

Inventions and Innovations
Grade 6

Stage 1 – Desired Results	
<p>Established Goals of the Unit: The program challenges students to invent solutions to self-identified problems. The program stresses the development of a wide variety of problem solving skills and encourages students to apply these skills to life situations. The students will research and identify a problem that can be solved with an invention or innovation.</p>	
<p>Understandings: <i>Students will understand that...</i></p> <p>The ability to recognize a problem and apply critical thinking and problem-solving skills to solve the problem is a lifelong skill that develops over time.</p>	<p>Essential Questions:</p> <p>How are innovations and inventions similar and different? Why are problem-solving skills essential for the future development of products, services, and technologies? How are innovations and inventions developed, tested, and marketed? What are trademarks and patents and how are they acquired?</p>
<p>Knowledge:</p> <p>Students will know that...</p> <ul style="list-style-type: none"> • Innovators and inventors seek to solve problems using trial and error, critical-thinking skills, and a number of other cognitive skills • Innovation is essential in a progressive society • Technology is a powerful research tool 	<p>Do:</p> <p>Students will be able to...</p> <ul style="list-style-type: none"> • Collect and analyze data • Keep accurate records in a logbook • Conduct research • Build a working or non-working model • Prepare and deliver a presentation • Market a product • Take surveys • Use technology for research and development • Work collaboratively to solve a problem
Stage 2 – Assessment Evidence	
<p>Performance Tasks:</p> <ul style="list-style-type: none"> • Design a plan • Make schematics or diagrams • Build a model (working or otherwise) • Test their model • Keep and maintain a weekly journal • Prepare a short presentation • Present their inventions before a selected panel 	<p>Other evidence:</p> <p>Student performance and inventions will be evaluated based on:</p> <ul style="list-style-type: none"> • Usefulness • Market demand • Feasibility of the product • Marketability • Function • Potential profitability • Adherence to guidelines • Record keeping • Presentation skills

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Stage3 – Learning Plan**Learning activities (cognitive, affective, psychomotor):**

- Introduce concepts
- Learn about the patent and trademark processes
- Students research, identify, and debate important inventions and innovations
- Students research how patents and trademarks are acquired
- Watch analyze and discuss selected clips of “Shark Tank”, a television show in which inventors present their ideas to investors
- Students choose an inventor/innovator to study, research
- Students create and present a multi-media presentation about their subject of research
- Students plan, develop, research and present their own innovation or invention

NJCCS:**Cumulative Progress Indicators (CPI)**

5.1.8.A.1. 5.1.8.A.2 5.1.8.A.3 5.1.8.B.1 5.1.12.A.2 5.1.8.D.2 5.1.12.D.2

By the end of Grade 8:

9.1.8.A.1: Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills.

9.1.8.A.2: Implement problem-solving strategies to solve a problem in school or the community.

9.1.8.A.4: Design and implement a project management plan using one or more problem-solving strategies.

By the end of Grade 12:

9.1.12.A.1: Apply critical thinking and problem-solving strategies during structured learning experiences.

RESOURCES:**Various Web Resources**

Teacher-screened clips from “Shark Tank” (hulu.com / abc.com)

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The “Inventions and Innovations” program challenges students to invent solutions to self-identified problems. The program stresses the development of a wide variety of problem solving skills and encourages students to apply these skills to life situations. Students will research and report on important innovations and inventions, both past and present. The students will be developing their problem solving skills in science, engineering, and public speaking, while working to design, develop, and market an original innovation or invention.

Approximate Timeline:

Marking Period 1 – Inventions and Innovations background:

Students will:

- **Introduce concepts and relevant vocabulary**
- **Learn about the patent and trademark processes through research**
- **Students research, identify, and debate important inventions and innovations throughout time**
- **Students choose an inventor/innovator to study, research, and present to the class**
- **Watch, analyze and discuss selected and screened clips of “Shark Tank”, a television show in which inventors present their ideas to investors**
- **Students create and present a multi-media presentation about their subject of research**

Marking Period 2 - Planning and Research Unit:

Students will:

- **Research and identify a problem that can be solved with an invention or innovation (The problem may be a teacher-designated problem or students may self-select))**
- **Conduct research to see if invention exists and is patented, etc.**
- **Conduct student surveys to assess demand for the product**
- **Students begin to implement plan for project completion**

Marking Period 3 - Implement plan / Build Models / Prepare Presentations/ Present Projects

Students will:

- **Design a plan**
- **Make schematics or diagrams**
- **Build models (working or otherwise)**
- **Test models**
- **Keep and maintain weekly journals**
- **Students will prepare a short presentation**

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- **Students will present their inventions before a selected panel.**

Inventions will be evaluated based on:

- **Usefulness**
- **Market demand**
- **Feasibility of the product**
- **Marketability**
- **Function**
- **Potential profitability**
- **Adherence to guidelines**
- **Record Keeping**
- **Presentation Skills**