**Unit:** \_\_\_\_ **DA: Dimensional Analysis** Last Name, first Name: \_\_\_\_\_\_\_­­­­\_\_\_\_\_­­­­­­\_\_\_\_­­­\_\_\_­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_ Period: \_\_\_\_

**Objective:** Students will use terminology and units they are familiar with (money and time) in order to learn the process of problem-solving using dimensional analysis so they can solve mole calculation problems in chemistry.

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| **Topic** | Molar Conversion |
| [**SC.CH.5.2**](http://165.248.72.55/hcpsv3/imr/report_by_code.jsp?code=SC.CH.5.2) | Calculate the number of moles needed to produce a given gas, volume, mass, and/or number of moles of a product given a chemical equation |

HI-Standard (in preparation for learning the following:)

1. With your group, please make a dollar for each set of coins. Discuss with your group if the dimes and the nickels measure the same thing. Now, write a mathematical relationship showing this.

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| My mathematical relationship: | A different mathematical relationship than mine: |

1. Discuss in your groups if the two fractions shown on the prezi equal the same amount.

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| I think:  because | My group thinks:  because |

Based on the whole-class discussion, is your answer different? Please revise your answer in the space below.

**Definition**: Conversion factors change something to a different version or form. A factor is something that brings results or a cause, while conversion is the action of changing the “version” of a thing. In math (algebra), a conversion factor is used to convert a measured quantity to a different unit of measure without changing the relative amount. To accomplish this, a ratio (fraction) is established that equals one (1). In the ratio, the conversion factor is a multiplier that, when applied to the larger unit, converts the larger unit into the smaller unit, by multiplication with the measured amount.

It’s a proportion! Check it out…

1. Write a conversion factor for…

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| --- | --- | --- | --- | --- |
| Dimes and Quarters in 1 dollar | Seconds in 1 minute | Days in 1 year | Years in 1 decade | Decades in 1 century |

1. Criss-Cross Applesauce! (need your colored pencils) Follow along with the demonstration.

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1. Let’s Practice together…How many seconds are there in 2.5 hours?

Conversions:

60 seconds = 1 minute 365 days = 1 year

1 hour = 60 minutes 1 day = 24 hours

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1. Now, it’s your turn…How many seconds are there in 1 day?

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1. How many seconds are there in 1 decade?

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**Bet you didn’t know…**A fig "fruit" is derived from a specially adapted type of [inflorescence](http://en.wikipedia.org/wiki/Inflorescence) (an arrangement of multiple flowers). In this case, it is an involuted, nearly closed receptacle with many small flowers arranged on the *inner* surface. Thus the actual flowers of the fig are unseen unless the fig is cut open. The flowers are pollinated by [very small wasps](http://en.wikipedia.org/wiki/Fig_wasp) that crawl through the opening in search of a suitable place to lay eggs. Without this pollinator service fig trees could not reproduce by seed. In turn, the flowers provide a safe haven and nourishment for the next generation of wasps. This accounts for the frequent presence of wasp larvae in the fruit, and has led to a [coevolutionary](http://en.wikipedia.org/wiki/Coevolution) relationship.

Source: Wikipedia “*ficus*”

1. That’s a whole lot of numbers…How do you know what place to round to?