

Understand the place value system (Standards 5.NBT.1–4).

**Standard 5.NBT.1- Recognize** that in a **multi-digit number**, a **digit** in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

In this standard the action verb is to recognize.

**Key Element: 4th grade only uses whole numbers. Students need a basic understanding of digits and numbers. To build on this understanding is numbers with decimals but the basic understanding on 10 ones = 1 ten, 10 tenths = 1 one**

Core progression-<http://www.corestandards.org/Math/Content/NBT/>

Key idea- Understanding expanded form-

$1,234 = 1 \times 1,000$  or  $1 \times 10 \times 10 \times 10 + 2 \times 100$  or  $2 \times 10 \times 10 + 3 \times 10 + 4 \times 1 = 4$ th grade

Videos- [https://learnzillion.com/lesson\\_plans/4766-recognize-place-value-relationships-by-multiplying-and-dividing-by-ten#lesson](https://learnzillion.com/lesson_plans/4766-recognize-place-value-relationships-by-multiplying-and-dividing-by-ten#lesson)

<https://www.khanacademy.org/math/cc-fifth-grade-math/cc-5th-place-value-decimals-top/cc-5th-intro-powers-of-ten/v/powers-of-10>

See 4th Grade 4.NBT.1 for a model

### Activity

$555 = 5$  one hundreds and 5 tens and 5 ones

555 - starting on the left side vertically write digits, fill the rest of the place values with zeros and repeat until the number has been completed.

Example-

$500 = 5 \times 100 = 5 \times 10 \times 10$

$\_50 = 5 \times 10$

$\_ \_5 = 5 \times 1$

(think about deleting this model, use 4th grade instead)

one Thousands	Hundreds	Tens	Ones
3	3	3	3
$\_ ,000$	$\_00$	$\_0$	$\_$

3,000	300	30	3
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**10 Times Greater than the Place to the Immediate Right** - Identify the value of the digits and place in the table according to its place value. Students will look at each digit and identify the difference in value from one digit to another.

**888,888**

Thousands			Ones		
Hundred	Ten	One	Hundred	Tens	Ones
8	8	8,	8	8	8

10X Greater    10X Greater    10X Larger    10X Larger    10X Larger  
 Example:

80,000 X 10 = 8 X 100,000 =	8,000 X 10 = 8 X 10,000 =	800 X 10 = 8 X 1,000 =	80 X 10 = 8 X 100 =	8 X 10 =	8 X 1 =
800,000	80,000	8,000	800	80	8

**Looking at patterns-** This allows student to predict within a pattern thus recognize. Extend to 5th grade each place value beyond ones to tenths.

55,555.5

$$50,000.0 = 5 \times 10,000.0$$

$$05,000.0 = 5 \times 1,000.0$$

$$00500.0 = 5 \times 100.0$$

$$00050.0 = 5 \times 10.0$$

$$00005.0 = 5 \times 1.0$$

$$00000.5 = 5 \times 0.1$$

**Use of metrics - manipulatives**

$$10 \text{ mm} = 1 \text{ cm}$$

$$10 \text{ cm} = 1 \text{ dm}$$

$$10 \text{ dm} = 1 \text{ m}$$

### Metric Units of Length

<b>1 dekameter (dam) = 10 meters</b> <b>1 hectometer (hm) = 100 meters</b> <b>1 kilometer (km) = 1,000 meters</b>  <b>1 meter = 10 decimeters (dm)</b> <b>1 meter = 100 centimeters (cm)</b> <b>1 meter = 1,000 millimeters (mm)</b>	<b>1 meter = 0.1 dekameter</b> <b>1 meter = 0.01 hectometer</b> <b>1 meter = 0.001 kilometer</b>  <b>0.1 meter = 1 decimeter</b> <b>0.01 meter = 1 centimeter</b> <b>0.001 meter = 1 millimeter</b>
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### Units of Length

kilometer	hectometer	dekameter	meter	decimeter	centimeter	millimeter
km	hm	dam	m	dm	cm	mm
$10 \times 10 \times 10 \times$ larger	$10 \times 10 \times$ larger	$10 \times$ larger	1 m	$10 \times$ smaller	$10 \times 10 \times$ smaller	$10 \times 10 \times 10 \times$ smaller
1 km = 1,000 m	1 hm = 100 m	1 dam = 10 m		10 dm = 1 m	100 cm = 1 m	1,000 mm = 1 m