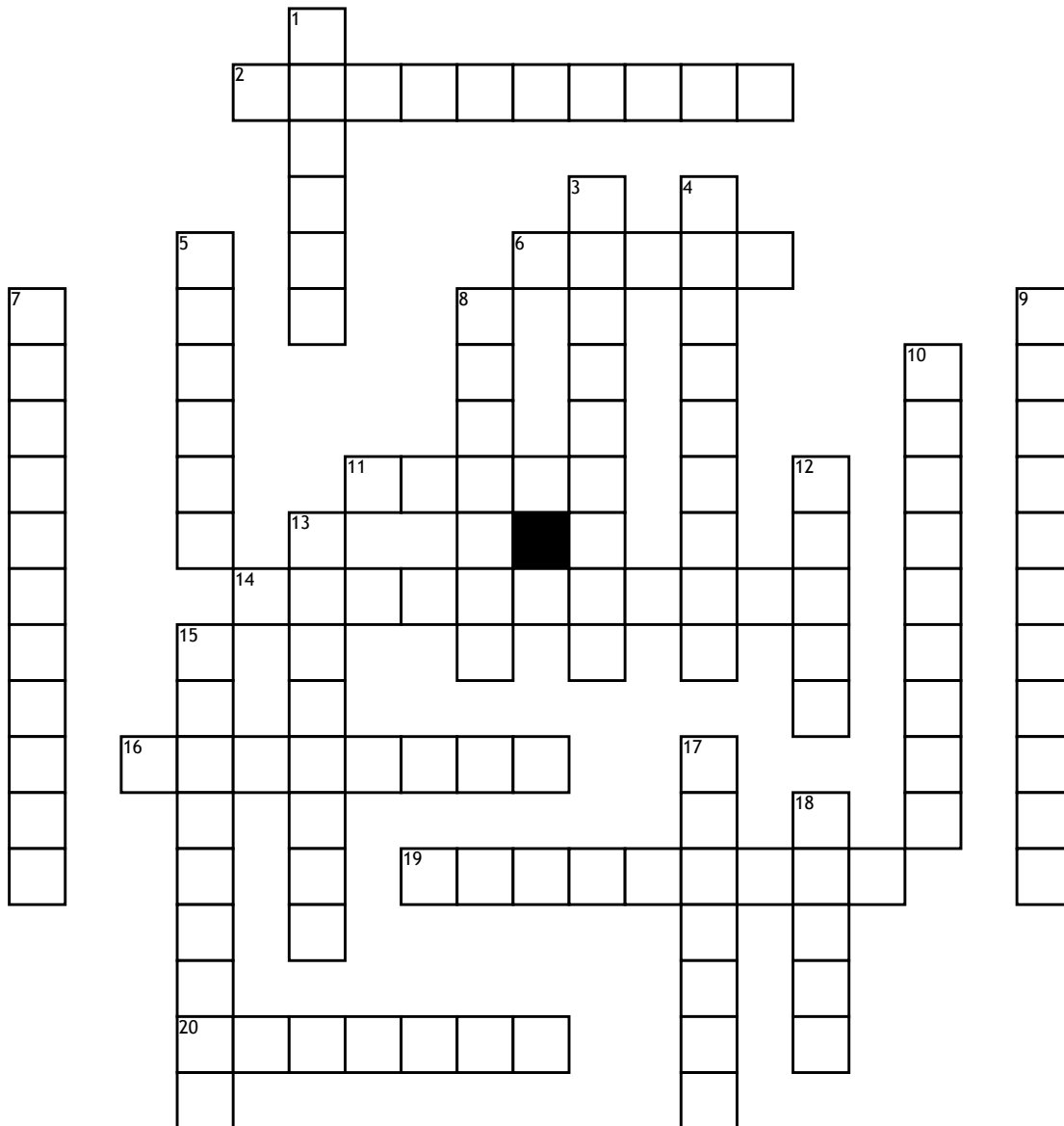


Name: \_\_\_\_\_

Date: \_\_\_\_\_

# PEN Challenge



**Across**

- 2. Device that converts one form of energy to another
- 6. Negatively charged non-metallic ion
- 11. Component of stress that is coplanar with a material cross section
- 14. Ability of a body to store an electric charge
- 16. Effective partial pressure for a real gas
- 19. Heat treatment where microstructure is altered
- 20. Electrical Conductance

**Down**

- 1. Point at which temperature and pressure for 3 phases coexist in thermodynamic equilibrium
- 3. SIL also known as Safety \_\_\_ Level
- 4. What is the k constant called in the following formula?  $k = R/NA$
- 5. Union Carbide incident that occurred on December 2, 1984. 500,000 people were exposed to methyl isocyanate.
- 7. Protection layers should be auditable, effective and \_\_\_
- 8. Charge on an ion based on the number of electrons transferred

- 9. UK incident that occurred on June 1, 1974 resulting in 28 fatalities and 36 injuries
- 10. Flow regime
- 12. Author of "What Went Wrong?" and a world renowned expert in chemical process safety
- 13. Electrochemical cell that derives electrical energy from spontaneous redox reactions taking place within the cell
- 15. Area under the tensile stress-strain curve
- 17. Ridges or teeth on a drive shaft
- 18. Diagram that illustrates the various safety layers