(I) Module 8

ORIGO
STEPPING STONES 2.0

Core Focus

- Addition: Exploring combinations of ten and reinforcing all strategies
- Equality: Working with balance and balance equations
- Data: Tally charts

Addition

- Mental strategies such as count-on and double have already provided students with more adaptive, efficient, and flexible ways to solve addition and subtraction problems, rather than memorizing facts. In this module, students learn the **make-ten** strategy.

- Make-ten is an essential skill for mastering mental strategies in the base-10 system. It is relatively easy for students because these facts have been practiced using finger pictures since Kindergarten.

- The make-ten strategy uses the **associative property of addition** to make mental calculation easier by *finding a ten* in an addition sentence where one addend is close to ten. For example, *see* 9 + 6, *think* 9 + 1 + 5 = 15.

8.3   Addition: Introducing the make-ten strategy

Step In   Look at this picture of counters.

How can you figure out the total?

I moved one counter to make a group of 10. This made it easier to add.
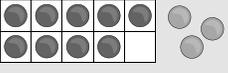
9 + 3
is the same value as 10 + 2.
10 + 2 is 12.

In this lesson, students work with an addition sentence with one addend close to ten. Because ten is nearby, they use it to help find the total.

- A ten-frame is ideal for showing how the make-ten strategy works. When there are two quantities less than 10, as in the example below, the frame is filled with the first quantity (8) and then part of the second quantity (2) to make 10. The 10 plus the leftover (3) creates an easier equation to solve mentally: 10 + 3 = 13.

b.   9 + 6 =

10 + [ ] = [ ]
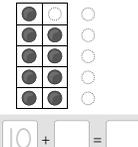
- The make-ten strategy is the last of the main strategies Grade 1 students use to build their fluency with facts to 10. Students choose their preferred method (count-on, use doubles, or make-ten) to learn facts and to solve problems.

Ideas for Home

- Ensure your child already knows pairs of numbers that total 10 (e.g. 1 + 9, 2 + 8), plus their associated turnaround facts (e.g. 9 + 1, 8 + 2).

- Make 10 in everyday situations by asking, "How many more will make 10?" Discuss with your child how they think about numbers in everyday addition situations.

- Encourage the use of 10 to figure out totals greater than 10. E.g. "There are 4 eggs. How many more are needed to fill a carton that holds 12 eggs?" Their answer could be 4 + 6 = 10, 10 + 2 = 12, or 4 + 6 + 2 = 12.

Glossary

▸ The **associative property of addition** allows multiple addends to be added in any order.

3   +   3   +   7
(3 + 3) + 7   or   3 + (3 + 7)

▸ The **make-ten strategy** is easily demonstrated using a ten-frame to add two numbers. E.g. *see* 8 +7, *think* 10 + 5, which both have the total of 15.

Ⅰ **Module 8**

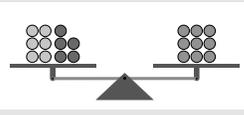**ORIGO STEPPING STONES 2.0**

Equality

- At this stage, students have had many experiences with representing addition and subtraction situations as equations. They now extend their understanding of equality by using balance scales as a visual model.

- The purpose of using a balance scale to show that equality means whenever two quantities are equal, the two sides of the scale must balance, just as the two sides of any equation must have the same total. This concept sets the foundation for the study of algebra in the future.

> **8.8** **Equality: Working with balance situations**
>
> **Step In** Look at the circles in this balance picture.
>
> How many more circles do you need to draw to make the balance picture true?
>
> How do you know?
>
> **Draw the circles on the picture.**
>
> **What equation could you write to match the picture?**
> ☐ + ☐ = ☐ + ☐

In this lesson, students work with addition equations that have two addends on either side of the equals symbol, e.g. $6 + 5 = 9 + \_\_$.

Data

- In this module, students construct and interpret **tally charts** recording data gathered using a variety of contexts. They learn that tally marks are organized into groups of five. The activities in these lessons involve contexts that should be familiar to the students.

> **8.11** **Data: Collecting in a tally chart**
>
> **Step In** What does this table show?
>
> **Where We Go for Lunch Recess**
>
> | Place | Tally | Total |
> |---|---|---|
> | Gym | 𝍷𝍷𝍷 II | |
> | Playground | 𝍷𝍷 | |
> | Library | 𝍷 II | |
>
> What do the marks in the **Tally** column mean?

In this lesson, students use tally marks to record data.

Ideas for Home

- An understanding of equality and inequality can be developed by experiences with everyday items. E.g. place two apples (cookies, carrots, anything that is countable) on one plate and two on another. Ask, "Will these two groups balance?" or "Are these groups the same amount?"

- Tally the kinds of fruit in a fruit bowl and graph the number using a tally chart. Tally the number of cars in a parking lot by color and make a tally chart.

- At your next family gathering, help your child conduct a survey of family members. E.g. "What is your favorite ice-cream flavor: chocolate, vanilla, or strawberry?" Make a tally chart.

Glossary

▸ A **tally chart** shows a count in tally marks.

Sport	Number of Votes
Baseball	𝍷𝍷 III
Basketball	𝍷𝍷 I
Athletics	𝍷