



2023/2024



# Youth STEMM Award Participants' handbook

## Gold Level

# Hello and welcome

This booklet is designed to be your companion throughout your journey to achieving a Youth STEMM Award at Gold level. By taking part, you will develop your skills and experience across a range of areas and create a record of achievement to help you stand out in applications and interviews for higher education and jobs.

The Gold level award is for students who have committed to studying a STEMM subject past Year 11 and requires a minimum of 150 hours of activity across the four strands to be completed. It is usually for those who have already achieved either a Bronze or Silver Award, but this is not compulsory and if you are enthusiastic and committed there is no reason why you can't aim straight for Gold.



By the end of the programme, we hope you'll feel better prepared and more confident to take your next steps into STEMM, whether that's through higher education, hands-on training or simply by feeling more connected and interested in STEMM topics.

We hope you enjoy the journey, good luck!  
*Dr Simon Fox and Dr Samantha Fox,*  
*Co-founders,*  
*Youth STEMM Award CIC*

## STEMM stands for:



Science



Technology



Engineering



Maths



Medicine

# About the Award:

For those who are new to the Youth STEMM Award, read on to learn about the basics of how it works:

The Youth STEMM Award (YSA) is a skills framework for young people, designed to support and inspire the next generation into STEMM, which stands for: Science, Technology, Engineering, Mathematics and Medicine.

As part of your journey to achieving a Youth STEMM Award, you'll need to take part in extracurricular activities and log them to the YSA e-portfolio. When enough activity hours have been logged and the criteria are met in each of the four strands (see *page 4*), you'll receive a certificate and a medal. Your e-portfolio can be downloaded as a record of achievement for future applications and interviews. Your coordinator will help guide you through the programme, identify activities and sign them off as completed.

1



2



3



- ▶ Undertake STEMM-based activities and decide which of the four core strands they fit into
- ▶ Log hours onto the e-portfolio to complete the strands
- ▶ Accumulate virtual badges and build your portfolio
- ▶ Receive a medal and certificate upon completion of Award

# Skills you will develop:

By completing activities in these skill areas you will set yourself up for success in your future STEMM career:



**Inspiring**  
the next  
generation

By **inspiring** the next generation you will become a role model to younger children and develop leadership skills and confidence.



**Engaging**  
the public

By **engaging the public** you will develop your communication skills and help your family and community to appreciate STEMM topics.



**Developing**  
your skills and  
knowledge

By **developing skills and knowledge** you will explore topics over and above the national curriculum in areas that interest you.



**Shaping**  
your future

By **shaping your future** you will focus on careers in STEMM and explore options you may not have previously considered.

## Top Tip:

These are the four YSA core strands. You will need to undertake activities in each of these areas to complete your Award.

# Achieving a Gold-level Youth STEMM Award



In order to achieve your Gold Award, you will need to undertake a minimum of 150 hours of STEMM-based activities. You will also need to meet certain criteria in each of the four strands. You must also be currently undertaking at least one STEMM qualification at Level 3. For the Gold Award you must cover all STEMM areas in each of the strands. You should also identify one area that you will focus on in-depth for the Developing and Shaping strands

An activity can count for more than one area of STEMM, for example a visit to a museum might involve both Science and Technology. Before you start an activity, it's a good idea to be clear on which strand it covers, and which of the five STEMM areas are involved. For each activity you undertake, you'll need to identify an Assessor. This should be an adult who can authorise that you took part in the activity and add a comment to your e-portfolio.

## Top Tip:

You can take as long as you need to complete your Award.

If you are undertaking an activity at school or at home, your School or College Coordinator can act as your Assessor. If you are taking part in an activity at somewhere else, your Assessor should be someone involved in the activity, such as a work experience host. Check with your Coordinator if you are unsure about whether someone is a suitable Assessor.

You can start and complete your Award at any time of the year and take as long as you need to undertake the required hours. You can continue working towards your Award over the holidays and can even roll into the next school year. Achieving Gold level can take around 18 months to complete, so we recommend starting your Award at the beginning of Year 12 if you can.

