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| *Counting Atoms*  CλeMis+ry  you can see a periodic table at <http://genest.weebly.com> | http://static.giantbomb.com/uploads/original/0/6087/2437349-pikachu.png | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

NOTE: YOU WILL NEED A PERIODIC TABLE TO ANSWER MOST OF THESE QUESTIONS

1. Assume that pennies have a mass of 2.1 g for one penny. Recall that 1 gross is 144 things. Also, from today’s class notes, recall that 1 mole is 6.02x1023 things.
   1. What would be the mass of 501 pennies?

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1. How many pennies are there in 4.75 dozen pennies?

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1. How many pennies are there in 0.947 moles of pennies?\

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1. Assume that one mole of carbon atoms has a mass of 12.01 g. Also, from yesterday’s class notes, recall that 1 mole is 6.02x1023 things.

What would be the mass of 55.55 moles of carbon atoms?

|  |  |  |  |
| --- | --- | --- | --- |
|  | grams |  |  |
|  | moles |  |

1. How many carbon atoms are there in 0.00000004440 moles of carbon atoms?

|  |  |  |  |
| --- | --- | --- | --- |
|  | atoms |  |  |
|  | moles |  |

1. How many moles are there 560000000000000000000 carbon atoms?

|  |  |  |  |
| --- | --- | --- | --- |
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1. Suppose that 3.01 x1023  atoms of carbon are needed for a particular reaction. Set up a calculation to convert this number of carbon atoms to moles of carbon atoms.

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| --- | --- | --- | --- |
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1. Calculate the mass of 9.7 x1025 carbon atoms.

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| --- | --- | --- | --- | --- |
|  | moles | grams |  |  |
|  | atoms | moles |  |

1. We can also convert the other direction… A pencil contains 8.6 g of graphite (carbon). Change this from grams of carbon to atoms of carbon.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | moles | atoms |  |  |
|  | grams | moles |  |

1. How many atoms of carbon are there in 0.008324 g of carbon?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | moles | atoms |  |  |
|  | grams | moles |  |