Introduction
There are vast numbers of useful resources online for teachers looking for support both in terms of teaching STEM, and addressing the challenge of combating gender stereotypes. This list includes a wide variety of resources which you might find helpful, and we have split it into several sections:

- Educational resources for girls
- STEM careers resources for girls
- General STEM teaching resources
  - STEM combinations
  - Science
  - Technology
  - Engineering
  - Maths
- Specific activities
- General careers information
- Relevant research

If you have resources to add to this list, or find any links that do not work, please email suw@findingada.com.

Educational resources for girls
These websites provide educational resources that are focused specifically on the needs of girls interested in STEM subjects.

**WISE Campaign: People Like Me**
https://www.wisecampaign.org.uk/about-us/wise-projects/people-like-me
The People Like Me project equips teachers and STEM Ambassadors with materials that can show girls aged 11-14 from a diverse range of backgrounds that, if they continue with at least one STEM subject post-16, they are likely to have better prospects and more career choice.

**WISE Campaign: Resources for schools**
https://www.wisecampaign.org.uk/resources/tag/resources-for-schools
Posters, resources and other information for schools.
Code Club: Resources for schools
http://blog.codeclub.org.uk/2015/10/02/ada-lovelace-day-celebrations/
An Ada-themed Code Club project and school assembly pack, for students aged 9-11, which helps shine a spotlight on Ada’s achievements and to help inspire more women and girls into careers in the technology sector.

Girlfriendly Physics
http://girlfriendlyphysics.co.uk/
Resources to help teachers make physics more interesting to girls.

SciGirls: STEM-sational Resources
http://www.pbs.org/parents/scigirls/stemsantional-resources/
SciGirls is designed to spark girls’ curiosity in science, technology, engineering and math (STEM) through activities that promote knowledge and discovery.

National STEM Centre: Girls in Physics - Teacher Resources
http://www.nationalstemcentre.org.uk/elibrary/resource/537/girls-in-physics-teacher-resources
Several publications for teachers that draw from the findings of research into strategies to increase girls' participation in physics post-16.

Girl Geeks: STEM resources for women
http://www.girlgeeks.uk/
Girl Geeks aims to support and develop the talents of females in STEM. Contains links and careers resources.

The Center for STEM Education for Girls: STEM resources for girls
http://stemefg.org/index.php/resources/website-resources/
Research-based information and innovative best practices in STEM education for girls.

EngineerGirl: Girls in engineering resources
http://www.engineergirl.org/
Website to bring national attention to the exciting opportunities that engineering represents for girls and women. Contains facts about engineering, career information and other resources.

DiscoverE: Girls in engineering: Girl Day and other resources
http://www.discovere.org/our-programs/girl-day
A campaign to bring out the engineer in every girl. Includes tips, videos and kits to engage girls in engineering.

G20: Generating Girls Opportunities: STEM teaching resources and career info for girls
http://www.girlsopp.org/1008/for-adults/resources-for-educators/
Resources for educators and parents, including ideas for lesson plans on STEM-related fields, research articles, professional STEM organisations and tips on how to nurture girls in STEM.
STEM careers resources for girls
Help girls understand the vast breadth of STEM jobs available to them, and encourage them to imagine themselves working in a STEM career.

FabFems
http://www.fabfems.org/resources-girls
Resources to share with girls to inspire and educate them about STEM careers and opportunities.

Girls Communicating Career Connections (GC3): Resources for girls about STEM careers
http://gc3.edc.org/
The GC3 project helped middle school aged girls create videos about math and science careers. Teachers can use the videos along with other activities and resources to help girls gain a deeper understanding of STEM careers.

Girls Inc: Tips For Encouraging Girls In STEM
http://www.girlsinc.org/resources/tips-encouraging-girls-stem.html
How to encourage girls who shows interest in pursuing STEM subjects.

National Academy of Sciences: Women’s Adventures in Science
http://iwaswondering.org/
A website for young people about the accomplishments of contemporary women in science. Highlights the varied and intriguing careers of some of today’s most prominent scientists.

