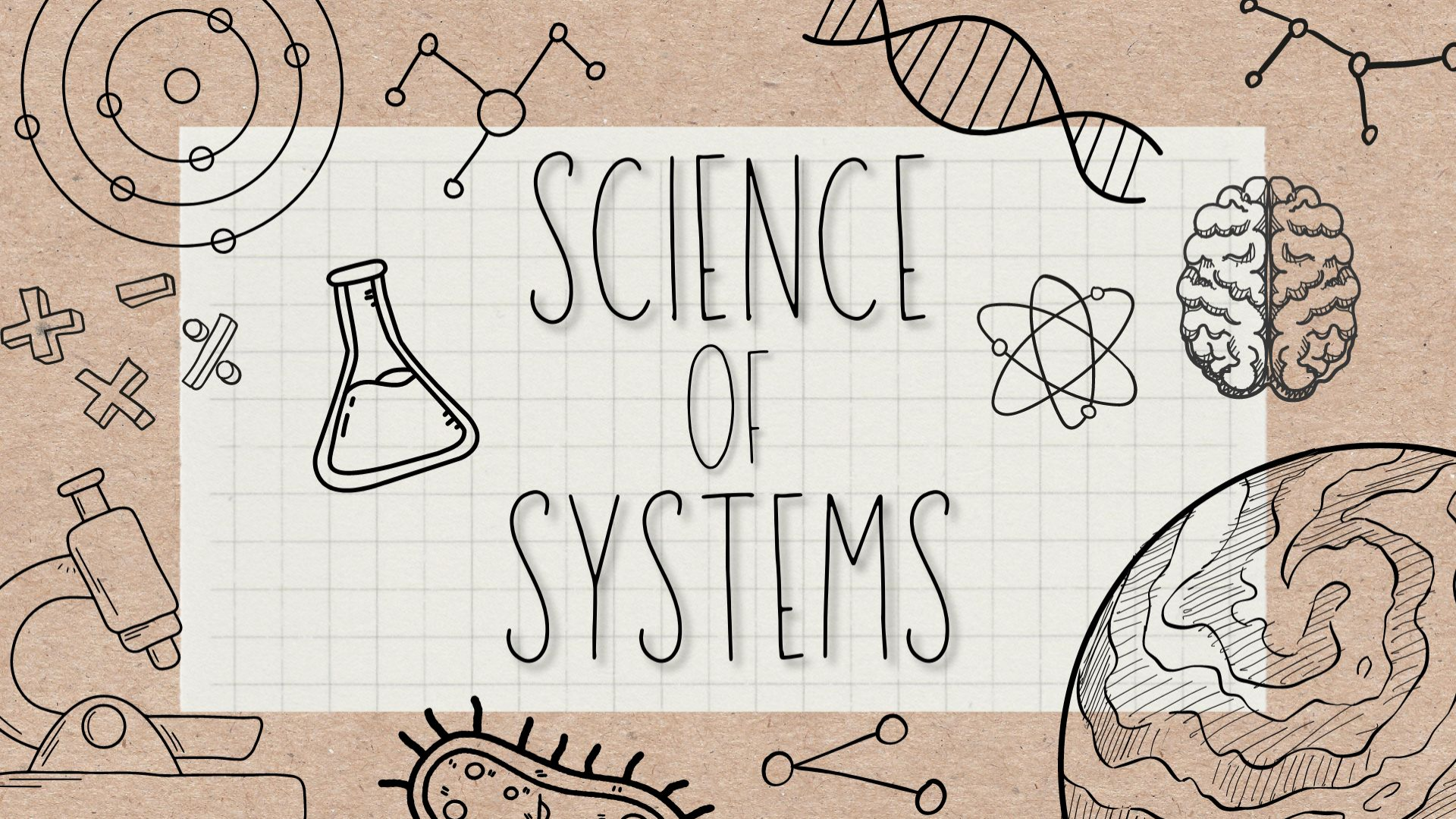
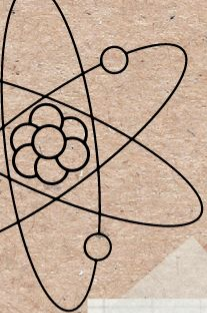


