



ANNUAL REPORT OF THE CROMAR FUTURE GROUP

CHARITY REGISTRATION NUMBER : SC047033

September 2017 to August 2018

1. INTRODUCTION

We aim to help our Community by providing local access to science and technology talks, Science Festivals and STEM activities. Why? - Economic growth and opportunities for both individuals and businesses, require a good working knowledge of, and skills in, science and technology. Those who acquire these skills enhance their prospects.

We operate in the western end of Aberdeenshire from Banchory to Braemar, and Towie to Strathdon. This is an area of large sporting estates, tourism and agriculture. It has vibrant but small communities.

Rural parents vary widely in income in our area, from those working in the Universities or the oil industry to those who may hold down several part-time and sometimes seasonal jobs. Many lower income families do not have a second car in an area with limited public transport, and rely heavily on the school bus. This affects their child's ability to participate in after-school or weekend activities. We have some children who have no access at home to a computer and some where access to the internet is very limited by poor internet connectivity.

For some of the children in our area, to go to the nearest Science Centre in Aberdeen is a trip of one and half hours each way and over 100 miles. So neither our adults nor our children have the sort of easy access to science centres and the many science events organised in the typical University city.

For children, we currently focus our efforts on working in partnership with our local Primary Schools who are willing partners. Our aim at this age group is to inspire the children to have a positive attitude to science and technology when they go to their local Academy.



Exploring bacteria and fungi

Most of our local schools are small and very rural. We specialise in providing hands-on activities where every individual gets to have a go. This helps the children develop their skills and the children are very motivated by this approach.

Many excellent science activities are done in the primary schools as part of the curriculum but they are mostly carried out in groups due to the size of the classes and the mixed age ranges in a typical rural class.

Teachers also do not have ready access to the equipment we use or the time to explore themes and material outside of the curriculum. (We encourage this to expose the children to the whole wide spectrum of current scientific thinking and to aid their understanding of the curriculum science.)

The primary schools are important as many children, particularly girls, form their attitudes to science and technology at this age, and we want them to understand how enjoyable and critical to their future prospects, an interest in STEM subjects can be. We aim to inspire them.

2. ACTIVITIES FOR ADULTS

We ran our normal monthly CaféSci talks series for adults from September to January. Attendance varied widely, it was surprisingly poor for an Award winning GP team who came to talk about new approaches to recruiting rural GPs, but very high for a local speaker talking about local geology.

This programme helps fund our activities in schools and we shall be retaining it for the next academic year.

We would like to thank all the speakers for donating their time : Natasha Walker, Dr Linzi Lumsden, Dr Ewan Paterson and Dr John S. McKenzie all from the University of Aberdeen; Glenn Roberts from the NE Scotland Biological Records Centre; and Peter Craig, a local geologist. We also would like to thank the University of Aberdeen Outreach Centre for their help in arranging the talks.

3. AFTER SCHOOL SCIENCE CLUBS



Air experiments

After the success of our first year running an after-school science club for Tarland, we started two more after-school clubs during this year, and expanded the Tarland Club to include Logie Coldstone children. So we now run three Clubs covering four schools : Tarland and Logie Young Scientists; Craigievar Explorers; and High Tech Towie.

We changed the format of how we ran the Clubs this year and developed an over-arching project for the Clubs to tackle. They were asked to design a permanent colony on Mars – (Mars as home, not Mars as somewhere to visit and return home). We developed models of the colony for the Festival.

On the back of this project we were able to hang a lot of science and technology so we tackled :

- Fact finding
- Dimensions, space/time & coordinates
- Composition of air and air pressure
- Coding a robot
- Scratch coding
- Storyboarding and animation
- The nature of light and solar power
- The geology of Mars and lava tubes
- Food production systems
- The emotional response to Mars
- Atoms and nuclear energy
- Design
- Evolution
- We also made a mechanical robot



Racing programmable robots

Bug hunting for the Opal Survey



The Mars models filled a whole room at the Festival and Stuart Dunbar, Head of the University of Edinburgh's SCIFUN Roadshow, talked through their models with some of the children who had made them.

