Use only the information presented in the models to answer the following questions.

1. How many protons are found in $^{12}\text{C}$, $^{13}\text{C}$, $^{13}\text{C}$? 

2. How many neutrons are found in $^{12}\text{C}$, $^{13}\text{C}$, $^{13}\text{C}$? 

3. How many electrons are found in $^{12}\text{C}$, $^{13}\text{C}$, $^{13}\text{C}$? 

4. Based on the model,
   a) what do all carbon atoms (and ions) have in common?
   b) what do all hydrogen atoms (and ions) have in common?

5. What do all Chlorine (Cl) atoms have in common?

6. What is the significance of the atomic number, Z, above each atomic symbol in the periodic table?

7. How is the mass number, A, (left hand superscript next to the atomic symbol) determined?

8. What structural feature is different in isotopes of a particular element?

9. a) What feature distinguishes a neutral atom from an ion?
   b) How is the charge on an ion determined?
10. What is the mass in grams of a) one \(^1\text{H}\) atom? b) one \(^{12}\text{C}\) atom?

11. What is the mass in grams of \(4.35 \times 10^6\) atoms of \(^{12}\text{C}\)?

12. What is the mass in grams of \(6.022 \times 10^{23}\) atoms of \(^{12}\text{C}\)?

13. What is the mass in grams of one molecule of water, which has two \(^1\text{H}\) atoms and one \(^{16}\text{O}\) atom \(^1\text{H}_2^{16}\text{O}\)?

14. Use grammatically correct English sentences to describe what the isotopes of an element have in common and how they are different.

15. Write clear one sentence definitions of the terms ‘mass number’ and ‘atomic number’.