NASA Women and Girls Initiative: Women@Nasa
http://women.nasa.gov/outreach-programs/
NASA’s education outreach programs targeted at women and girls, includes fact sheets and other handouts about women and space and aviation history.

Chandra X-ray Observatory: Women in the High-Energy Universe
http://chandra.harvard.edu/graphics/resources/handouts/lithos/women_litho.pdf
Experiences and perspectives of careers, from the women working at Chandra.

Let Toys Be Toys: Lesson plan for primary schools (upper KS2)
http://www.lettoysbetoys.org.uk/lesson-plan-for-upper-ks2/
http://www.lettoysbetoys.org.uk/schools/
This lesson plan has been developed by Let Toys Be Toys as part of our work to help challenge gender stereotypes.

Science Grrl: Women in STEM network
http://sciencegrrl.co.uk/
As well as establishing local connections, we’re also providing a voice for women in science nationally and exploring ways of elevating the profile of women scientists in mainstream culture. We’re keen to collaborate with all who share our vision and values, and are working with a wide variety of organisations, policy makers, media representatives, teachers and schools, and constantly listening out for new ideas for promoting women in science.
Education Scotland: Actions to increase STEM participation
Suggested ideas and links to further research on widening participation in STEM subjects.

Stemettes: Events for schools
http://www.stemettes.org/
Stemettes run events and a schools programme for girls to meet STEM role models, learn STEM skills and see STEM in action.

General STEM teaching resources
Resources to support teachers of any STEM subjects.

STEM combinations
Resources that cover a selection of or all STEM subjects

UPD8 Science upd8
http://www.upd8.org.uk/
Science UPD8 is a new concept – translating the latest breakthroughs and science behind the news, into inspiring activities – and publishing them lightning fast. Caters for topical, relevant science contexts, to introduce lessons in motivating ways, and encourage discussion through short easy to use activities.

National STEM Centre: Support for schools
https://www.nationalstemcentre.org.uk/stem-in-context/support-for-schools
The National STEM Centre holds the UK’s largest collection of teaching resources for STEM subjects for use with students from early years to post-16.

Science NetLinks: Science and lessons tools for K-12
http://scienencenetlinks.com/
Science NetLinks provides K-12 teachers, students, and families with quality resources for teaching and learning science.

HippoCampus: Multimedia teaching aids
http://www.hippocampus.org/
Free, core academic website that delivers rich, multimedia content - videos, animations and simulations - on general education subjects to middle- and high-school teachers and students.

The Low Carbon Partnership: Our Planet
http://www.ourplanet.org.uk/our-planet-teaching-resources.asp
Our Planet is an educational resource that connects school learning and real world issues to explore the topical themes of renewable energy, climate change and the environment. Suitable for Key Stages 1-4, and focuses particularly on wind and solar energy.

Northern Ireland curriculum: STEM Works!
http://www.nicurriculum.org.uk/STEMWorks/links/
STEM teaching resources, support and further links, all mapped to the NI curriculum.

*Nuffield Foundation: STEM resources*
[http://www.nuffieldfoundation.org/teachers](http://www.nuffieldfoundation.org/teachers)
STEM education projects and free teaching resources.

*BP Educational Service (BPES): STEM resources*
Committed to increasing young people’s understanding and enjoyment of Science, Technology, Engineering and Maths. The free educational resources for 4-19 year olds bring classroom topics to life with the use of real-world examples.

*The University of Manchester: STEM resources*
[http://www.manchester.ac.uk/connect/teachers/students/secondary/subjects/stem/resources-contacts/](http://www.manchester.ac.uk/connect/teachers/students/secondary/subjects/stem/resources-contacts/)
STEM resources for the classroom and links to activities in the North West of the UK.

*University of Reading: STEM resources*
[https://www.reading.ac.uk/stemnet/Resources/stemresources.aspx](https://www.reading.ac.uk/stemnet/Resources/stemresources.aspx)
STEM resources - activities, websites and career information for schools.

*RTC North: STEM resources*
[http://stem.rtnorth.co.uk/resources/](http://stem.rtnorth.co.uk/resources/)
Resources to support teachers in delivering activities in STEM.

*Intel: Intel Education STEM resources*
Intel provides STEM curriculum, competitions, and online resources to encourage students’ interest and participation.

