



ABERDEEN
CITY COUNCIL

EVENT REPORT
SOCIABLE SCIENCE

TECHFEST

TechFest aims to promote Science, Technology, Engineering and Mathematics (STEM) to pupils and the wider community throughout Scotland.

We fulfil this aim by:

- developing, organising, and delivering a range of Science, Technology, Engineering and Maths (STEM) activities and events
- inspiring, informing and enthusing young people to have an interest in STEM
- raising awareness of the application and relevance of STEM subjects
- publicising STEM opportunities
- working in partnership with schools, FE colleges, HE establishments, Science, Technology, Engineering and Maths Enrichment & Engagement (STEM E&E) providers, industry, business, government both local and national.

TechFest vision, mission and values all reflect its commitment and understanding, borne from knowledge and experience, of what is required to be successful designing developing and delivering schools engagement projects.

TechFest has an enviable record of engagement with schools in the North-East and throughout Scotland. This is reflected in our level of activity, reputation and knowledge of the education community in each of the 32 Local Authority areas.

TechFest is an innovative charity which consistently provides quality STEM events and with over 20 years' experience in promoting STEM subjects this enables us to identify effective activities and measure impact.



ATTENDANCE



SOCIAL MEDIA

The programme was advertised directly online through Aberdeen City Council and via TechFest's social media platforms.

FEEDBACK

TechFest received a number of highly positive feedback comments from the children and parents who attended across the 5 sessions.



EASTER OF PLAY WITH ABERDEEN CITY COUNCIL



In February 2022 we were approached by Aberdeen City Council to take part in their Easter of Play scheme which offers bookable activity sessions throughout the school Easter holidays.

The aim of Sociable Science is to engage all ages in science activities that are done in conversation utilising teamwork, creativity and most of all fun while learning. Each activity would be designed to be repeated at home with our audiences being encouraged to share what they have learnt with others. TechFest developed the programme of events called **Sociable Science** specifically following the feedback received from families and in discussion with Eleanor Sheppard.

We took the Programme out to 5 locations across Aberdeen City, these were chosen by the City Council as being in areas which would most benefit from the play scheme.

5 Dates	5 Venues	Attendees (estimated numbers)
Monday 11.04.22	Seaton Park	75
Tuesday 12.04.22	Duthie Park	95
Wednesday 13.04.22	Victoria Park	25
Thursday 14.04.22	Hazelhead Park	120
Friday 15.04.22	Seaton Park	60
Total		375 (adults and children)

Everyone who attended enjoyed the sessions. We were able to promote on our social media the day before or on the day, which helped especially when we had to alter the timings slightly due to the weather. Unfortunately, the weather wasn't as good as we had hoped for at this time of year and this may have impacted the attendee numbers as it was very cold and windy. We managed to get out to the parks everyday even if we cut short the times slightly, the only day we had to drastically alter the times was Wednesday when we went to Victoria Park as it was too wet in the morning so we went for the afternoon only.

TECHFEST

The activities

We aimed to create a diverse and interesting programme of activities which could be replicated at home, these also linked to the CREST Award Scheme run by the British Science Association and attendees were given information on how to complete and apply for one of the awards. As it was Spring Time, with better weather coming and Covid restrictions lifting, we decided on a Smiles theme for some of the activities. These were very well received with children enjoying making smiley face masks, cress seed smiles and wildflower seed balls. We also took the activities from last summer with us again to give a wide range of options for attendees to enjoy.

Feedback

Although we didn't ask for formal feedback from participants, everyone who attended enjoyed the sessions and delighted in getting hands-on with our smile activities.

Promotion

We promoted the events on social media each day and had some coverage in the press.



Aberdeen parks to host TechFest's Sociable Science events this Easter



BUDDING young scientists are being encouraged to visit their local parks across Aberdeen next week (April 11-15), when TechFest will be delivering its Sociable Science events.

The programme will offer 5 to 11-year-olds the chance to learn new skills and take part in a range of activities, including a rocket balloon experiment, making rainbow rain and a mini-beast hunt.

