



Chemistry – Grades 6 – 8

# Science Cut Ups

## Content Centers

Includes **16** color printed center activities, **KEYs** & center instruction cards

**\$70**

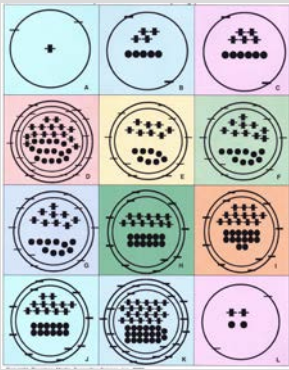
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TEKS	Center Title	TEKS	Center Title
8.5B	Atoms: What's the Charge?	8.5B	Matter: Physical & Chemical Properties
8.5D	Chemical Reactions	6.6A	Metals, Nonmetals & Metalloids
Chem 4C	Comparing States of Matter	6.6C	Minerals Matter
8.5E	Conservation of Mass	Bio 9A	Organizing Organic Compounds
6.6B	Density Dilemma	8.5C	Periodic Puzzler
6.5B	Earth's Spheres	6.5C, 7.6, 8.5E	Picturing Physical & Chemical Changes
8.5A	Elements & Atoms	6.7	Researching Resources
8.5A	Match Mates-Particles of Matter	6.5A	What's the Concept? Elements & Compounds

### For all materials:

- Laminate all materials before using for longer durability\*.
- Cut manipulative pieces apart and place in bags or envelopes for each center.
- Center Instruction Cards are included.
- **KEYs** are included.
- Use with small student groups to encourage scientific dialogue.
- Differentiate for the specific abilities of a student or group (Special Education, ELL, GT) by removing/adding manipulative pieces in each set.
- Provide reference materials for students to access content information.
- Encourage students to record key information from each activity in a science notebook/journal.
- Encourage students to generate additional examples for each activity set.





**the Charge?**

Atom	Is it an ion or is it a substance with a charge?	What is the charge?	What does the atom usually become?
1. Helium	Yes	0	None
2. Lithium	No	0	Lithium
3. Beryllium	No	0	Beryllium
4. Boron	No	0	Boron
5. Carbon	No	0	Carbon
6. Nitrogen	No	0	Nitrogen
7. Oxygen	No	0	Oxygen
8. Fluorine	No	0	Fluorine
9. Neon	Yes	0	None
10. Sodium	No	0	Sodium
11. Magnesium	No	0	Magnesium
12. Aluminum	No	0	Aluminum
13. Silicon	No	0	Silicon
14. Phosphorus	No	0	Phosphorus
15. Sulfur	No	0	Sulfur
16. Chlorine	No	0	Chlorine
17. Argon	Yes	0	None
18. Potassium	No	0	Potassium

**Atoms: What's the Charge?**

Analyze 18 atom diagrams to identify ions.

**DOUBLE REPLACEMENT**  
Two substances combine to form one product.

**SINGLE REPLACEMENT**  
Two compounds react to form two new compounds.

**SYNTHESIS**  
Two compounds react to form two new compounds.

**DECOMPOSITION**  
Hydrocarbons combine with oxygen producing CO<sub>2</sub> & H<sub>2</sub>O

**COMBUSTION**  
One substance forms two or more products.

An element & a compound form a new element & new compound.

Chemical equation:  $2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$

**Chemical Reactions**

Use faces, analogies & examples to teach 5 basic chemical reactions.

**Comparing States of Matter**

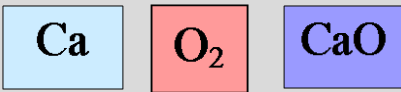
	Solids	Liquids	Gases
Structure	Particles are rigid, vibrate in place, & cannot move past one another.	Particles move slide past one another; flow easily.	Particles move freely & spread out to fill the container.
Shape	Has a fixed shape	Has a variable shape depending upon the container	Has a variable shape depending upon the container
Volume	Has a fixed volume	Has a fixed volume	Has variable volume
Compressibility	Particles cannot move closer together.	Particles cannot move closer together.	Particles can closer together.
Changes	If heat is added, it becomes a liquid.	If heat is added, it becomes a gas. If heat is removed, it becomes a solid.	If heat is removed, it becomes a solid.
Graphic Model			
Example			

**Comparing States of Matter**

Organize 21 cards into 7 categories to describe properties & examples.

Calcium + oxygen → Calcium oxide

**32 Equations**



**300 Two-sided cards**

40.0g    32.0g    56.0g

**Conservation of Mass**

Balance 12 equations using element & compound cards with self-checking masses.

