

Core Focus

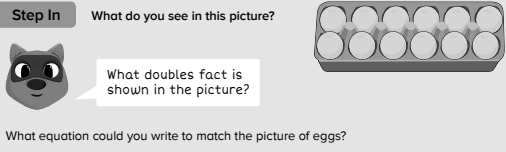
- Multiplication: Introducing the twos and fours facts and solving word problems
- Number: Comparing, rounding, and ordering two-, three-, and four-digit numbers

Multiplication

- Since Grade 1, students have been practicing **doubles** facts in addition, so two multiplication facts are a familiar concept. If they already know $3 + 3$, then 2×3 , or *double 3*, should be straightforward.

3.1 Multiplication: Introducing the twos facts

Step In What do you see in this picture?



What doubles fact is shown in the picture?

What equation could you write to match the picture of eggs?


In this lesson, students use the doubles strategy to multiply by 2.

- Mastery of multiplication/division facts is the goal in Grade 3. Strategies provide flexible and efficient ways to solve problems and extend mental math skills beyond the facts.
- Knowing that 2×3 is 6, for example, means students can extend twos facts to solve problems such as 2×30 is 60, or *double 30 is 60*.
- Mentally solving more complex problems such as 2×34 follows by pulling apart the tens and ones into $30 + 4$, and then thinking $(2 \times 30) + (2 \times 4)$, so $2 \times 34 = 60 + 8 = 68$.
- Fours facts build on twos facts. Since twos facts are solved by doubling, then the fours facts relate to *double double*.


3.4 Multiplication: Introducing the fours facts

Step In There are six jelly beans in each bag.

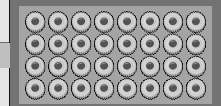
How can you figure out the total number of jelly beans without counting each one?



Think **double double** to multiply by 4.
Double 6 is 12.
Double 12 is 24.
So, $4 \times 6 = 24$.



Use the same thinking to figure out how many cookies are on this tray.



Complete this sentence to match.

In this lesson, students use the pattern of doubling to learn how to efficiently multiply by four, i.e. doubling and then doubling again.

Ideas for Home

- Connect twos facts to familiar situations. E.g. two hands show $2 \times 5 = 10$ (or, double 5 is 10); an egg carton shows $2 \times 6 = 12$ (or, double 6 is 12), and two weeks on a calendar show $2 \times 7 = 14$. Extend to fours facts by asking, "How many days are there in 4 weeks?"
- Practice the twos and fours doubling facts. E.g. ask, "What is 4×7 ?" When they answer "28," ask your child to explain using the doubling strategy. E.g. "I know that double 7 is 14 and double 14 is 28, so 4×7 is 28."

Glossary

- ▶ **Doubling** is a mental calculation approach to multiplication. Students learn to look for patterns, which is part of developing algebraic thinking. The doubling pattern is one of the first patterns students learn.

Helpful videos

View these short one-minute videos to see these ideas in action.

www.bit.ly/OI_28

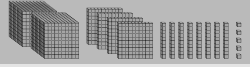
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Number


- Once base-10 place value is understood for numbers up to several hundreds, students know nearly everything necessary to work with four-digit numbers.
- Students learn to read, write, draw, compare, and order these four-digit numbers using familiar and new models, including a **numeral expander**.

3.8 Number: Working with place value


Step In What number do these blocks show?



Write the number on this expander.



How do you read the number?




In this lesson, students work with four-digit place values.

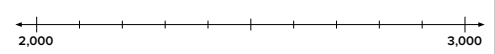
- When rounding numbers to the nearest ten, hundred, or thousand, students visualize where numbers are on a number line to understand the *concept* of rounding instead of focusing on so-called “rounding rules.”
- Tens, hundreds, and thousands are important benchmarks in the base-10 number system. Knowing where other numbers are in relation to these benchmarks on a number line makes rounding and comparing more concrete.

3.10 Number: Comparing and ordering three- and four-digit numbers

Step In How can you figure out which number is greater?



Which place would you look at first to mark the numbers on this number line?



In this lesson, students use a number line to compare and order four-digit numbers.

Ideas for Home

- Reinforce place-value language by asking, “How many *thousands*, *hundreds*, *tens*, and *ones*?”
- Ask your child to read numbers aloud. Sources include the number of views on a favorite online video or scores on a video game.

Glossary

- ▶ A **numeral expander** is a physical and mental tool that shows how each position in a number represents a designated place value.

