

STEM Nation Award

Guidance for validators

(Community learning and development)

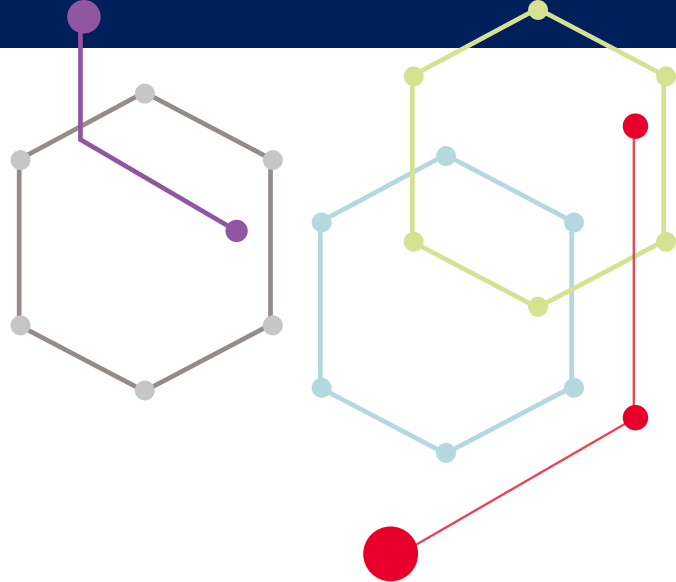





The following terminology is used throughout this guidance:

- ‘Practitioner’ encompasses staff who are qualified and/or registered to work with children, young people, adults and communities.
- The term ‘learner’ is used to refer to children, young people or adults. The CLD STEM Nation Award is available to those CLD providers working with these learners.
- The term ‘provider’ is used to refer to community learning and development organisations. This could be, for example, local authorities or voluntary sector organisations.
- ‘Community learning and development’ (CLD) refers to a coherent and distinctive set of practices, defined by clearly identified competences; it is delivered in diverse settings and sectors, by practitioners with a wide variety of job titles, working with individuals of all ages.
- ‘Family learning’ encourages family members to learn together as and within a family, with a focus on intergenerational learning. Family learning activities can also be specifically designed to enable parents and carers to learn how to support their children’s learning.
- The term ‘learning community’ is used to refer to both structured and informal groups where collaboration and joint working takes place. This may include, for example, a group of voluntary sector organisations or an established partnership between a CLD provider and a local school.
- The term ‘STEM partner’ is used to refer to industry partners including employers, further and higher education institutions, academic or professional organisations, third sector organisations and also includes parents or carers who are part of the STEM workforce.
- The term ‘STEM partnership’ is used to refer to planned and sustained engagement between providers and their STEM partner(s). This is unlikely to include one-off site visits, workshops or competitions.

Contents



Validating evidence for the STEM Nation Award elements 	2
The five elements	3
Leadership in STEM	4
STEM learning in the community	5
Employability and STEM partnership working	10
STEM curriculum and learner progression routes	12
Equity and equality in STEM	14
Validation conversation	16
Appendix: STEM Nation Award record	17



Validating evidence for the STEM Nation Award elements

What does the process entail?

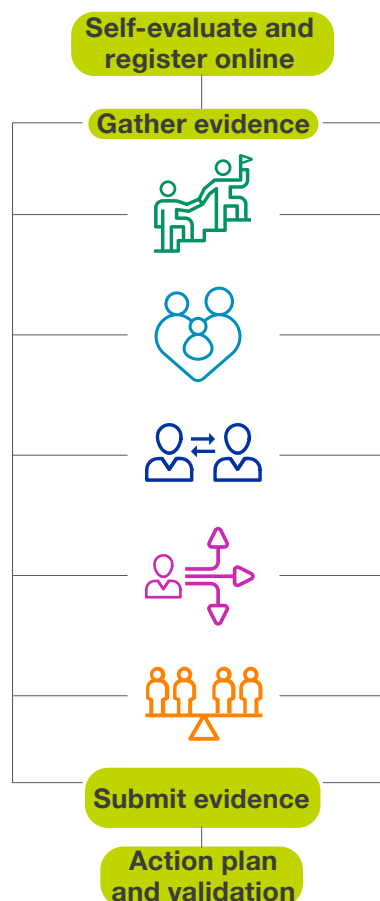
Providers follow a simple three step process when applying for elements of the STEM Nation Award:

1. **Registration**
2. **Gather and submit evidence**
3. **Action plan and validation**

As a member of the validation team you will be asked to review the evidence submitted by each provider against the evaluation statements on the following pages. Providers should submit evidence covering at least five out of six aspects for each element.

