

Unit 3

Family Letter

Reveal
MATH[®]

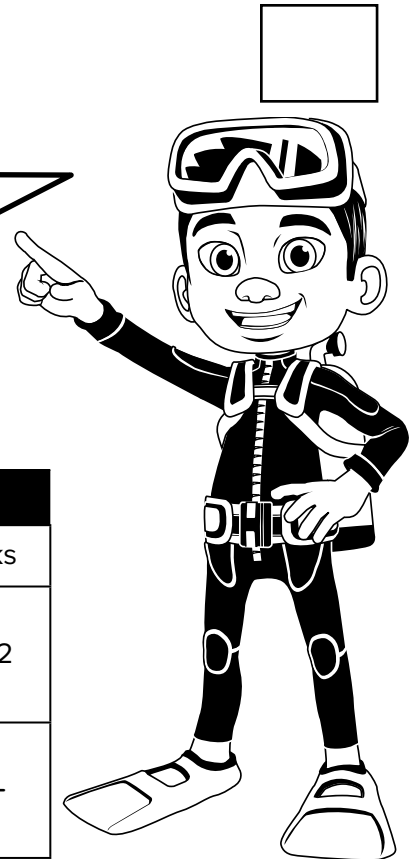
Dear Family,

In this unit, *Addition and Subtraction Strategies and Algorithms*, your child will learn how to add and subtract multi-digit numbers.

STEM Career Kid for this Unit

Hi, I'm Hiro.

I want to be an ocean engineer. I will use math in my job when I add the weights of different animals. I'll show students how to add multi-digit numbers in my work.



What math terms will your child use?

Term	Student Understanding
algorithm	a set of steps, that if done correctly, always works
estimate	a number close to an exact value. An estimate indicates about how much. For example, $47 + 22$ is about $50 + 20$, or 70.
decompose	to break down a number into smaller parts; For example, 275 can be decomposed as $200 + 70 + 5$.
multi-digit	a number that is made up of more than one number



What can your child do at home?

Have your child create a book (staple together notebook or printer paper) about the algorithms and strategies used in this module. Each time your child learns a new addition or subtraction strategy or algorithm, have him or her write a description of it on one page of his or her book. Each page should also include a worked-out addition or subtraction problem that was solved by using the algorithm or strategy described on that page.

What Will Students Learn in This Unit?

Estimating Sums or Differences

Your child will learn how to make reasonable estimates for sums or differences. Students learn how to use rounding, compatible numbers, and ranges to estimate. Estimating sums or differences allows students to determine if an answer is reasonable.

Example

Estimate $4,873 + 2,923$. Then use a calculator to find the actual sum.

- | | |
|-------------------------------------|--------------------------|
| Round to estimate. | $4,870 + 2,920 = 7,790$ |
| Use compatible numbers to estimate. | $4,875 + 2,925 = 7,800$ |
| Think about a range. | Between 7,700 and 7,900. |
| The actual sum is 7,796. | |

Using an Algorithm to Add

Your child will use an algorithm, or a set of steps, to find the sums of multi-digit whole numbers. Students will learn that they add the digits in the same place value from right to left. The ones are added, then the tens, then the hundreds, and so on. Students will also learn how to add when regrouping is required. Below are two examples of using an algorithm to add. The first problem requires no regrouping. The second problem requires regrouping.

Examples

$$\begin{array}{r} 7,035 \\ + 1,624 \\ \hline 8,659 \end{array}$$

$$\begin{array}{r} 11 \\ 14,943 \\ + 6,299 \\ \hline 21,242 \end{array}$$

Using an Algorithm to Subtract

Your child will use an algorithm to subtract multi-digit numbers. As with addition, subtraction with an algorithm is done right to left, starting with the ones place. Students will learn that regrouping is sometimes necessary in subtraction. Regrouping is required when the digit being subtracted from is less than the digit being subtracted. Below are two examples of using an algorithm to subtract. The first requires no regrouping. The second example requires regrouping.

Examples

$$\begin{array}{r} 8,525 \\ - 7,103 \\ \hline 1,422 \end{array}$$

$$\begin{array}{r} 14 \\ 29,412 \\ - 16,501 \\ \hline 12,911 \end{array}$$