

CHEMICAL BONDS

COLOR BY NUMBER

CHEMICAL BONDS

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. Electrons orbit the nucleus because their negative charge is attracted to the positive charge of the nucleus.

... Name: _____

COLOR BY NUMBER

Answer the questions on the other page then color the WHOLE WORD below based on your answer. Next, write a summary statement or the main idea. Don't forget to underline the answers IN THE PASSAGE with the same color.

Valence
Molecules
Nucleus
Electrons
Protein
Nonpolar
Attracted
Demolish

4 The further out the shell is, the more _____ it can hold.

5 Chemical bonding is atoms joining to make a _____.

6 _____ electrons interact in the chemical bond.

7 There are two main types of covalent bonds: polar and nonpolar.

8 The reason atoms bond is to _____ their energy.

9 Two types of chemical bonds are ionic and covalent.

10 Inside the atom, protons and neutrons are found in the _____.

11 What is the center of the atom called?

12 What is the process of joining two or more atoms to make a molecule called?

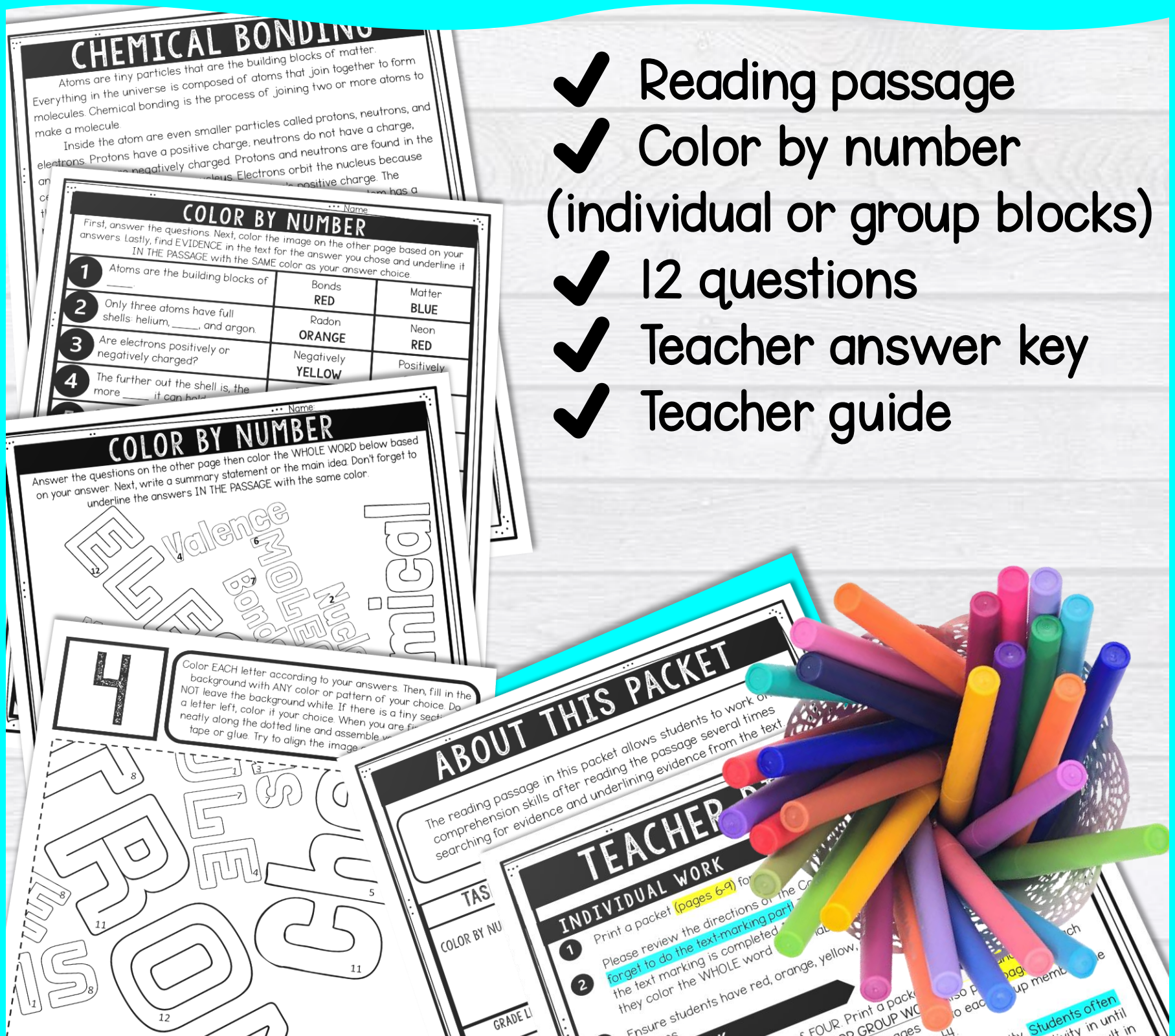
Negatively	Positively
YELLOW	GREEN
Electrons	Molecules
GREEN	ORANGE
Molecule	Protein
ORANGE	RED
Valence	Nonpolar
RED	YELLOW
Nonpolar	Attracted
ORANGE	BLUE
Stabilize	Demolish
	GREEN