*Texas A&M University: STEM resources for K12 teachers*
[http://guides.library.tamu.edu/content.php?pid=298080&sid=2446055](http://guides.library.tamu.edu/content.php?pid=298080&sid=2446055)
The Science and Engineering Librarians at Texas A&M University have created this resource guide to assist K-12 students and teachers in finding interesting and fun resources, lesson plans, games, etc, for their classes.

*Practical Action: STEM resources*
[http://practicalaction.org/stem](http://practicalaction.org/stem)
Resources and ideas that can be incorporated into science lessons.

*Practical Action: Links to the UK science curricular*
[http://practicalaction.org/globallearninginscience](http://practicalaction.org/globallearninginscience)
Documents to show how global learning can be linked to the difference science curricula in the UK and give examples of Practical Action's teaching resources and other materials that can be used to support delivering science lessons.

*STEMFirst: Teaching resources*
[http://www.stemfirst.com/resources/](http://www.stemfirst.com/resources/)
Links to the major providers of STEM opportunities in order to support your STEM involvement and help nurture your STEM activity.

*Science Oxford: Teaching resources*
http://www.scienceoxford.com/schools/stem-resources
Outreach events, kitloans and resources.

*Science & Technology Facilities Council: Teaching resources*
http://www.stfc.ac.uk/public-engagement/for-schools/
Events for schools at UK laboratories, support for teachers and web-based resources.

*Science Technology Mathematics and Engineering Network (STEMNET): Teaching resources*
http://www.stemnet.org.uk/
STEMNET works with schools and colleges to help educators inspire students in STEM (Science, Technology, Engineering and Maths).

*The Royal Society: Teaching resources*
http://invigorate.royalsociety.org/
Curriculum-linked science teaching resources. All our resources are based on the work of scientists connected with the Royal Society, allowing teachers and students to find out how science in the past is relevant for our lives today, or how the latest scientific research might impact on society.

*Imperial College London: Teaching resources*
https://www.imperial.ac.uk/be-inspired/student-recruitment-and-outreach/schools-and-colleges/teachers/secondary-school-resources/
STEM presentations on different topics.

*The Royal Institution: The STEM Directories*
http://www.stemdirectories.org.uk/
A searchable database of activities that help enhance STEM teaching in schools.

*Sesame Street: Little Discoverers*
http://www.sesamestreet.org/parents/topicsandactivities/toolkits/stem
Discover ways to explore STEM in the classroom!

*The Smallpeice Trust: STEM resources*
http://www.smallpeicetrust.org.uk/stem-information-overview/
Resources and information for setting up STEM clubs, organising STEM Days and teacher training days.

*Science*

*Engineering, Go For It! (eGFI): Engineering resources*
Lesson plans, class activities and web resources.

*Science Buddies: Science projects*
Resources, activities and guides for teachers to run science projects.

*Discovery Education: Free teaching resources*
http://www.discoveryeducation.com/teachers/
Discovery Education offers a broad range of free classroom resources that complement and extend learning beyond the bell.

*PBS LearningMedia: Teaching aids*
http://www.pbslearningmedia.org/
PBS LearningMedia provides educators with access to free digital content and professional development opportunities designed to improve teacher effectiveness and student achievement.

*Association of the British Pharmaceutical Industry (ABPI) Schools: Biology resources*
http://www.abpischools.org.uk/page/index.cfm
Free resources for teachers and students. High quality interactive materials cover many science topics in the primary and secondary school curriculum. At secondary level they focus on biology topics linked to the treatment of disease.

*Biotechnology and Biological Sciences Research Council (BBSRC): Bioscience teaching resources*
http://www.bbsrc.ac.uk/engagement/schools/
Teaching resources to download for primary and secondary school science education, and information on school-scientist links.

*Zooniverse: Science projects*
https://www.zooniverse.org/projects
http://www.zooteach.org/
A citizen science project. Citizen science offers a unique opportunity for any person, of any age, of any background to get involved and make a contribution to cutting edge science. Getting students involved in citizen science offers educators a free, easily accessible and inspiring opportunity to bring real science into the classroom.