Density	Mass amount	Volume amount	Which is greater? Mass or Volume?	Will it sink or float in H <sub>2</sub> O?
5.03 g/cm <sup>3</sup>	97.08 g	19.3 ml	Mass	↓ Sink
2.34 g/cm <sup>3</sup>	7.5 g	3.2 ml	Mass	↓ Sink
1.76 g/cm <sup>3</sup>	39.94 g	22.7 ml	Mass	↓ Sink
0.85 g/cm <sup>3</sup>	55.0 g	64.7 cm <sup>3</sup>	Volume	↑ Float

**Density Dilemma**

60 cards to link mass, volume & density to identify sinkers & floaters.



**Earth's Spheres**

Identify the graphed elements in Earth's spheres & explain how events impact all of them.

3 Lithium Li 6.941	6 Carbon C 12.0107	17 Chlorine Cl 35.453
16 Sulfur S 32.065	7 Nitrogen N 14.0067	18 Argon Ar 39.948

**Elements & Atoms**

Practice with atomic structure for elements 1-18.

Smallest particle of an element	Neutrally charged particle in the nucleus	Positively charged particle in the nucleus	Negatively charged particle orbiting the nucleus	Matter that has a definite shape and volume
Matter with a definite volume but no definite shape	Matter with no definite volume or shape	Smallest part of a compound	Substances that are the building blocks of matter	Amount of matter in an object
Center of an atom, made of protons and neutrons	Regions around an atom where electrons are orbiting	Solid shape of some minerals made by the atomic pattern	An electrically charged atom due to gain or loss of electrons	Combination of 2 or more different atoms that are chemically bonded
Combination of 2 or more substances that can be separated	Number of protons in the nucleus of one atom of an element	Average mass of one atom of an element	Change that does not involve the formation of something new	Change that forms bonds creating new substances with different properties
Atoms of the same element with different numbers of neutrons	Amount of space an object occupies	Anything that has mass and occupies space	Symbols and numbers that describe the number of atoms in one molecule of a compound	One or two letter code that stands for an element

**Match Mates- Particles of Matter**

25 word & definition cards to match up.

MELTING POINT/ BOILING POINT	PHYSICAL STATE	FLEXIBILITY/ MALLEABILITY/ DUCTILITY
FLAMMABILITY/ COMBUSTIBILITY	REACTIVITY TO ACID/TO WATER	TOXICITY

**Matter: Physical & Chemical Properties**

Sort 27 properties to distinguish physical/chemical & intensive/extensive.

Metals, Nonmetals & Metalloids			
	Characteristics	Examples	
<b>Metals</b>	<ul style="list-style-type: none"> <li>Shiny (luster)</li> <li>Good conductors of heat &amp; electricity</li> <li>High density</li> <li>High melting points</li> <li>Malleable &amp; ductile</li> <li>Form alloys</li> </ul>		
<b>Metalloids</b>	<ul style="list-style-type: none"> <li>Brittle &amp; nonmalleable</li> <li>Semiconductors</li> <li>Shiny or dull</li> </ul>		
<b>Nonmetals</b>	<ul style="list-style-type: none"> <li>Not conductors of heat &amp; electricity</li> <li>Low density</li> <li>Low melting points</li> <li>Brittle</li> <li>Do not form alloys</li> </ul>		

### Metals, Nonmetals & Metalloids

Organize 45 description & example cards on the data table.

