Name _____ 💣 Chemmatters: Fireworks!! 💣

Read the article and then answer the following questions:

1. What material gives the fireworks their color when they explode?

2. What are the four chemicals inside a star?

3. What is the purpose of the oxidizing agent?

4. What is the purpose of the metal-containing colorant?

5. What is the purpose of the binder?

6. What causes the aerial shell to be shot into the air?

7. When the black powder is ignited, what happens to the shell?

8. What is the cause of the loud boom that accompanies fireworks?

9. What determines if the firework is evenly spread out or has a pattern in the sky?

10. What could cause a firework to explode too close to the ground?

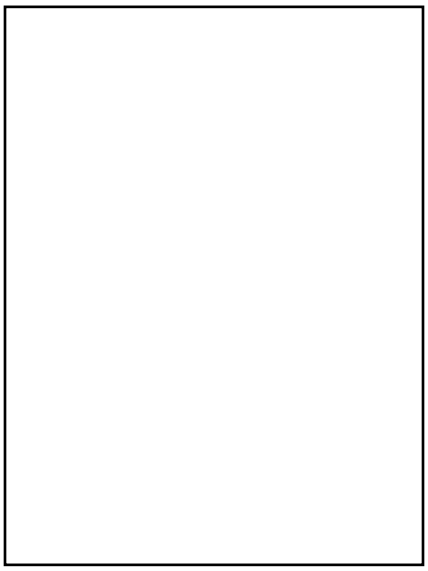
11. How is incandescent light produced?

12. What causes the luminescent lights of different colors in the fireworks?**

13. What subatomic particle is in charge of producing light inside the metal atoms?

14. Describe how electrons move when they absorb energy from the heat.

Draw in the picture of luminescence below.



15. What do you think “ground state” means?

16. What do you think “excited state” means?

17. What two things happen *immediately* after the initial electron movement?

18. What determines the color of the light seen?

19. What color is seen with:

    a. Strontium or Lithium salts? _____

    b. Calcium salts? _____

    c. Sodium salts? _____

    d. Barium compounds? _____

    e. Copper compounds? _____

    f. A mixture of Strontium and Copper compounds? _____

20. What are some examples of fireworks that carry more than the limited amount of 50 milligrams of gunpowder?