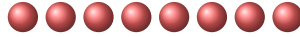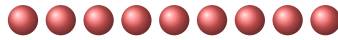# EVEN AND ODD NUMBERS

A PARTNERS FOR EVERYONE?

Discover: Let's investigate a property of numbers! Imagine you have some marbles to share equally between yourself and a friend, so you can both have the same amount.

- First, imagine you have **8** marbles. Can you share them equally with no marbles left over?

- Now, what if you have **9** marbles? Can you still share them equally?

Answer:

- With 8 marbles, you can make two equal groups of 4. There are no marbles left over!

  Your friend

  You

- With 9 marbles, you can each get 4, but there is always 1 marble left over.

  Your friend

  You

  Left over

This shows us the difference between two types of numbers. Numbers that can be shared equally into two groups are **even**. Numbers that have one left over are **odd**.

> Definition **Even and Odd Numbers**
> - An **even number** is a number that can be split into **two equal groups** or where every item has a partner. Nothing is left out.
>   Examples: $0, 2, 4, 6, 8, 10, 12, \ldots$
>
> - An **odd number** is a number that cannot be split into two equal groups or one item will always be left without a partner.
>   Examples: $1, 3, 5, 7, 9, 11, 13, \ldots$

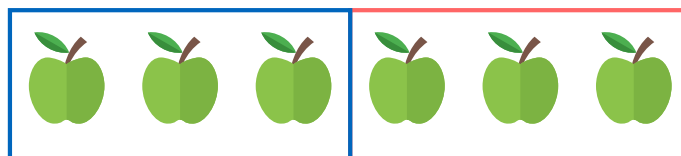**Handy Tip:** Look at the last digit!

- Numbers ending in **0, 2, 4, 6, or 8** are always **even**.
- Numbers ending in **1, 3, 5, 7, or 9** are always **odd**.

Ex: Is 6 even or odd?

Answer: The number 6 is **even**. We can see this in two ways:

- We can make 2 equal groups of 3 with no apples left over.

- We can make 3 pairs with no apples left over.

2