It is important to recognise that the STEM Nation Award is open to applications from a range of community learning and development providers. As a result, the evidence submitted from different types of providers will differ. There is no expectation that evidence will be submitted for every single aspect listed but we do expect to see a range of evidence for each element. Excellent practice in only one aspect is unlikely to demonstrate sufficient evidence for the full element.

In order to help you reach a fair and consistent judgement for all STEM Nation Award applications, we have included examples of what this may look like in different types of providers. These snapshots are included to highlight common approaches but are given purely as examples, these approaches are not mandatory.



You should record the strengths of the submission along with any suggested areas for development on the STEM Nation Award record. Providers may apply for all five elements together or they may wish to submit their evidence over a longer period, up to three years.

After successfully achieving all five elements, providers are invited to submit a STEM action plan which will inform the final stage of the validation process. A sample action plan is included in the STEM Nation Award application guidance document.

The five elements

Self-evaluate existing STEM practice



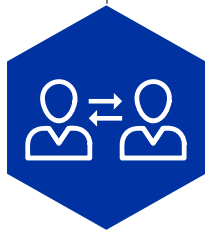
Leadership in STEM

This element celebrates effective leadership at all levels including children, young people and adult learners leading STEM learning.



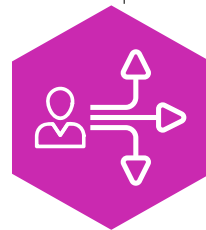
STEM learning in the community

This element recognises commitment to community learning and development practice which is helping to build STEM capital within local communities.



Employability and STEM partnership working

This element celebrates sustained collaboration between providers and their STEM partner(s) to develop learners' STEM and employability skills.



STEM curriculum and learner progression routes

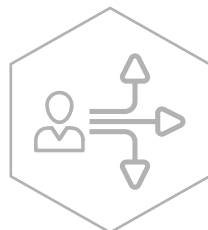
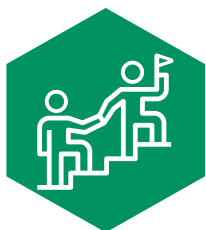
This element recognises the work of providers in developing an inspiring STEM curriculum and associated learner progression routes.



Equity and equality in STEM

This element celebrates the work providers are undertaking to address the issues of equity and equality in STEM.

STEM Nation Award



Leadership in STEM

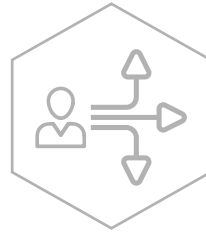
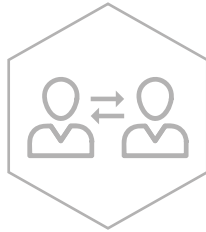
This element celebrates effective leadership at all levels including children, young people and adult learners leading STEM learning.

The evidence submitted should provide examples of activity across a range of the aspects below. Providers should submit evidence for at least **five out of six aspects** of this element.

- Consultation with stakeholders has helped to build a shared understanding of why STEM is important for learners, their families and the local community. This understanding has helped to shape a clear vision, rationale and plan for STEM in the provider.
- A core team of staff provide effective coordination and leadership for STEM. This leadership is not overly-dependent on one person. Where providers have only one member of staff, this practitioner will be working collaboratively with other practitioners in their learning community.
- Regular opportunities for self-evaluation, professional learning and collegiate working in STEM are being provided.
- Leadership for STEM at all levels is emerging and practitioners are increasingly taking responsibility for implementing change.
- Practitioners use data and evidence of learners' progress in STEM to help meet the needs of learners and promote equity. For example, this could be through learners' personal learning plans.
- Learners have opportunities to take action and lead others' learning in a community setting through programmes such as the Young STEM Leader award or other similar schemes such as youth achievement awards.

The examples below give a flavour of what the element evidence may look like:

- One senior youth work practitioner is a Digital Leader who delivers professional learning on coding and regularly leads visits to a local care home where the learners help residents use digital photography apps.
- Senior practitioners have undertaken practitioner enquiries into gender balance, STEM capital and careers education. Their research has been used to inform interventions and curriculum planning.
- An established professional learning group ensuring STEM learning opportunities are available for all practitioners by inviting speakers from the local science centre to deliver STEM specific staff development sessions.
- Young people are using their STEM learning to tackle climate change through an intergenerational community garden project.

