COLORED EGG ISOTOPES – ANSWER KEY

1. What is the sum of the number of protons and neutrons called? The sum of the number of protons plus the number of neutrons is called the mass number.

2. Does the mass number affect the identity of an element? Explain. The mass number does not affect the identity of the element because atoms of the same element may differ in numbers of neutrons, which would result in the same atom having different mass numbers.

3. What is true of the number of protons for each sample of the same element? What is this quantity of protons called? Atoms of the same element ALWAYS have the same number of protons. The number of protons is equal to the atomic number for the element.

4. Can different atoms of the same element have different numbers of neutrons? What are these different forms of atoms called? Atoms of the same element can have different numbers of neutrons. These different forms of atoms are called isotopes.

5. Can isotopes of the same element have different numbers of protons? Explain. Isotopes of the same element cannot have different numbers of protons. If you change the number of protons, you change the identity of the element because the atomic number changes.

6 & 7. Using the first letter of the color of the isotope, write isotopic symbols for each isotope using the pattern illustrated in the discussion section of the lab to indicate the three separate isotopes. Obtain data from other lab groups and write the isotopic symbols for each isotope of the five remaining elements.

$$^{A}_{Z}X$$

In the isotopic symbol, X is the element's symbol, Z is the element's atomic number (the number of protons), and A is the mass number (the sum of the number of protons and neutrons).

Red Eggs:	1	2	3	Purple Eggs:	3	4	5
	$_{1}R$	$_{1}R$	$_{1}R$		$_{2}P$	$_{2}P$	$_{2}P$
Blue Eggs:	5	6	7	Yellow Eggs:	7	8	9
	$_{3}B$	$_{3}B$	$_{3}B$		$_{4}Y$	$_{4}Y$	$_{4}Y$
Green Eggs:	9	10	11	Orange Eggs:	9	10	11
	$_{5}G$	$_{5}G$	$_{5}G$		$_{6}O$	$_{6}O$	$_{6}O$