The main issue we have with the science clubs is staffing. We need leaders and helpers/first aiders who can attend in the afternoon, so that tends to be people who are retired. We have individual sessions run by University researchers who live locally, but as we operate week-in, week-out, we need people who can come each week.

We have not run any family holiday workshops this year and that is down to staffing issues. We can reach more children with activities by working with the schools than we do on the holiday workshops. So we do not rule them out for the future, but we shall need more volunteers to consider it.

We would like to thank those volunteers who have given up their time to run the Clubs : Barbara Warren, Bob Menage, Richard Burn, Coralie Robertson, Jennifer Hunter, Claire Brockelhurst, and Lesley Ellis. We would also like to thank Jude Bain and Natasha Walker for running occasional specialist sessions and Janet Cruse-Sawyer for helping start Hi-Tech Towie. We would also like to thank Kris Carbis at Towie School for his help in sorting out IT support there.

4. MAD MARCH SCIENCE FESTIVAL



Model of ice mining on Mars

This was our second Festival and we made a number of changes. One of the problems of weekend Festivals, is that attendance depends on whether or not parents are motivated and/or able to take their children to them. They may have other activities planned for that weekend or conflicts due to siblings wanting to do different things. The Festival does though, have the ability to raise the profile of science and technology locally and it allows us to make activities available locally to pupils in schools where there is no science club or Festival in-school visit.

To reach as many children as we could though, we also worked in cooperation with the schools and took an in-school activity to them. We did this for ten primary schools and this allowed us to reach all children in those schools with a quality science hands on activity.

So the Festival consisted of : Visits with MadLabs and Rude Mechanicals into ten primary schools and around 700 children either (in P1-3) built a cardboard kit windmill and tested it; or (in P4-7) soldered an electronics kit and got it working. They also took their creations home.

We ran nursery sessions with programmable age appropriate robots at Braemar, Tarland and Aboyne covering another 85 children.

We provided two family weekend Festivals – a two day Festival on Deeside in Aboyne involving the University of Edinburgh’s SCI-FUN Roadshow and a one day Festival on Donside in Towie run by our own members. Both were well attended and together reached over 400 people.

We provided an adult talks programme and we also we ran a MadLabs session for a Club which focuses on helping older children and young adults on the autistic spectrum.



Rude Mechanicals session in school



MadLabs in school

We delivered what we said we would deliver, despite the fact that we were badly hit by snow, to such an extent that we had to reschedule four of the first five days, both weekend festivals and most of the adult events.

We would like to thank Aboyne Primary School and their PTA for hosting the Aboyne Festival, and Towie Primary School who hosted the Towie Festival. We would like to thank Ballater Primary School and Jackie MacLean for leading two of the Festival events and Cat Houston for running the Lego session.

We would also like to thank the Deeside Camera Club for organising an event for the Festival, our regular volunteers previously mentioned and also Alastair Brodie, Hamish McIntyre, Jim McLean and David Harper for their time in helping at the Festivals.

Special thanks also to James Hutchby and Meg Hamilton who delivered MadLabs and Rude Mechanicals for us and whose flexibility allowed us to reschedule everything at short notice when the schools were shut due to the snow.

Finally we would like to thank the University of Edinburgh who subsidised the SCIFUN Roadshow and Stuart Dunbar and his team who delivered a great experience for all who attended.



Examining rocks and fossils

5. OTHER SUPPORT TO SCHOOLS AND THE COMMUNITY

In addition to our regular activities, we have also provided a session on atoms and elements to our local Girl Guides Club; a session on “Space Food” at the Tarland Food and Music festival; and we took our fun robot session to support the Tarland School Summer Fair.

We provided temporary support to Aboyne Primary’s Code Club and one of our volunteers is now a regular volunteer there.

We provided two sessions and a series of experiments and activities for Lumphanan Primary School to help them with their curriculum requirements. This was the first time we had done this and we gained valuable insights into

what works when handed over to others to run. We are feeling our way on designing age appropriate hands-on activities for them and their feedback has been most helpful.

We worked closely with Gary Boden at Tarland school to teach coding (using MIT's SCRATCH) to the Primary 5-7 class and helped them participate in Aberdeenshire Council's Gamescon. This both helped them and helped us develop our approach to leading SCRATCH sessions. The team reached the finals so were in the last 14 out of 81 entries, so we were delighted with their progress (and ours!).