The TechFest team will be at Seaton Park (Monday, April 11 and Friday, April 15), Duthie Park (Tuesday, April 12), Victoria Park (Wednesday, April 13) and Hazlehead Park (Thursday, April 14) from 10am to 3pm, with participants able to drop into sessions free of charge.

The programme is designed to show how science is involved in our everyday lives and includes activities which can be easily replicated at home with family and friends.

The sessions are being run in conjunction with Aberdeen City Council's Easter of Play scheme.

Managing director of TechFest, Sarah Chew said: "We launched our Sociable Science events during summer last year and had a huge response with more than 500 people from across the North-east engaging in the programme.

"This Easter, we are back with more activities and fun experiments for young people to take part in, offering something fun to do over the spring break while also providing learning opportunities.

"The programme encourages young people to use teamwork and creativity and highlights how Science, Technology, Engineering and Mathematics (STEM) play a role in everything we do. We look forward to meeting lots of participants at parks across Aberdeen next week."

TechFest develops programmes which link in with the CREST Award Scheme, run by the British Science Association.

By taking part in Sociable Science, participants have completed several of the eight activities required to be awarded a CREST SuperStar certificate and iron-on badge.

The remaining activities can be completed by working through their TechFest booklet which is available alongside all the other resources on the TechFest website.

Attendees can apply for their CREST Star award by visiting <https://apply.crestawards.org/>

Alongside a year-round programme of STEM education events, TechFest runs Aberdeen and North-east Scotland's annual festival of STEM.

For more information on TechFest's work, visit www.techfestsetpoint.org.uk

TECHFEST 2022
Sociable Science @ Easter of play
aka if only I could!
FREE!
VARIOUS LOCATIONS IN ABERDEEN CITY
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Make Others Smile Challenge

In this activity, well, you've probably guessed it... You'll make others smile!

Suitable for primary

What will you need
 Cardboard paper Elastic string Hole puncher Colouring tools Scissors

- 1 Take a piece of cardboard and cut out a shape of a smile.
- 2 Use colouring tools to make your smile as bright as possible.
- 3 Punch holes on each side of your cut out shape.
- 4 Take a piece of elastic string, thread the shape and make a knot on each of the sides.
- 5 Wear the shape on your face.

What happens when we smile?
 When you smile there are 12 muscles in your face that are used to create a smile. When these muscles contract they pull together to form the smile. This is why you can smile so easily. The muscles in your face are also used to create other expressions in your mouth when you are happy, sad, angry, surprised, etc. You can also use your face to communicate with others without using words. This is why it is important to be able to read other people's faces. It is also important to be able to control your own face so that you can communicate with others effectively.

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Making Your Own Toothpaste

In this activity you will be making your own toothpaste!

Suitable for primary

What will you need
 Baking soda, Cornflour, Salt, Glycerin, Peppermint Flavouring, Food Colouring, Teaspoons, Mixing Container, Dirty Teeth, Laminated Picture

- 1 Mix together 1 teaspoon of baking soda, 1 teaspoon of cornflour and 1 teaspoon of salt in your container.
- 2 Add 1 teaspoon of glycerine and 1-2 drops of peppermint flavouring and mix to form a thick paste.
- 3 Add 1-2 drops of food colouring.
- 4 Test your recipe on the laminated face - please do not eat any of your paste!

Why are clean teeth important?
 When you get your teeth clean, you are happy. The bacteria that live on your teeth can cause your teeth to decay. When you get your teeth clean, you are happy. The bacteria that live on your teeth can cause your teeth to decay. When you get your teeth clean, you are happy. The bacteria that live on your teeth can cause your teeth to decay.

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Growing A Smile Activity

In this activity you will learn all the things that plants need to grow.

Suitable for primary

What will you need
 An empty pot/paper plate Cotton wool/soil Cross seeds Water

- 1 Take an empty pot.
- 2 Put your pot up with soil/cotton wool up to about two thirds the top of the pot.
- 3 Now sprinkle some cross seeds in a shape of a SMILE on the top of the soil/cotton wool and spray with water.
- 4 It will only take a few days for you to see the results. Cross seeds germinate pretty quickly.
- 5 Take your pot home with you and don't forget to water it. Cross seeds only need a small amount of water every couple of days.

