

Family science clubs pilot

This case study will be of interest to practitioners who are looking at different ways of engaging families across the school.

Rationale

The project was devised to tackle family engagement, improving aspirations in relation to chemical science as a potential career pathway.

A 2015 report 'public attitudes to chemistry' showed a lack of engagement in the area.

Family engagement is also a key driver for West Lothian underpinned by commitment to the Scottish Schools (Parental Act) and How Good Is Our School evaluation within the National Improvement Framework.

Weekly focusses

Week 1– What is Chemistry?

P1-3 Magic Milk, Lemon Volcano and Dissolving, Skittles (home task)

P4-7 Blow up a balloon without touching, Lava Lamps and Dissolving Skittles (home task)

Week 2– Household Science

P1-3 Make our own Sherbet, Dancing raisins

P4-7 Cabbage Ph Indicator, Make our own Sherbet

Week 3– Forensic Science

P1-3 Chromatography Butterflies, Finger print checking

P4-7 Secret Messages, Finger Print checking, Which pen? Chromatography

Week 4– Sustainable Science

P1-3 Beat the Flood Challenge

P4-7 Ditch the Dirt Challenge

Week 5– Sport Science

P1-3 Properties of material: Goalie gloves

P4-7 Properties of material: Best Football

Case Study: Knightsridge and Uphall Primaries, West Lothian

What does it cost?

Funding was provided by The Royal Society of Chemistry Outreach.

£1500 was secured for resources for three schools' clubs (five weeks of resources for P1-3 and P4-7 activities).

Where can I find out more?

The Royal Society of Chemistry Outreach Fund:

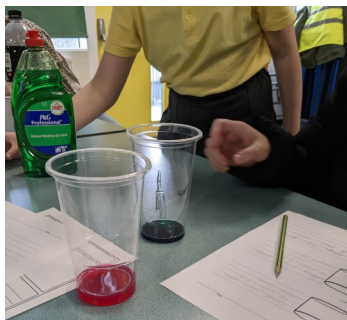
<https://www.rsc.org/prizes-funding/funding/find-funding/outreach-fund/>

Contact

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Impact

Two of the three school pilots have been completed. Evaluations from pupils and families have been positive, indicating that they enjoyed spending time together on the projects and have a better understanding of the science curriculum, as well as the application of chemistry in learning and real-life therefore increasing aspirations.



West Lothian
Council

RAiSE
Raising Aspirations in Science Education



Education
Scotland
Foghlam Alba

Setting up a family science club

The schools selected the chosen families from P1-3 and P4-7 based on data including PEF. The local PSDO created a table of sessions, DYW links and resources needed for the funding application. The resource list and web links were used by school office staff who ordered the resources. The PSDO then organised the resources for each session. Each club was ran as a lesson with learning intentions, discussions and recording in different ways depending on stage. These are example tables to show organisation of club, DYW focus, P1-3 learning activities, P4-7 learning activities, and the resources with prices and where they can be ordered.

Week of Club	Chemistry Career focus			Approx Budget for each week
1 What is Chemical Science?	https://edu.rsc.org/job-profiles/head-of-chemistry-and-teacher/4010935.article	Simple Chemical reactions - Magic Milk - Lemon Volcano - Dissolving Skittles (home task) <u>Resources:</u> Milk x 10 (share) Food Colouring x 10 (share for lemon and milk) Pipettes x 20 Fairy Liquid x 10 (to share) Paper plates x 20 (TTS bulk buy) Lemon x 20 Baking Soda x 6 (share) Vinegar (share) Skittles- mini bag x 20 Paper plate x 20 (TTS) Jug of water x 10 (share)	Chemical reactions - Blow up a balloon - Lava Lamps - Dissolving Skittles (home task) <u>Resources</u> Alka Seltzer x 20 Baking Soda x 6 (share) Vinegar share Balloons x 40 (2 each) Test Tubes x 40 (2 each) Test tubes x 20 Water Jug x 10 (share) Vegetable Oil x 10 (share) Food Colouring x 10 (share) Alka seltzer x 20	P1-3 Milk Brakes Yew Tree whole milk £6.69 Pipettes (easy use) £20.50 (TTS) Green food colour £5.99 Yellow food colour £5.99 Fairy pack of 6 £18.59 Lemons pack size 1x20 £5.89 Bicarb Soda pack of 6 £4.89 Clear malt Vinegar £7.09 Skittles 36 pack £16.59 x2 P4-7 Vegetable Oil £8.49 Plastic teaspoons x100 £1.99

