

PRE-UNIVERSITY STEM RESOURCES AND ACTIVITIES

(compiled Jan/Feb 2022 by IEEE NSW Section STEM outreach coordinator, graham.town@mq.edu.au)

1. GOVT/EDUCATION

National STEM Toolkit

- <https://www.dese.gov.au/australian-curriculum/national-stem-education-resources-toolkit>
- <https://www.dese.gov.au/australian-curriculum/national-stem-education-resources-toolkit/i-want-know-about-stem-education/different-kinds-stem-education-initiatives>

NSW Dept of Education Early stage STEM units and activities

<https://education.nsw.gov.au/teaching-and-learning/curriculum/key-learning-areas/stem/early-stage-1-to-stage-3/stem-units-of-work>

Science Teachers Association NSW

<https://padlet.com/STANSW/OnlineTools>

Classroom Resources <https://www.stansw.asn.au/Web/Resources/Classroom-Resources/Web/Resources/Teacher-Resources/Classroom-Resources.aspx>

2. IEEE TRYENGINEERING (PRE-UNIVERSITY STEM)

Main portal/site:

<https://www.ieee.org/education/preuniversity/index.html>

<https://tryengineering.org/>

TryEngineering Teacher Resources <https://tryengineering.org/teachers/>

High School Resources <https://tryengineering.org/teachers/high-school-resources>

Elementary and Primary School Resources <https://tryengineering.org/teachers/elementary-school-and-primary-school-resources/>

TryEngineering Lesson Plans

<https://tryengineering.org/teachers/lesson-plans/>

<https://tryengineering.org/teacher/>

<https://trynano.org/education-resources/nanotechnology-lesson-plans/>

TryEngineering lesson plans for Australian Curriculum

- <https://iee-ac.org/TISP/>
- <https://site.ieee.org/queensland/chapters/tisp/>

TryEngineering Student Resources <https://tryengineering.org/students/>

TryEngineering Volunteer Resources

<https://stemportal-tryengineering.ieee.org/>

Lesson plan toolkits <https://tryengineering.org/engineering-lesson-plan-toolkit/>

Try Engineering Tuesday (Topical engineering blog and webinar with pre-university student activities)

<https://tryengineering.org/teachers/tryengineering-tuesday/>

<https://tryengineering.org/news/tryengineering-tuesday-smart-grid/>

Try Engineering live webinar series <https://tryengineering.org/news/tryengineering-live-webinar-series/>

TryEngineering Teacher Workshops

Volunteer STEM portal - Teacher workshops <https://stemportal-tryengineering.ieee.org/category/9abdffe7-89e0-4c12-a7cd-c5158b24201d>

Canada pre-service teacher training <https://stemportal-tryengineering.ieee.org/programs/detail/ef881bd6-e82d-409f-b1f3-6582cd0dab52>

3. OTHER IEEE

TryNano: <https://trynano.org/>

Reach: history of technology portal <https://reach.ieee.org/>

Robots: (Spectrum) introduces students to robotics <https://robots.ieee.org/>

IEEE Learning Network (online CPD courses) <https://iln.ieee.org/public/TrainingCatalog.aspx>

4. ENGINEERS AUSTRALIA

School Presentation Kits - about engineering

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators/School-Toolkits>

Resources for Schools

For teachers/educators

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators>

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators#All>

All teachers

<https://www.engineersaustralia.org.au/interesting-and-fun-resources>

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators>

School presentation kits

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators/School-Toolkits>

Engineering in the Australian Curriculum (Shireane McKinnie)

<https://www.engineersaustralia.org.au/sites/default/files/resource-files/2021-03/Engineering-in-the-Australian-curriculum.pdf>

Secondary teachers

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators#High%20School>

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators#High%20School>

Engineering Games (Canberra)

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators/Engineering-Games>

Engineering Studies Teacher Program (Newcastle Yr 11&12)

<https://www.engineersaustralia.org.au/For-Students-And-Educators/NESA>

Primary teachers

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators#Primary>

EngQuest packages (primary)

<https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators/EngQuest>

For parents/carers <https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Parents>

Primary

EA Junior Club <https://eajuniorclub.com.au/>

For teachers <https://eajuniorclub.com.au/teachers>

For parents <https://eajuniorclub.com.au/parents>

Secondary

Future of Engineering <https://www.engineersaustralia.org.au/For-Students-And-Educators/Engineering-Careers/Future-Of-Engineering>

Becoming an Engineer <https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Secondary-Students/Become-An-Engineer>

For students and educators <https://www.engineersaustralia.org.au/For-Students-And-Educators>

Primary <https://www.engineersaustralia.org.au/For-Students-And-Educators/Primary-School>

Secondary <https://www.engineersaustralia.org.au/For-Students-And-Educators/High-School>

Tertiary <https://www.engineersaustralia.org.au/For-Students-And-Educators/Tertiary>

Other resources

<https://www.engineersaustralia.org.au/About-Us/Divisions/Newcastle/Virtual-STEM-Resource>

- [What is Engineering?](#)

- [Secondary Students and STEM](#)

- [Discover Engineering: What do Engineers, Associates and Technologists do?](#)

[Find out more information](#) from the National Committee for Engineering Associates and Technologists about the roles of engineers, associates and technologists.