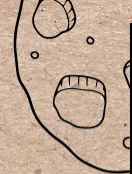
# SCIENCE OF SYSTEMS



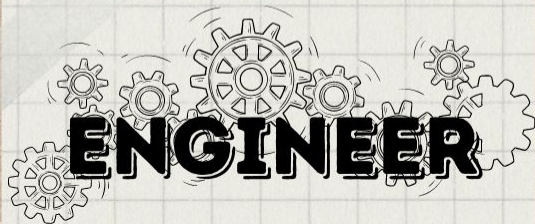




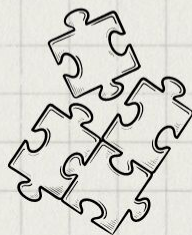
# SKILL STATIONS



Create



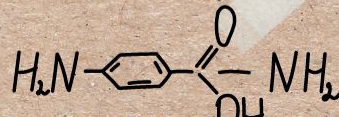
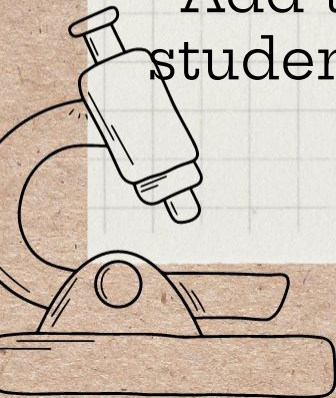
SOLVE



Add task or  
students here

Add task or  
students here

Add task or  
students here





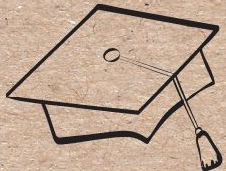


LET'S GET CURIOUS!





