



The *Physics* of Fireworks

An explosive celebration of science!



1. Lift-Off:

Newton's Third Law

- Every action produces an opposite reaction
- A small explosion forces gas downward.
- The firework shell rockets upward in response.

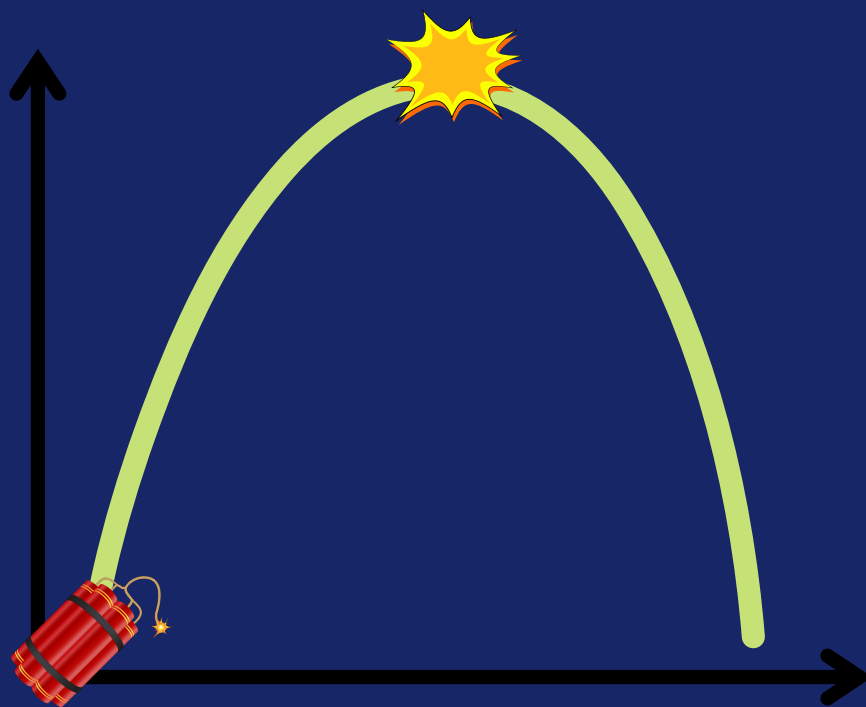


Think: bouncing a ball on the ground

2. Ascent:

Precision Timing

- A time-delay fuse burns during flight.
- At the highest point, it triggers the main burst.

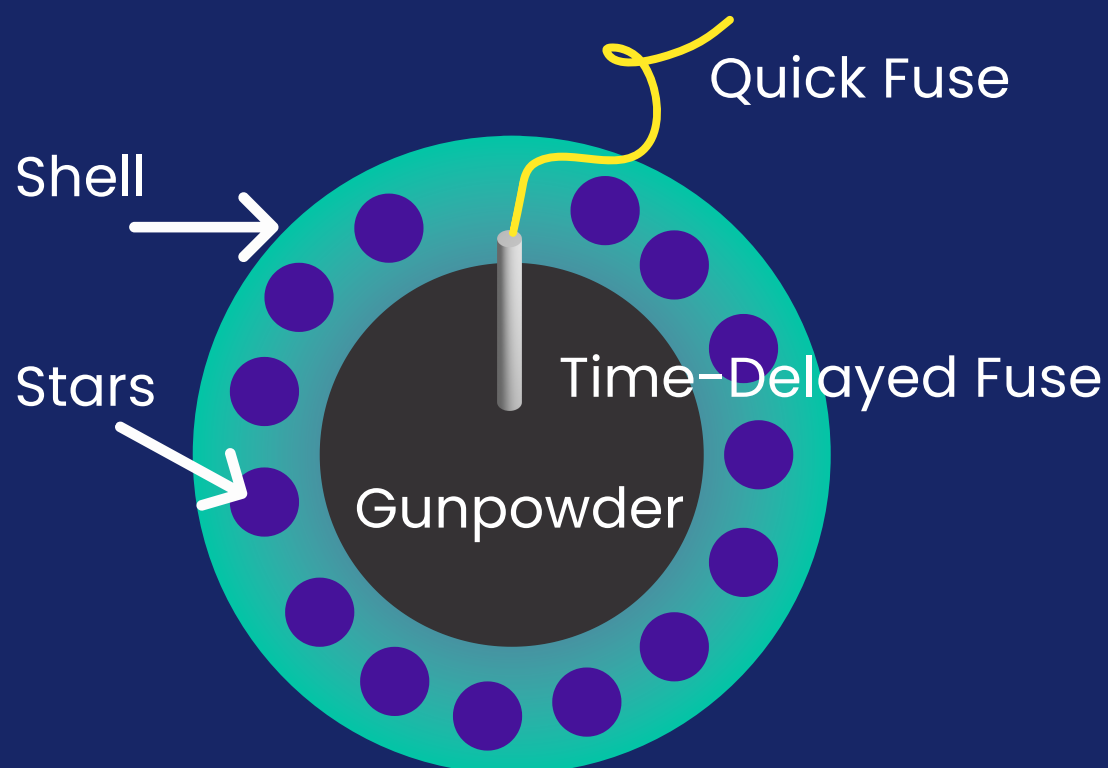


 Perfect timing = perfect display.

★ 3. The Burst:

Combustion in Action

- The core explosion ignites “stars” inside the shell.
- Expanding gases scatter the stars in all directions



💣 Boom = sound + heat + light!

4. Color Chemistry:

What Makes It Glow?

Color	Metal Salt
 Red	Strontium compounds
 Blue	Copper compounds
 Green	Barium compounds
 Yellow	Sodium compounds
 White/Gold	Aluminum, magnesium, iron

 Different metals = different colors!



5. Patterns in the Sky

- The layout of stars inside the shell controls the design.
- Shapes like rings, willows, hearts, and stars are pre-planned!



Physics meets pyrotechnic art.

⚡ Energy at Play:

Chemical → Thermal → Light + Sound

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