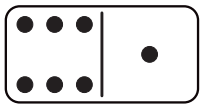
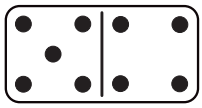
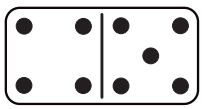
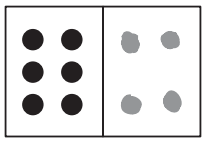
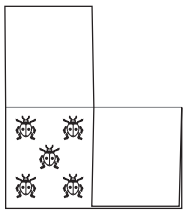
Bridges in Mathematics Grade 1

Unit 2: Developing Strategies with Dice & Dominoes

In this unit your child will:

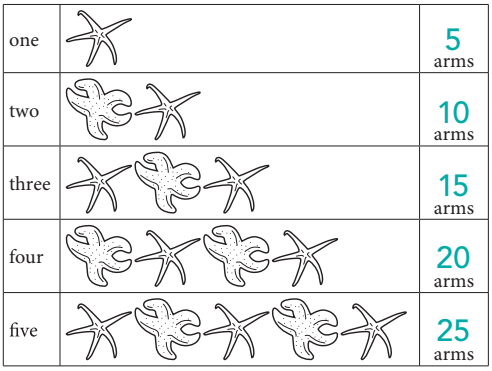
- Instantly recognize dots on dominoes or dice
- Practice addition and subtraction strategies, like counting on, doubles, and make 10 within 12
- Use dominoes and picture cards to write a fact family of equations
- Solve and write story problems
- Count by 5s and 10s

Your child will learn and practice these skills by solving problems like those shown below. Keep this sheet for reference when you're helping with homework.

PROBLEM	COMMENTS
How many dots are shown on the domino? **Here are some strategies students may use:**  **Combine small groups:** "I see 3 and 3, and that's 6. Then if you put 1 more on, it's 7."  **Count on:** "I see 5 and 4. I can start with 5 and count on 4 more. 5…6, 7, 8, 9. There are 9 dots."  **Use a known fact:** "I know that 5 + 5 is 10. There is 1 dot missing from this side to make 5, so 1 less than 10 is 9."	**Recognizing Quantities** Dominos and dice dot patterns help children quickly recognize a quantity without having to count individual dots. When students are able to quickly recognize a quantity, they can use strategies other than counting by 1s to find a total.
Write the fact family for this domino.  6 + 4 = 10 4 + 6 = 10 10 – 6 = 4 10 – 4 = 6 Choose one fact and write a story.  4 + 2 = 6 2 + 4 = 6 6 – 4 = 2	**Fact Families** Dominoes and double-flap cards are used to explore fact families. A fact family is a set of four related facts. In this example, the numbers 6, 4, and 10 are related because you can add 6 + 4 = 10. You can also switch the first two numbers and still get the same answer: 4 + 6 = 10. This is known as the commutative property of addition. These addition facts also have a direct relationship to subtraction facts. Subtraction is the inverse (or opposite) of addition. Using these same numbers, students can also write the following subtraction equations: 10 – 6 = 4 and 10 – 4 = 6. These four equations make up a fact family.

PROBLEM	COMMENTS

What patterns do you see in the rows of sea stars?



How many arms would 5 sea stars have in all?

5, 10, 15, 20, 25

"I can count by 5s."

Models for Counting by 5s and 10s

Students use sea stars to explore counting by 5s. Each has 5 arms, and students can find the total number of arms in each row and then on the whole chart! In the example shown to the left, students count by 5s to determine that 5 sea stars would have 25 arms in all.

Coins also provide opportunities to count by 5s and 10s. Students count the value of nickels by 5s. They count the value of dimes by 10s.

Ten-strips, marked with a bold line to show the two groups of 5, are another model that encourages counting by 5s and 10s.

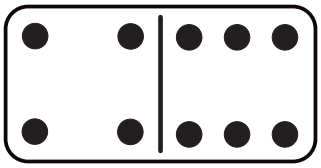
FREQUENTLY ASKED QUESTIONS ABOUT UNIT 2

Q: My child writes some numbers backward. Should I be concerned?

A: Some first graders write their numbers backward. Children at this age are developing their motor skills and hand-eye coordination. Some are still learning to form their numbers correctly. Reversing numbers worries some parents because they've heard it can be a sign of a learning disability, but that's not always the case. If your child reverses a number, point it out and ask him to model it after a number on the page or a number line. Over time, children will learn to practice correct formation and position.

Q: Fact families seem confusing. Why not just teach students to add and subtract equations?

A: Fact families help young children understand part-part-whole relationships and how addition and subtraction are related. Models, such as this domino, clearly show the whole quantity (10) along with the parts (4, 6). Solving addition and subtraction combinations is much easier once children know the relationships of the fact family members.



Understanding fact families also helps students solve problems such as this one: Lee has 4 shells. He finds some more. Now he has 10. How many shells did he find? This problem is written as the equation: 6 + ____ = 10. Children who understand this relationship can think, "What goes with 6 to make 10?" and recognize 4 as the missing number.

Q: Why is there an emphasis on counting by 5s and 10s?

A: We want students to become efficient at counting quantities larger than 10 and to move beyond counting one by one when solving problems. This unit includes story problems and visual models that encourage students to begin counting equal groups by 5s and by 10s. Initially, students are given actual objects to count, and then they are given models that represent the objects in groups of 10s and 1s. After a while, students use visual images of the quantities to mentally count by 10s and 1s to efficiently add and subtract numbers up to 100.