### Minerals Matter

Criteria	Formation	Identification	Uses
1. Homogeneous mixture formed from two things	1. Same composition forms LAMPG crystals	1. Luster like B	1. Tarnish - black, green, blue, yellow, white
2. Always a solid material	2. Not magnetic	2. Crystal shape	2. Brittle - clay minerals
3. Ductile & malleable	3. Not magnetic	3. Color not reliable due to impurities & weathering	3. Autoclaves - at least 15 different minerals
4. High melting point	4. Not magnetic	4. Streak color of each mineral with mineral on tile surface	4. Glass, ceramics - silica sand, talc, talc, talc
5. Good conductor of heat & electricity	5. Not magnetic	5. Streak color of each mineral with mineral on tile surface	5. Glass, ceramics - silica sand, talc, talc, talc
6. Low density	6. Not magnetic	6. Streak color of each mineral with mineral on tile surface	6. Glass, ceramics - silica sand, talc, talc, talc
7. Low melting point	7. Not magnetic	7. Streak color of each mineral with mineral on tile surface	7. Glass, ceramics - silica sand, talc, talc, talc
8. Brittle	8. Not magnetic	8. Streak color of each mineral with mineral on tile surface	8. Glass, ceramics - silica sand, talc, talc, talc
9. Do not form alloys	9. Not magnetic	9. Streak color of each mineral with mineral on tile surface	9. Glass, ceramics - silica sand, talc, talc, talc
10. Not conductors of heat & electricity	10. Not magnetic	10. Streak color of each mineral with mineral on tile surface	10. Glass, ceramics - silica sand, talc, talc, talc
11. High density	11. Not magnetic	11. Streak color of each mineral with mineral on tile surface	11. Glass, ceramics - silica sand, talc, talc, talc
12. High melting point	12. Not magnetic	12. Streak color of each mineral with mineral on tile surface	12. Glass, ceramics - silica sand, talc, talc, talc
13. Good conductor of heat & electricity	13. Not magnetic	13. Streak color of each mineral with mineral on tile surface	13. Glass, ceramics - silica sand, talc, talc, talc
14. Low density	14. Not magnetic	14. Streak color of each mineral with mineral on tile surface	14. Glass, ceramics - silica sand, talc, talc, talc
15. Low melting point	15. Not magnetic	15. Streak color of each mineral with mineral on tile surface	15. Glass, ceramics - silica sand, talc, talc, talc
16. Brittle	16. Not magnetic	16. Streak color of each mineral with mineral on tile surface	16. Glass, ceramics - silica sand, talc, talc, talc
17. Do not form alloys	17. Not magnetic	17. Streak color of each mineral with mineral on tile surface	17. Glass, ceramics - silica sand, talc, talc, talc
18. Not conductors of heat & electricity	18. Not magnetic	18. Streak color of each mineral with mineral on tile surface	18. Glass, ceramics - silica sand, talc, talc, talc
19. High density	19. Not magnetic	19. Streak color of each mineral with mineral on tile surface	19. Glass, ceramics - silica sand, talc, talc, talc
20. High melting point	20. Not magnetic	20. Streak color of each mineral with mineral on tile surface	20. Glass, ceramics - silica sand, talc, talc, talc
21. Good conductor of heat & electricity	21. Not magnetic	21. Streak color of each mineral with mineral on tile surface	21. Glass, ceramics - silica sand, talc, talc, talc
22. Low density	22. Not magnetic	22. Streak color of each mineral with mineral on tile surface	22. Glass, ceramics - silica sand, talc, talc, talc
23. Low melting point	23. Not magnetic	23. Streak color of each mineral with mineral on tile surface	23. Glass, ceramics - silica sand, talc, talc, talc
24. Brittle	24. Not magnetic	24. Streak color of each mineral with mineral on tile surface	24. Glass, ceramics - silica sand, talc, talc, talc
25. Do not form alloys	25. Not magnetic	25. Streak color of each mineral with mineral on tile surface	25. Glass, ceramics - silica sand, talc, talc, talc
26. Not conductors of heat & electricity	26. Not magnetic	26. Streak color of each mineral with mineral on tile surface	26. Glass, ceramics - silica sand, talc, talc, talc
27. High density	27. Not magnetic	27. Streak color of each mineral with mineral on tile surface	27. Glass, ceramics - silica sand, talc, talc, talc
28. High melting point	28. Not magnetic	28. Streak color of each mineral with mineral on tile surface	28. Glass, ceramics - silica sand, talc, talc, talc
29. Good conductor of heat & electricity	29. Not magnetic	29. Streak color of each mineral with mineral on tile surface	29. Glass, ceramics - silica sand, talc, talc, talc
30. Low density	30. Not magnetic	30. Streak color of each mineral with mineral on tile surface	30. Glass, ceramics - silica sand, talc, talc, talc
31. Low melting point	31. Not magnetic	31. Streak color of each mineral with mineral on tile surface	31. Glass, ceramics - silica sand, talc, talc, talc
32. Brittle	32. Not magnetic	32. Streak color of each mineral with mineral on tile surface	32. Glass, ceramics - silica sand, talc, talc, talc
33. Do not form alloys	33. Not magnetic	33. Streak color of each mineral with mineral on tile surface	33. Glass, ceramics - silica sand, talc, talc, talc
34. Not conductors of heat & electricity	34. Not magnetic	34. Streak color of each mineral with mineral on tile surface	34. Glass, ceramics - silica sand, talc, talc, talc
35. High density	35. Not magnetic	35. Streak color of each mineral with mineral on tile surface	35. Glass, ceramics - silica sand, talc, talc, talc
36. High melting point	36. Not magnetic	36. Streak color of each mineral with mineral on tile surface	36. Glass, ceramics - silica sand, talc, talc, talc
37. Good conductor of heat & electricity	37. Not magnetic	37. Streak color of each mineral with mineral on tile surface	37. Glass, ceramics - silica sand, talc, talc, talc
38. Low density	38. Not magnetic	38. Streak color of each mineral with mineral on tile surface	38. Glass, ceramics - silica sand, talc, talc, talc
39. Low melting point	39. Not magnetic	39. Streak color of each mineral with mineral on tile surface	39. Glass, ceramics - silica sand, talc, talc, talc
40. Brittle	40. Not magnetic	40. Streak color of each mineral with mineral on tile surface	40. Glass, ceramics - silica sand, talc, talc, talc
41. Do not form alloys	41. Not magnetic	41. Streak color of each mineral with mineral on tile surface	41. Glass, ceramics - silica sand, talc, talc, talc
42. Not conductors of heat & electricity	42. Not magnetic	42. Streak color of each mineral with mineral on tile surface	42. Glass, ceramics - silica sand, talc, talc, talc
43. High density	43. Not magnetic	43. Streak color of each mineral with mineral on tile surface	43. Glass, ceramics - silica sand, talc, talc, talc
44. High melting point	44. Not magnetic	44. Streak color of each mineral with mineral on tile surface	44. Glass, ceramics - silica sand, talc, talc, talc
45. Good conductor of heat & electricity	45. Not magnetic	45. Streak color of each mineral with mineral on tile surface	45. Glass, ceramics - silica sand, talc, talc, talc