How do plants grow?
 Plants need water to survive. Water is essential for plants to grow. Water is also essential for plants to grow. Water is also essential for plants to grow. Water is also essential for plants to grow.

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Making a Windflower Seed Ball

In this activity we'll get creative with nature and make windflower seed balls to scatter in the garden.

Suitable for primary

What will you need
 Flour Soil Mixing bowl Water Native British wildflower seeds

- 1 Mix 10 parts soil to 1 part flour.
- 2 Slowly add water and mix slowly until the mixture becomes sticky like dough.
- 3 Roll into a golf ball size ball.
- 4 Fill a tray with wildflower seeds.
- 5 Roll your mud balls around until covered in seeds.
- 6 Leave to dry for a day or two and then they're ready to throw in your garden.

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Paper Cup Challenge

In this activity you will put your civil engineering skills to the test! The challenge is to see if you can stand on paper cups without breaking them... Doesn't sound possible? Well, we will show you how it is done and you can try out different methods and test out just how much weight the cups can take!

Suitable for primary

What will you need
 Paper cups Cardboard

- 1 Space several cups out evenly on a flat surface.
- 2 Place a sheet of cardboard on the top.
- 3 Try if the cups hold your weight.
- 4 Add a second layer of cardboard and try again.
- 5 Ask your parent to stand on your cup tower. Do the cups hold their weight?

Why does this happen?
 Paper cups are made of a material called paper. Paper is made of a material called paper. Paper is made of a material called paper.

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Rocket Balloon Experiment

This activity demonstrates Newton's Third Law of Motion and can be used to send messages to friends or even have races against them!

Suitable for primary

What will you need
 Balloon String Duck Tape Straw Scissors Popsicle sticks Marker Pen 2 chairs

- 1 Using scissors cut the straw into about a 10cm long piece.
- 2 Cut a length of string about 10cm long.
- 3 Tie one end of the string to one chair.
- 4 Slide the piece of straw onto the string.
- 5 Slide the piece of straw onto the string.
- 6 Tie the other end of the string to the other chair.
- 7 Blow up the balloon.
- 8 Place the end of the balloon connected to the string on the floor.
- 9 Take the balloon to the straw.
- 10 Blow the straw and balloon to the end of the string and stick your secret message onto the balloon.
- 11 Release the balloon and watch your Rocket Balloon send your secret message.

What does this happen?
 This experiment demonstrates Newton's Third Law of Motion. When you blow up a balloon, the air inside the balloon pushes out. This pushes the balloon forward. This is why the balloon moves forward when you blow it up.

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Coding and Cyphers

Become a special agent with a variety of activities where you will learn about making invisible ink and the secrets of cyphers. Why not use this method for making invisible ink to send secret messages to a friend?

Suitable for primary and secondary

What will you need
 Water Bicarbonate of Soda Rubbing alcohol Turmeric Paper

- 1 Make your invisible ink by combining 50mls water with 100g bicarbonate of soda.
- 2 Use a small paint brush or cotton bud to write or draw your secret message on a piece of paper. Wait for this to dry fully.
- 3 Heat your ink under the sun or a heat lamp. The bicarbonate will react with the turmeric to make another substance which is called a cypher message!
- 4 Turmeric can be a little messy and might stain things so be careful you don't make your secret message disappear. You might want to use an apron and gloves to protect your hands and clothes.

Why does this happen?
 The bicarbonate of soda reacts with the turmeric to make a new substance. This is why the message becomes visible when you heat it up.

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Leaf Veins

Work together to find out just how water travels through leaf veins!

Suitable for primary and secondary

What will you need
 Jar Magnifying glass Food colouring A cup of water Leaves

- 1 Get someone to collect some green leafy plants that you can use for this experiment. Top tip: This experiment works best with leaves that are in the middle or light green, and have obvious veins.
- 2 Add water to your jar. Then take a few drops of food colouring and add to the water. Swirl the jar around until the water has turned a nice dark colour, add some more food colouring.
- 3 Place your leaf into the jar with the stem inside the water.
- 4 Observe your experiment over a few days and watch as the leaf 'drinks' the water.

Why does this happen?
 The water that the leaf needs to survive is carried up from the roots of the plant. The water is carried up from the roots of the plant. The water is carried up from the roots of the plant.