Tarland's Gamescon Team

6. EQUIPMENT AND MATERIALS

Every piece of equipment we use in our activities has to be taken into the school. We have limited time and access to a hall to set-up a session. We use equipment not readily available in a Primary School. There are no labs, there are no technicians, so we bring it all in.

This means that we have been steadily building an equipment base to support our activities as we can afford it. We now have an inventory which includes bunsen burners and chemistry equipment, microscopes, tools, light boxes and lenses, a range of magnets, and a host of smaller items. It also includes all the gloves, safety glasses, masks, first aid kits, fire blankets and gauntlets that we need to ensure the children's safety.



Learning to use microscopes

We provide kits when necessary to enable the children to experience the use of tools and this year all the children in the Science Clubs built a simple mechanical robot. In the case of MadLabs, we pay for the electronic kits we use during the Festival as well as the time for the session presenters.

Our biggest area of frustration is how we interface with the school computers and having reliable access to wifi in school. We cannot rely on computers being charged at the end of the day when we operate. We cannot rely on the school having enough suitable computers for every individual child when we work in classes to help them teach coding. We cannot access the school wifi easily which makes it very difficult to run anything that

needs internet access in schools.

We have refurbished nine redundant computers donated to us, in order to supplement those available in school so that children can code off-line if there is no computer for them. In some schools, we have been forced to take in a dongle to gain access to mobile broadband.

Much of the money spent by the Charity is on the equipment and materials which we use in our activities. Most of this is also available to local Primary schools to loan.

7. FUNDING AND SPONSORS

This year has been a pivotal year for changing our approach to funding. Previously, we were funded from the talks and costs were paid or underwritten by some of the Trustees. As we expanded the number of after-school clubs and enlarged the Festival, then we needed to start to raise funds more seriously.

So a total of 12 funding applications have been written over the last year and a large raffle was organised by one of the Trustees at the Festival. We have had a good strike rate in getting funding from funding proposals, but the amount of work involved is draining when we have such a small active volunteer base, so we are seeking longer term partners.

Like Mr. Micawber we keep applying and declaring "something will turn up" and we are extremely grateful to those who have supported us and would like to express our deep gratitude to our major sponsors for this year :

- **Aberdeenshire Council, Marr Area**
- **The Jennie S. Gordon Memorial Foundation**
- **The University of Edinburgh**
- **BP**
- **Shell**
- **The Coop**
- **Aviva Community Fund**
- **The David and June Gordon Memorial Trust**
- **The Rotary Club of Aboyne and Upper Deeside**

We would also like to thank Barbara Warren for all the hard work that went into the Festival raffle and those many individuals and businesses who gave us personal donations or donated raffle prizes.

8. ACCOUNTS

Our accounting year is driven by our Charity registration date and runs from January to December 2017. Our operational year is based on the Academic year, so the two do not fully match each other.

A copy of our accounts is available on our web-site. Last year we broke even. The first half of the year was broadly funded by Trustees, income from the talks, personal donations and Festival sponsors. The first grants for non-Festival activities started to come through towards the end of the financial year, and the cost of this year's Festival was fully funded from grants.

Wherever possible we do not charge for any of our work with children or young adults in full time education, neither to parents nor to the schools. We think there are enough barriers to children having local access to science activities, without us charging.

Some organisations have made donations to us as a "thank you" for what we have done and we appreciate that greatly. Finally, we would like to thank Donald Gordon for acting as the verifier of our accounts.

9. ORGANISATION

As well as starting to apply more routinely for funding, we have all our policies and procedures in place for operating in the schools and have instituted our own permissions process.

This year we have also joined forces with the STEM Ambassadors who administer PVGs for us and we are delighted to operate in conjunction with them. It allows us to advertise to other STEM Ambassadors and to ensure that all our local STEM Ambassadors have the opportunity to volunteer at our events.

In the winter, one of our volunteers had a bad road accident on her way home from an after-school Club. This made us re-examine our third-party insurance coverage and extend it to include personal injury for volunteers whilst working on projects for us.

It also exposed that we were short of first aiders, and we have trained up another first aider and plan to train more of our volunteers this year.