2. Household science Tuesday 7 th March	Senior Scientist: Household Goods https://edu.rsc.org/job-profiles/senior-scientist-household-goods/4010860.article https://www.rsc.org/journals-books-databases/about-journals/food-function/	Chemistry in Food: - Make our own Sherbet - Dancing raisins <u>Resources:</u> Paper bags for sweets x 40 Teaspoons x 20 Citric Acid x 10 (to share) Bicarb of Soda x 10 (to share) Icing Sugar x 15 (to share) Liquorice Sticks x 40 Plastic cup (see through) x20 Baking soda (left from last week) Vinegar (left from last week) Water Raisins or Gummy worms	Chemistry in Food - Make our own Sherbet - Cabbage Ph Indicator <u>Resources:</u> Paper bags for sweets x 40 Teaspoons x 20 Citric Acid x 10 (to share) Bicarb of Soda x 10 (to share) Icing Sugar x 15 (to share) Liquorice Sticks x 40 Cabbages to boil Lemon Juice Vinegar (should have left over from last week) Test tubes from last week	P1-3 White Paper Bags 12.5x12" /30.5x30cm 500 pack £12.19 Bicarb Soda pack of 6 £4.89 x3 Tate & Lyle Cane Sugar Icing Sugar 3kg £9.29 x2 Plastic teaspoons x100 £1.99 Red cabbage x2 £3.18 Lemon Juice 12 pack £15.39
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Information about the schools

Twenty families within P1-3 and twenty families within P4-7 from Knightsbridge attended the session, with siblings able to attend together on Monday afternoons. Due to unforeseen circumstances, this club ran for just three of the weeks at school, with a final session offered at the local community centre.

Baseline surveying showed parents thought science was less important than literacy and numeracy, and that they were keen to connect and learn with their child through the sessions.

At Uphall Primary, pupils attended sessions with their families hosted by the Deputy Head Teacher and RAiSE PSDO.

Baseline surveying showed that 76% thought science was important but fell below literacy and numeracy (80%). Parents shared they wanted to spend time with their child, improve their knowledge and confidence, and understand how science was in the school's curriculum.

At the final club, parents and children completed the survey together which was a behaviour shift. Science was now rated as extremely important by 90%.

Parents shared it had given them experiments to do at home and increased their understanding of science. They said it would be beneficial to do clubs again and it was an exciting and interesting approach.

Feedback



This was a fun way of introducing the children to chemical reactions by using everyday household items.



We are really enjoying learning science together. It has sparked a lot of discussion at home. Thank you!

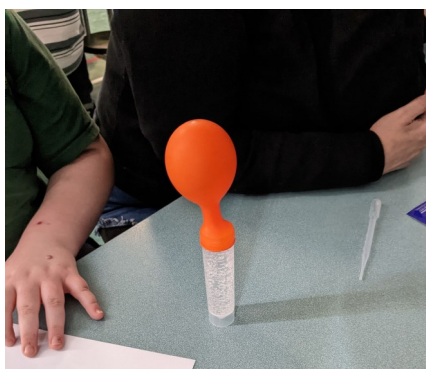
Both myself and my child enjoyed the lesson. He enjoyed having to think about what would happen then seeing how it played

We enjoyed the class and we are excited for next week. She is really engaged and enjoys the experiments. Thanks!

Interesting experiments. Wasn't expecting to have to write a recipe sheet for science.

10 out of 10. I never knew how easy it was to make sherbet!

Really enjoyed it today. It was really good learning about science stuff- definitely be doing this at home! 10/10



THIS IS THE BEST DAY!