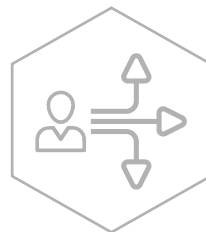


STEM learning in the community

This element recognises commitment to community learning and practice which is helping to build the STEM capital of learners and local communities. Providers may choose to focus on adult learning, family learning, youth work or a combination of these depending on the demographics of their learners.

Since this element brings in scope for optionality, validators should be familiar with the evidence requirements for all three options. For example, a provider working with older adults may choose to submit evidence focusing on adult learning only, whereas a local community group may submit a wider range of evidence covering aspects of adult learning, family learning and youth work.





STEM learning in the community with a focus on adult learning

Providers may choose to submit evidence for the STEM learning in the community element which demonstrates commitment to adult learning and practice which is helping to build the STEM capital of learners and their communities.

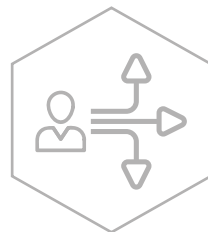
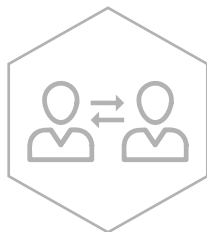
The evidence submitted should provide examples of activity across a range of the aspects below. Providers should submit evidence for at least **five out of six aspects** of this element.

- Relevant, fun and engaging STEM adult learning programmes are being developed in partnership with adult learners, third sector organisations and or further education partners. These programmes are helping to build STEM capital for learners and their communities. Adult learners are actively and meaningfully involved in directing STEM learning programmes and activities.
- Opportunities to engage with STEM in the community such as citizen science projects, industry visits, science centre visits and science festival activities are promoted to learners and their families.
- Learners are consulted to ensure that their own needs and learning journeys are valued and supported. Practitioners are aware of the barriers to participation faced by learners and are working to reduce these. Learners are encouraged to engage with accredited programmes and qualifications linked to their STEM learning.
- STEM features regularly in the provider's communications with members and the wider community. This may involve the use of social media and digital technologies to engage adult learners and the wider community in STEM.
- Adult learners are gaining an understanding of the importance of STEM skills, employability skills and progression routes. This may be evidenced through survey feedback, data showing the number of learners engaging with STEM activities or similar.
- An increasing number of adult learners are developing skills in leadership, problem solving and critical thinking that will enable them to make informed decisions in their everyday lives.

The examples below give a flavour of what the element evidence may look like:

Adult learning

- We work with a third sector organisation to offer STEM learning activities for ESOL learners which link to local environmental issues, for example, a community clean up or community action on climate change.
- Adult learning practitioners regularly run fun STEM-focused sessions on current topics of interest, for example, Why do we Wash our Hands? and What is a vaccine?
- Learners are encouraged to take part in citizen science projects to map local flora and fauna making use of apps to aid identification of local plants and animals.
- Adult learners are encouraged to consider the use of seasonal produce in a "Confidence to Cook" class as way of providing healthy meals to a budget.



STEM learning in the community with a focus on family learning

Providers may choose to submit evidence for the STEM learning in the community element which demonstrates commitment to family learning and practice which is helping to build the STEM capital of learners and their communities.

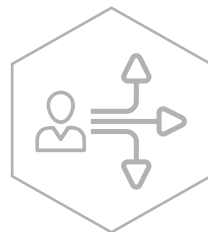
The evidence submitted should provide examples of activity across a range of the aspects below. Providers should submit evidence for at least **five out of six aspects** of this element.

- Relevant, fun and engaging STEM family learning programmes are being developed in partnership with community learning and development groups, third sector organisations and or further education partners. These programmes are helping to build STEM capital for learners and their families.
- Opportunities to engage with STEM in the community such as citizen science projects, industry visits, science centre visits and science festival activities are promoted to learners and their families.
- Practitioners work with parents and families to reduce potential barriers to participation. Parents are being consulted to ensure that their own needs and learning journeys are valued and supported. An increasing number of parents are becoming involved in their children's STEM learning as well as gaining skills of their own. Learners are encouraged to engage with accredited programmes and qualifications linked to their STEM learning.
- STEM features regularly in the provider's communications with parents, families, schools and the wider community. This may involve the use of social media and digital technologies to engage parents and families in STEM learning activities.
- Parents and families are gaining an understanding of the importance of STEM skills, employability skills and progression routes. This may be evidenced through survey feedback, data showing the number of parents and carers engaging with STEM activities or similar.
- Parents and families are actively and meaningfully involved in STEM family learning programmes and activities. The benefits of intergenerational learning are being explored when considering historical and recent STEM developments.