# HABITS OF A SCHOLAR

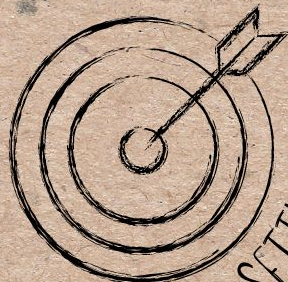


DIFFERENT PERSPECTIVES

CURIOSITY



PONDERING IDEAS



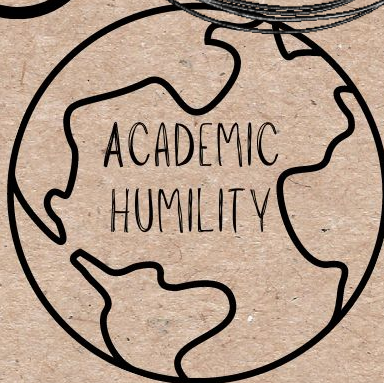
GOAL SETTING



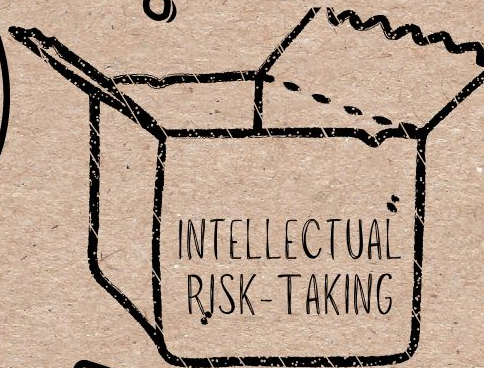
SAVING IDEAS



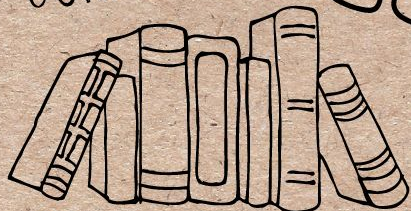
PREPARATION



ACADEMIC HUMILITY



INTELLECTUAL RISK-TAKING



VARIED RESOURCES



EXCELLENCE



PERSEVERANCE



SYSTEMS HAVE PARTS THAT  
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PARTS OF  
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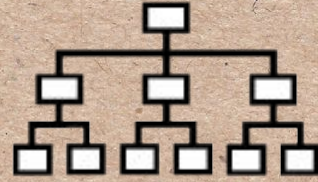
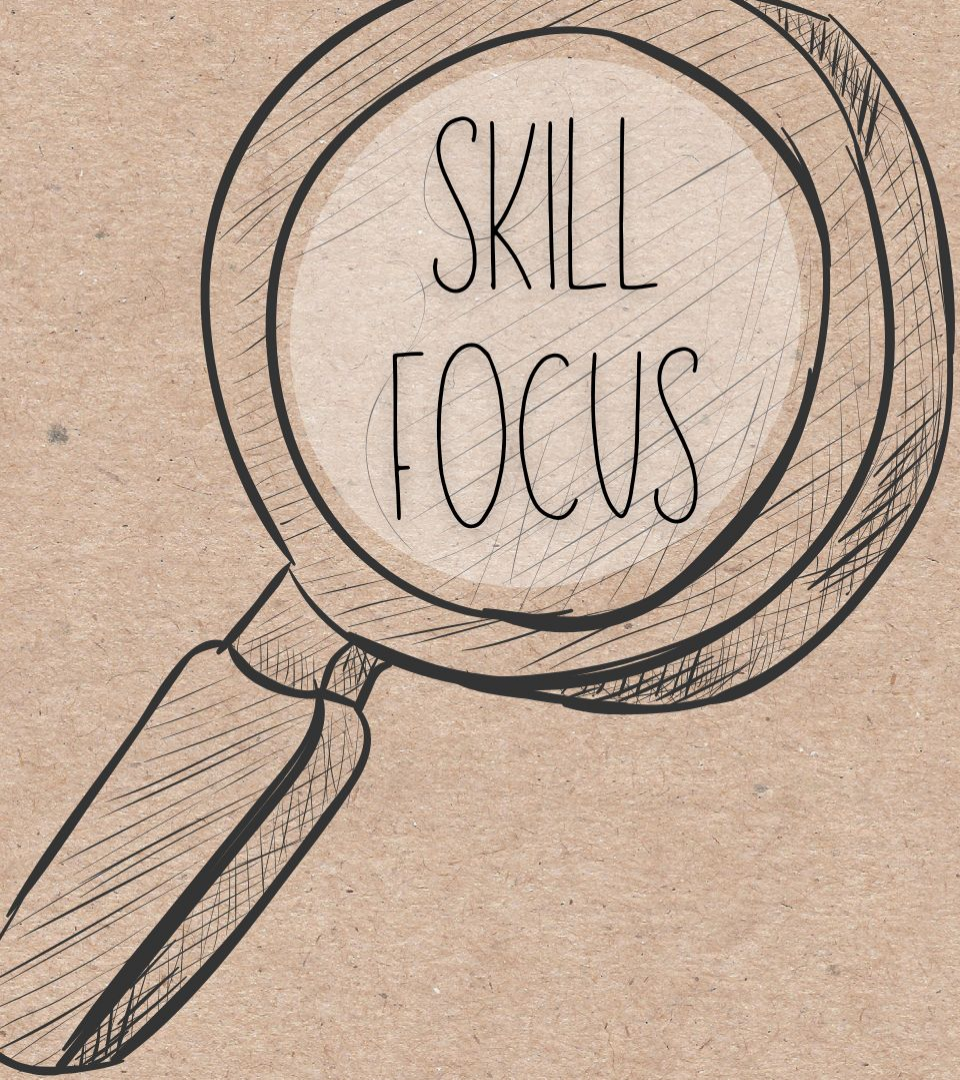
SYSTEMS  
FOLLOW  
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**SYSTEMS**   
GENERALIZATIONS

A SYSTEM MAY BE  
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OF SUBSYSTEMS.





# Rules

Laws, expectations,  
standards and  
methods within a  
given field.





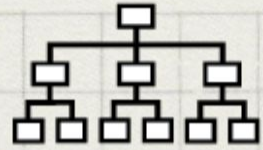
# Chemistry

the study of matter, analyzing its structure, properties and behaviour to see what happens when they change in chemical reactions.





# IS IT A SYSTEM?



DOES THE INTERACTION OF THE PARTS PRODUCE AN EFFECT THAT IS DIFFERENT FROM THAT OF ANY PART ON ITS OWN?

ARE THERE PARTS?

DOES IT MATTER HOW THE PARTS ARE ARRANGED?

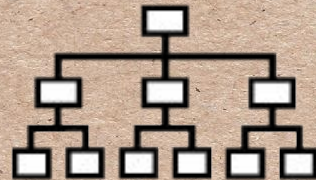
DO THE PARTS AFFECT EACH OTHER?

DOES THE BEHAVIOR OF THE SYSTEM CHANGE IF A PART IS TAKEN AWAY?





It's Slime  
Time!







# Slime #1

**Materials needed:** 1 bottle of elmer's glue, 1 tablespoon of baking soda, 2 tablespoons of contact solution, food coloring, ziploc bag

1. Add glue and food coloring to bowl. Squeeze the bottle of glue into a bowl. Add your food coloring if desired, and stir until combined.
2. Then mix in the baking soda.
3. Add 2 Tablespoons contact solution and mix until combined.
4. Using your hands, knead the slime until it holds together. It will be wet and gooey at first, but just keep kneading until it all comes together.
5. Store in a ziploc bag.