*The Institute of Materials, Minerals and Mining: Schools affiliate scheme*
http://www.iom3.org/schools-affiliate-scheme
Information on membership of the Scheme and access to a range of resources which will support and enhance your teaching. Within the site you will find a wealth of information to help you bring the materials, minerals and mining topics in the 11 to 19 curriculum to life.

*Royal Society of Chemistry: Learn Chemistry teaching resources*
http://www.rsc.org/resources-tools/education-resources/
Learn Chemistry is our home for chemistry education. Educators and students at all levels from primary school to university can access thousands of free resources.

*The Society of Biology: Biology resources*
http://biologyheritage.societyofbiology.org/bcw-schools
Website and app resources for primary and secondary schools. Explore the places, people, and stories of those involved in biological research.

**Science Online: Teaching resources**
http://scienceonline.tki.org.nz/
New resources in three areas of dynamic change possibilities for science education in New Zealand schools.

**Science NetLinks: After school clubs**
http://sciencenetlinks.com/afterschool-resources/
Afterschool resources offer informal, often hands-on, science activities. Each one includes a facilitator page, as well as online and printable pages for kids.

**Technology**

**Code Club**
https://www.codeclub.org.uk/
A nationwide network of volunteer-led after school coding clubs for children aged 9-11.

**CAS #Include: Computing resources**
http://casinclude.org.uk/
Opportunity for all students to study computer science, regardless of gender, race, socio-economic status, SEN or disabilities. Provide events and free resources.

**Carnegie Mellon: Robotics Academy**
http://education.rec.ri.cmu.edu/
Our mission is to use the motivational effects of robotics to excite students about science and technology. The Robotics Academy fulfills its mission by developing research-based solutions for teachers that foreground CS-STEM and are classroom tested.

**nanoHUB: Nanotechnology resources**
http://nanohub.org/groups/education
Educational resources for nanoscience and nanotechnology - simulation tools, learning packages, videos and other resources.

**Technology Will Save Us: Technology resources**
https://www.techwillsaveus.com/
Technology resources and kits.

**Digital Schoolhouse: Digital Schoolhouse Project**
http://www.digitalschoolhouse.org.uk/workshops
http://www.digitalschoolhouse.org.uk/content/playful-computing
Education resources aimed at Years 5 & 6.

**Siemens Education: Teaching resources**
https://www.siemens.co.uk/education/en/teachers/employee-volunteers-school.htm
Siemens Education offers a range of unique and engaging materials and practical activities based on some of the ground-breaking projects and technologies Siemens is engaged in.

**CS Unplugged: Computing resources**
http://csunplugged.org/
A collection of free learning activities that teach Computer Science through engaging games and puzzles.

**Engineering**

*Royal Academy of Engineering: Engineering teaching and learning resources*
http://www.raeng.org.uk/education/schools/teaching-and-learning-resources
Resources created by teachers and engineers that aim to engage school students with science, technology and mathematics by placing these subjects in engineering contexts.

*The Institution of Engineering and Technology (IET): Engineering and technology teaching resources*
http://www.theiet.org/resources/teachers/
Teaching resources for schools and colleges including classroom resources, posters, magazines and project funding.

*The Institution of Engineering and Technology (IET): IET Faraday*
http://faraday.theiet.org/
The IET's collection of online teaching resources; the curriculum-linked teaching materials include classroom activities, films of engineering case studies, engineering profiles and interactive games and quizzes. The IET Faraday website also has information on hosting IET Faraday Challenge Days and ordering careers information.

*Institution of Civil Engineers (ICE): Civil engineering resources*
https://www.ice.org.uk/disciplines-and-resources/educational-resources
Activities, videos and other resources on civil engineering.

**Maths**

*We Use Math: Maths resources*
http://weusemath.org/?page_id=5
Resources for teachers, including a teacher’s forum, downloadable videos, curriculum ideas, and interesting problems.

*Bowland Maths: Maths resources*
http://www.bowlandmaths.org.uk/index.html
A collection of free resources to support rich problem-solving activities in secondary school maths, including classroom materials, assessment tasks and professional development. The materials is aimed at Key Stage 3, the first years of secondary school in England.