### Minerals Matter

30 description cards to organize in 4 categories on data chart + play a mineral ID card game.

### Organizing Organic Compounds

Compound Type	Building Blocks	Elements	Examples	Functions
Carbohydrates	Sugars	C, H, O	Glucose, Starch, Glycogen, Cellulose	Provides energy to cells, Stores energy, Forms body structures
Lipids	Fatty Acids	C, H, O	Fats, Steroids, Oils, Waxes, Cholesterol, Hormones, Phospholipids (in membranes)	Energy storage & protection, Forms cell membranes, Carries messages
Proteins	Amino Acids	C, H, O, N, S	Enzymes, Muscle Fibers, Antibodies, Hormones, Hemoglobin, Hemoglobin	Use thousands of the cell, Speeds chemical reactions
Nucleic Acids	Nucleotides	C, H, O, N, P	DNA, RNA, ATP	Store and transmit genetic information, Used for energy

### Organizing Organic Compounds

Organize 4 compound types in 4 categories to show their composition & functions.

**Alkaline-earth metals**

2 valence electrons  
burn brightly  
soft  
silvery white  
high melting point  
high density

**Transition Metals**

shiny solids  
thermal conductors  
ductile  
high melting point  
high density  
malleable & ductile

**name my group**

F

- Shiny
- Metallic
- High melting point

**name my period**

O

- Family 17
- Poisonous gas

### Periodic Puzzler

Organize periodic table groups by properties & use clues to name groups & periods.

### Picturing Physical & Chemical Changes

Use the information below to sort the change described & pictured on each card as physical or chemical. Be able to give a reason for each choice.

**Physical Changes**

Characteristics of physical changes:

- Matter remains the same kind of matter
- No new substances are formed

Possible indicators of physical changes:

- Size changes
- Shape changes
- Phase changes (solid to liquid, etc)

**Chemical Changes**

Characteristics of chemical changes:

- Matter changes into a different kind of matter
- New substances are formed as a result of the change

Possible indicators of chemical changes:

- Size changes
- Shape changes
- Phase changes

### Picturing Physical & Chemical Changes

48 examples to sort using criteria on sorting mat + make a foldable®.

### Energy Resource:

Advantages		Disadvantages	
Coal	Biomass	Hydro-Power	
Oil	Nuclear Power	Solar Power	
Natural Gas	Wind Power	Geothermal Power	

### Researching Resources

Select from 12 advantages & 19 disadvantages when evaluating 9 different energy resources.

YES	NO
1. Sulfur	2. Butter
3. Cast iron skillet	4. Milk
5. Paper	6. Salt

1. Sulfur

2. Butter

3. Cast iron skillet

4. Milk

5. Paper

6. Salt

### What's the Concept? Elements & Compounds

Concept attainment activities include YES/NO cards, attribute sorting cards & 12 Gallery cards