

# Healthy homes : Developing a teaching and learning approach for young people

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## About This Report

### **Title**

Healthy homes: Developing a teaching and learning approach for young people

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### **Abstract**

This project explored the topic of Healthy Homes for 10-12-year-old children through a participatory action learning approach. The project included a school trial at Maeroa Intermediate. A range of perspectives were included: Maori concepts provided a holistic framework; pupils considered the idea of their bodies being their first home; the habitats and homes of birds, animals and other creatures were investigated; and, hands-on activities introduced the principles of building science. The project has illustrated the power of creating a broad-based knowledge pool to provide depth for educational practice about healthy homes. A fortunate and unforeseen outcome was the enrichment experienced by the adults who created, liaised, financed and supported the project; Toimata Foundation, Beacon Pathway, Home Performance Advisor Programme, project team individuals, teachers and pupils.

### **Reference**

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## Contents

|       |  |    |
|-------|--|----|
| 1     | Executive Summary.....   | 1  |
| 2     | Introduction.....  | 5  |
| 2.1   | Acknowledgements.....  | 7  |
| 3     | What we did.....   | 9  |
| 3.1   | Established a joint understanding of the issues.....                           | 10 |
| 3.2   | Explored different ways of working .....                                       | 14 |
| 3.2.1 | Co-designed alternative delivery of healthy homes .....                        | 14 |
| 3.2.2 | Supporting adults surrounding young people.....                                | 18 |
| 3.3   | Took action to trial Healthy Homes.....  | 18 |
| 3.3.1 | Established partnerships to underpin school trial.....                         | 19 |
| 3.3.2 | Developed a healthy homes programme suitable for 10-12-year-old children ..... | 20 |
| 3.3.3 | Healthy homes programme planning .....   | 21 |
| 3.3.4 | Building science activities and props .....                                    | 23 |
| 3.3.5 | Trialled Healthy Homes programme in 4 classrooms .....                         | 27 |
| 3.4   | Evaluated the project .....  | 33 |
| 3.4.1 | Exhibition.....  | 34 |
| 3.4.2 | Reflections on the school-trial evaluation.....                                | 42 |
| 3.4.3 | Shared the project with EDA conference.....                                    | 44 |
| 4     | What we learned .....  | 45 |
| 4.1   | The children's experience .....  | 45 |
| 4.2   | The teachers' experience .....   | 49 |
| 4.3   | The project team's experience .....  | 53 |
| 4.4   | The project partner's experience.....  | 55 |
| 5     | What we think it means .....   | 57 |
| 5.1   | Outcomes, highlights and learning from the Healthy Homes project.....          | 58 |
| 5.2   | Next steps.....  | 59 |
| 5.2.1 | Embedding Healthy Homes into Toimata programmes .....                          | 59 |
| 5.2.2 | Informing the Home Performance Advisor Programme (HPA) .....                   | 61 |
| 5.2.3 | Stimulating Beacon's research questions.....                                   | 61 |
| 5.2.4 | Contributing to developments in the schooling sector .....                     | 62 |
| 5.3   | Final thoughts .....   | 64 |
| 6     | Appendix 1: Project communication for Maeroa Intermediate .....                | 65 |
| 7     | Appendix 2: Teacher participation consent .....                                | 69 |
| 8     | Appendix 3: Teachers planning overview Healthy homes .....                     | 71 |

## Figures

|   |    |
|---|----|
| Figure 1: Enviroschools' Action learning cycle.....   | 9  |
| Figure 2: Action learning cycle stage one: identify the current situation.....  | 10 |
| Figure 3: Action learning cycle stage two: explore alternatives .....   | 14 |
| Figure 4: Mapping Healthy Housing with poutautoko (local support people).....   | 15 |
| Figure 5: Action learning cycle stage three: take action .....  | 19 |
| Figure 6: Healthy Homes – high level plan of the term's work .....  | 22 |
| Figure 7: Sundials to track Tamanuiterā – two models.....   | 24 |
| Figure 8: Building Materials kit: concrete, treated wood (in plastic bags), untreated wood, fibreglass insulation (in plastic bags), polyester insulation, aluminium..... | 25 |
| Figure 9: Mini houses with installed hygrometer and three levels of glazing (50%, 25%, 7%) .  | 25 |
| Figure 10: Class set of Hygrometers to support learning about temperature and relative humidity .....   | 26 |
| Figure 11: Ian Mayes' model NZ Home, half with insulation, half without, to demonstrate the bones of typical house .....  | 27 |
| Figure 12: Te Taiao, pupil's working on everything is connected.....  | 30 |
| Figure 13: Body as first home – display of well-being walkabout at school .....   | 30 |
| Figure 14: Habitat activity – sky walking at Maungatautari .....  | 31 |
| Figure 15: Building science activities: tracking the sun (top), monitoring temperature/RH in the mini houses (right).....   | 31 |
| Figure 16 Materials activity, each table had one material, atua cards and process cards .....   | 32 |
| Figure 17 Pupils ordering the process cards for their material to show its transformation from its original form in the environment into a building material.....         | 32 |
| Figure 18: Action learning cycle stage four: reflect on change.....   | 33 |
| Figure 19: Exhibition, overview of Healthy Homes enquiry .....  | 35 |
| Figure 20: Exhibition display - body as your first home.....  | 36 |
| Figure 21: Models of homes for animals (birds, dogs, farm livestock) displayed at exhibition .  | 37 |
| Figure 22: Dual model of a home demonstrating healthy (top) and unhealthy (bottom) elements .....   | 38 |
| Figure 23: Model showing insulation, renewable energy options, add Māori perspectives .....   | 39 |
| Figure 24: Homes around the World resource book .....   | 40 |
| Figure 25: Sample of houses from Homes around the World resource book .....   | 41 |
| Figure 26 Findings from evaluation workshop with teachers.....  | 42 |
| Figure 27 Project team evaluation of teacher insights on the Healthy Homes pilot .....  | 43 |
| Figure 28 Project team sharing project with BRANZ .....   | 43 |
| Figure 29: EDA conference participants visiting the Health Homes stand.....   | 44 |