The examples below give a flavour of what the element evidence may look like:

Family learning

- We work with a third sector organisation to offer STEM family learning activities for families at risk of social isolation over school holiday periods.
- Family learning practitioners regularly run fun STEM-focused sessions with families which build parent's confidence and encourage families to learn together at home.
- Our STEM club ran a 'Stop the Spread' challenge where young people worked with their family at home to build a hand-washing device as part of their CREST Discovery Award.
- Working in partnership with a local primary school, family learning practitioners provided programmes and activities which supported parents to enhance the home learning environment and which improved outcomes for the most vulnerable children.
- Parents and families of new S1 pupils were invited to a local school in the summer term to join in with a STEM family learning challenge.



STEM learning in the community with a focus on youth work

Providers may choose to submit evidence for the STEM learning in the community element which demonstrates commitment to youth work and practice which is helping to build the STEM capital of learners and their communities.

The evidence submitted should provide examples of activity across a range of the aspects below. Providers should submit evidence for at least **five out of six aspects** of this element.

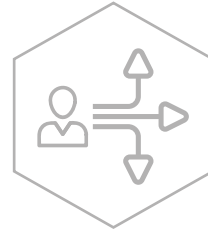
- Relevant, fun and engaging STEM youth work activities are being developed in partnership with other community learning and development groups, third sector organisations, schools and or further education partners. Young people are invited to identify, learn to use and apply appropriate technologies to solve community issues in youth work sessions. These programmes are helping to build STEM capital for young people and their communities.
- Young people are actively and meaningfully involved in STEM-based elements of youth work programmes and activities. Practitioners work with parents and local schools to highlight the links between informal STEM learning and formal in-school learning. Learners are also encouraged to participate in wider STEM community events such as citizen science projects, science centre visits and science festival activities.
- Practitioners work with young people to reduce potential barriers to participation in STEM activities. Parents and local schools are informed about the STEM programmes offered by the provider to help establish links between informal STEM learning and the school experience. Where appropriate, learners are also given the opportunity to gain accreditation for their STEM learning through programmes such as the Young STEM Leader award and Dynamic Youth Awards.
- STEM features regularly in learning events and communications to youth group members, families and partners including schools. This may involve the use of social media and digital technologies to engage young people in STEM learning activities.
- A diverse range of role models are highlighted to demonstrate potential progression to STEM-based employment opportunities. Young people, parents and partners are gaining an understanding of the importance of STEM skills for employability and lifelong learning. This may be evidenced through survey feedback, data showing the number of parents and partners engaging with STEM activities or similar.
- Practitioners work with learners to identify aspects of STEM in a wide range of environments. This may include everyday or less obvious activities such as outdoor learning, games, arts, sports, cooking or similar. As a result, learners are developing STEM and creativity skills that can be applied in a variety of contexts.

The examples below give a flavour of what the element evidence may look like:

Youth work

- Following workshops to challenge stereotypes and unconscious bias, our youth work organisation recorded an increase in the number of female learners participating in a wider selection of STEM learning opportunities and showing increased interest in STEM employability pathways.
- We use 'everyday' maths concepts to engage learners and to develop their STEM skills. The resultant rise in confidence in their STEM learning has enabled some learners to successfully complete SQA Numeracy awards.



