TRAINING THE NEXT GENERATION OF RADIATION PROFESSIONALS: THE IMPORTANCE OF PLAY-BASED STEAM EDUCATION FOR THE FUTURE

#### By

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Maniacs-Learn through play





### About Maniacs- How it started

- Graduated as Industrial Hygienist- Cancer and cancer causing substances
- Worked in petrochemical, consultancy and later ultra deep gold uranium mines in South Africa
- Radon gas and cancer health effect in underground uranium mines
- Migrated to Australia in 2007- Mineral sands, government and consultancy services







# About Maniacs- How it started

- 2018: Launched mission to inspire the next generation of innovators and problem solvers
- Founded "Maniacs-Learn through play"
- Committed to inclusive and enjoyable STEAM workshops
- Impacting over 100 students weekly
- Dedication to nurturing young minds
- Focus on creating a supportive and dynamic learning environment (ADHD, Autism and other super powers)
  Throw away the worksheets!





### About Maniacs- How it started

What does industry need now and even more in the future:

- Inter disciplinary thinking
- Problem solving
- Innovative thinkers
- Rule benders
- Creativity.
- Critical analysis.
- Independent thinking.
- Initiative.



Digital literacy.





#### What is STEAM

STEAM education seeks to break down traditional disciplinary boundaries and promote a holistic, well-rounded approach to learning. It encourages students to explore, collaborate, and apply knowledge across multiple subjects to address realworld challenges.





### STEAM- the mighty engine

• **Diverse Career Pathways**: Generalists vs specialists- prepare them for an unknown future.

• Environmental and Social Awareness: raise awareness about sustainability, climate change, and other pressing global concerns.

• Hands-On Learning: project-based learning, which makes education more engaging and relevant.

• **Inclusivity:** By integrating arts into STEM, STEAM programs can attract a more diverse range of students, including those who may not initially be interested in traditional STEM subjects.

• Research and Inquiry Skills: how to conduct research, formulate hypotheses, and conduct experiments-skills are valuable in both academic and professional settings.



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### **Benefits of Play based STEAM**

• **Cognitive Skills**: problem-solving, critical thinking, creativity, and imagination.

• **Creativity and Imagination**:. Fostering a deeper understanding of abstract concepts.

• Motivation and Engagement : Happy brains learn better.

• Love of Learning: develop positive attitudes toward learning and education.



• Regulation before expectation: neurodivergent students get space to regulate and can participate without additional pressure of writing and reading or presenting in front of others.







### **Examples of Maniacs lessons**

3-year curriculum is thoughtfully structured to offer students a comprehensive exploration of diverse scientific disciplines while fostering interdisciplinary learning.

#### • Term 1: Broad STEAM Exposure

General STEAM series, including chemistry, physics, environmental science, and engineering challenges.

#### • Term 2: Specialized Technology and Innovation

A specialist series that zooms in on technology and innovation.

• Term 3: Makerspace

Project-based learning, electronics exploration, and innovation.

#### Maniacs Ferm 4: Environmental STEAM

strong emphasis on outdoor activities whenever possible.



# Examples of Maniacs lessons

	2024	2025	2026
Overview STEAM	full steam ahead	ScienceFusion	Magical STEAM
Innovation and technology	Inventions	Flying machine	Frankensteam
Makerspace	Creative clogs toy shop	Makers 1 ( non steerable bots)	Makers 2 ( steerable bot)
Environmental	BeachSTEAM	BushSTEAM	EarthSTEAM













#### What next?

• Maker spaces, tinkle labs , STEAM stations, inter-generational learning spaces.

 School extension and academic support programs – not just selected but all interested.

• Online programs for remote students with roadshows.



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**Questions?** 







