Grade 4, Module 2

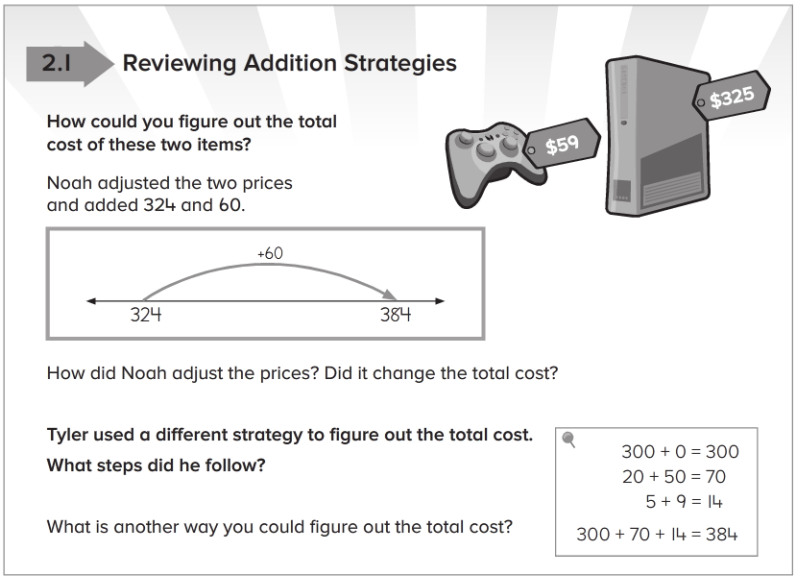
ORIGO STEPPING STONES

Core Focus

- Reviewing addition and subtraction strategies and using them to make estimates
- Reviewing and extending use of the standard addition algorithm
- Reviewing time measurement; converting between minutes and hours; introducing seconds

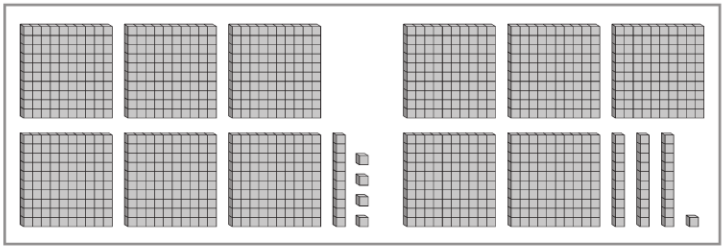
Addition and Subtraction

- Addition and subtraction skills learned in earlier grades are the basis for understanding why the standard algorithm works. The **standard algorithm** is the familiar paper-and-pencil procedure for adding multi-digit numbers that most adults were taught in school.
- Strategies for adding and subtracting numbers mentally are important for real-life situations. Students **decompose** (pull apart) and **compose** (put together) numbers to make them more convenient to compute mentally.



In this lesson, students make mental strategies visible by using number lines and equations.

- In the **standard addition algorithm**, what was called "carrying" is now called **regrouping** because numbers are **regrouped** into new place values in order to combine the quantities.



This group models 614 + 531, which is the same as 11 hundreds + 4 tens + 5 ones, which is the same as 1,145. Ten hundreds blocks are traded or regrouped for 1 thousands block. The 1 thousand, 1 hundred, 4 tens and 5 ones make a total of 1,145.

Ideas for Home

- Model for your child how you think about estimating totals when spending money at the store or driving distances in the car.
- Help your child practice estimating answers before calculating them exactly. In real life, an estimate is often all we need, so it is important to become good at estimating answers mentally.
- Ask your child to add the whole numbers (no cents) of large ticket items found on, for example, car sale circulars to practice using the algorithm accurately.
- Use place-value language when talking about the procedure: for 5,609 + 3,556 "9 ones plus 6 ones is 5 ones and 1 ten. 1 ten plus 0 tens plus 5 tens is 6 tens, 6 hundreds plus 5 hundreds is 11 hundreds or 1 hundred and 1 thousand, and 1 thousand, plus 5 thousand, plus 3 thousand is 9 thousand."

Glossary

- Students **decompose** (pull apart) and **compose** (put together) numbers to make them more convenient to compute mentally.