# Slime #2

**Follow the directions as a group to make your slime.**



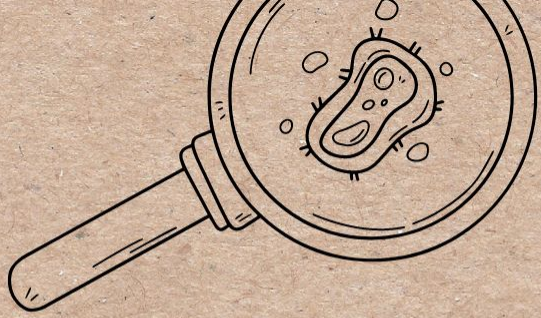


# Slime #3

**Materials needed:** 2/3 cup of Elmer's White Glue, 1/2 teaspoon Baking Soda, 1/4 Cup Water, 2-3 cups Shaving Cream (not gel), 1.5 Tablespoons Contact Lens Solution

1. Add glue to the bowl. Then add your water and baking soda. Then mix.
2. Add shaving cream. Then mix.
3. Add food coloring. Then mix.
4. SLOWLY add your contact solution. Add a little, then mix before adding a little more. Mix each time you add some.





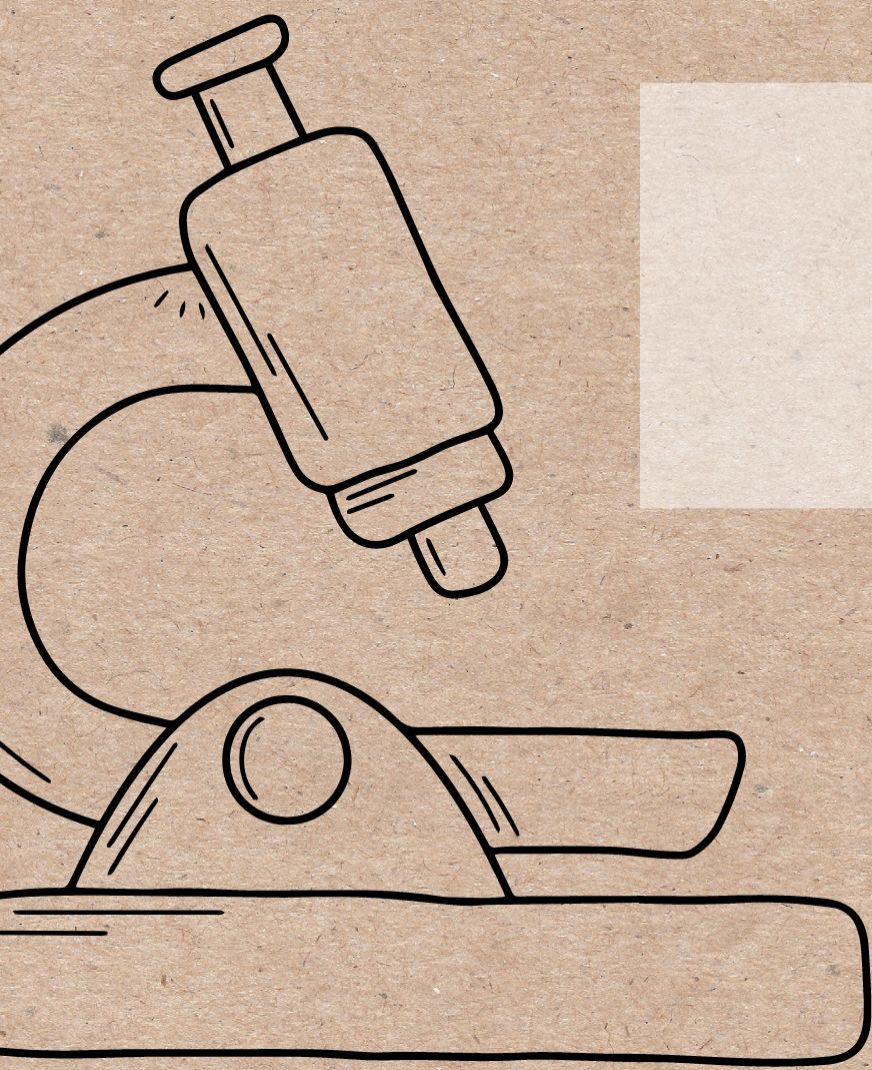
# LET'S REFLECT...

