

Name: _____

Chematters: Fireworks!

Before reading, in the first column, write "A" or "D" indicating your agreement or disagreement with each statement. *As you read the article*, compare your opinions with information from the article. In the space under each statement, write a statement from the article that supports or refutes your original ideas.

Me	Text	Statement
		1. The colors of fireworks are produced by metals.
		2. Gunpowder is used to explode fireworks.
		3. During the explosion of fireworks, gases are moving faster than the speed of sound, so a sonic boom is produced.
		4. The color produced by incandescence can be controlled by the temperature.
		5. Colored light can be produced when electrons change energy levels inside atoms.
		6. Firework explosions can be designed to look like flowers or trees in the sky.

		7. Fireworks that can be legally purchased in most states contain less than 10 mg of gunpowder.
		8. The highest temperatures produced by firecrackers are only about 500 °C.
		9. The United States is the world's leading producer of fireworks.
		10. Chemists who design fireworks are experts on many kinds of explosions.
		11. Pyrotechnic chemists are working to make fireworks safer for both people and the environment.
		12. This article may change my views on fireworks.

Directions: As you read, complete the chart below describing how fireworks work, and what pyrotechnic chemists do.

		Chemistry	Safety Issues
Explosion	Step 1		
	Step 2		
Color	Luminescence		
	Incandescence		
Pyrotechnic Chemists	Products made		
	Safety concerns		
	Advice		

Directions: Answer the following questions in complete sentences.

1. Identify the four key components of all fireworks.
2. What is the purpose of “stars” in an aerial shell?
3. In a typical aerial burst, how many explosions take place? What happens in each explosion?
4. Which of the gas laws explains what happens when an aerial shell explodes?
5. The article describes two ways in which light can be produced. What are they?
6. Name two metal ions capable of producing red colors in fireworks.
7. In how many states is it legal to purchase fireworks?