**Sinquefield Invention Lab- Lake of the Ozarks Scout Reservation**

The purpose of the Invention Lab is to promote creativity and teach STEM related subjects. The Invention Lab will be a 6,000 square foot building, with wireless web and wi-fi, with high end equipment available for year round activity. The Lab will be broken into four to five major labs and three non lab areas. In addition, we will have a mobile Invention Lab with major equipment. We will call them Learning Topics. Jeanne Sinquefield developed the Invention Lab (and funded it) while working closely with Inventor Steve Goldstein, and the Great Rivers Council. The Learning topics cover general tools/skills needed for developing Inventions by Invention Scouts.

**Learning Topics**

1. **Electronic and Robotic Lab**
2. Electronic equipment including soldering.
3. Raspberry Pi and other similar hardware.
4. Arduono programming and other programing languages.
5. Robotic equipment and supplies
6. **2D and Woodworking Lab**
7. Epilog Laser System
8. Metal Working
9. Shopbot or CNC Router
10. Corel Draw and other design software
11. Woodworking tools
12. **3D Lab**
13. 3D Printers
14. Digitizers
15. CNC Milling Machine
16. SketchUp/CAD and CAM Software
17. **Print and Design Lab**
18. Vinyl cutter/ large format printer
19. Digital Fabric Printer
20. Sewing Machines-embroidery, etc.
21. **Multimedia**
22. Photography and multi purpose printer/copier/scanners
23. Adobe Software Photoshop, Illustrator, Premier Pro (video editing)
24. **Leadership**
25. **Business**
26. **Creativity**

**What are Invention Scouts?**

Inventions Scouts will be either part of the Boy Scouts of America Exploring Program or their Venturing Program. The former is school based, and the later includes camping. Invention Scouts include both young women and men aged 14-21. Scouts at 21 can become adult advisors. The following is the general structure of the program.

1. **Skill Based**
2. Programming Languages-
3. Use of Computer Guided Software Programs-
4. Use of computer guided equipment-
5. Electronics/Robotics-
6. Equipment in Invention Labs
7. **Teamwork Based**
8. Leadership skills
9. Working as a team.
10. Delegating responsibilities.
11. Planning of projects.
12. **Creativity through inventions.**
13. Creating new inventions ideas.
14. Solving problems with new inventions.
15. Improving existing products.
16. Invention competitions.
17. **Ethical/Business Knowledge**
18. Ethical behavior
19. Developing Business Plans
20. Productions of new inventions
21. Marketing/Sales of New Inventions.
22. **Community Service**
23. Teaching others to be inventors
24. Inventions that benefit others



**POST OR CREW ORGANIZATION**

* **Adult Advisor**
  + **Assistant Advisors (Mentors)**
    - * **Crew President**
        + **Crew Executive VP**

CREW DEPARTMENTS

**VP of Business**

Leader ship training

Business Plans

Sales

Mass Production

Legal/Intellectual Property

**VP of Technology**

Electronics and Robotics

Programming

Micro-Controllers

**VP of Facilities**

2D Woodworking Lab

3D Lab

Shop Equipment & Tools

Prototype Manufacturing

**VP of Marketing**

Multimedia Lab

Marketing

Social Media

Print and Design Lab



**EXPLORER POST OR VENTURING CREW TEAMS**

4 to 10 members. Mutiple teams in a Post or Crew.

At least one member specializes in each department.

Annual Goals

New members pass 4 apprenticeship skills, one in each department.

Older members work on Journeyman or Master skills, one in each department.

Team competes in at one Invention Competition.

Team posts video and description about one invention on Crew Webstore.

Team does at least one fundraising using invention skills.

Team uses skills learnt for Community Service project(s).

**Ranks/Skill Award/Invention Achievements**

Apprentice – Just learning the tools/skill in a department.

Journeyman – Proficient at the tool/skill and is qualified to teach to the Apprentice

Master- Has mastered the tool/skill and is qualified to teach to both Apprentice and Journeyman.

Scouts can earn Skill Awards and Invention Achievements.

**Advisors \Experts(Mentors)\Volunteers**

Adults leaders must be 21 years or older .

Advisors of a Post or a Crew are responsible for oversight of the Post or Crew. The Crew or Post and their Invention Teams will be Scout run.

Expert(Mentor) offer expertise to teams, and/or give lectures or courses on select skills or tools to Posts or Crews.

Volunteers are adults who help at various times and events when needed.

Invention Scout Leaders will have the opportunity to learn the same skills and tools that Invention Scouts do, and have access to the Invention Lab equipment.

**Starting or Joining a Crew**

The staff of the Great Rivers Council will work with adults to start a Post or Crew. The Council is broken into seven districts served by district executives. Typically the Post or Crew needs a Board of Director (5 people), a meeting place, and a chartering organization. The adult leaders must be registered with Great Rivers Council, Boy Scout of America.

Once a Crew or Post is started then Invention Scouts and adults can join. All adults will be required to take an online youth protection course.

Each Crew or Post and their Invention Teams will determine their Invention focus. Their focus can change over time. For example, a team could focus on inventions in fashion, or bio-medical inventions etc.

The Invention Lab is located at The Lake of the Ozarks Scout Reservation. The Mobile Invention Lab travels across the Council, and can be requested.

**Great Rivers Council, Boy Scouts of America**

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**Lake of the Ozarks Scout Reservation**

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