|   |    |
|---|----|
| Figure 30: Maungatautari Field trip planning document to set the scene for this trip .....                    | 46 |
| Figure 31: Students experimenting with the mini houses after they'd finished their models .....               | 46 |
| Figure 32: Healthy Homes Pool of Knowledge by Maeroa Intermediate .....                                       | 48 |
| Figure 33 Teacher reflection "I was surprised by..." .....  | 49 |
| Figure 34 Teacher reflection "I was fascinated by..." .....   | 50 |
| Figure 35 Teacher reflection "I felt supported when..." .....   | 51 |
| Figure 36: Project team working during final evaluation session (Dec-19).....                                 | 54 |
| Figure 37: Education pathways (Heidi Mardon).....   | 62 |
| Figure 38: Scoping the broader educational context needed to improve housing outcomes (by Heidi Mardon) ..... | 64 |

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## Tables

|  |    |
|--|----|
| Table 1: Building science activity list .....                                  | 23 |
| Table 2: Teaching material and implementation of Healthy Homes programme ..... | 29 |

This report documents the Healthy Homes project for BRANZ. The project team have permission to share images and evaluation feedback for this purpose. In the spirit of collaboration, we (Beacon and Toimata) would appreciate conversation with BRANZ about any replication of personal comments and images in other public forums (websites, presentations etc.).





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## 1 Executive Summary

*Ko te whare mauriora o te iwi*

*Tū tonono*

*Tū tonono*

*the house of the people with its essence of life, health and well-being  
– long may it stand!*

Whakatauki from Enviroschools Eco Building Resource

The project's premise was that young people are a missing sector in home performance education. This brought together three organisations in the building research and education sectors in a rare collaboration: Toimata Foundation, Beacon Pathway and HPA – Home Performance Advice programme.

Toimata is a charitable trust running two nationwide sustainability programmes – Enviroschools and Te Aho Tū Roa. A nationwide network of support people - Te Aho Tū Roa Poutautoko and Enviroschools Facilitators, work with over 1300 schools, kura, early childhood centres in both English and kaupapa Māori settings. Beacon is an Incorporated Society whose vision is creating homes and neighbourhoods that will work well into the future and don't cost the Earth. Beacon started as a research consortium in 2004 and has developed extensive knowledge and experience on the issues New Zealand faces in improving residential outcomes. HPA is the only certified training programme for advisors in home energy efficiency and home performance sector in New Zealand. HPAs vision is for households to be able to rely on advice that is based on the latest research and best practice to achieve a healthy home.

Staff from these three organisations explored ways of integrating some of the HPA training material into the Toimata teaching and learning approach developed over 20 years. The purpose of the co-designed programme of Healthy Homes was to trial a positive, creative learning opportunity for students and young people.

The project trialled Healthy Homes at Maeroa Intermediate, an Enviroschool in Hamilton and involved the Enviroschools facilitator and four teachers and their classes, supported by a project team from the three partner organisations.

Upfront, the project team invested a lot of time developing a shared understanding ("pool of knowledge") of healthy homes. This drew in Māori perspectives, focused on key building science principles (rather than the 'solutions'), considered positive ways to engage young people in the topic, transformed existing training materials (adult focussed) into age-appropriate activities, and built in processes to support the layers of adults around young people. The Healthy Homes programme sought to:

- support young people in understanding how our homes/houses work and how to create wellness through the built environment
- model teaching and learning that would change the way we think about homes and how we design, build and retrofit our homes
- empower young people to feel connected and enabled to take action for their own well-being in a positive and creative way

Both teachers and students experienced a diverse range of activities to ignite curiosity and interest for an inquiry into “what is a healthy home?” The learning journey was designed to develop a sense of care for themselves and their surroundings, and to build their confidence to participate in the creation of healthy homes. It was anticipated they would increase awareness and understanding of what makes homes healthy by creating models and sharing their knowledge within their own community.

