

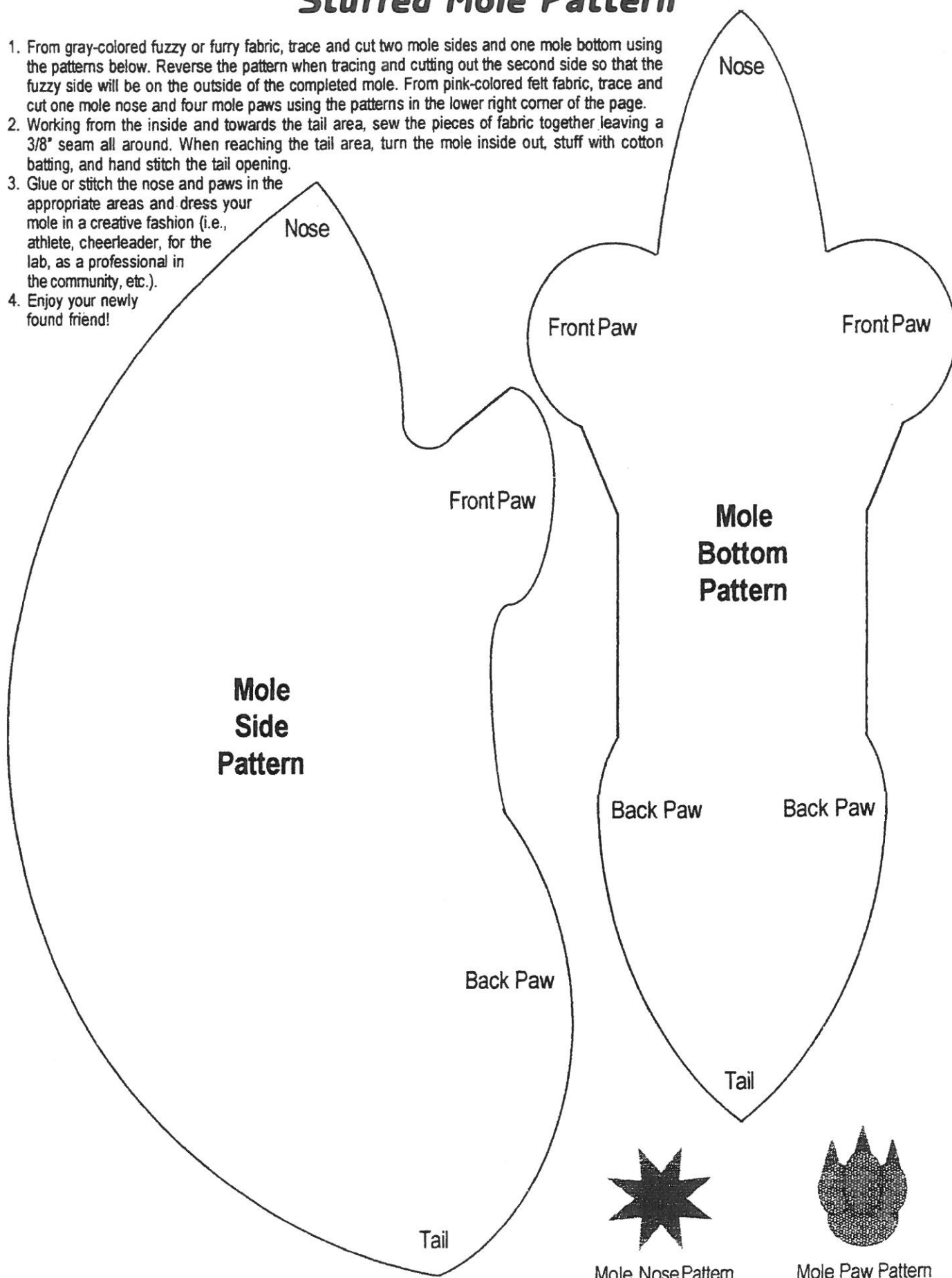
Mole Day Wordsearch

H G R K U N W Q W J B M R N Y K H F R G
 M O L E C U L E C A R B O N U A O R N Q
 S M P T N U O M A E S A E L E C T R O N
 S O B T M V S E L Q S W M U T H B E T T
 A L M T X X X E B P A S L S O E V A C G
 M A A D N G M A S U M A E W U M E C A S
 R R C I W E I J G Z C B G A Y I D T T T
 A M H Q N Z S X L I I L W T I C T A M L
 L A E T S H S Y Y G M E L O M A D N O N
 U S M I T X T C U D O R P M P L O T L F
 C S I M N F E U F A T P H S F S R M A X
 E K S Q E Z L U N F A Q Q O F U D Z R R
 L E T H M D B F J Z E G W O X B A N I L
 O P R J E Y G E Z M V U W Y T S G W T F
 M O Y V R K O Z V J I T I N U T O N Y M
 D T V H U W Y S Z T T I C Y V A V U V O
 W O F U S L H Q A O A U O X G N A L A P
 C S Z P A D C V R S L C P N S C P Z A W
 Z I B U E M S N T F E W N R I E G B E M
 Z P M G M D Y Y E Y R K M W N T J K M Z

chemistry	mole	measurement	unit	amount
chemicalsubstance	element	isotope	atom	molecule
ion	electron	carbon	avogadro	relativeatomicmass
reactant	product	molecularmass	molarity	molar mass

