WHOLE NUMBERS

A DEFINITIONS

Definition Base 10 system

In the base 10 system, the place of a digit in a number determines its value. We can represent the number 32 354 in several ways:

- **With digits**:

$$32\,354$$

- **In expanded form**:

$$\begin{array}{lllll} 3 \text{ ten-thousands} + & 2 \text{ thousands} + & 3 \text{ hundreds} + & 5 \text{ tens} + & 4 \text{ ones} \\ 30\,000+ & 2\,000+ & 300+ & 50+ & 4 \\ 3 \times 10\,000+ & 2 \times 1\,000+ & 3 \times 100+ & 5 \times 10+ & 4 \times 1 \end{array}$$

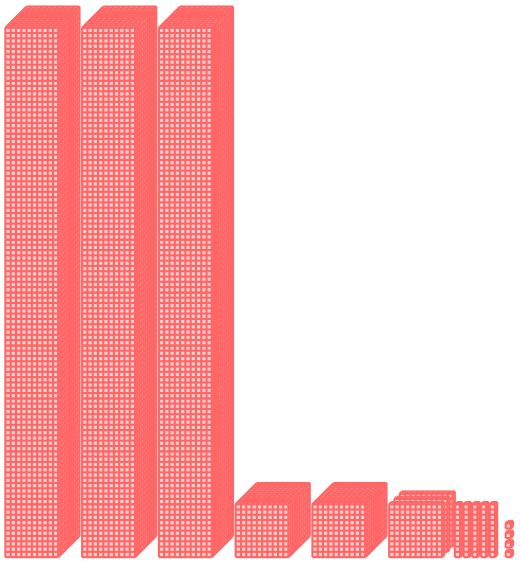
- **With words**:

thirty-two thousand three hundred fifty-four

- **In a table**:

Ten-Thousands	Thousands	Hundreds	Tens	Ones
3	2	3	5	4

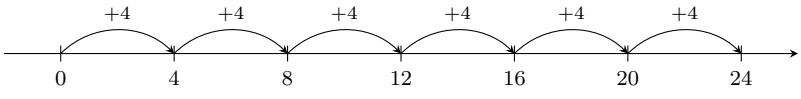
- **With cubes**:



B ON THE NUMBER LINE

Definition Number Line

A **number line** is a line that shows numbers in order. Moving right adds by same number.



C BIG NUMBERS

Definition **Understanding Place Value**

Big numbers are written using the place value system:

- **A thousand** is 1 000 ones, or 1 000.
- **A million** is 1 000 thousands, or 1 000 000.
- **A billion** is 1 000 millions, or 1 000 000 000.

We can write a number in three ways:

- **With digits:**

340 120 000 000

- **With words:**

three hundred forty billion one hundred twenty million

- **In a table:**

billions			millions			thousands			units		
H	T	U	H	T	U	H	T	U	H	T	U
3	4	0	1	2	0	0	0	0	0	0	0