Learning was facilitator-led, teacher-led, student-led and peer-supported. A diverse range of activities was offered from a variety of perspectives, including Māori perspectives, holistic environmental concepts and building science concepts. Guided by the Action Learning Cycle (Enviroschools Kit), teachers supported students to explore through storytelling, art, experiential games, sensory exercises, bush immersion and observation exercises, artistic and scientific discoveries.

The three big ideas of ‘body as first home’, ‘habitat is home for all’, and ‘healthy homes’ let pupils personalise their learning. Being outside (at school), experiencing nature (on the trip), exploring, playing, model-making and experiencing the hands-on activities were novel for many of the children in this trial. The building science area saw pupils investigate sun direction, how houses store and lose heat, building materials, types of houses around the world, energy and other elements that contribute to a healthy home.

The teachers felt Healthy Homes offered a trans-disciplinary programme that supported other curriculum areas - this work integrated literacy, numeracy, science and art all into one unit. From a teaching perspective, the science in this trial included: investigating, understanding, and explaining healthy homes through creative insight; generating and testing ideas; gathering evidence – including making observations, carrying out investigations and modelling, and communicating with others – in order to develop scientific knowledge, understanding, and explanations for problem solving and decision-making. Students were motivated and excited by the project and expressed a range of new learning.

The school pilot enabled a number of activities and processes to be developed and trialled, and for Toimata, two immediate actions have arisen from the experiences in Maeroa Intermediate School. The first action will be to finalise the Healthy Homes written material based on what was learnt, and integrate it into the Enviroschools Ecological Building theme area being revised in 2020. The second action is to share the pilot project at an Enviroschools national hui in April 2020. Both of these actions will make the Healthy Homes topic available to the whole

Enviroschools network in written form. Both Enviroschools and Te Aho Tū Roa are proven programmes that have the well-developed networks and processes to support wide dissemination of Healthy Homes education. However, to do this requires more than the written resources, it also required additional professional development for facilitators who support the teachers, local expert groups to support specific aspects of healthy homes, and access to the building science tools specifically produced for the pilot. Conversations are required with other organisations to find adequate resourcing for these aspects. HPA has revised its training materials in 2020 and is adopting more a participatory style in its training workshops as a result of this Healthy Homes project. This project will continue to influence future HPA programme development as resourcing allows. Beacon is embedding insights from this project into its partnerships and portfolio of projects designed to stimulate change in the residential sector.

It is widely accepted that New Zealand's current poor housing outcomes are a significant issue. Transformation across many sectors (education, building and health) is needed to produce sustainable homes that support health of New Zealanders and the planet. An early insight in a project originally designed with a focus on young people, was the need to engage an ecosystem of learners in the quest to understand housing and education in New Zealand.

While designed to introduce healthy homes to young people, this project also engaged an ecosystem of learners in the quest to understand housing and education in New Zealand. This was a participatory learning and action project based in a school with healthy homes as its centre. The findings of this project signal an alternative way to address healthy housing – all participants were learners and the project developed a new pool of knowledge around healthy homes. Ripples have spread from individuals to whānau, the school community and project organisations. Widening the circle of engaged stakeholders to include more building industry players offers an interesting opportunity to create new pools of knowledge with a more diverse range of people involved in the education, design and construction of buildings.



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## 2 Introduction

Entitled “Tools for young people to understand how they can improve home performance”, this project was funded by BRANZ from the Building Research Levy against the Levy portfolio research question “What steps could be taken to support customers to better understand the limits of the houses they are currently living in?” The project’s premise was that young people are a missing sector in home performance education even though they are important consumers of New Zealand homes now and in the future. Learning throughout caused the project team to change our language and reflect on the original title. This was a fundamental learning to move away from idea of tools being developed by outsiders and dropped into a classroom. The title became: Healthy homes: Developing a teaching/learning approach for young people. The project used Healthy Homes as a shorthand title, as does this report.

The project ran from August 2017 to December 2019. Five progress reports have been submitted to BRANZ (December 2017; April 2018; September 2018; April/May 19; and, December 19). The project team visited BRANZ to discuss the rich findings of the project (Dec-17 and Nov-18).

The project team was drawn from three organisations: Beacon Pathway, Toimata Foundation (holder of Enviroschools) and the Home Performance Advisor training programme (HPA).

**Toimata** is a charitable trust running two nationwide sustainability programmes – Enviroschools and Te Aho Tū Roa. A nationwide network of support people - Te Aho Tū Roa Poutautoko and Enviroschools Facilitators, work with over 1300 schools, kura, early childhood centres in both English and kaupapa Māori settings. Toimata’s educational approach is based on participants connecting with their ecosystems and communities, learning collaboratively and being empowered to take action for healthy more sustainable communities and environment.