The biggest risk to the organisation remains the number of volunteers and the fact that virtually all the administration, including the accounts, the website and facebook pages, and the organisation of activities currently falls to one person who is also heavily involved in the delivery of our science activities. As with many local charities, we struggle to recruit people to help with administration and this is a critical vulnerability.

We are gradually bringing on board more people who can deliver our science activities and the Festival is our strongest recruiting tool. Those who get involved with us find it very rewarding and stimulating. Given we are interested in involving those who are retired, and we need helpers as well as ex-STEM people, it is a great way for older people to engage with the younger generation on a regular basis.

10. PLANS FOR 2018 - 2019 ACADEMIC YEAR

We have more demand for our help than we can support. Virtually all the local schools would love an after-school science club. So we can only expand our help by :

- focusing on those who we can realistically help
- expanding as and when we find suitable Club leaders and helpers
- finding ways to support activity delivered by teachers

So we have a number of plans for next year :

- We aim to support a fourth Science Club next year. We are still discussing this with the Head concerned but provided we can staff it correctly, then we shall go ahead with this.
- We aim to start an early evening youth club called “Everything Electronic” in Tarland to provide opportunities for local youngsters to develop skills in coding, electronics, and robotics in a safe environment where they can develop their own interests and game together if they wish.
- We aim to run another Festival in March, themed towards rural science covering agriculture, forestry, fishing and environmental science provided we can find suitable partners and funding.
- We shall run our winter adult talks series as normal. We will continue to run our existing Clubs but we shall run these only through the three winter and spring terms as many children drop-out in the summer. To give our volunteers a break and flexibility when they take their holidays, we shall use the summer term as an opportunity to run some in-school programmes with the smaller rural schools where we do not run after-school science clubs.
- We are looking to develop a longer term funding relationship with a suitable organisation and are in the process of preparing an application to push this forward.
- We will aim to recruit more volunteers, we need in particular, a chemist, engineers, and those with managerial or funding proposal experience to help in the running of the Charity.

11. FEEDBACK

We have no formal way to monitor our success due to the lack of volunteers in the administration area. (We concentrate our effort on delivering STEM activities, communication and fundraising). That is not to say, we have no feedback – we do, we get plenty of it and we ask the children at the end of a big project for their feedback also.

Towie Primary School kindly organised some more formal feedback after the Festival and their report is available on our web-site. This has feedback across our range of activities for children. In addition we include a selection of the comments here which we have received from the children or their parents or their schools:

From children : “Thank you for all you help in my coding ability”

“I never thought I would do this kind of club, but I have learned loads and am enjoying it.”

“All is fantastic here at Towie, we have done lots of experiments and want to become scientists.”

“We do lots of things at our school science club. Such as Air Experiments, Space food, building Mars land and many other things.”

“Thank you for being our coach. Couldn’t have made it to Gamescon without you.”

“I have learnt a lot at science club between the fun and the boring.”

“I like the caterpillar best it was more commotion” (codapillar – nursery session)

“I like the Robot it was my favourite”

“I like the caterpillar (codapillar). I took it apart and put it back together.”



Replicating the photoelectric effect

From parents : “Alfie really enjoyed this session and can’t wait to find out if his feet or mouth is germier!” (Science Club session)

“Thank you to the Cromar Future Group – such a great opportunity for the schools and the children.” (re : Mad March Science Festival)

“I know how much my grandson enjoys his after school science club, his Xmas pressie from us was at his request science related, congratulations to all.”

From schools :

“On behalf of the Staff and Pupils at Lumphanan Primary School, I would like to say a huge thank you for all your support this year. It has been truly inspirational and extremely supportive to the delivery of our curriculum.”

“My sincere thanks to you and your band of helpers for a very successful Science Festival here at Towie. We were delighted to host it and hope the visitor numbers made all your hard work worthwhile.”



Bughunting team by the burn

Our facebook page is : <https://www.facebook.com/cromarfuturegroup>

Our web-site is : <https://www.futuregroup.org.uk/>

We were supported by :



Jennie S. Gordon Memorial Foundation

Rotary  Club of Aboyne & Upper Deeside

 *The David and June Gordon Memorial Trust*



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THE SCI-FUN ROADSHOW