# What you need to do in each strand at Gold level:



30 hours minimum of **inspiring** the next generation



30 hours minimum of **engaging** the wider public



45 hours minimum of **developing** your skills and knowledge



45 hours minimum of **shaping** your future career

More detail on each of these strands can be found in the following pages of this handbook, along with some suggested activities.

## Steps to success:



# What counts as an activity?

When looking for potential activities there are a few things you need to check:

- Does it involve at least one area of STEMM?
- Is it outside normal lessons and homework?
- Which YSA strand does it best fit into?

You cannot count time spent in regular lessons or on homework but you can include other activities carried out at school such as after-school clubs:

## Yes (if STEMM related):

- ✓ *After school clubs, open evenings and public events*
- ✓ *School-organised trips*
- ✓ *Extra study in your spare time to learn more about a topic that you were introduced to at school*

## Does NOT Count:

- ✗ *Work carried out in normal lessons*
- ✗ *Homework*
- ✗ *Exam-specific revision of topics learnt in school*
- ✗ *Activities that don't involve STEMM*

When deciding which strand your activity fits into, remember you can split the time (but you can't double count!).

## Example activity:





## Inspiring the next generation

In this strand you will develop leadership skills and act as a role model. You should work directly with young people and produce your own resources aimed at inspiring them about STEMM topics or careers. Your audience should be the same age as yourself or younger. For the Gold Award you should:

- Complete at least 30 hours of activities in this strand over the course of the Award.
- Work with at least two different groups of students or a minimum of two different individual students, including those from another school or organisation (e.g. at a youth group).
- Develop and deliver a STEMM activity or project for younger students
- Mentor or tutor at least two other young people and teach some STEMM content

### Top Tip:

You can work on your own or as part of a team

### Some example activities:

- Run a DNA themed activity with a local youth group or primary school. This could be on your own or part of a team.
- Mentor or tutor a young person (can be a sibling) on a STEMM topic, or help with homework or home schooling.
- Work in a small group with your teacher to organise a lunchtime science talk for your peers – invite a speaker from one of the YSA partner organisations or a local STEM Ambassador to give a talk.
- Make a poster for British Science Week to communicate a STEMM topic that is aimed at young people, to be displayed in school or in a community location.





## Engaging the public

In this strand you will develop your communication skills by helping the public to better understand STEMM topics. You will ideally take part in face-to-face activities at events, but can also use the internet for online activities. You can work with your family and your local community, including at your school or college. You should use multiple forms of communication including written, oral and creative design and should demonstrate the use of social media or technology (ie digital skills). For the Gold Award you should:

- Complete at least 30 hours of activities in this strand over the course of the Award.
- Help to develop and deliver an activity to engage the public at two public events in different settings (one can be your school).
- Take part in a debate or deliver an oral presentation (e.g. with slides) to a group or at a conference
- Create a poster to present to the public and produce a written blog or article

### Some example activities:

- Create a video to inform and educate, for example about environmental topics.
- Write an article for the school newspaper or magazine, or launch one if there isn't one already.
- Plan and deliver an experiment for a school open day or organise a science fair
- Create a poster to be displayed in a public place or other organisation (like a residential home, or community centre).

### Top Tip:

How about writing a blog for the YSA website?



## Developing skills and knowledge

In this strand you will enhance your understanding of topics related to STEMM, including learning new skills that are beyond the national curriculum. By undertaking activities in this strand, you will be able to explore areas that interest you and evidence your commitment and enthusiasm to extend beyond the curriculum. For the Gold Award you should:

### Top Tip:

Activities can be virtual or in person

- Complete at least 45 hours of skill development in this strand over the course of the Award.
- Produce a research project on a new topic, such as an EPQ (a maximum of 25 hours can be used from an EPQ)
- Attendance at three events held at a minimum of two STEMM venues or online (such as attending a webinar or talk)
- You must be doing at least one STEMM Level 3 qualification

### Some example activities:

- Take part in an after-school club, or undertake a CREST Award or Big Bang Project to learn new skills.
- Visit a science museum or other organisation that involves STEMM.
- Watch, listen and read educational STEMM-related content, such as the Royal Institution Christmas Lectures, science podcasts or the Youth STEMM Award newsletter.
- Time spent researching a STEMM-related topic that you go on to 'inspire the next generation' or 'engage the public' with.