**Beacon** is an Incorporated Society whose vision is creating homes and neighbourhoods that will work well into the future and don’t cost the Earth. Beacon started as a research consortium in 2004 and has developed extensive knowledge and experience on the issues New Zealand faces in improving residential outcomes. Beacon has a comprehensive network across council, central government, community sector, manufacturers, insurers, researchers, politicians, professionals and trades organisations. Beacon is actively engaged in unpicking barriers and developing partnerships across these groups to push initiatives/innovation that will help achieve the vision.

**HPA** is the only certified training programme for advisors in home energy efficiency and home performance sector in New Zealand. It is notable that Beacon and Toimata are founding partners in the HPA programme, along with Community Energy Network. These organisations identified that a key barrier to improving housing outcomes was the availability of independent advice in New Zealand. The result is a training programme, recognised by government and industry, to ensure households have access to certified practitioners who sign a code of conduct to offer advice on achieving a healthy home that is independent of sales.

To date, HPA has certified more than 100 Home Performance Advisors who work around the country offering independent robust advice to households. In addition, nearly 200 people from a range of organisations have successfully completed the Principles of Home Performance course. This one-day training enables practitioners to hold informed conversations with households about their home performance but doesn't qualify them to provide independent advice.

The Healthy Homes project team included:

- Vicki Cowan and Glenda Lock (Beacon)
- Heidi Mardon and Pam Jones (Toimata)
- Ian Mayes (HPA)
- Adrienne Grant (Enviroschools Facilitator)

Project partners:

- Waikato Regional Council (host of Hamilton's Enviroschools' facilitator)
- Maeroa Intermediate, Hamilton.

This report is structured as follows:

- 1) What we did
- 2) What we learned
- 3) What we think it means

## 2.1 Acknowledgements

Many thanks to all the people who were involved in this collaboration, for the expertise and commitment and for the open sharing and co-learning that we undertook together.

Thanks to BRANZ for the funding support, creative conversations and commitment to a healthier, more sustainable built environment.

We acknowledge also that years of work already undertaken by Toimata Foundation and Beacon Pathway created the foundation for this project. Toimata Foundation, through EnviroSchools and Te Aho Tū Roa, created the empowering teaching and learning approach that carried the topic of Healthy Homes into the classroom. Beacon Pathway's deep research into 'whole of house' sustainability enabled a wide perspective on home performance, including physical and social aspects of homes.

Adrienne Grant, Waikato Region's EnviroSchool Facilitator, provided an essential steady hand as the front-line link between the project team and the school trial. This interface is essential to turning ideas into action – i.e. where the programme is implemented. Adrienne brought her strong environmental knowledge to develop the habitat units of the programme. Adrienne had lovely rapport with kids and her ongoing encouraging communication with the teachers was critical to the success of the trial.

Pamela Jones, Toimata's education expert, brought expertise to this project that turned technical knowledge into fun learning experiences for children. Pam's long career in education provided valuable mentoring of the project team as well as teachers during the trial. Pam's history and role in the origins of EnviroSchools meant that programme's kaupapa was embedded in all planning and writing of this new Healthy Homes programme. Pam is instrumental in bringing the experience of the project back into Toimata's review of their Eco-Building resource.

Ian Mayes, home performance expert and HPA trainer, contributed his knowledge of the housing sector, home performance advice and adult education to the co-design process. Ian's practical building skills were a significant contribution to the school trial as he designed, built and gathered an impressive four class sets of props and other materials to support the designed activities. This meant the trial was truly hands on and everyone could explore the building science of healthy homes in a practical and experiential way. Ian's enthusiastic openness to new ways of working means the learning from this project is already changing the way training is delivered to adults in the Home Performance Advisor Training Programme.

Maeroa School, hosts of the Healthy Homes trial, were fantastic partners. Schools are busy places with lots of ideas and projects competing for precious staff and class time. Julie, Yubin, Oriana and Lizzie, the four teachers who trialled the Healthy Homes programme in their busy classrooms deserve special mention. These teachers brought their expertise, passion, care of their pupils, dedication, generosity (this took a lot of precious time) and honesty to the implementation and evaluation of this work. The school's engagement has added to the Enviroschools pool of knowledge, for which Toimata is grateful.

Glenda Lock, Beacon's healthy homes and community expert, played a key role in the early stages of partnership development between Toimata and Beacon, providing calm and wise guidance. Glenda's insights supported the co-design process, helping Beacon see this was an unusual project in its portfolio, and robustness might look different in this context. Glenda's community work in Healthy Homes provided the team with useful insights and supported our understanding of the layers of adults around children.

Heidi Mardon, Toimata Foundation's Chief Executive and Healthy Homes advocate provided a strong lead for the project team. Heidi's dedication to education of young people and long-held passion for sustainable housing brought deep understanding to a project which brought these sectors together. Heidi guided this work holding the team to the process of the action learning cycle throughout the co-design, trial and evaluation. Heidi's strategic vision positioned this project and its findings in the wider context of New Zealand education and helped the team identify the potential to achieve healthier homes with new ways of working.