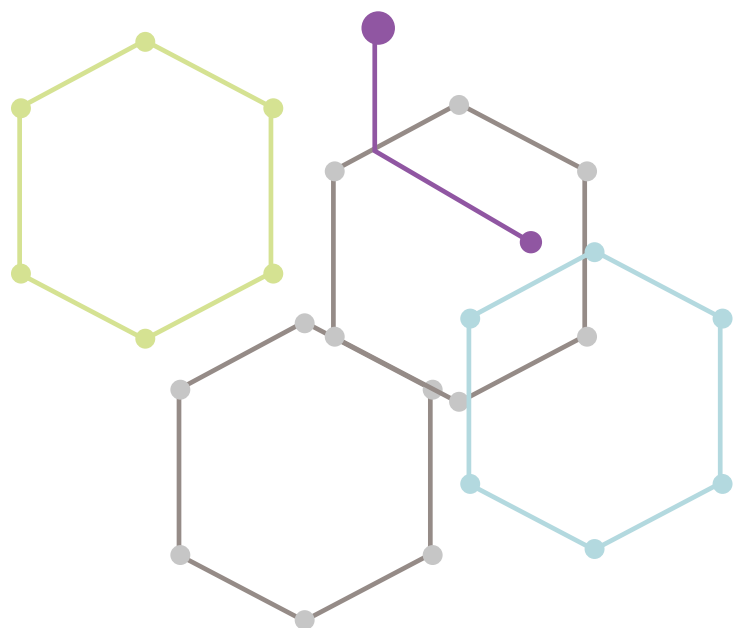


Employability and STEM partnership working

This element celebrates sustained collaboration between providers and their STEM partner(s) to develop learners' STEM and employability skills.

The evidence submitted should provide examples of activity across a range of the aspects below. Providers should submit evidence for at least **five out of six aspects** of this element.

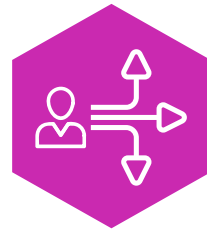
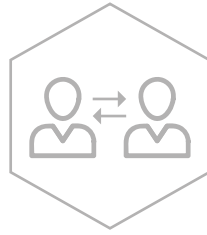
- The provider has established a sustained partnership with at least one STEM partner. Partners may include industry partners and STEM employers, further and higher education institutions, academic or professional organisations, third sector organisations and or parents or carers who are part of the STEM workforce. The provider is working collaboratively with their STEM partner(s) to plan, deliver, monitor and evaluate joint activities which inspire learners.
- STEM partnership work is supporting the professional learning of practitioners and is helping to build practitioners' leadership capacity. The support of STEM partners has helped practitioners to relate learners' skills development to employment in STEM and develop a range of appropriate learner pathways.
- Work with STEM partners is enhancing learners' employability and career management skills. For providers working with children and young people, the development of these skills will be linked to the [Career Education Standard \(3 – 18\)](#). Where appropriate, activities are aligned with the Work Placement Standard and the Guidance on School/Employer Partnerships.
- Work with STEM partners is helping to promote positive perceptions of STEM that challenge stereotypes and preconceptions. This work may include but should not be limited to “girls into” events.
- Practitioners are aware of the key STEM industries in their local area and, where appropriate, take account of labour market information when planning events such as careers fairs and STEM talks. The provider has worked with their STEM partner(s) to plan a range of learning progression routes in STEM.
- Practitioners support learners to make links between their STEM learning and employability skills. This may include the use of skills profiling tools or supporting learners to enhance job applications or CVs by listing experience and skills gained through their engagement with STEM partners.





The examples below give a flavour of what the submitted evidence may look like:

- A logistics firm delivered a professional learning session to increase practitioners' knowledge of how efficient container packing is used in industry.
- A group of young people visited a local recycling facility to learn about Learning for Sustainability, the UN Sustainable Development Goals, the circular economy and green jobs.
- A group of learners at risk of social isolation attend regular sessions at a social enterprise to develop their skills in silversmithing and are working together to create an exhibition of jewellery.
- STEM Ambassadors supported our 'World of Work' day by giving short presentations to learners to explain the nature of their jobs and to encourage our young people to consider a career in STEM.
- Young people visited a local galvanisation plant to learn more about the chemistry of galvanisation and the wide range of businesses that require galvanised steel.
- A partnership agreement with a local construction firm helped to provide work placements and apprenticeships for young people as part of a Council-led DYW project.
- A group of young people worked with a partner provider to create an app to assist them gain employment when they left school. The app captured young people's work experience and achievements out of school and gave potential employers a wider insight into the young person.
- A group of adult learners discovered more about careers in the food industry by inviting a chemist from the local whisky distillery to visit their group and explain more about quality control used in the whisky industry.

