Fireworks

Fireworks light up the night sky with dazzling displays of color and sound. But have you ever wondered how these brilliant displays are created? The magic of fireworks is a blend of chemistry and physics, and understanding this can make this colorful spectacle even more captivating.

A firework is comprised of a chemical concoction that produces various effects when ignited. Fireworks contain a shell, a bursting charge, and a fuse. The shell holds various chemical compounds that determine the colors and patterns of the explosion.

But how do these colors come to life? When a firework is ignited, the fuse burns and lights the bursting charge, which then ignites a special metal salt. As the salts heat up, their electrons become excited and move to a higher energy level. When the electrons return to their original energy level, they release energy in the form of light. This process, known as atomic emission, is what creates the vibrant colors we see.

The patterns in the fireworks are determined by how the metal salts are packed in the shell. For example, if the salts are packed in a circular pattern, they explode in a circle. If they're arranged in a smiley face pattern, they'll explode to display a smiley face in the sky.

The loud bangs and booms associated with fireworks come from the rapid release of energy and gas when the firework explodes. This rapid expansion creates a sound wave that travels through the air and reaches our ears as the booming sounds typical of a fireworks display.

As the world celebrates the New Year, millions will watch the night sky light up with these scientific marvels. Understanding the science behind fireworks can help us appreciate their beauty and the creativity that goes into making them.

Name _____ Date _____

Fireworks

Use context clues to determine the meaning of the following words.

1. dazzling _____

_____

2. spectacle _____

_____

3. concoction _____

_____

4. ignited _____

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5. electrons _____

_____

6. atomic emission _____

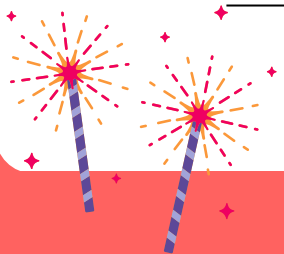
_____

7. expansion _____

_____

8. marvels _____

_____



Name _____ Date _____

Fireworks

Answer the following reading comprehension questions about the passage.

- Why are fireworks described as a "blend of chemistry and physics"?

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- What happens to electrons during atomic emission?

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- How do metal salts produce colors in fireworks?

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- Why do fireworks produce a loud sound when they explode?

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- Why do you think fireworks are popular on special holidays?

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- Why might scientists be interested in the colors produced by different elements?

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