

## STEAMS Benjamin Franklin Project-Based Lesson Plan (6-8)

**Objective:** The objective of this lesson project is to engage middle school students (grades 6-8) in a comprehensive exploration of Benjamin Franklin's contributions to American society. Through the integration of Science, Technology, Engineering, Arts, Math, and Social Studies (STEAMS), students will gain an interdisciplinary understanding of Franklin's innovations and their impact.

### Key Components

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| <b>Science (S): Electricity and Scientific Inquiry</b>                | Topics: <ul style="list-style-type: none"><li>❖ Explore Benjamin Franklin's experiments with electricity.</li><li>❖ Conduct simple hands-on experiments to understand basic principles of electricity.</li></ul>  |
| <b>Technology (T): Interactive Timeline and Digital Presentations</b> | Topics: <ul style="list-style-type: none"><li>❖ Utilize technology to create an interactive timeline of Benjamin Franklin's life and achievements.</li><li>❖ Develop digital presentations highlighting Franklin's technological innovations.</li></ul> |
| <b>Engineering (E): Designing Simple Machines</b>                     | Topics: <ul style="list-style-type: none"><li>❖ Engage students in designing and building simple machines inspired by Franklin's inventions.</li><li>❖ Discuss engineering principles behind these inventions.</li></ul>                                |
| <b>Arts (A): Political Cartoons and Invention Illustrations</b>       | Topics: <ul style="list-style-type: none"><li>❖ Integrate arts by having students create political cartoons reflecting Franklin's political contributions.</li><li>❖ Illustrate Franklin's inventions through artistic representations.</li></ul>       |

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| <b>Math (M): Analyzing Franklin's Almanac and Mathematical Contributions</b> | <b>Topics:</b> <ul style="list-style-type: none"> <li>❖ Apply mathematical concepts to analyze data and predictions from Franklin's almanac.</li> <li>❖ Explore Franklin's mathematical contributions, such as his work on bifocals.</li> </ul> |
| <b>Social Studies (SS): Benjamin Franklin's Impact on American Society</b>   | <b>Topics:</b> <ul style="list-style-type: none"> <li>❖ Explore the historical and social context of Benjamin Franklin's life.</li> <li>❖ Discuss his roles as a statesman, diplomat, scientist, and inventor.</li> </ul>                       |

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| <b>Resource Needs</b> |
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| <b>1. Planning and Research:</b>              | <ul style="list-style-type: none"> <li>❖ Materials:</li> <li>❖ Technology:</li> <li>❖ Experts/Community Resources:</li> </ul> |
| <b>2. Science Component:</b>                  | <ul style="list-style-type: none"> <li>❖ Lab Equipment:</li> <li>❖ Materials:</li> <li>❖ Technology:</li> </ul>               |
| <b>3. Technology Integration:</b>             | <ul style="list-style-type: none"> <li>❖ Devices:</li> <li>❖ Software:</li> <li>❖ Technical Support:</li> </ul>               |
| <b>4. Engineering Design and Prototyping:</b> | <ul style="list-style-type: none"> <li>❖ Materials:</li> <li>❖ Tools:</li> <li>❖ Technology:</li> </ul>                       |
| <b>5. Arts and Design Elements:</b>           | <ul style="list-style-type: none"> <li>❖ Art Supplies:</li> <li>❖ Multimedia Tools:</li> <li>❖ Technology:</li> </ul>         |
| <b>6. Mathematical Calculations:</b>          | <ul style="list-style-type: none"> <li>❖ Calculators:</li> <li>❖ Tools:</li> <li>❖ Technology:</li> </ul>                     |
| <b>7. Social Studies Connection:</b>          | <ul style="list-style-type: none"> <li>❖ Reference Materials:</li> <li>❖ Guest Speakers:</li> <li>❖ Field Trip:</li> </ul>    |

## Assessment Criteria

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| <b>Science:</b>        | Understanding of Benjamin Franklin's contributions across disciplines.              |
| <b>Technology:</b>     | Effective use of technology for the interactive timeline and digital presentations. |
| <b>Engineering:</b>    | Creativity and functionality in designing and presenting simple machines.           |
| <b>Arts:</b>           | Quality of political cartoons and invention illustrations.                          |
| <b>Math:</b>           | Accurate application of mathematical concepts in analyzing Franklin's almanac.      |
| <b>Social Studies:</b> | Understanding of the historical and social impact of Benjamin Franklin.             |