What is capillary action?
 Capillary action is the way that water moves up a tube. This is why water can move up a tube. This is why water can move up a tube.

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Make your own medals

Using air drying clay, make your very own medal to show off your achievements from the day!

Suitable for primary

What will you need

Air drying clay Rolling pin Pens Paper Paint brushes Acrylic Paint Cup of water (to wash brushes) Piece of string to tie your medal onto

- Take a chunk of air drying clay and roll into a ball to soften.
- Use a rolling pin or a cup to roll your piece of clay flat. Create your medal using the air drying clay. Take a pencil to create a small hole at the top of your medal (this will be used to feed string through at the end)
- Leave your medal to dry for up to 24 hours
- It's time to decorate your medal! Use acrylic paints to create a design on the front of your medal, leave to dry before painting the back.
- Once your medal is completely dry, take a piece of string and feed it through your medal. Tie a small knot together.
- There you have it! You have your very own medal wear it with pride and remember to tag TechFest in on social media so we can see your designs.

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Animal adventures with CREST

Go on an animal adventure and see how many animals you can find

Suitable for primary

What will you need

Collecting jar Magnifying glass (optional) Pens Paper Identification book (below resource)

- We're going on a new kind of quest! Think about what it was that you based your last quest on.
- Take photographs or draw the animals that you find (remember to be careful if collecting them, we don't want to harm the animals).
- When you have collected your findings on photographs it is time to identify what you've found. Use your knowledge or use the identification book to help.

What's a mini beast?

The term 'mini-beast' means a small animal. The word is more commonly used to describe insects. The words 'mini' and 'beast' combine to form 'mini-beast'. The word 'mini' means 'small' and 'beast' means 'animal'. The word 'mini-beast' is used to describe small animals like insects.

Where can I find my beasts?

You can usually find plenty of mini-beasts in your garden, park, field, woods or on the ground. You can also find them in your house, on your clothes, in your hair and on your skin.

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Animal adventures with CREST

Animal Identification sheet

How many did you find? Use the identification sheet and colour in the animals you found

SPECIES BINGO!					
Worm	Butterfly	Snail	Toad	Sloth	Snake
Robin	Frog	Squirrel	Bee	Ladybug	Ant
Moose	Penguin	Hippopotamus	Elephant	Tiger	Sloth bear
Fox	Bird	Mole	Rabbit	Squirrel	Monkey

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Soda and Mentos Explosion

A classic experiment but with some variations! You might have tried adding Mentos to a bottle of fizzy juice before but this time you will experiment with different methods to see how the results vary.

Suitable for primary

What will you need

Coca-Cola Mentos Baking Soda String

Coca-Cola and Baking Soda Experiment

- Take a 1.5 litre bottle of Coca-Cola.
- Take the cap off and pour in baking soda (the more the better) - 1/2 cup is recommended.

Coca-Cola and Mentos Experiment

- Take a 2 litre bottle of Coca-Cola.
- Make a hole in a middle of a used bottle cap.
- Thread the bottle cap and 5 Mentos onto a string and tie the string around the neck of the bottle.
- Open the Coca-Cola bottle, take the string with the Mentos and the cap. Place the string over the bottle and hold it over the top of your cup. Push the cap down (it's attached to the string) and stop the string open. Stop! Back away slowly!



Why does this happen?
Coca-Cola is a carbonated beverage. When you open the bottle, the carbon dioxide gas that is dissolved in the liquid is released. This causes the liquid to foam and bubble. When you add Mentos to the liquid, the carbon dioxide gas is released even faster, causing the liquid to foam and bubble even more. This is why you see a large amount of foam when you add Mentos to a bottle of Coca-Cola.

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Milk Art

This fun science experiment also lets you use your creative side. Using milk and food colouring to we will see how chemical bonds work.

Suitable for primary

What will you need

Milk Plate Dish Soap Cotton swabs (or tooth picks) Food colouring (more than one colour)

- Spread your milk into the plate. Do not move the milk, you want the milk to stay as still as possible.
- Put one drop of each food colouring in different places in the milk.
- Put a tiny amount of dish soap on one end of the cotton swab, then touch it to the side of the milk.
- Continue touching the colour and soap!