Color EACH letter according to your answers. Then, fill in the background with ANY color or pattern of your choice. NOT leave the background white. If there is a tiny section a letter left, color it your choice. When you are finished, cut along the dotted line and assemble your picture with tape or glue. Try to align the image as best as you can.

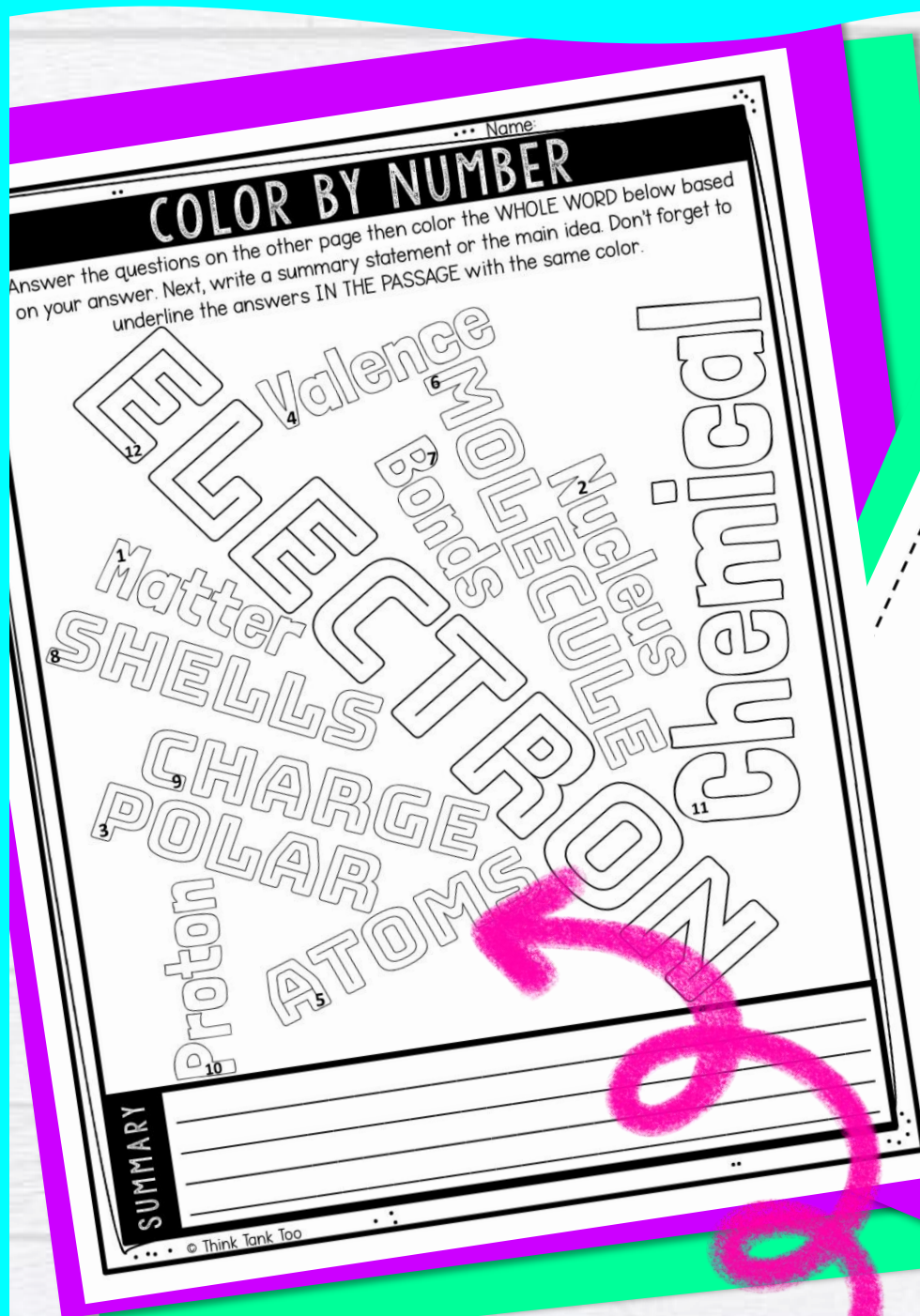
THINK TANK

WHAT'S INCLUDED?

- ✓ Reading passage
- ✓ Color by number (individual or group blocks)
- ✓ 12 questions
- ✓ Teacher answer key
- ✓ Teacher guide



2 OPTIONS



INDIVIDUAL



GROUP

TEXT MARKING

Find evidence
in the text

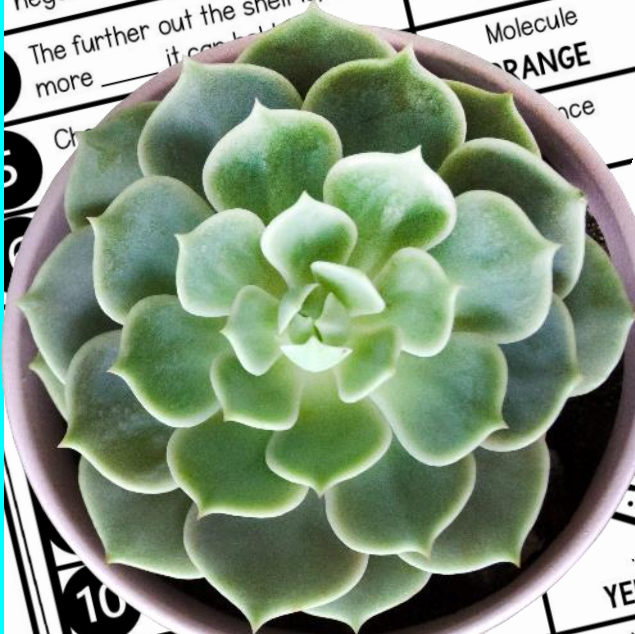
... Name: _____

COLOR BY NUMBER

For the questions. Next, color the image on the other page based on your answers. Find EVIDENCE in the text for each question and underline it. IN THE PASSAGE with the SAME color as your answer choice.

Question	Answer Choice	Color
Atoms are the building blocks of _____.	Bonds	RED
Only three atoms have full shells: helium, _____, and argon.	Radon	ORANGE
Are electrons positively or negatively charged?	Negatively	YELLOW
The further out the shell is, the more _____ it can hold.	Electrons	GREEN
Chemical bonds are managed by _____.	Molecule	ORANGE

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... Name: _____

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. Electrons orbit the nucleus because their negative charge is attracted to the proton's positive charge. The number of electrons and protons is always equal so that the atom has a neutral charge.

The electrons orbit the nucleus in layers called shells. The first layer holds up to two electrons, the second layer holds eight, and the third layer holds eighteen. The further out the shell is, the more electrons it can hold. The outer shell of an atom always wants to be full of electrons. When atoms bond together, they usually either give up or take in electrons to fill their outer shell. For example, if an atom has two shells and the outermost shell has seven of eight possible electrons, it will want to take an electron from the bonding atom so it can have a full outer shell. If an atom has less electrons, it will want to give up the electrons it has so the other atom can have a full shell.

The electrons in the outer shell that interact with other atoms are called valence electrons. There are two main types of chemical bonds that can happen: covalent and ionic. The bonds are different in the way they are managed. Ionic bonds form when an atom donates an electron to another atom that has a full outer shell. When they gain or lose an electron, atoms form ions. Anions are negative ions formed by losing an electron. Cations are positive ions formed by losing an electron.

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