Vicki Cowan, Beacon Pathway and co-manager of HPA, brought her knowledge and dedication to improving the sustainability of New Zealand's housing stock to this project. Vicki brought her knowledge base of healthy housing research into the project and played a key role as scribe. Vicki documented hui to enable BRANZ reporting and wider communication, shared insights from this project with Beacon and HPA teams, updated HPA training materials, and collated and synthesised the project activities, learnings and meaning into this formal report for BRANZ.

Phil Mowles, BRANZ project manager, brought openness and enthusiasm to engage in this Levy-funded project. Phil facilitated the project team sharing findings with his BRANZ colleagues in hui at Judgeford. This meant BRANZ was also on the learning journey, not simply funders and receivers of technical final reports (important though those roles are!).



### 3 What we did

The project team was guided by Enviroschools' Action Learning Cycle and team members co-designed the project by cycling through these four components: identify the current situation; explore alternatives; take action; and reflect on change. The resource is used extensively in Enviroschools and, in that context, offers guiding questions for a project (inside the circle) and student activities (outside the circle).

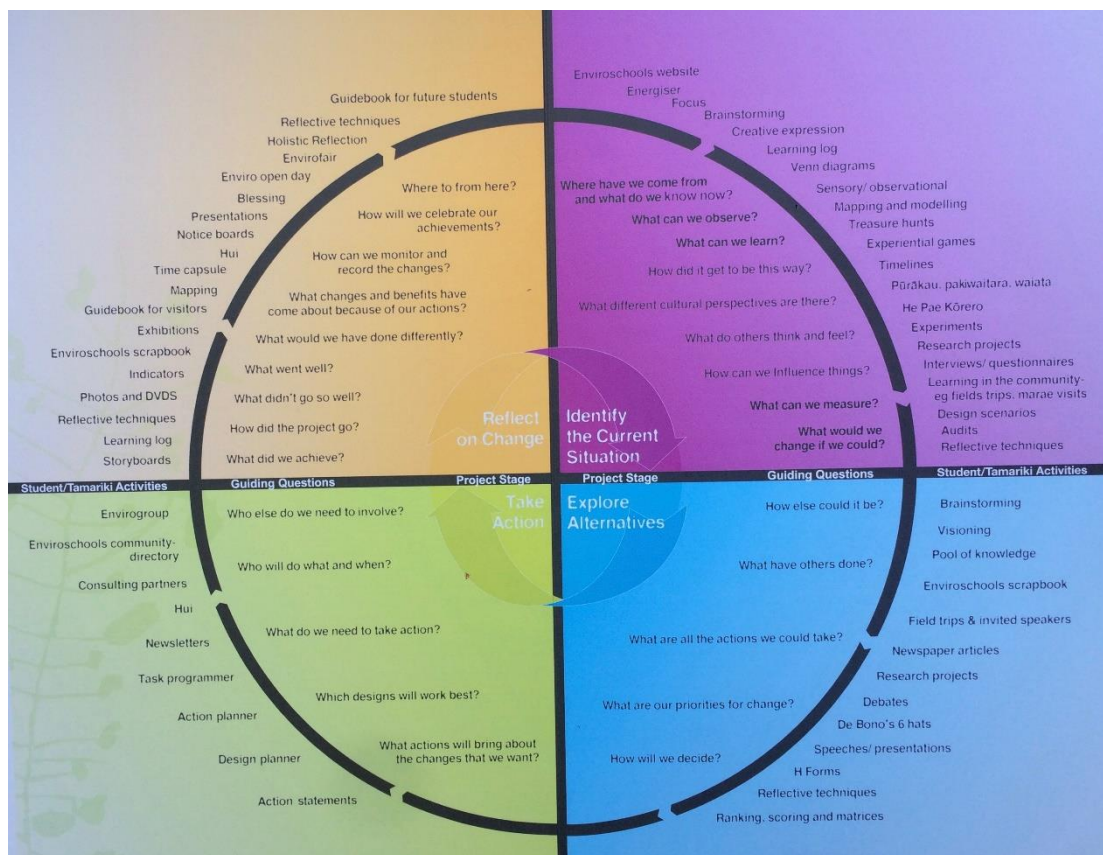


Figure 1: Enviroschools' Action learning cycle

### 3.1 Established a joint understanding of the issues

The project team began the co-design process in the first stage of the action learning cycle by reviewing the current situation. This involved a series of hui where the skills and experience of all partners were shared. At a high level, Beacon brought sustainable housing research and networks, HPA their home performance training of adult advisors and Toimata their action-based education knowledge, Māori perspectives and networks through two programmes, Enviroschools and Te Aho Tū Roa. The Enviroschools' theme areas, Eco-Building, maps directly to this project.



