The History and Science of Bonfire Night

Learning objective: To analyze the historical origins and the scientific principles behind Bonfire Night, whilst developing inference and evaluative skills.

Read the text carefully. Answer all questions in full sentences, using evidence from the passage where required. For the extension task, demonstrate a deeper understanding of the subject.

Every year on the 5th of November, the night sky across the UK erupts in a kaleidoscope of color. This tradition commemorates the failure of the 1605 Gunpowder Plot, a clandestine attempt by Guy Fawkes and his associates to blow up the Houses of Parliament. While the historical event was a moment of political tension, today it is marked by communal gatherings, bonfire displays, and fireworks. Nova the owl often reminds us that there is fascinating science behind the spectacle. A firework is essentially a controlled combustion reaction. Inside the shell, a pyrotechnic charge containing an oxidiser and a fuel creates the explosive elevator. As the firework ascends, the metal salts inside the stars ignite, emitting specific wavelengths of light that we perceive as vibrant colors: strontium produces deep reds, while copper creates brilliant blues. Max the monkey is particularly fond of the math involved, noting how the trajectory of a rocket must be calculated to ensure it reaches a safe altitude before the colorful display begins. It is a night where history, chemistry, and communal celebration converge under the fall stars.

Word bank: Gunpowder Plot · commemoration · combustion · trajectory · Parliament · tradition · oxidiser · pyrotechnics

1. Identify two specific elements mentioned in the text that are used to create the colors of fireworks. (2 marks)

2. What was the primary goal of Guy Fawkes and his associates in 1605? (2 marks)

3. Why might the author have chosen to include both Nova and Max in the explanation of fireworks? (3 marks)

4. Explain why the author describes the Gunpowder Plot as a 'moment of political tension' rather than just a historical event. (3 marks)

5. Do you believe that modern firework displays are an appropriate way to commemorate a historical conflict? Justify your answer using your own reasoning. (4 marks)

Draw: Draw a scientific diagram of a firework mid-explosion, labelling the 'oxidiser' and 'fuel' components, and showing the trajectory path.

Extension challenge: Compare and contrast the historical significance of Bonfire Night with other national celebrations. Justify why societies choose to mark historical events with public displays, and explain what might happen if these traditions were to stop being observed by future generations.