

# CHEMICAL BONDING

# ESCAPE ROOM

**CHEMICAL BONDING**  
Atoms that are the building blocks of matter. Everything in the universe is made of atoms that join together to form molecules. Chemical bonding is the process of atoms or more atoms to make a molecule. Atoms are made of even smaller particles called protons, neutrons, and electrons. Protons and neutrons do not have a charge, and electrons are negatively charged; neutrons are found in the center of the atom called the nucleus because their negative charge is attracted to the positive charge of the nucleus. The number of electrons and protons is always equal in an atom. The number of electrons in layers called shells. The first layer holds two electrons, the second layer holds eight, and the third layer holds eight. The outer shell of an atom always holds a maximum of two electrons.

**LEVEL 1 DECODER**

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

L=2	J=q	F=1
R=0	W=4	A=6
T=8	G=3	Z=5
Q=7	D=q	P=0
H=1	Y=8	B=3
N=4	C=6	K=1

**LEVEL 2 DECODER**

Find the value of each letter

A = 

0	x	0
x	0	0
0	0	0

**RECORDING SHEET**

LEVEL 1	Q1	Q2	Q3
#	#	#	#

LEVEL 2	Q1	Q2	Q3	Q4
#	#	#	#	#

**THINK TANK**

# WHAT'S INCLUDED?

**CHEMICAL BONDING**

Atoms are tiny particles that are the building blocks of matter. Everything in the universe is composed of atoms that join together to form molecules. Chemical bonding is the process of joining two or more atoms to make a molecule.

Inside the atom are even smaller particles called protons, neutrons, and electrons. Protons have a positive charge; neutrons do not have a charge, and electrons are negatively charged. Protons and neutrons are found in the center of the atom called the nucleus.

**LEVEL 1: QUESTION 1**    **LEVEL 1: QUESTION 2**

**LEVEL 2: QUESTION 1**    **LEVEL 2: QUESTION 2**

**LEVEL 3: QUESTION 1**    **LEVEL 3: QUESTION 2**




**LEVEL 4: QUESTION 1**    **LEVEL 4: QUESTION 2**




**LEVEL 1 DECODER**




A	B	C	J	K	L	L=2	J=9	F=1
D	E	F	M	N	O	R=0	W=4	A=6




**LEVEL 2 DECODER**

FIND THE VALUE OF EACH LETTER

A =   

B =   

C =   

D =   

**LEVEL 3 DECODER**

1    2    3

ABC    DEF

**LEVEL 4 DECODER**

A B C D    8 0

Q I    4 3

**RECORDING SHEET**


**LEVEL 1**

Q1	Q2	Q3	Q4
#	#	#	#

**LEVEL 2**

Q1	Q2	Q3	Q4
#	#	#	#





**HOW TO DECODE**




Find the SHAPE that relates to your answer and determine the letter it represents. Example: L would be the letter L and  would be the letter D. Next, use the chart to determine what NUMBER the letter represents. D=9 and L=2.

A	B	C	J	K	L	L=2	J=9	F=1
D	E	F	M	N	O	R=0	W=4	A=6
G	H	I	P	Q	R	T=8	G=3	Z=5
S	T	U	V	W	X	Y=7	D=9	P=0
X	Y	Z				H=1	Y=8	B=3

This one can be tricky! First answer the FOUR questions for that level. Then, using the 'math' problems, determine what each correct letter holds as a value (number). Be sure to enter the answers in the SAME ORDER as you answer the questions. Ex: D=9, W=4, M=1, N=0, J=9, L=2.

**LEVEL 2 DECODER**

 +  =     A = 

 +  = 8    B = 

 +  = 2    C = 

- ✓ READING PASSAGE
- ✓ 4 PUZZLE DECODERS
- ✓ 16 MULTIPLE CHOICE Q'S
- ✓ TEACHER GUIDE
- ✓ ANSWER KEY
- ✓ STUDENT DIRECTIONS
- ✓ HINT CARDS



# 16 QUESTIONS

**CHEMICAL BONDING**  
Atoms that are the building blocks of matter join together to form molecules or more atoms to make a molecule. Even smaller particles called protons and neutrons do not have a charge; neutrons are found in the nucleus because their negative charge. The number of electrons and protons in the nucleus is called shells. The outer shell is the most important, and the outer shell is the most reactive. They are called atoms.