For Volunteers going into schools

<https://www.engineersaustralia.org.au/For-Students-And-Educators/Volunteers>

<https://engineersaustralia.org.au/news/2021/11/member-opportunity-be-involved-state-stem-programs>

Events and Curated Activities

Experience IT (Yr 7-10 girls) <https://www.engineersaustralia.org.au/node/43381>

Discover Engineering (yr 7-10) <https://www.engineersaustralia.org.au/node/43356>

Cochlear Summer School (Yr 11-12) <https://www.engineersaustralia.org.au/node/43391>

Engineering Summer School (Yr 12) 5-10/12/2021 <https://www.engineersaustralia.org.au/node/43386>

Dream big: engineering our world <https://www.engineersaustralia.org.au/news/2021/05/stepping-stem-0>

One of Engineers Australia Queensland's flagship STEM programs is the Dream big: engineering our world events. Organised by Engineers Australia, this event is run in collaboration with universities across the state. School students, from the ages of 8-13, spend an afternoon watching the 'Engineering Our World' film before exploring hands on engineering activities and asking professional engineers questions about their work.

EngQuest <https://www.engineersaustralia.org.au/For-Students-And-Educators/For-Educators/EngQuest>

EngQuest is a free program for primary schools that provides students with a fun way to explore Science, Technology, Engineering and Maths (STEM). EngQuest was created by Engineers Australia as a hands-on experience that children can relate to and has reached over 100,000 students per year since 2014.

5. IET EDUCATION WEBSITE

<https://education.theiet.org/about-iet-education/>

<https://education.theiet.org/support/education-a-z/>

<https://education.theiet.org/key-stage-1-2-3-and-4-free-stem-resources/>

IET magazine <https://eandt.theiet.org/>

STEM Challenges <https://eandt.theiet.org/tags/stem-challenges>

Engineers' stories <https://education.theiet.org/campaigns/look-at-me-now/our-stories/>

FIRST Lego League <https://education.theiet.org/first-lego-league-programmes/>

Santa loves STEM <https://education.theiet.org/campaigns/santa-loves-stem-2020/>

6. OTHERS

- Australian Chief Scientist – STAR portal <https://starportal.edu.au/>
- NSW Chief Scientist & Engineer <https://www.chiefscientist.nsw.gov.au/funding/science-education/science-and-engineering-student-competition-sponsorship-program>
- ATSE (STELR, SAGE, IMNIS) <https://stelr.org.au/>
- CSIRO <https://education.csiro.au/>
 - <https://www.csiro.au/en/education/Resources/Educational-datasets>
 - <https://www.csiro.au/en/education/programs/stem-professionals-in-schools>
- Science and Engineering Challenge <https://www.newcastle.edu.au/faculty/engineering-and-built-environment/science-and-engineering-challenge>
- Engineers Without Borders <https://ewb.org.au/project/school-outreach/>
- Reengineering Australia <https://rea.org.au/>
- F1 In schools <https://www.f1inschools.com/>
- Optus Cybersecurity <https://dayofstem.com.au/optus.html>
- The Engineering Link Group
 - <http://www.telg.com.au/programs/elp/>
 - <https://www.telg.com.au/Australia>
 - <https://www.telg.com.au/stem-outreach/>
- Maker <https://www.makerspaces.com/>
 - <http://makerspacesaustralia.weebly.com/makerspaces-in-schools.html>
 - <http://makerspacesaustralia.weebly.com/projects.html>
 - <https://www.makerspace.org.au/>
 - <https://makezine.com/>
- NASA <https://www.nasa.gov/stem>
- DiscoverE sites: <https://discovere.org/teach/>
- UK STEM <https://www.stem.org.uk/>
- Day of STEM (Started in 2015, but no longer active) <https://dayofstem.com.au/>
 - Education Resource Guide <https://dayofstem.com.au/education.html>
 - Help guide https://dayofstem.com.au/assets/pdf/COL/instructor_getting_started.pdf