How did our breaking of the rule in Slime Lab #2 change the results?

How much change would happen in other recipes if rules were not followed?

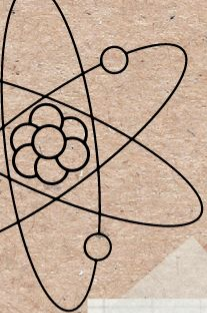
Defend the statement that "Systems Follow Rules."



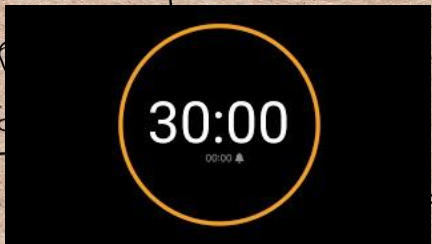
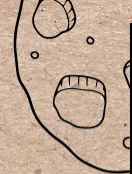


# Week 2





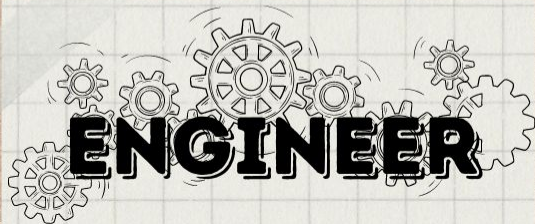
# SKILL STATIONS



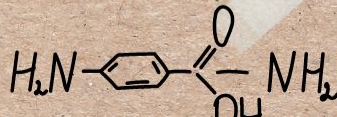
## Create



Create an  
element  
based on  
you.