## Shaping your future

In this strand you will focus on exploring further and higher education, training and careers in STEMM. You are expected to research different pathways and find out about areas that you may not have previously considered. The aim is to help you widen your future options and make informed decisions. For the Gold Award you should:

- Complete at least 45 hours of activities in this strand, a maximum of 25 hours can count from any individual activity.
- At least 25 hours must be linked directly to STEMM careers, and must include work experience, or shadowing.
- Show evidence of working towards a STEMM career pathway and take part in practise interviews with someone outside of your setting where possible.
- Identify one area of STEMM to research careers in more detail, ideally interviewing someone who works in that field to find out about their career. Produce a written article to summarise your findings.

### Top Tip:

Check out the Wellcome Connecting Science speaker series featuring diverse role models in STEMM

### Some example activities:

- Research a STEMM-related career to find out what the job involves and what qualifications are required.
- Undertake work experience or work-shadowing to experience a STEMM-related career (virtual or in-person).
- Attend university or college open days to explore options for future study, practise applications and carry out mock interviews under the guidance of a mentor or careers advisor.
- Attend a careers fair or watch videos recorded by STEMM professionals to learn about their job, for example the My STEMM Future Speaker series.

Click the  
QR code:



# Who is supporting you?

## At your organisation:

Your school or college Coordinator will guide you through the programme and help you to get started. If you are registered independently, your Coordinator will be from the YSA team. Your Coordinator will moderate the activities that you log and check you have provided a good description and enough evidence.

### Top Tip:

Your YSA Coordinator can help you plan out your activities and make sure they are appropriate for each strand

All the activities you undertake also need to be signed off by an Assessor, someone who was involved with the activity and can confirm that you took part. They can also leave feedback which forms part of your portfolio. Your Coordinator can act as your Assessor for activities that they are involved with, or activities that you undertake at home or online where there is no other independent person involved.

## At home:

We recommend letting the people you live with know that you are working towards a Youth STEMM Award. They might have some ideas for ways you could gain hours by doing activities at home. If you have younger children in your family you could do activities with them for 'Inspiring the next generation'.

## Online:

Want to plan an activity with another group? Why not reach out to the Youth STEMM Award community online. You could plan a joint remote activity and maybe even ask one of our patrons to get involved. Connect with us on social media to share your stories and reach a wider audience.

# Setting up your e-portfolio:

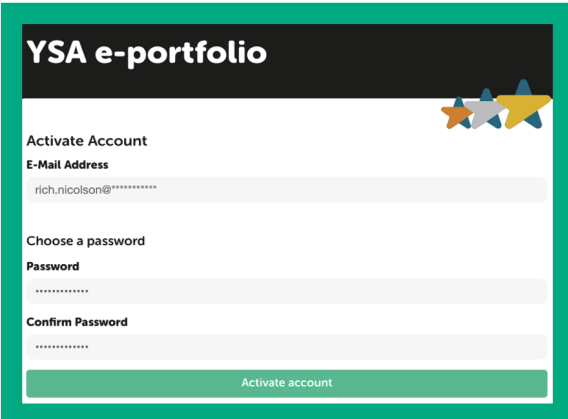
If you have already completed a Bronze or Silver level Youth STEMM Award this process should be familiar to you. For anyone new to the Award, read on for an overview of how it works.

Your e-portfolio is where you should log all of the STEMM activities you take part in during the course of your Award. It will help keep you on track with your progress and let you know what you need to do to complete. As you progress you will unlock virtual badges that will be added into your e-portfolio. You can download your portfolio at any time to help with applications for college, university or jobs.

Once your Coordinator has added you to the system, you'll receive an email asking you to activate your account. Follow the link to complete your registration and set up your password.