Why does this happen?

Milk has got a lot of fat in it, and the food colouring floats on top of the fat. The fat is all contained in little droplets called emulsions. When you add dish soap to the milk, the soap breaks up the fat droplets and the food colouring can mix with the milk. This is why you see the colours spread out in the milk.

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How to make the water cycle in a bag

Learn how the water cycle works

Suitable for primary

What will you need

Plastic zip-lock bag Permanent marker Water Blue Food colouring Clear tape

- Design your bag by using the permanent markers to draw a sun, remember to include clouds and the sea as these are important elements in the water cycle.
- Fill one or two drops of your blue food colouring into a bag and seal the water-tight bag. Carefully pour into the zip-locked bag and make sure it is closed so no water can escape!
- Take your bag over to a bright sunny window for best results. Take two long pieces of tape to stick the corners of the bag up onto the window. Remember to press down tightly so we do not want the bag to fall!
- You should see a change in your bag between two hours and 1 day. We will depend on the amount of sun and the time of day you started. Eventually you will notice droplets of water coating the inside of the bag, some droplets will be higher up in the air, the extra droplets will begin to fall down the side.



So why does this happen?

The sun rays hit the window which heats up the water in the bag causing the water to transform into a gas through the process called Evaporation. Unlike evaporated water vapor goes into the atmosphere, however in our bag it has no where to go and ends up coating the inside. The water then turns back into a liquid as a consequence, which then allows back into the pool of water below as 'rain'.

Making Rainbow Rain

Create your very own cloud and make it rain!

Suitable for primary

What will you need

Aglass jar or bowl Water Food colouring Shaving foam Pipette



- Fill each bowl or glass with same water and a different food colouring (you can use as many colours as you like, and can even mix them together to make new ones!)
- Half or three quarter fill a glass jar or bowl with cold water then top with shaving foam 'cloud'.
- Use the pipette to drip the rainbow water onto the shaving foam 'cloud'.
- Once the cloud is full, rainbow rain will start to fall into the jar. This could happen really quickly or take a little bit longer depending on how thick your shaving foam cloud is and how far into the cloud you stick the pipette (the further in you go, the sooner the rain will fall).

What does this teach us about weather?

Cloud formation happens when water vapor rises into the air where the water gets colder. It turns into tiny droplets of water. These droplets start to stick together and form clouds. When the clouds get full of water that they can't hold anymore, the water falls down as rain. In this experiment, the clouds are the shaving foam and the food colored water is the rain. As you drip the colored water into the cloud the weight of the water forces itself through the cloud to 'rain' down into the jar.

Website: <https://www.bbc.com/news/health-2016-06-20-1>

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How to Make a Rain Gauge

Find out how to make your very own rain gauge

Suitable for primary

What will you need

A glass jar or plastic bottle Permanent marker Ruler

- If you are using a plastic bottle cut the top off to create your gauge. If take a jar and move onto the next step.
- Take your ruler and line the '0' up with the bottom of the jar. Make a mark on the jar for each centimetre (we went to 6).
- Fill the bottom of your rain gauge with pebbles, rocks and to stop it from moving around in the wind.
- Now that your rain gauge is in place, either in the ground or hung up somewhere secure, you can start to track the rainfall in your garden. At the same time each day take a look at how far up the jar the water has reached; you can track this using the sheet on the next page!



So why is this useful?

Now that your rain gauge is in place, either in the ground or hung up somewhere secure, you can start to track the rainfall in your garden. At the same time each day take a look at how far up the jar the water has reached; you can track this using the sheet on the next page!

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Weekly Rainfall Tracker

Calculate the total rainfall for the week!

Sunday	0	1	2	3	4	5	6	7	8	9	10	11	12
Saturday	0	1	2	3	4	5	6	7	8	9	10	11	12
Friday	0	1	2	3	4	5	6	7	8	9	10	11	12
Thursday	0	1	2	3	4	5	6	7	8	9	10	11	12
Wednesday	0	1	2	3	4	5	6	7	8	9	10	11	12
Tuesday	0	1	2	3	4	5	6	7	8	9	10	11	12
Monday	0	1	2	3	4	5	6	7	8	9	10	11	12

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Non-Newtonian Fluid

This is a more glossy type of science. We have a few names for this stuff: oobleck, slime but my favourite is glop. And it's a fluid that breaks all the rules. The fancy name is a non-Newtonian fluid (Newton was a scientist who discovered many rules of physics but this is a fluid that seems to break the rules).