Stuffed Mole Pattern

1. From gray-colored fuzzy or furry fabric, trace and cut two mole sides and one mole bottom using the patterns below. Reverse the pattern when tracing and cutting out the second side so that the fuzzy side will be on the outside of the completed mole. From pink-colored felt fabric, trace and cut one mole nose and four mole paws using the patterns in the lower right corner of the page.
2. Working from the inside and towards the tail area, sew the pieces of fabric together leaving a 3/8" seam all around. When reaching the tail area, turn the mole inside out, stuff with cotton batting, and hand stitch the tail opening.
3. Glue or stitch the nose and paws in the appropriate areas and dress your mole in a creative fashion (i.e., athlete, cheerleader, for the lab, as a professional in the community, etc.).
4. Enjoy your newly found friend!



Element Word Search

Directions: Hidden in the puzzle below are the names of 40 common elements. The names may be spelled vertically, horizontally, backwards or diagonally. Some letters may be used in more than one name.

ALUMINUM
ANTIMONY
ARGON
BERYLLIUM
BORON
CALCIUM
CARBON
CHLORINE
COPPER
FLUORINE

GOLD
HELIUM
HYDROGEN
IODINE
IRON
KRYPTON
LEAD
LITHIUM
MERCURY
NEON

NICKEL
NITROGEN
OXYGEN
PALLADIUM
PHOSPHORUS
PLATINUM
PLUTONIUM
POTASSIUM
RADIUM
RADON

SILICON
SILVER
SODIUM
SULFUR
TIN
TITANIUM
TUNGSTEN
URANIUM
ZINC
ZIRCONIUM

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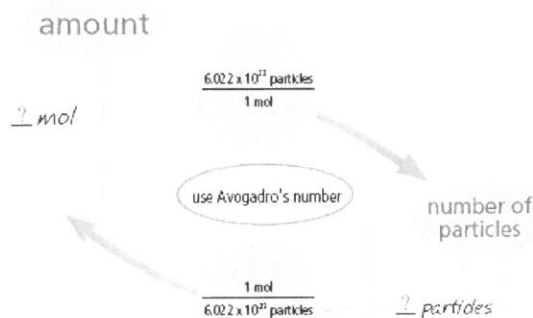
C I D L A B I R A G I K P O T A S S I U M B
C N I Z I C N S R X Z R C L N I U M D A E L
P I T I A O O H O O X Y O U I M O D A R B F
Z T I R A D R E L D M P U N R X C P Y A A I
C I B C K G O L D E I T G R Y Y H L I D B V
I O D O X O B I M P A O N E A G L U V I Y E
N A Z N I L Y U K E L N M L N I O T A U L X
Y C I I O M O M E R C U R Y U R R O N M O Y
N K M U N I T A L P V I R M N O I N O I N H
O L C M G K A R F P I S M U I O N I V L I Y
M N I T R O G E N L T O U T I X E U A O R D
I I I T K O S H M U I D A L L A P N O D A R
T I B I H L Y T A T U I V A F R R S D F S O
N C A L C I U M G O R U O R R U R H E L U G
A L U M I N U M N N A M R G A R R E L U R E
W A R G D O E M E I N L L O N A N R E O O N
I O D E R N R S D U I R B N K L I I N R H Z
R A G S I R E E R M U C N W E N A D N I P A
P E K D P U V N O M M N E T S G N U T N S H
N V O I S I L V E R E I N N E L Y R I E O A
N I C K E L I M U I N A T I T O T X S F H X
S I L I C O N S W O D A H S R E P P O C P Y
  
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SKILLS Toolkit

Converting Between Amount in Moles and Number of Particles

1. Decide which quantity you are given: amount (in moles) or number of particles (in atoms, molecules, formula units, or ions).
2. If you are converting from amount to number of particles (going left to right), use the top conversion factor.
3. If you are converting from number of particles to amount (going right to left), use the bottom conversion factor.