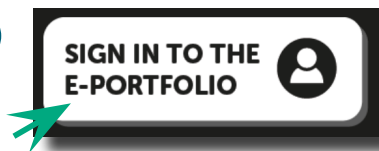
You'll need to complete your profile including your school year and postcode. It is important that this information is correct and up-to-date so that you don't miss out on any opportunities. If anything changes you can update it by clicking 'edit profile'. We look after this data very carefully and you can read our full privacy policy by visiting [www.ysawards.co.uk](http://www.ysawards.co.uk).

You are now ready to log your first activity!

A screenshot of the 'YSA e-portfolio' activation page. The page has a dark green header with the title 'YSA e-portfolio' in white. Below the header, there are three stars (yellow, blue, and green) in the top right corner. The main content area is white and contains the following sections: 'Activate Account' with a sub-label 'E-Mail Address' and a text input field containing 'rich.nicolson@\*\*\*\*\*'; 'Choose a password' with a sub-label 'Password' and a text input field containing '\*\*\*\*\*'; and 'Confirm Password' with a sub-label 'Confirm Password' and a text input field containing '\*\*\*\*\*'. At the bottom of the form is a green button labeled 'Activate account'.

# How to submit an activity:

1

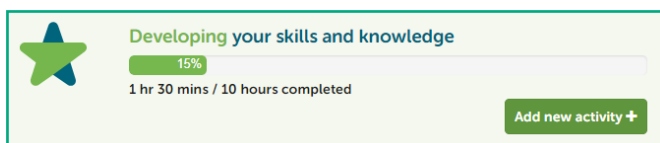


## Top Tip:

To log an activity, visit [www.ysawards.co.uk](http://www.ysawards.co.uk) and follow the link to sign in to the e-portfolio

2

Choose the strand that best matches the activity and click 'add new activity'.



3

## Add a new 'Developing your skills and knowledge' activity

### Activity title

Watching the Royal Institution Christmas Lectures 2020

### Provider

Undertaken at home

### Activity Description

I watched Lecture one 'Engine Earth' which focuses on climate change throughout history going from hot to cold ice-ages and how fossils provide evidence for these changes. I learnt how human activity is now causing the Earth's climate to change because of the amount of carbon dioxide in our atmosphere. This is changing at

### Hours

01:00

### Date undertaken

January 2021						
Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

### STEMM Discipline



Science



Technology



Engineering



Mathematics



Medicine

Enter the details on the form. Be sure to include a clear title and description so that your coordinator understands exactly what you did. This includes the length of time the activity took, the date it took place and the area(s) of STEMM it involved.

Save the submission as a draft to continue later or click 'submit' when you are happy that you have included all the information.

Finally, provide the name and email address of an adult who was involved with the activity, eg. a work experience host. They will receive an automated email asking them to verify that you took part and have the option to add comments. If you did an activity at home, such as watching a TV documentary, or at school, tick the box 'use my coordinators details'.

### Top Tip:

You can only include activities that you have taken part in since you registered for Youth STEMM Award.

4

Assessor name

Name

Assessor email address

Email address

If you don't know your assessor's details, or your co-ordinator is assessing this activity, please tick below

☒ Use my co-ordinator's details

Submit

## Activity submission checklist:

### Activity title:

This should be a clear summary of what you did – e.g. 'Attended a Chemistry lecture presented by John Innes Centre' or 'Supported my younger sister with her Maths homework'. If you're not too sure if you've achieved this, ask yourself – would someone reading the title know what the activity was about?

### Provider:

Select the organisation that provided the activity or pick 'Undertaken at home' if appropriate. This information helps us to tell our partners how many young people have been enjoying their activities. If the organisation who provided the activity is not listed, select 'other' and type the name of the organisation into the box. If the activity took place at school, you can select this as an option. Be sure to explain how it was outside of normal lessons.

### **Hours:**

Only include hours that you spent learning and participating in STEMM during the activity. Don't count breaks or travel time.

### **Top Tip:**

If an activity was undertaken at school, be sure to explain how it was outside your normal lessons

### **STEMM Discipline:**

Tick all the areas you think apply to your activity.

