[***Arithmetic***](https://phet.colorado.edu/en/simulation/arithmetic) **‌Lab ‌**

**(This‌ ‌lesson‌ is designed ‌for‌ ‌a‌ ‌student‌ ‌working‌ remotely‌.)‌**

This lab uses the **Arithmetic** simulation from PhET Interactive Simulations at University of Colorado Boulder, under the CC-BY 4.0 license.

<https://phet.colorado.edu/en/simulation/arithmetic>

**Learning Goals:** Students will be able

* Explain how the multiplication tables help understand multiply, factor and divide.
* Increase accuracy in multiplying, factoring and dividing.

**Part A: Explore and make sense of Multiply, Factor, and Divide**

1. Play the [***Multiply***](https://phet.colorado.edu/sims/html/arithmetic/latest/arithmetic_en.html?screens=1) game for a few minutes.
	1. Write a strategy for using the table to get a high score:



* 1. Test your strategy by playing the game until the table is completely filled in.When you complete the game, capture the screen with your score and paste it below:
	2. Did you have to change your strategy or do you have other ideas to make you get a better score?
1. Play the [***Factor***](https://phet.colorado.edu/sims/html/arithmetic/latest/arithmetic_en.html) game for a few minutes.
	1. Write a strategy for using the table to get a high score.
	2. Test your strategy by playing the game until the table is completely filled in.When you complete the game, capture the screen with your score and paste it below:
	3. Did you have to change your strategy or do you have other ideas to make you get a better score?
	4. How does Multiplying compare to Factoring?
2. Play the [***Divide***](https://phet.colorado.edu/sims/html/arithmetic/latest/arithmetic_en.html) game for a few minutes.
	1. The Game is called “Divide”, so why can the math problem looks like this:



* 1. What clues can you get from the table to help you get a good score? 
	2. Test your thinking by playing the game until the table is completely filled in.When you complete the game, capture the screen with your score and paste it below:
	3. Did you have to change your strategy or do you have other ideas to make you get a better score?
1. Describe in your own words how multiplying, factoring, and dividing are related.
2. Each game has three levels. Explore to see what makes each Multiply level more difficult..



Explain what makes the levels more difficult or different:

1. Explore each level of **Factor**  and **Divide** game. Explain what makes the levels more difficult or different: Did you have to change your strategies or do you have other ideas to make you get a better score?

**Part B: Show your Skills**

Play each level of each game. Copy and paste your final results like this



**Extra challenge:** For an extra challenge, you can turn on the timer  and see if you can improve your skills.