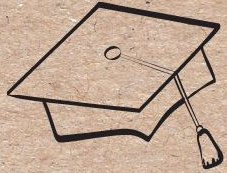


## SOLVE





# HABITS OF A SCHOLAR

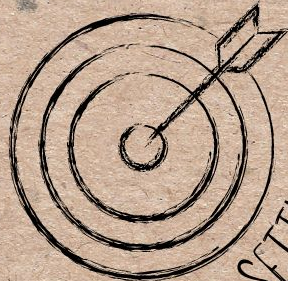


DIFFERENT PERSPECTIVES

CURIOSITY



PONDERING IDEAS



GOAL SETTING



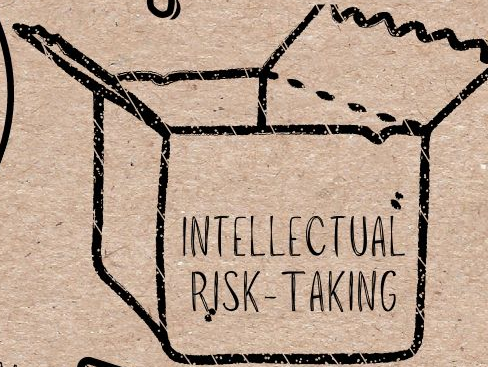
SAVING IDEAS



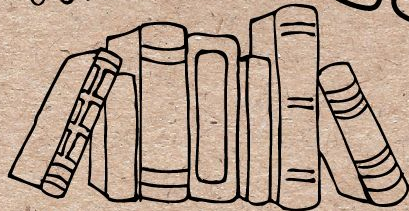
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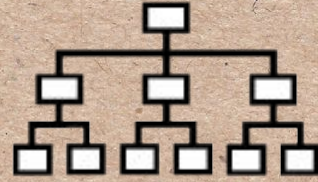
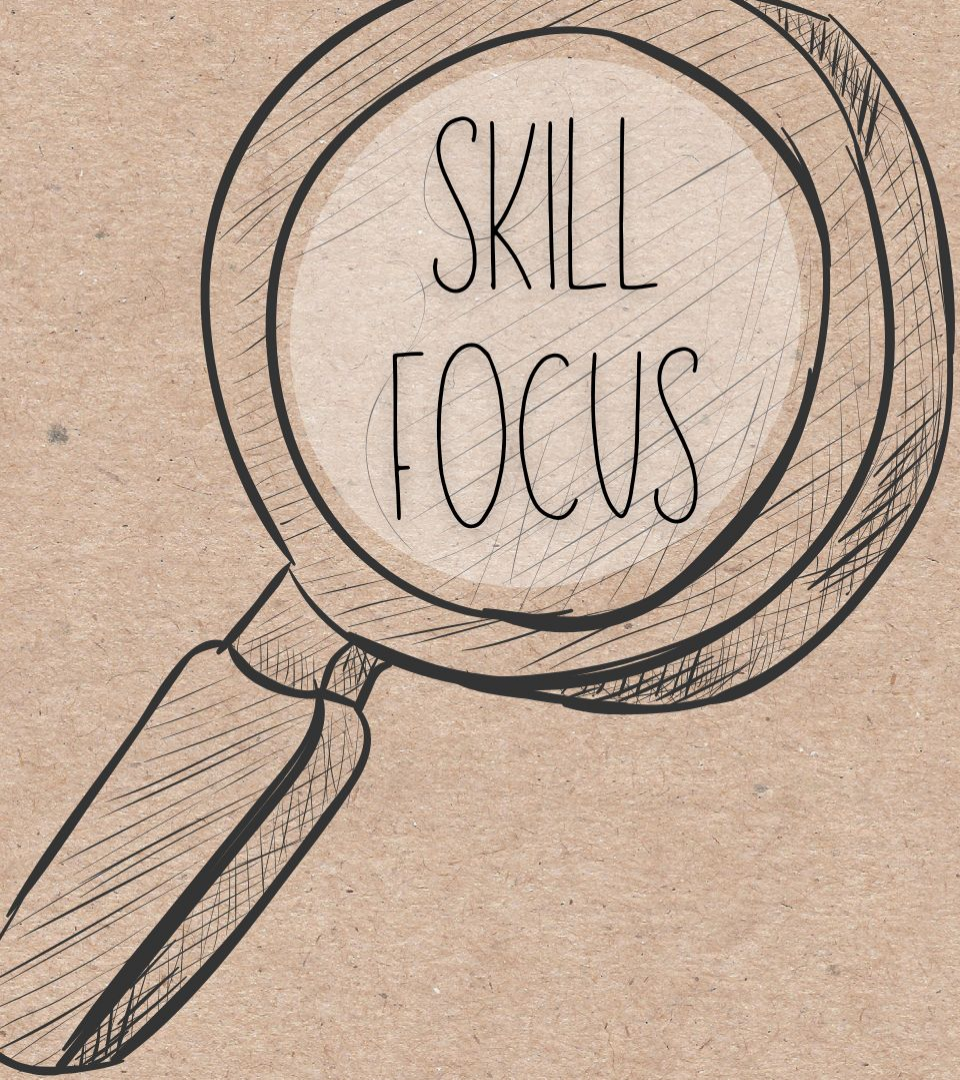
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# Rules

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given field.





# Chemistry

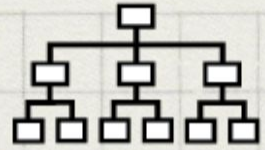
the study of matter, analyzing its structure, properties and behaviour to see what happens when they change in chemical reactions.



What chemistry and examples of systems did you see in the Curiosity?



# IS IT A SYSTEM?



DOES THE INTERACTION OF THE PARTS PRODUCE AN EFFECT THAT IS DIFFERENT FROM THAT OF ANY PART ON ITS OWN?

ARE THERE PARTS?

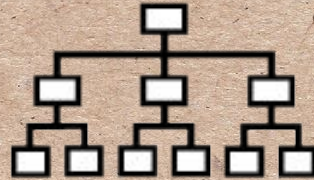
DOES IT MATTER HOW THE PARTS ARE ARRANGED?

DO THE PARTS AFFECT EACH OTHER?

DOES THE BEHAVIOR OF THE SYSTEM CHANGE IF A PART IS TAKEN AWAY?



# Periodic Table of Elements







BREAKOUT



# Periodic Table of Elements

## The Periodic Table of the Elements

Atomic Number      Atomic Weight

black solid      blue liquid  
red gas      white synthetically prepared  
most stable isotope