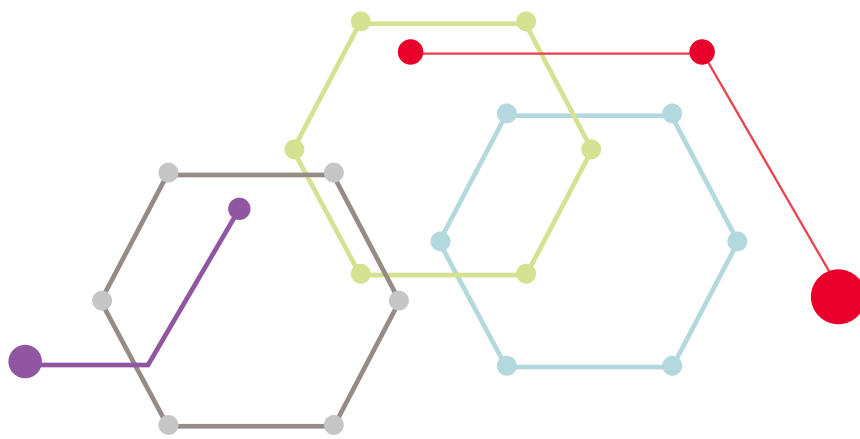


STEM curriculum and learner progression routes

This element recognises the work of providers in developing an inspiring STEM curriculum and associated learner progression routes.

The evidence submitted should provide examples of activity across a range of the aspects below. Providers should submit evidence for at least **five out of six aspects** of this element.

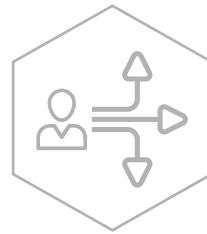
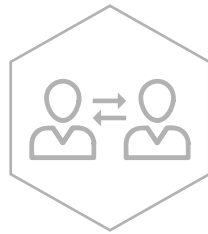
- Practitioners are delivering STEM through naturally-occurring contexts of learning. This may include community, youth, adult and family learning and or learner participation in STEM awards programmes. STEM is being used as an engaging context to deliver and make links between STEM learning areas such as literacy, numeracy, Learning for Sustainability (including climate education) and digital literacy.
- Through engaging with motivating and challenging inquiry-based STEM learning experiences, learners are developing a wide range of STEM and creativity skills, including curiosity, open-mindedness, imagination and problem solving. Where appropriate, practitioners are supporting learners to develop these skills through play, active learning and or outdoor learning approaches.
- Practitioners work in collaboration with other learning community colleagues to plan for continuity and progression in STEM learning. This may include links with local schools or training providers where activities are building the confidence and resilience of learners in STEM.
- STEM learner progression routes have been designed to meet the needs of all learners. The provider is taking steps to help learners develop a belief in their own abilities and reduce barriers to participation in STEM. The support provided for learners helps them to make informed choices about STEM learner progression routes.
- The curriculum has been influenced by local labour market information and employability prospects are enhanced through acquiring the skills associated with STEM learning.
- Practitioners encourage all learners to develop a wide range of skills. Across learning communities, STEM is a feature of the broad community learning curriculum and continues to provide engaging opportunities for people in communities.





The examples below give a flavour of what the submitted evidence may look like:

- We use an online profiling tool to capture and share photographs of our member's learning. This is helping us to track and plan for further progression in their STEM learning.
- We are building on our learners' interests by providing opportunities for our young people to lead learning opportunities for others using their chosen STEM concept.
- Learners at risk of exclusion participated in a mountain-biking project to learn more about cycle maintenance. The project also provided learners with opportunities to gain practice-based work qualifications.
- Learners use their STEM learning and skills to design and construct a haven for biodiversity in a stalled urban space.
- Practitioners across our local authority have worked collaboratively with STEM partners to develop STEM-related employability progression routes and associated assessments.
- Our digital youth work programme develops STEM projects which use digital technologies to enhance young people's STEM skills. The young people in our youth group are encouraged to try out a range of digital technologies aimed at enhancing their creativity and employability skills.
- Adults participating in a STEM family learning workshop were surveyed to find out what STEM topics were of interest to them. We then developed a series of STEM workshops based on their responses.