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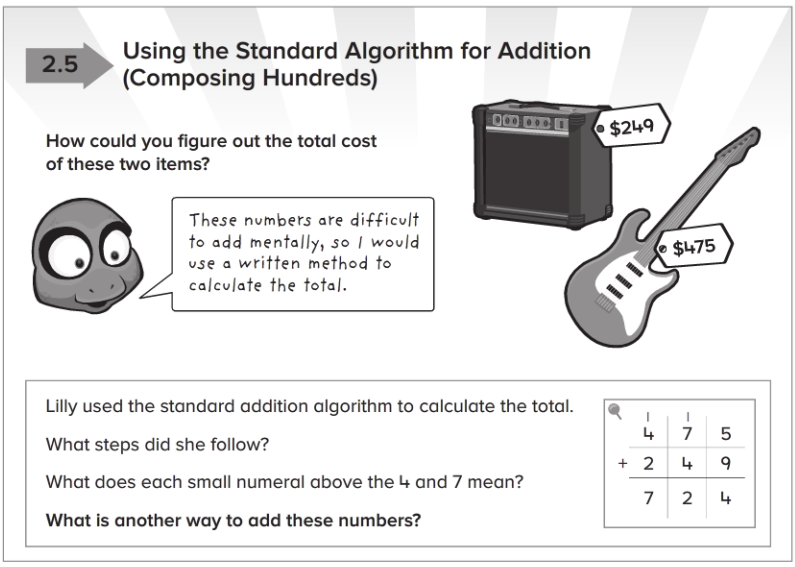
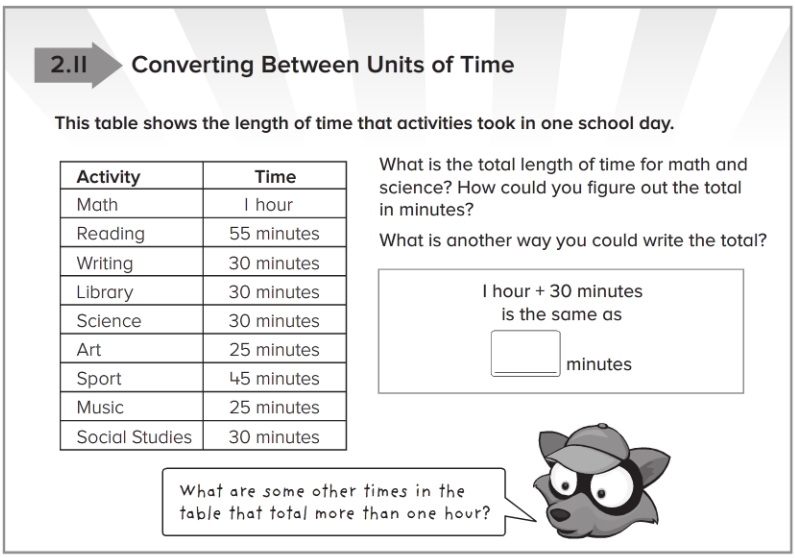
- Students round to solve addition and subtraction problems based on real-life situations. They estimate purchase prices then calculate exact solutions using composing and decomposing strategies.



In this lesson, students use written methods (algorithms) to solve for exact totals.

Time

- In earlier grades, students were introduced to reading and writing times to the nearest minute before and past the hour, and to solving problems that involve elapsed time on analog and digital clocks.
- Students will extend their skills to include converting between minutes and hours, and seconds and minutes.
- Work with elapsed time in hours, minutes and seconds.



In this lesson, students practice elapsed time, and convert between minutes and hours.

Glossary

- What was called "carrying" is now regrouping because numbers are regrouped into new place values in order to combine the quantities. E.g. 59 + 38 = 80 + 17 = 90 + 7 = 97.

	H	T	O
	4	2	8
+	2	6	2

- The standard addition algorithm is the familiar paper-and-pencil procedure for adding multi-digit numbers that most adults were taught in school.
- In the algorithm, the 17 is regrouped into 1 ten and 7 ones; the 1 ten is regrouped into the tens column.
- Base-10 blocks are used to model the regrouping and recording process.

Ideas for Home

- Talk about time as often as possible, e.g. say, "It's 7:55. We must leave for school at 8:30 — can you figure how much time until then?" or "The bus will come at 2:30. See how my watch says 2:24? So how many more minutes until the bus will arrive?" Constant practice is important for helping your child learn to read, write, and make sense of time.