DA  
DESTINY'S AGENT  
#44007990321419  
www.destinysagent.com

1 1.01 <b>H</b> Hydrogen	2 4.00 <b>He</b> Helium																	3 4.00 <b>He</b> Helium
3 6.94 <b>Li</b> Lithium	4 9.01 <b>Be</b> Beryllium																	10 20.18 <b>Ne</b> Neon
11 22.99 <b>Na</b> Sodium	12 24.31 <b>Mg</b> Magnesium																	18 39.95 <b>Ar</b> Argon
19 39.10 <b>K</b> Potassium	20 40.08 <b>Ca</b> Calcium	21 44.96 <b>Sc</b> Scandium	22 47.90 <b>Ti</b> Titanium	23 50.94 <b>V</b> Vanadium	24 51.996 <b>Cr</b> Chromium	25 54.94 <b>Mn</b> Manganese	26 55.85 <b>Fe</b> Iron	27 58.93 <b>Co</b> Cobalt	28 58.70 <b>Ni</b> Nickel	29 63.55 <b>Cu</b> Copper	30 65.37 <b>Zn</b> Zinc	31 69.72 <b>Ga</b> Gallium	32 72.59 <b>Ge</b> Germanium	33 74.92 <b>As</b> Arsenic	34 78.96 <b>Se</b> Selenium	35 79.90 <b>Br</b> Bromine	36 83.80 <b>Kr</b> Krypton	
37 85.47 <b>Rb</b> Rubidium	38 87.62 <b>Sr</b> Strontium	39 88.91 <b>Y</b> Yttrium	40 91.22 <b>Zr</b> Zirconium	41 92.91 <b>Nb</b> Niobium	42 95.94 <b>Mo</b> Molybdenum	43 98.91 <b>Tc</b> Technetium	44 101.07 <b>Ru</b> Ruthenium	45 101.9 <b>Rh</b> Rhodium	46 106.40 <b>Pd</b> Palladium	47 107.87 <b>Ag</b> Silver	48 112.41 <b>Cd</b> Cadmium	49 114.82 <b>In</b> Indium	50 118.69 <b>Sn</b> Tin	51 121.75 <b>Sb</b> Antimony	52 127.60 <b>Te</b> Tellurium	53 126.90 <b>I</b> Iodine	54 131.30 <b>Xe</b> Xenon	
55 132.91 <b>Cs</b> Cesium	56 137.33 <b>Ba</b> Barium	•	72 178.49 <b>Hf</b> Hafnium	73 180.95 <b>Ta</b> Tantalum	74 183.85 <b>W</b> Tungsten	75 186.21 <b>Re</b> Rhenium	76 190.20 <b>Os</b> Osmium	77 193.22 <b>Ir</b> Iridium	78 195.09 <b>Pt</b> Platinum	79 196.97 <b>Au</b> Gold	80 200.59 <b>Hg</b> Mercury	81 204.37 <b>Tl</b> Thallium	82 208.98 <b>Pb</b> Lead	83 208.98 <b>Bi</b> Bismuth	84 (209) <b>Po</b> Polonium	85 (210) <b>At</b> Astatine	86 (222) <b>Rn</b> Radon	
87 226.03 <b>Fr</b> Francium	88 226.03 <b>Ra</b> Radium	••	104 (261) <b>Rf</b> Rutherfordium	105 (262) <b>Ha</b> Hahnium	106 (263) <b>Sg</b> Seaborgium	107 (262) <b>Bh</b> Bohrium	108 (265) <b>Hs</b> Hassium	109 (266) <b>Mt</b> Meitnerium	110 (281) <b>Ds</b> Darmstadtium	111 (280) <b>Rg</b> Roentgenium	112 (277) <b>Cn</b> Copernicium	(113)	114 (285) <b>Fl</b> Flerovium	(115)	116 (289) <b>Lv</b> Livermorium	(117)	118 (293) <b>Og</b> Oganesson	
• <b>Lanthanoids</b>		57 138.91 <b>La</b> Lanthanum	58 140.12 <b>Ce</b> Cerium	59 140.91 <b>Pr</b> Praseodymium	60 144.24 <b>Nd</b> Neodymium	61 145 <b>Pm</b> Promethium	62 150.40 <b>Sm</b> Samarium	63 151.96 <b>Eu</b> Europium	64 157.25 <b>Gd</b> Gadolinium	65 158.90 <b>Tb</b> Terbium	66 162.50 <b>Dy</b> Dysprosium	67 164.93 <b>Ho</b> Holmium	68 167.26 <b>Er</b> Erbium	69 168.93 <b>Tm</b> Thulium	70 173.04 <b>Yb</b> Ytterbium	71 174.97 <b>Lu</b> Lutetium		
•• <b>Actinoids</b>		89 227.03 <b>Ac</b> Actinium	90 232.04 <b>Th</b> Thorium	91 231.04 <b>Pa</b> Protactinium	92 238.03 <b>U</b> Uranium	93 237.05 <b>Np</b> Neptunium	94 244 <b>Pu</b> Plutonium	95 243 <b>Am</b> Americium	96 247 <b>Cm</b> Curium	97 247 <b>Bk</b> Berkelium	98 251 <b>Cf</b> Californium	99 252 <b>Es</b> Einsteinium	100 257 <b>Fm</b> Fermium	101 260 <b>Md</b> Mendelevium	102 259 <b>No</b> Nobelium	103 262 <b>Lr</b> Lawrencium		

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the author is strictly forbidden.