**LEVEL 1: QUESTION 1**  
Atoms are the building blocks of ----.

<b>J</b> Mitosis	<b>A</b> Mitochondria
<b>F</b> Matter	<b>D</b> Medievalism

**LEVEL 1: QUESTION 2**  
The two main types of covalent bonding are polar and ----.

<b>&lt;</b> Tropic	<b>&gt;</b>
<b>J</b> Arctic	<b>D</b>

**LEVEL 2: QUESTION 1**  
Chemical bonding is the joining of two or more atoms to make a ----.

<b>A</b> Nucleus	<b>B</b> Metaverse
<b>C</b> Atomic mass	<b>D</b> Molecule

**LEVEL 1: QUESTION 3**  
Electrons in the outer shell are called ---- electrons.

**LEVEL 1 DECODER**

<b>B</b>	<b>C</b>	<b>J</b>	<b>K</b>	<b>L</b>
<b>E</b>	<b>F</b>	<b>M</b>	<b>N</b>	<b>O</b>
<b>H</b>	<b>I</b>	<b>P</b>	<b>Q</b>	<b>R</b>
<b>U</b>	<b>X</b>	<b>W</b>	<b>Y</b>	<b>Z</b>

<b>L=2</b>	<b>J=q</b>
<b>R=0</b>	<b>W=4</b>
<b>T=8</b>	<b>G=3</b>
<b>Q=7</b>	<b>D=q</b>
<b>H=1</b>	<b>Y=8</b>
<b>N=4</b>	<b>C=6</b>

**LEVEL 4: QUESTION 1**  
What is the center of an atom called?

<b>A</b> Nuclear	<b>B</b> Electron
<b>C</b> Nucleus	<b>D</b> Centro

**RECORDING SHEET**

<b>LEVEL 1</b>	Q1	Q2	Q3	Q4
	#	#	#	#

**LEVEL 4: QUESTION 2**  
The re... is to...

<b>A</b>	<b>C</b>
----------	----------

**LEVEL 3 DECODER**

<b>1</b>	<b>2</b>	<b>3</b>
<b>4</b>	<b>5</b>	<b>6</b>
<b>7</b>	<b>8</b>	<b>9</b>

<b>ABC</b>	<b>DEF</b>
<b>GHI</b>	<b>JKL</b>
<b>MNO</b>	<b>PQRS</b>
<b>TUV</b>	<b>WXYZ</b>

**LEVEL 3: QUESTION 1**  
Only three atoms have full shells: helium, neon, and ----.

<b>A</b> Radon	<b>T</b> Xenon
<b>H</b> Argon	<b>L</b> Hydrogen

**LEVEL 3: QUESTION 2**  
What particles have a positive charge?

<b>E</b> Neutrons	<b>M</b> Kenotrons
<b>Y</b> Protons	<b>B</b> Electrons

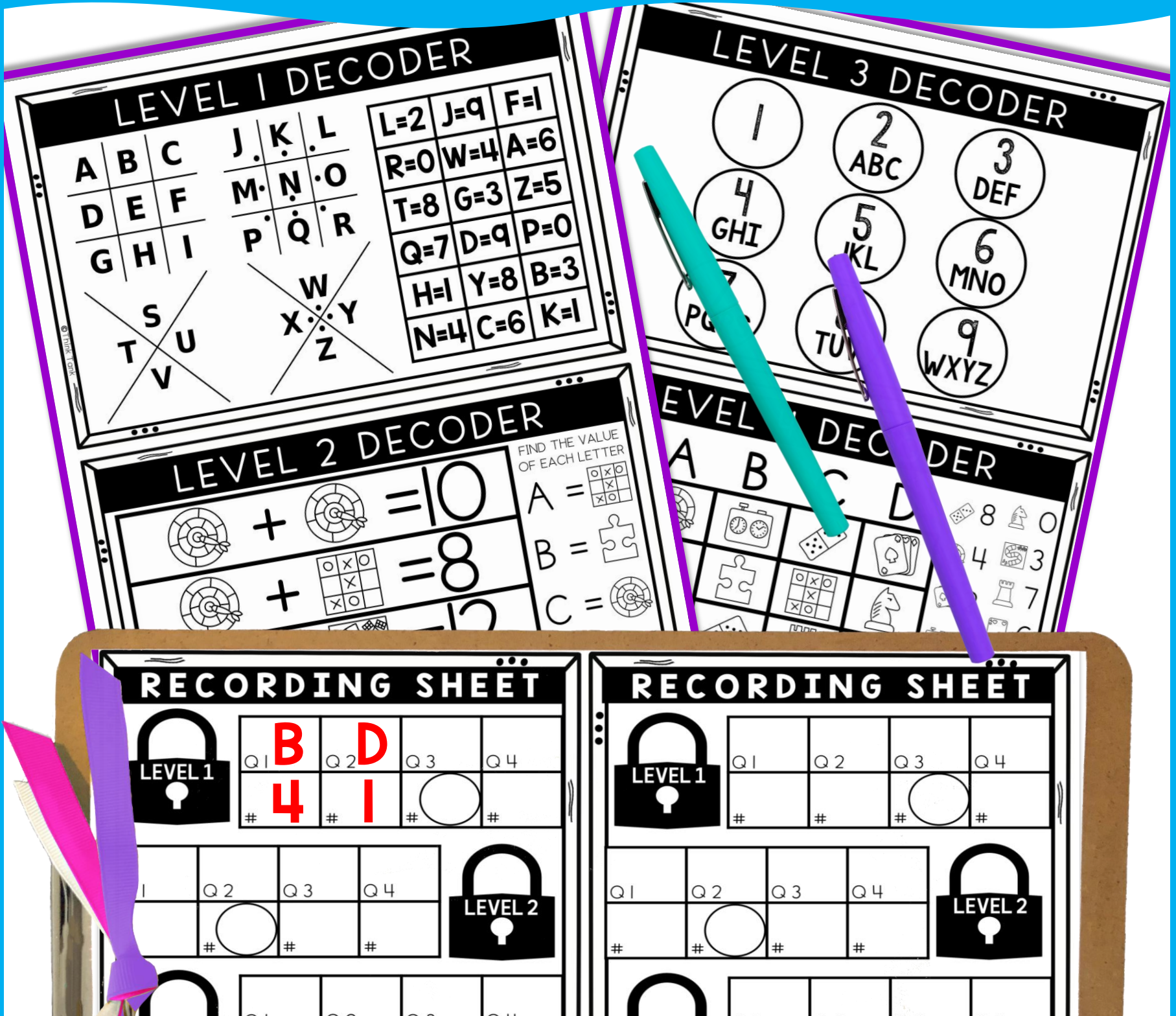
**LEVEL 3: QUESTION 3**  
The electrons orbit the nucleus in layers called ----.