So sometimes it's a liquid and sometimes it's a solid depending on how much pressure you put on it. When you move it slowly, it behaves like a liquid and when you move it fast you can carve it up like a solid.

Suitable for primary

What will you need

Bowl, Cornflour, Water, Spoon, Baby wipes.

- 1 Start with one part water in a bowl. Slowly add 1.5 to two parts cornflour, stirring constantly. Starch particles become suspended in water - but too much water will create liquid.



Why does this happen?

Long chain molecules slide easily over each other when moved slowly but become brittle/fragile and rip if you move them fast.



Alka-Seltzer Rockets

Find out how you can make a rocket powered by Alka-Seltzer and water with this fun activity.

Suitable for primary

What will you need

Photographic film pots and lids
Jug of water
Alka-Seltzer tablets or soluble Vitamin tablet broken into quarters

- 1 Remove the lid from the film pot
- 2 Pour water into the pot until it is 1/3 full.
- 3 Break an Alka-Seltzer tablet into quarters.
- 4 Put 1 quarter of the tablet on to the lid of the pot
- 5 Carefully put the lid with the tablet pieces, on the pot. Make sure it is on very tightly.
- 6 Shake the pot for 2 seconds and put it, lid down, on the table (never launch from your hand). STAND BACK.



Why does this happen?

A chemical reaction occurs between the Alka-Seltzer tablet and the water.

This produces a gas called carbon dioxide - the same as the gas we breathe out.

The gas builds up inside the film pot, increasing the pressure, until the lid is forced off.

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Music Maker from CREST

In this activity we will learn about how sounds are made by experimenting with different objects and materials.

Suitable for primary

What will you need

Several identical glass bottles - Various glass containers of different size and shapes
Wine or other glass bottles - Food colouring.

- 1 Place a mixture of identical bottles on one table.
- 2 Place a mixture of glass containers on the other side.
- 3 Place a mixture of wine or other glass bottles on the other side.
- 4 Gently start tapping the objects with a spoon.
- 5 Add water to the bottles, see if the exact notes change!



Why does this happen?

When you tap the bottles, the sound waves travel through the air to your ears. When you tap a glass, you hear the sound of the glass vibrating. The sound waves travel through the air to your ears. The sound waves travel through the air to your ears. The sound waves travel through the air to your ears.

Apply for your CREST Award

Star Awards - 5-7 year olds

Super Star Awards - 7-11 year olds

In order to gain your CREST Star or SuperStar Award you will need to complete 8 activities in total. You have already completed 4 during our Summer of Play Sociable Science workshops so why not complete 4 more activities provided in our booklet.

The children develop their investigative and teamwork skills. After completing all eight challenges, each child will receive a CREST SuperStar certificate and iron-on badge.

To apply for your CREST Star or SuperStar award for £1 visit

<https://apply.crestawards.org/>



THE CREST AWARDS SCHEME IS THE BRITISH SCIENCE ASSOCIATION'S FLAGSHIP PROGRAMME FOR YOUNG PEOPLE, PROVIDING SCIENCE ENRICHMENT ACTIVITIES TO INSPIRE AND ENGAGE 5-19 YEAR OLDS.

It is the only nationally recognised accreditation scheme for project work in science, technology, engineering and mathematics (STEM) subjects.

In addition to giving young people the opportunity to undertake hands-on science, CREST Awards are designed to help develop skills that are transferable to other subjects, further education and future employment.

To find out more about CREST Awards and to see how you can get involved visit the TechFest website: www.techfest.org.uk/crest or email: kirsty.ryan@techfest.org.uk

TECHFEST

TechFest is your Regional CREST Support Organisation for Scotland.
TechFest.org.uk

To find out more information about CREST and how to register for awards follow the link below:
www.crestawards.org