**Figure 2: Action learning cycle stage one: identify the current situation**

Understanding the different perspectives of the project team members led to the development of the project kaupapa, i.e. the values, principles and plans agreed as the foundation of actions. The team critically reviewed the original project documents such as the BRANZ proposal, milestones and BRANZ reporting templates against the developing kaupapa, and adapted some of the original process to better suit what was happening in the project. This process guided the project team's engagement with BRANZ, each other and (future) partners.

HPA shared their healthy homes material with Toimata staff in both Enviroschools and Te Aho Tū Roa. The focus of this material is the quality of homes, health of occupants, and how to manage a home (keeping the heat in, heating, managing moisture and ventilation) to improve

performance (i.e. “warm and dry”). These sessions led to a project reflection on the material, how it is delivered, other perspectives and what is missing.

The findings of this process, i.e. the current situation can be summarised as follows:

- The status of New Zealand’s housing stock is well understood and comprehensively documented elsewhere. The project team agreed that many New Zealanders live in homes (existing and new) that do not provide a healthy living environment, are inefficient, and impact poorly on the environment. There is considerable evidence of the impact poor housing has on health of occupants. The team also agreed that many households will have limited capacity to implement the changes necessary to transform their home (owned or rented) to be a healthy home.
- The technical knowledge base underpinning home performance advice is well established, e.g. Beacon and BRANZ hold libraries of robust science about NZ homes and steps to make them warm, dry and efficient. HPA has developed training for adult practitioners with the aim of ensuring all New Zealand households have access to independent, robust, information on improving housing outcomes. The team confirmed the project premise that age-appropriate materials for young people need to be developed: existing training materials are for adult practitioners who are, on the whole, literate, numerate and employed.
- Existing home performance education is strongly driven by western science and is missing several aspects considered essential from Toimata’s perspective. Most critically, Māori perspectives of housing and health are not part of the knowledge base underpinning current home performance education. Similarly, the knowledge of communities and households about their own homes needs to be actively explored and acknowledged. Also, from a Toimata perspective, the idea of ‘home’ is a deep and holistic concept that is multi-dimensional and forms the base for understanding housing.
- The hui reflected that the home performance information shared by HPA had a strong focus on health and therefore ‘warm and dry’ aspects of housing. The importance of materials, energy, waste and water were acknowledged as key aspects of housing that connect to the environment. The project team agreed ‘whole of house’ thinking will guide this project, i.e. explore the relationships between housing, people and the environment. These components form the basis of Beacon’s High Standard of Sustainability and are taught by HPA in their more advanced certification course (designed to ensure practitioners are ‘qualified’ to provide households with personalised advice).
- A desk-based mapping exercise of community resources, active NGO, council and central government programmes and networks of practitioners in relation to home performance was done. This highlighted the patchy nature of the national coverage of what the team sees as a “supportive environment” for households to make changes to their homes and the way they run them. The team acknowledged the responsibility this project holds as it raises awareness

of home performance amongst children and the complexity of acting in their world (e.g. relatively simple idea of using a blanket to reduce heat loss from a bedroom window needs whānau engagement and maybe landlord permission to install etc.). Longer term, if the outcome is for children and their whānau to make a difference, they will ideally have access to curtain banks, potentially practitioners who might walk alongside them, programmes that support minor repairs, NGOs that can facilitate conversations with landlords etc.

- For this research to change the way children and their whānau engage with their homes and their health, this project needs to deliver appropriately and ensure there is an engaged community to support the work. The team recognised some communities will be dealing with poverty, maybe living in rental housing (with a range of landlords – HNZ/Kāinga Ora, council, community and privately owned), and the project is working with the most vulnerable members of each household, the children. This has implications for how the project might engage children with the Healthy Homes material in school. The importance of recognising the context of children’s homes (which will be invisible/unknown to the project) and the care needed was identified by a project team member in one example. Envisage the mismatch of seemingly benign advice, to open doors and windows to air the house, being shared with a child who lives in a ‘P-house<sup>1</sup>’ (where they know there are some doors you never open).
- The team affirmed that this project isn’t about providing solutions – it’s about empowering knowledge via first principles, then appropriate solutions can be developed locally. For example, after exploring the principles of keeping heat in a home, an early hui sharing knowledge with Toimata’s community generated many innovative and non-conventional solutions to improving window thermal performance. This is a shift in emphasis from training (e.g. specific skills and solutions) towards education (e.g. general concepts are explored)
- Toimata shared their existing resource material on the Eco-Building theme area and confirmed this project’s timing was ideal as this was scheduled to be reviewed. The value of this to the project is that learnings will directly feed into Toimata’s ‘business as usual’ resources and kits. Similarly, there are considerable opportunities for the HPA training programme to mainstream their learning for this project to improve practitioner training.
- Toimata shared their established practice of engagement with schools, which will be followed in this trial. Toimata start with informal engagement with head teachers, the local EnviroSchools facilitator and staff. Subsequent steps involve development of a project brief which everyone signs up to (activities, resources timing), establishing that supportive ecosystem by linking in key people and clarifying roles and setting up. BRANZ’s ethics requirements will be managed within this relationship where the school hosts the trial, so their policies and procedures with children will guide the team, and the project will layer on any research requirements that are beyond standard school policies.