<b>I</b> Rings	<b>J</b>
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**LEVEL 4 DECODER**

<b>Q1</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>8</b>	<b>9</b>	<b>0</b>
<b>Q2</b>					<b>4</b>	<b>3</b>	
<b>Q3</b>					<b>2</b>	<b>7</b>	<b>6</b>


# PUZZLE TYPES



# PRINT, CUT, PLAY



# HOW IT WORKS



## ENGAGING READING COMPREHENSION PRACTICE!

1

Students work individually (or in pairs) and visit 16 question cards.

2

Students will answer the questions found directly in the passage on their recording sheet.

3

Students will use that specific “decoder” to reveal a 4-digit code for each level.

### CHEMICAL BO

Atoms are tiny particles that are the building blocks of the universe. The universe is composed of atoms that join together to form molecules. The process of joining two or more atoms to make a molecule is called chemical bonding. Inside the atom are even smaller particles called protons and neutrons. Protons have a positive charge; neutrons do not have a charge. Electrons are negatively charged. Protons and neutrons are found in the nucleus. Electrons orbit the nucleus because their negative charge is attracted to the proton's positive charge. The number of electrons in an atom is equal to the number of protons.

### LEVEL 1 DECODER

A	B	C	J	K	L	L=2	J=9	F
D	E	F	M	N	O	R=0	W=4	A=
G	H	I	P	Q	R	T=8	G=3	Z=
<del>T S U</del>			<del>W X Y Z</del>			Q=7	D=9	P=0
						H=1	Y=8	B=3
						N=4	C=6	K=1

### LEVEL 1: QUESTION 1

Atoms are the building blocks of ----.

Mitosis

Mitochondria

Matter

Medievalism

### LEVEL 1: Q

The two types of covalent bonds are polar and non-polar.

Tropic

Arctic

### LEVEL 1: QUESTION 3

Electrons in the outer shell that interact in the chemical bond are called ---- electrons.

Vagabond






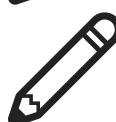
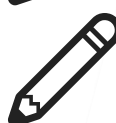
### LEVEL 1: QU

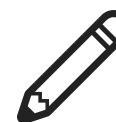



Electrons are ----

# BENEFITS



THINK OUTSIDE THE BOX!

-  ANTICIPATORY SETS
-  UNIT REVIEW
-  EARLY FINISHERS
-  STATIONS
-  SUB PLANS
-  PARTNER WORK
-  ENRICHMENT

-  LOW PREP
-  PRINT, CUT & PLAY
-  CROSS-CURRICULAR
-  HIGHLY ENGAGING

