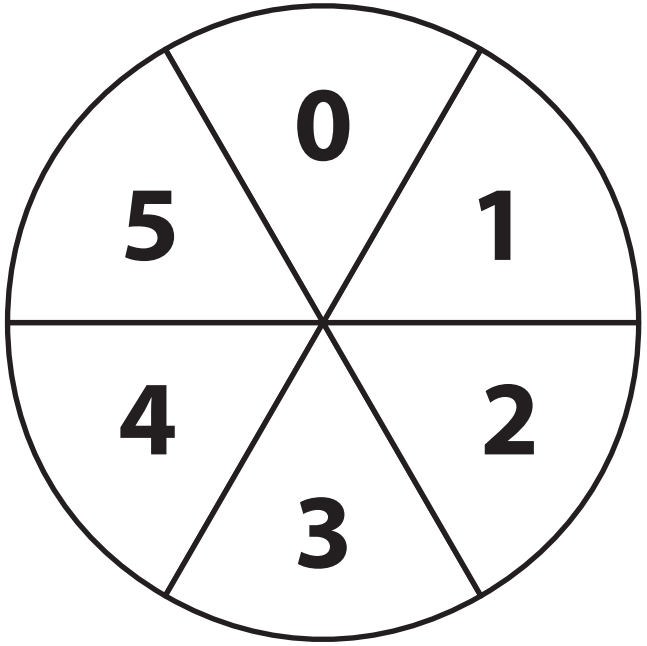
(continued on next page)

NAME | DATE

Double It page 3 of 3

2	4	6	8	10	12	14	16	18	20

Double It Challenge



2	4	6	8	10	12	14	16	18	20

NAME | DATE

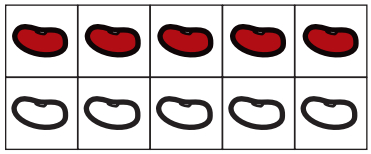
Counting & Adding Practice page 1 of 2

1 Trace the numerals and the number words.

1 one
2 two
3 three
4 four
5 five
6 six
7 seven
8 eight
9 nine
10 ten

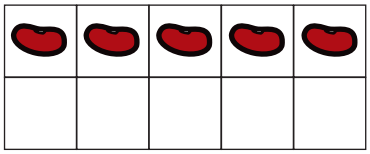
2 How many beans are in each frame? Write the number word.

a



ten

b



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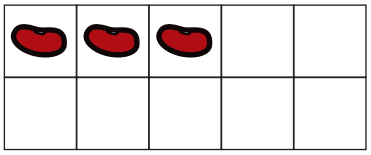

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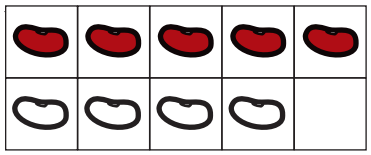
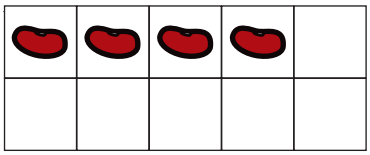


e



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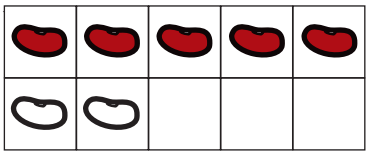

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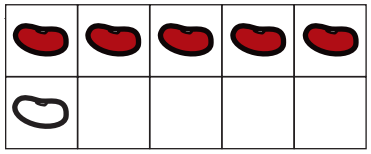

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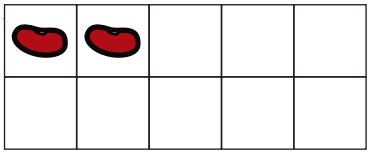

i

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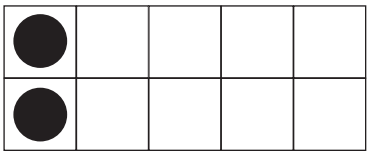
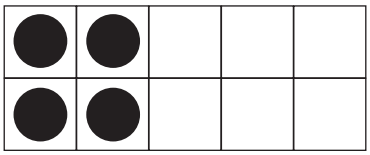
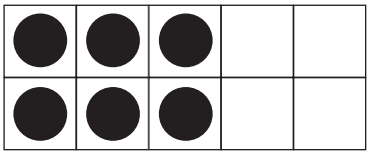
NAME | **DATE**

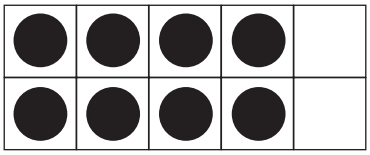
Counting & Adding Practice page 2 of 2

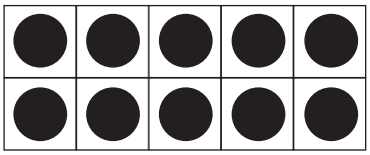
3 Solve the problems.

a
$$\begin{array}{r} 1 \\ +\ 1 \\ \hline \end{array}$$


b
$$\begin{array}{r} 2 \\ +\ 2 \\ \hline \end{array}$$


c
$$\begin{array}{r} 3 \\ +\ 3 \\ \hline \end{array}$$


d
$$\begin{array}{r} 4 \\ +\ 4 \\ \hline \end{array}$$


e
$$\begin{array}{r} 5 \\ +\ 5 \\ \hline \end{array}$$


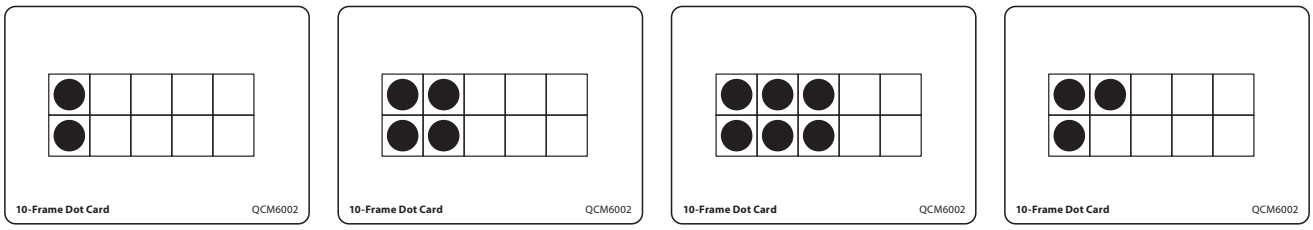
4 Fill in the blank to complete each equation.

3 + 1 = _____ 3 + 2 = _____ 5 – 0 = _____ 5 – 1 = _____

_____ + 4 = 8 2 + _____ = 4 3 + _____ = 6 _____ + 5 = 10

10 – 5 = _____ 6 – 3 = _____ 8 – 4 = _____ 4 – 2 = _____

5 Circle the cards that can be added to make 9.



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