

# Mathematics CFA

## Pre-Instruction

1. List the Standard. Underline the nouns (what students will know) and highlight the verbs (what student will do):

5.NBT.2-Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.

2. Mathematical Practices

- #1-Make sense and persevere in solving them
- #2-Reason abstractly and quantitatively
- #3-Construct viable arguments and critique the reasoning of others
- #6-Attent to precision
- #7-Look for and make use of structure

3. I Can Statements – Put learning targets in student friendly terms.

I can explain patterns in the number of zeros when multiplying a number by a power of 10.  
I can use exponents to denote a whole number.  
I can multiply or divide by the powers of 10.  
I can place a decimal point in the proper position when a decimal is multiplied or divided by a power of 10.

Depth of Knowledge of the standard (Highlight the Level of the Learning Target):

Level 1 Recall; Level 2 – Skill/Concept; **Level 3 – Strategic Thinking; Level 4 – Extended Thinking**

4. List the skills students need to know in order to begin this standard:

1. What is a product?
2. What is meant by powers of 10?
3. Explain patterns in numbers of zeroes of a product.
4. Explain placement of decimal point after division/multiplication by a power of 10.

5. What type of assessment am I going to write? [selected response (m/c, t/f, y/n, matching, fill in \_\_\_) **or** constructed response (**short:** word, phrase, sentence, single problem; **extended:** multi-step operations in math, problem solving)] List the assessment questions.

Constructive Response:

- 1) Explain why the following multiplication and division problems by powers of 10 make sense.
  - $366 \times 10 = 366 \times 10^1 = 3,660$
  - $3.66 \times 10 \times 10 = 3.66 \times 10^2 = 366$
  - $366 \times 10 \times 10 \times 10 = 366 \times 10^3 = 366,000$
- 2) How many 100's are in 1,000,000?
- 3) The distance from Venus to the Sun is over 100,000,000 kilometers. What is the distance written in powers of 10?

6. Scoring Guide

**Exceeds Expectations:** Students answered 3 out of 3 correctly; more than one detailed explanation is provided.

**Proficient:** Students answered 3 out of 3 correct, with correct explanations.

**Approaching Proficiency:** Students answered 2 out of 3 correctly.

**Not Proficient:** Students answer less than 2 correctly. Little concept of standard.

Name \_\_\_\_\_

Date \_\_\_\_\_

Power Standard: 5.NBT. 2

Directions: Construct your response to the following questions.

Constructive Response:

1. Explain why the following multiplication and division problems by powers of 10 make sense.

$$366 \times 10 = 366 \times 10^1 = 3,660$$

$$3.66 \times 10 \times 10 = 3.66 \times 10^2 = 366$$

$$366 \times 10 \times 10 \times 10 = 366 \times 10^3 = 366,000$$

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2. How many 100's are in 1,000,000?

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3. The distance from Venus to the Sun is over 100,000,000 kilometers. What is the distance written in powers of 10?

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Power Standard: 5.NBT.2-Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.

### Tracking Sheet

Class: \_\_\_\_\_ Grade: 5

Student	1 <sup>st</sup> Attempt				2 <sup>nd</sup> Attempt				3 <sup>rd</sup> Attempt			
	Not Proficient	Approaching Proficiency	Proficient	Exceeds Expectations	Not Proficient	Approaching Proficiency	Proficient	Exceeds Expectations	Not Proficient	Approaching Proficiency	Proficient	Exceeds Expectations

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