



YOU
BE THE
CHEMIST

CHALLENGE™

2019-2020

STUDENT PRACTICE QUESTIONS ANSWER KEY

Practice 1. Hoping to discover why the water at school has a different taste than the water at home, Nico collects 2 samples from the kitchen sink at home and 2 samples from the water fountain at school and tests the pH of each sample using universal indicator. What is – (a) the independent variable and (b) the dependent variable in the experiment described? *Be sure to clearly label your responses as a and b.*

Practice 1 Correct Answer:

- (a) The water source OR where the water samples were collected
- (b) The pH of the water sample

Practice 2. Based on the portion of the periodic table shown below, what are **2 properties** that will always be true about neutral pure samples of both of the elements pictured? *Only name 2 properties, responses with more than 2 properties listed will not be scored.*

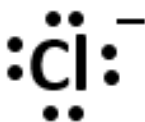


Practice 2 Possible Correct Answers:

- Metals
- 4 valence electrons
- Occur naturally as solids
- Luster/shininess
- Good conductors
- Malleability
- Ductility
- Tend to donate electrons

Practice 3. Draw the Lewis Structure for a chlorine ion with a -1 charge.

Practice 3 Correct Answer:



Practice 4. An atom with the most common ionic charge of +1 is found in the sixth period on the periodic table and has a mass number of 133. If the atom is in its most common ionic form - (a) What is the chemical symbol for the element, (b) how many protons does it have, (c) how many neutrons does it have, and (d) how many electrons does it have? *Be sure to clearly label your responses with a, b, c, and d.*

Practice 4 Correct Answer:

- (a) Cs
- (b) 55 protons
- (c) 78 n⁰
- (d) 54 electrons