### **Evidence:**

Including evidence helps your coordinator to see what you did and help them moderate the activity. Evidence can be any resources you created, screen shots or pictures of the activity you participated in. Its also a great way for you to reflect back on the activity in the future.

## **How to write a good description:**

A description is where all the action happens!

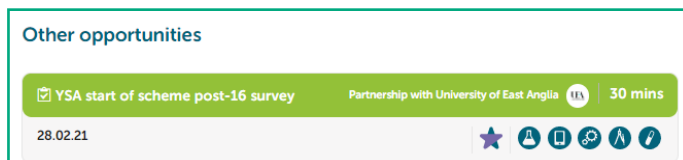
This is your opportunity to showcase your activity and tell us how exciting it was. Descriptions are rejected when there is too little information, so make sure to provide at least three complete sentences about the activity.


You could answer the following questions:

- **What was the activity?**
- **What did you learn from it?**
- **What interested you the most?**
- **What there anything that surprised you about what you did or learned?**
- **Has it inspired you to do anything else or explore something further?**



Remember to regularly log in and check the opportunities section for links to activities and surveys which can earn you additional time towards your Award. You can export your portfolio at anytime as a printable file.



Export your ePortfolio as a printable PDF file 

## Completing your Award

When you have logged enough hours and satisfied all the criteria you can submit your e-portfolio for moderation. Your coordinator will check through to ensure you have done enough to receive your Gold Youth STEMM Award.

When you complete, you will receive a medal and certificate. This is a great time to reflect on the skills you have developed and celebrate your achievements. Why not get in touch and send us a picture of you with your Award?

We hope you have enjoyed the experience and learnt something about yourself too.




**The Youth STEMM Award digital badge will be issued on completion. Look out for the email to claim your badge!**

# Inspiring ambassadors

We are delighted to have the support of inspirational role models and expert science communicators, who are passionate and committed about inspiring the next generation.




**Professor Ben Garrod**  
Evolutionary biologist,  
Conservationist,  
broadcaster and author

 @Ben\_garrod


“ We each have the potential to be anything we want, no matter who we are or where we are from and the YSA promotes that at every opportunity. ”



**Lizzie Daly**  
Biologist, naturalist and  
wildlife presenter

 @LizzieDalyWild

**Dr Nira Chamberlain OBE**  
Mathematical Modeller

 @ch\_nira



**Mark Thompson**  
Astronomer, author  
and broadcaster

 @Astronomer\_Mark

**Dr Marcia Philbin**  
Chief Executive of the  
Faculty of Pharmaceutical  
Medicine



“ If something like the YSA had been around when I was at school, I honestly think I'd have explored my passion for science sooner. ”

**Maddie Moate**  
YouTube filmmaker and  
BAFTA winning presenter

 @maddiemoate



## Our partners

The Youth STEMM Award is supported by a number of prestigious organisations. We thank them for their support which enables us to be able to deliver the Award for the benefit of schools and young people:

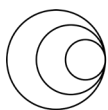


University of East Anglia

A UK top 25 university and part of one of the largest scientific communities in Europe



[www.uea.ac.uk](http://www.uea.ac.uk)



**wellcome  
connecting  
science**

Wellcome Connecting Science's mission is to enable everyone to explore genomic science and its impact on research, health and society



[wellcomeconnectingscience.org](http://wellcomeconnectingscience.org)



**John Innes Centre**

*Unlocking Nature's Diversity*

A world-leading international centre of excellence in plant science and microbiology



[jic.ac.uk](http://jic.ac.uk)



A world-class research institution, focusing on basic cell and molecular biology with an emphasis on healthy ageing through the human lifecycle



[babraham.ac.uk](http://babraham.ac.uk)



**Connect with us:**

 [HQ@ysawards.co.uk](mailto:HQ@ysawards.co.uk)

 [@YouthSTEMM](https://twitter.com/YouthSTEMM)

 [ysawards.co.uk](http://ysawards.co.uk)

 [youthstemmaward](https://www.instagram.com/youthstemmaward)

Youth STEMM Award CIC  
Centrum  
Norwich Research Park  
Norwich  
NR4 7UG  
*Registered in England No. 10143381*