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<sup>1</sup> P house, where methamphetamine is being illegally manufactured.

- The team considered which stage of education is most appropriate. The hui explored opportunities available in Toimata's network to engage with Enviroschools facilitators (who support pre-schools, primary and intermediate schools) as well as Te Aho Tū Roa Poutautoko, and the communities they work with. The team decided to engage with both groups to help build a stronger platform and identify challenges and opportunities yet to be revealed or understood. The team anticipate there will be resources and openings amongst these communities that are invisible to us in the research community. It was agreed this stronger programme development will stand the concept in good stead: all were confident that the technical material can be taught and understood and delivered via Toimata's established networks. But this project aims to do more than tick a 'training box': rather aiming to embed home performance knowledge and understanding so households start on a journey to improve their homes and their health. To do this, the project needs to better understand the context within which they are making their decisions.



## 3.2 Explored different ways of working

The team looked at how healthy homes material can be made more accessible to different groups of people in the Toimata network by offering the material in different and culturally appropriate ways. This was explored by working with some Toimata teaching and learning approaches, Te Aho Tū Roa, and the circle of adults that are actively supporting children. This work saw Heidi Mardon (Toimata's education expert) and Ian Mayes (Home Performance expert, HPA trainer) working together to bring education and home performance together.

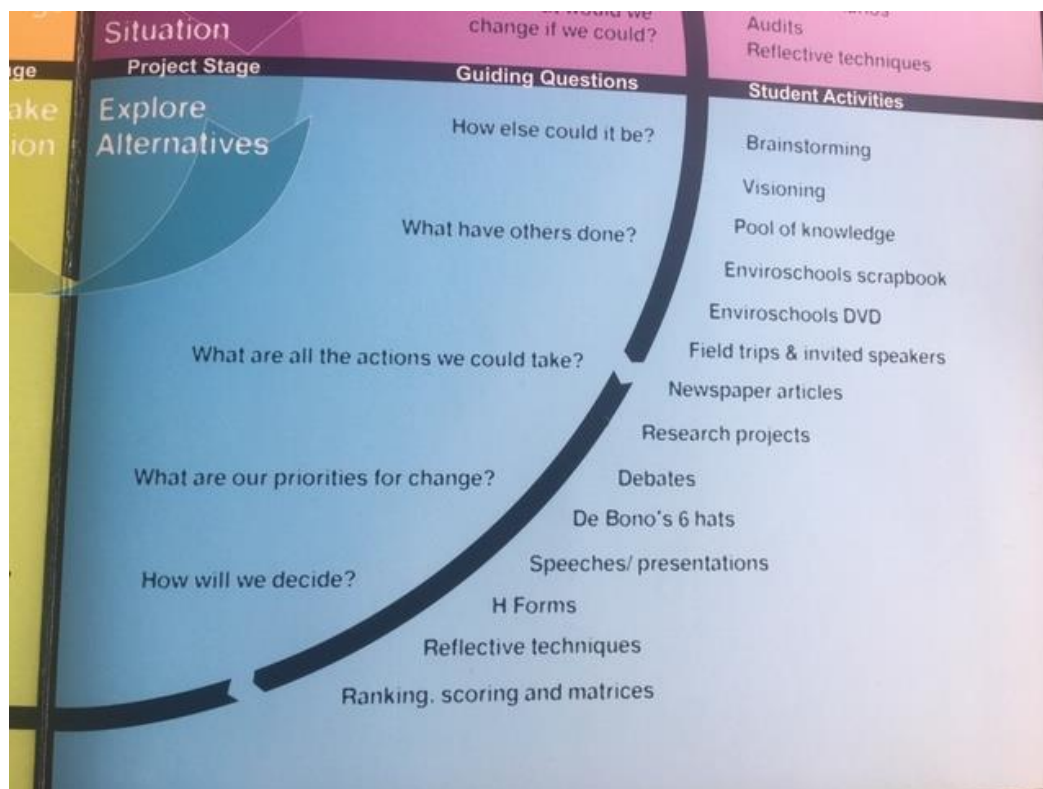


Figure 3: Action learning cycle stage two: explore alternatives

### 3.2.1 Co-designed alternative delivery of healthy homes

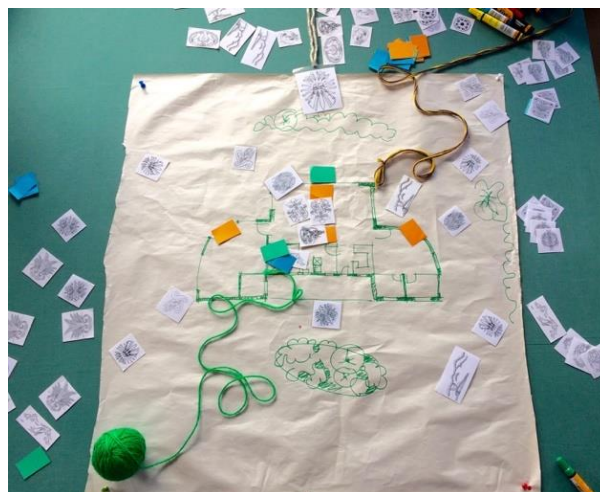
To explore Māori perspectives in healthy homes some members of the project team joined the August kāhui of Te Aho Tū Roa, which works in Te Reo Māori with iwi, hapori, hapu, kura intergenerationally and holistically on projects encompassing the environment, health and community. They agreed to set aside a day to explore healthy homes material, gain knowledge, and trial some experiential tools in the delivery of HPA material. The hui participants were the growing network of regional poutautoko (local liaison support members).

The flow of the day was based on the Punaha Akoako, the Te Aho Tū Roa equivalent to the Enviroschools Action Learning Cycle.

This meant that the hui began with “Where have we come from?” No hea tātou. This is an important part of a Māori perspective – acknowledging where we come from as individuals, our ancestry, and connections with whānau, the wider community and environment. It is also where the team acknowledge the history of the project and how it came to be. We then moved on to “Where are we now / kei hea tātou inaianei?”. Participants shared a few points about what they already knew and some questions they might have. This is an empowering way to bring people into a learning session as it **honours the place that each participant is on the learning journey, shows everyone the range of knowledge already in the room, and creates a sense of a shared learning process**. It also gives the facilitators/ trainers some sense of where the participants are coming from and how to pitch some of the information