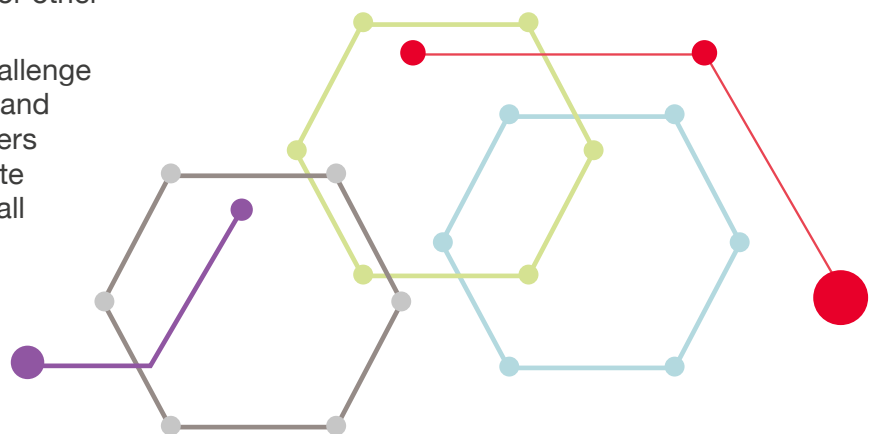


Equity and equality in STEM

This element celebrates the work providers are undertaking to address the issues of equity and equality in STEM.

The evidence submitted should provide examples of activity across a range of the aspects below. Providers should submit evidence for at least **five out of six aspects** of this element.

- Practitioners are aware of the main equity and equality issues facing learners in their local context. This may vary significantly between urban, rural and remote areas. Together, practitioners across the provider are taking steps to improve gender balance, equality of opportunity, equity, diversity and inclusion through STEM.
- Practitioners have engaged with research and or professional learning on gender stereotypes and unconscious bias. The provider is taking action to challenge these stereotypes and address practitioners' own unconscious bias. This action is sustained and involves staff across the provider.
- Learners across the provider are given opportunities for personal achievement in STEM. This may include involvement with the Young STEM Leader programme or other related award schemes.
- Practitioners work with learners to challenge preconceptions about STEM careers and learner progression routes. Practitioners actively seek opportunities to celebrate diversity in the STEM workforce with all learners.
- The provider's achievement and progression processes are helping practitioners to plan interventions for individuals or groups to ensure that all learners have appropriate opportunities to develop their STEM skills, particularly for learners who face additional barriers. These processes are likely to look different in various contexts, for example, English to speakers of other languages (ESOL) groups, groups for young people or for older adults. These should help to inform practitioners' knowledge and understanding of learner's progress and help to achieve equity.
- Practitioners and or learners are able to give examples of where STEM learning has had a positive impact on achievement in literacy, numeracy, health and wellbeing and across STEM learning areas. This may include increased confidence in using numeracy skills in unfamiliar contexts or examples where an exciting STEM context has increased interest and engagement.





The examples below give a flavour of what the submitted evidence may look like:

- We have established a team of 'Equity Champions' who have engaged with professional reading on a range of equity and equality issues and regularly cascade this learning to colleagues at team meetings and training events.
- A STEM ambassador attended a Question and Answer session with families taking part in an online STEM club and discussed job opportunities in drug and pharmaceutical development.
- One practitioner developed an online STEM course for practitioners which was aligned to the CLD Standards Council's competency framework. Part of the professional learning course considers inequalities in STEM and explores how practitioners can go about reducing them.
- STEM ambassadors were invited to attend an intergenerational ICT class to discuss careers in coding with young people and older adults.
- All staff in our locality participated in unconscious bias training at a recent staff training day.
- Older adults in a residential care home participated in a range of practical STEM workshops and discussed the wide range of employment opportunities available to young people today.
- Our practitioners use data from a management information system to analyse the age and gender of adult learners to ensure appropriate opportunities are being offered to all of our adult learners.

Validation conversation

The STEM Nation Award validation process concludes with a conversation between the applicant and the validation team. Validation will be completed on a regional basis and therefore local arrangements may differ slightly. The most up-to-date information for validation in each region is available on STEMnation.scot.

Prior to the validation conversation, each member of the validation team will be provided with a copy of the provider's STEM Nation Award record and STEM action plan. You should familiarise yourself with these documents in order to engage in dialogue with the applicant about STEM in their particular setting.

Key points to consider when reviewing the STEM action plan:

- How do the provider's future plans support the key aims of the STEM strategy: excellence, equity, inspiration and connection?
- How does the provider intend to share their learning and successes with practitioners in other settings?
- What opportunities exist for collaborative working across a learning community, local authority or region? How could this work be supported by local community or industry partners?

Applicants will be encouraged to reflect on the STEM journey of their provider prior to the final stage of validation. The validation conversation should be positive, supportive and should provide the applicant with an opportunity to elaborate on the provider's strengths and successes as highlighted in their STEM Nation Award record.