*Churchill Maths: Maths resources*
http://www.churchillmaths.co.uk/cmlweb/freeResources.html
A collection of free resources to add interest to maths lessons.

**Maths on Toast: Maths resources**
http://www.mathsontoast.org.uk/
Making maths creative, family fun. Schools and parents can get involved in community maths events.

### Specific activities
These resources provide information on specific activities that you can do with your class.

**The Royal Institution: Science for kids - Coloured pens experiment - ExpeRimental #11**
https://www.youtube.com/watch?v=qV4vagQEZ5c
Teach children how to find the beautiful hidden colours in ink and use chromatography to solve mysteries.

**The Royal Institution: Science for kids - How to make fizzy bottle rockets - ExpeRimental #16**
https://www.youtube.com/watch?v=z4645B03AC4
Make a juice bottle rocket fly through the air with some fizzy tablets and water in this fun science experiment for children.

**Royal Society of Biology: Biology Week in Schools**
https://www.rsb.org.uk/get-involved/biologyweek/schools
An opportunity to encourage enthusiasm for biology in and around the curriculum.

**PyCon: Young Coders tutorial**
https://github.com/mechanicalgirl/young-coders-tutorial
Resources for teaching children coding.

**Science & Technology Facilities Council: Borrow the Moon**
http://www.stfc.ac.uk/public-engagement/borrow-the-moon/
Valuable samples of moon rock and soil were brought back to Earth by NASA's Apollo astronauts. Five educational packages are available free of charge for short term loans of lunar samples and meteorites.

**Natural Selection Learning: Natural specimen resource kits**
http://www.naturalselectionlearning.co.uk/resource-kits.html
Provide boxes of interesting specimens for schools and other groups. All boxes contain activities and worksheets that can be used in class.

**Chandra X-ray Observatory: Recoloring the Universe for #HourOfCode with Pencil Code**
http://chandra.si.edu/edu/pencilcode/
http://event.pencilcode.net/home/hoc2014/
Grades 4-12 students can learn how astronomers use computers to create images and understand their data (no prior coding experience necessary). Working with data from NASA's Chandra X-ray Observatory and other telescopes on topics from exploded stars, to star-forming regions, to the area around black holes, students learn basic coding (for
beginners - no experience required) and follow a video tutorial to create a real world application of science, technology and even art.

**European Space Education Resource Office (ESERO-UK): Tim Peake space mission resources**
http://www.nationalstemcentre.org.uk/timpeake
Resources and support for teachers to inspire pupils about the Tim Peake space mission to the International Space Station.

**Google: Science lesson plans**
https://www.googlesciencefair.com/en/resources
Developing students’ understanding of the scientific method, the impact of science and engineering on the world, and their ability to take part in and influence change in the world.

**Robots vs Animals: Engineering lesson plans**
http://robotsvsanimals.net/teaching-materials/
Exciting educational activities to promote engineering. Resources support National Curriculum objectives for Science and Design & Technology.

**Intel: Design and Discovery**
https://engage.intel.com/community/teachersengage/intel_teach/dannd
Academic enrichment curriculum for ages 11-15 that engages students in hands-on engineering and design activities that enhance knowledge, and problem solving skill in the areas of science and engineering.

**General careers information**
These sites provide general careers advice and information for all students.

**Future Morph: STEM Careers**
This pack has been designed specifically with parents in mind so that you can work through the activities with your children and help to show them the relevance of science and maths, not only in their future careers, but in their everyday lives.

**Practical Action: STEM careers in development**
http://practicalaction.org/careers-1
Students are often unaware of the opportunities open to them if they study STEM subjects at school. These resources, comprising of a poster and four case studies, are designed to increase awareness of the just some of the potential careers open to them in international development.

**Science Council: STEM career info**
http://www.sciencecouncil.org/10-types-scientist
Identifying the different types of scientist and what a typical job may involve.

**Your Life: STEM career info**
http://yourlife.org.uk/
Your Life is a three-year campaign to helping young people in UK build the skills needed to succeed in the current competitive global economy. We hope to inspire young people, to study Maths and Physics as a gateway into wide-ranging careers. Taking Maths and Science at school does not just lead to a career in a lab coat or hard hat, having these skills will help you succeed in all sectors.