Questions from the PowerPoint lecture:

Using the information provided on Slide #3,

- 1 mole of any substance equals how many of that substance? _____
- 1 mole of water molecules contains how many H₂O molecules? _____
- 1 mole of copper contains how many copper atoms? _____
- 1 mole of carbon contains how many atoms? _____
- 1 mole of sodium chloride contains how many NaCl formula units? _____
 - How many Na⁺ ions? _____
 - How many Cl⁻ ions? _____
- 1 mole of sodium dichromate contains how many K₂Cr₂O₇ formula units? _____
 - How many K⁺ ions? _____
 - How many Cr₂O₇²⁻ ions? _____

In Summary:

1 mole of sucrose C₁₂H₂₂O₁₁ contains 6.022 x 10²³ molecules.

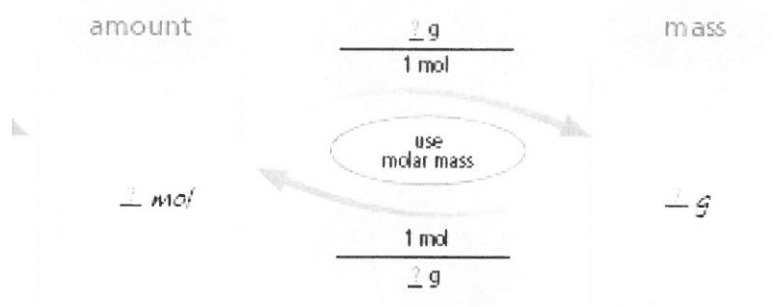
1 mole of KBr contains ___ mole of KBr formula units, ___ mole of K⁺ ions and ___ mole of Br⁻ ions

1 mole of CaCl₂ contains ___ mole of CaCl₂ formula units, ___ mole of Ca²⁺ ions and ___ moles of Cl⁻ ions.

What's the difference between C₁₂H₂₂O₁₁, CaCl₂ and KBr?

Practice

1. How many ions are there in 0.187 mol of Na^+ ions?
2. How many atoms are there in 1.45×10^{-17} mol of arsenic?
3. How many moles of xenon do 5.66×10^{23} atoms equal?
4. How many moles do 5.66×10^{25} lithium ions, Li^+ , equal?



Directions: Complete the following according to the lecture.

- 1) How many moles are in 15 grams of lithium?
- 2) How many grams are in 2.4 moles of sulfur?
- 3) How many moles are in 22 grams of $\text{Sr}(\text{OH})_2$?
- 4) How many grams are in 88.1 moles of NO_3 ?
- 5) How many moles are in 2.3 grams of NaCl ?

Moles, Molecules and Gram Conversions #3

Directions: Make the following conversions using the definitions listed below:

1 mole = molar mass of a substance

1 mole = 6.022×10^{23} of that substance

1. How many grams are in 5 moles of water? Fill in the blanks and solve. Don't forget units!!

$$\underline{\hspace{2cm}} \text{ moles} \left(\underline{\hspace{2cm}} \right) =$$

2. How many moles are in 327 grams of potassium oxide (K_2O)? Fill in the blanks and solve. Don't forget units!!

$$\underline{\hspace{2cm}} \text{ grams} \left(\underline{\hspace{2cm}} \right) =$$

3. How many grams are in 1.6 moles of sodium chloride ($NaCl$)? Fill in the blanks and solve. Don't forget units!!

$$\underline{\hspace{2cm}} \text{ moles} \left(\underline{\hspace{2cm}} \right) =$$

4. How many moles are in 27.2 grams of calcium hydroxide $Ca(OH)_2$? Fill in the blanks and solve. Don't forget units!!

$$\underline{\hspace{2cm}} \text{ grams} \left(\underline{\hspace{2cm}} \right) =$$

5. How many potatoes are in 1 mole of potatoes? Fill in the blanks and solve. Don't forget units!!

$$\underline{\hspace{2cm}} \text{ mole } \left(\underline{\hspace{2cm}} \right) =$$

6. How many molecules are in 5 moles of CO₂? Fill in the blanks and solve. Don't forget units!!

$$\underline{\hspace{2cm}} \text{ moles } \left(\underline{\hspace{2cm}} \right) =$$

7. How many molecules are in 500 grams of N₂O? Fill in the blanks and solve. Don't forget units!!

$$\underline{\hspace{2cm}} \text{ grams } \left(\underline{\hspace{2cm}} \right) \left(\underline{\hspace{2cm}} \right) =$$

7. How many grams are in 5.0×10^{28} molecules of N₂O? Fill in the blanks and solve. Don't forget units!!

$$\underline{\hspace{2cm}} \text{ molecules } \left(\underline{\hspace{2cm}} \right) \left(\underline{\hspace{2cm}} \right) =$$