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- alkali metals
- other metals
- halogens
- alkali earth metals
- semiconductors
- noble gases
- transitional metals
- other non-metals
- unknown type



# Periodic Table of Elements







# Periodic Table of Elements

- What did you noticed about how the Periodic Table is structured/designed?
- What evidence did the video give to show that the Periodic Table is part of a system?
- What did Mendeleev demonstrate about the power of research?
- What did Mendeleev demonstrate about the power of intellectual risk taking and perseverance?



The background of the page is a textured brown paper. Scattered across this background are several hand-drawn ball-and-stick molecular models. Each model consists of a central sphere connected to several smaller spheres by short lines representing bonds. The spheres are shaded with fine lines to give them a three-dimensional appearance. The models are arranged in a way that they seem to be floating or attached to the paper.

# Everyday Elements

Chemical elements are all around us and are used in our homes, by doctors, in manufacturing, and more.

You will use the [Periodic Table](#) to research some of the most common elements and their uses.





# Periodic Me

We will be creating our own GT Periodic Table of Elements with our own Set of Rules

**Rules 1:** Rows are based on age in increasing order as they go down (ex: top row is 7, then 8 then 9, etc.)

**Rule 2:** Columns are based on the month you were born, with January on the far left and December on the far right.

**Rule 3:** What other rules should we have for our table?

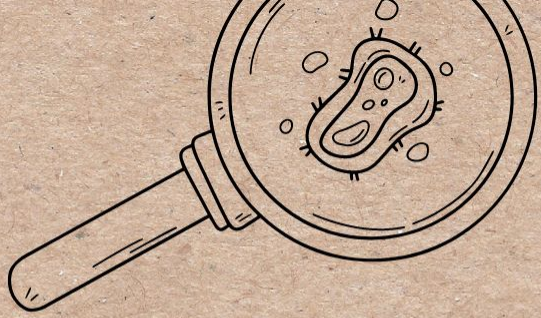




## Periodic Me - Cont.

Following the directions on the “Periodic Me” assignment page, you will create your own element to become part of our GT Periodic Table.





# LET'S REFLECT...

- What rules did your element follow to be placed in its spot in the GT Periodic Table?
- How might the rules be changed to arrange the elements differently in the GT Periodic Table?
- How does its following a set of rules make it easier to use the Periodic Table (and GT Periodic Table)?
- Defend the statement that Systems Follow Rules.

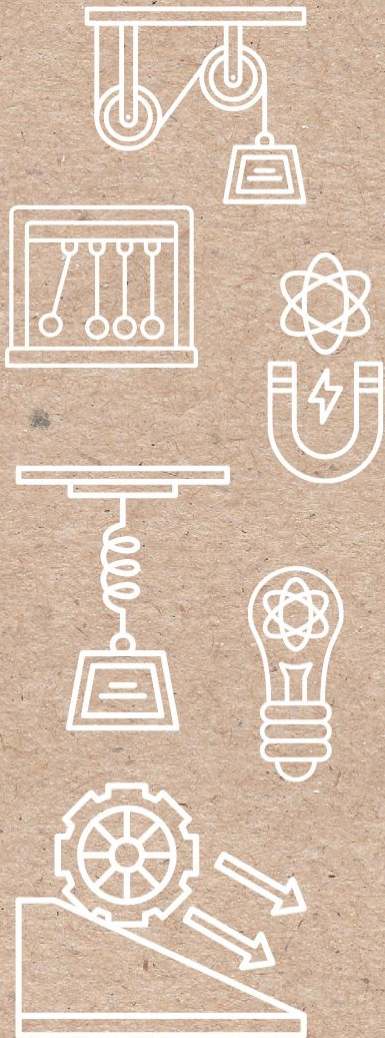


# Extensions

[Periodic table pixel art](#)

[Elements Scavenger Hunt](#)

[Tons of great periodic table activities/lessons](#)





# Songs for Fun

[Periodic Table Song](#)

[Science Wars - Acapella Parody](#)