*The Institution of Engineering and Technology (IET): Engineer A Better World*
[https://www.youtube.com/watch?v=3GsZ1J2tGZ8](https://www.youtube.com/watch?v=3GsZ1J2tGZ8)
The IET has developed the ‘Engineer a Better World’ campaign to inspire the next generation of engineers and technicians by encouraging young people and their parents to nurture their curiosity and think differently about careers in engineering. The campaign will also showcase interesting female role models who have fun, creative and rewarding careers.

*TeenTech: Science and technology events*
Runs lively events with a supporting Award scheme to help young teenagers see the wide range of career possibilities in Science, Engineering and Technology.

*Robots vs Animals: Robotics careers*
[http://robotsysanimals.net/schools-programme/career-role-models/](http://robotsysanimals.net/schools-programme/career-role-models/)
Information on how to get into robotics.

*Association of the British Pharmaceutical Industry (ABPI): Pharmaceutical careers*
Information on careers in the pharmaceutical industry.

*The National Science Learning Centre, White Rose Consortium: Continuing Professional Development*
[https://www.sciencelearningcentres.org.uk/consortia/national/](https://www.sciencelearningcentres.org.uk/consortia/national/)
The National Science Learning Centre is a purpose-built, state of the art facility based at the University of York. It provides high quality continuing professional development for everyone involved in the teaching of science, in primary and secondary schools and FE colleges from across the UK.

*Quickstart Computing: Computing resources*
A CPD toolkit to help deliver inspiring computer lessons in primary and secondary schools.

**Relevant research**
A selection of some of the research that has been done around the issue of girls’ engagement in STEM.
WISE Campaign: Not for people like me
https://www.wisecampaign.org.uk/resources/2015/09/not-for-people-like-me-research-summary
Under-represented groups in science, technology and engineering. A summary of the evidence: the facts, the fiction and what we should do next.

National Girls Collaborative Project: Research on girls in STEM
http://www.ngcproject.org/engaging-girls-stem
Publications that summarize research focused on what works to engage and support girls in STEM.

Johns Hopkins University: What We Know about Girls
http://www.jhuapl.edu/mesa/resources/docs/whatweknow.pdf
What We Know about Girls, STEM, and Afterschool Programs A Summary Prepared by Cheri Fancsali, Ph.D. for Educational Equity Concepts.

Girl Scout Research Initiative: Generation STEM Report
Generation STEM: What girls say about STEM.

UK Association for Science and Discovery Centres
http://sciencecentres.org.uk/reports/underserved/UK%20Science%20and%20Discovery%20Centres%3b%20Effectively%20engaging%20under-represented%20groups%20(May%202014).pdf
A report on effectively engaging under-represented groups.

Churchill Trust
To study strategies to get girls interested in science, engineering and technology.

Education Scotland: Research briefing
This briefing looks at gender balance in STEM subjects in schools.

King’s College London: ASPIRES project
http://www.kcl.ac.uk/sspp/departments/education/research/aspires/ASPIRESPublications.aspx
Publications and research on the ASPIRES project, which tracked the development of young people’s science and career aspirations from age 10-14.
Feedback
If you have any feedback on these scenarios, or the rest of the education pack, or if you would like to provide suggestions for improvements, please contact Suw Charman-Anderson at suw@findingada.com.

About this pack
This free education pack comprises of:

- Notes for Teachers
- Introduction to Teaching Scenarios
- Teaching Scenario 1: The Ultrobot
- Teaching Scenario 2: The Recruitment Fair
- Teaching Scenario 3: The Charitable Trust
- Useful Resources
- The Amazingly Enormous Careers Poster
- Ten Types of Scientist poster
- Ada Lovelace poster

All resources have been produced by Ada Lovelace Day, and are available to download for free from their website, findingada.com. These files will be continually updated so please do check the website for the latest versions.

For schools who wish to buy prints of the posters in sizes up to A0, these are available online from the Ada Lovelace Day RedBubble store, with prices starting at £10.99.

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