The validation conversations across the country will follow a similar format. Each conversation will be based around three key questions and should last approximately 30 minutes. The validation team should take a relaxed, conversational approach and should focus on examples of interesting and innovative practice.

Validation conversation key questions

What impact is STEM having on the learners you work with?

- How has STEM helped to excite, motivate and engage adult learners, families, children and or young people in their learning?
- What impact has STEM had on your learners' achievement and progression?
- Which approaches have helped to improve equity and equality in STEM?

What challenges have you faced and how have you overcome these?

- What supports were put in place to develop STEM pedagogy and practitioner confidence?
- How have you incorporated STEM into your planning and or delivery?
- What advice would you give to colleagues in other settings just starting out with STEM?

What excites you most about your provider's future STEM plans?

- How might you share these developments with other providers?
- How could you work in collaboration with other providers or partners to realise your ambitions?






If required, you may wish to use the supplementary questions or short prompts from the provider's STEM Nation Award record to keep the conversation flowing.

The validation conversation is the final stage of quality assurance before a provider is presented with their STEM Nation Award. Feedback from the STEM action plan and the validation conversation should be recorded on the STEM Nation Award record. This will be shared with the provider when the award is issued.

The STEM Nation Award is valid for a period of three years after which providers will be asked to submit updated evidence and participate in a further validation conversation. The validation conversation for the renewal of a STEM Nation Award will follow the same format as described above.

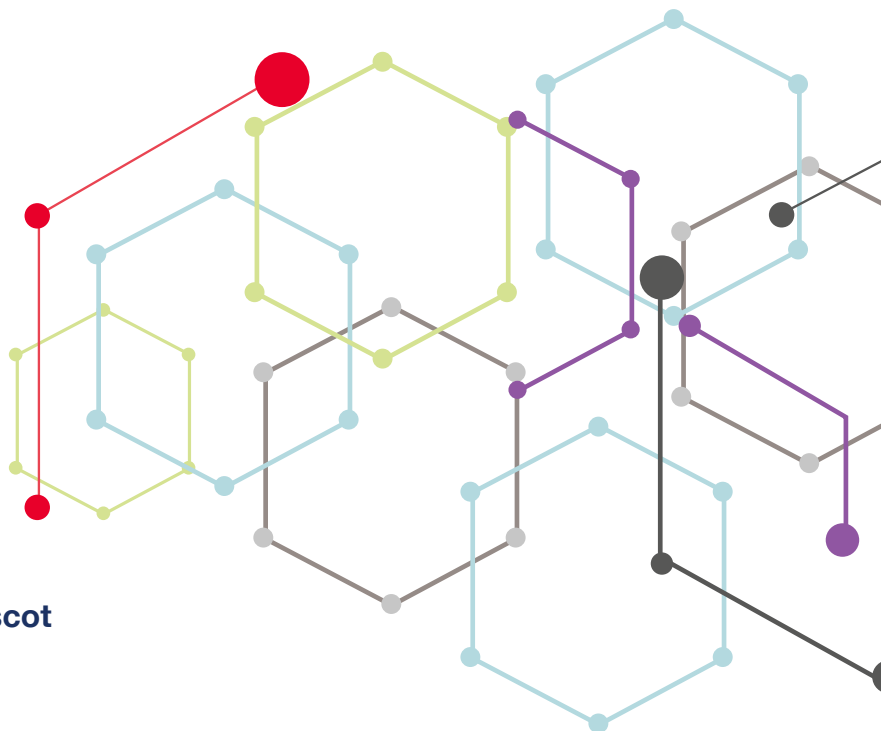
Appendix: STEM Nation Award record

Name of provider	Local authority

The five elements	Evidence	Strengths	Areas for development	Date reviewed
 Leadership in STEM	<input type="checkbox"/> Sufficient <input type="checkbox"/> Insufficient			
 STEM learning in the community	<input type="checkbox"/> Sufficient <input type="checkbox"/> Insufficient			
 Employability and STEM partnership working	<input type="checkbox"/> Sufficient <input type="checkbox"/> Insufficient			
 STEM curriculum and learner progression routes	<input type="checkbox"/> Sufficient <input type="checkbox"/> Insufficient			
 Equity and equality in STEM	<input type="checkbox"/> Sufficient <input type="checkbox"/> Insufficient			

Action plan	
Date reviewed	Comments

Validation	
Date reviewed	Comments



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Version control

Document version	Date of publication	Description of changes
1.0	May 2021	Original version
2.0	May 2022	General Updates