The project team developed activities to weave more **experiential opportunities** into the HPA presentation/korero. We decided to **hold a healthy housing hui in a home** and actively use the environment to help participants explore ideas and concepts. Participants toured the home and explored the concepts, coming back to map issues and parts of the house that impact on performance. Toimata’s vision mapping stimulates the diverse learnings of the group to be shared and discussed; it also provides an opportunity for groups to bring their **own perspectives** and not rely solely on the ways that western science describes things. Ian brought along a range of materials used to make homes warmer and drier. Participants responded well to being able to **see and touch different products** and discuss the pros and cons of each.

Participants used Atau cards, ‘warm’, ‘cool’ and ‘moisture’ cards and string to map their knowledge about the current performance of the house where we held the hui.



**Figure 4: Mapping Healthy Housing with poutautoko (local support people)**

There is a great deal of enthusiasm in the Māori immersion network in Toimata for this very relevant kaupapa. Participants thought that this workshop was a great start. They acknowledged that the material had been shared in a way that was appropriate to their setting – they hadn't had to step away and learn in traditional sense as they had anticipated. The hui identified the need for **low cost practical solutions** (housing shortage means regardless of quality of a home its better than nothing and so people are living in very poor housing with limited financial capacity to make changes). The issue of **Māori land** came up – both the opportunity for whānau to build new homes and the challenges of Council regulations based on western ownership models.

**There are many aspects of healthy homes to explore from kaupapa Māori and Te Reo Māori perspectives**, weaving a holistic picture that includes concepts such as Mauri, Hauora and Tiaki te Taiao, and reinforcing the connections that people have to each other and the place they live. **This project did not undertake a pilot in a Māori setting and this is an important future project.**

Other reflections are captured on the next page



### Healthy Homes hui reflection: HPA knowledge explored by Poutautoko

Pūmahara/ Reflection at the end of the day

He aha nga rongo? He aha nga akoranga hou? / How do we feel/ What new learnings do we have?

- I need to use info at home to share with our team. Everyone needs to learn this: Healthy Homes, Healthy Whānau!
- Me Ahu Pehea:
  - I will not purchase gas heaters,
  - I will check out double lined curtains
  - I will share learnings with whānau
  - Use temperature checks at home with kids
- Mīharo te ra nei! Nga wāhanga matua e 4: Ventilation / Heating / Heat loss / Moisture control = mean!
- Start sharing with my friends and close whānau. Check out my curtains and share some memes on social media. Come and do some things in our rohe, get Kawiti to do it; I'll tautoko.
- Affirming, excited by the enthusiasm and ideas of the ropu.
- Short-term ventilation. Te rawe o te roopu! Te Matatau o nga kaiwhakahaere.
- I really enjoyed applying learnings by having practical contexts / activities to solidify Mātawanga in a forum that was relaxed and comfortable with passionate presenter!
- Gorgeous, lovely, family, fun, WILD
- I'm gonna use what I learnt in creating our living environment around and inside our little whare.
- More workshops for Poutautoko level 2.
- Take info back to whānau to encourage good habits and practices in the home.



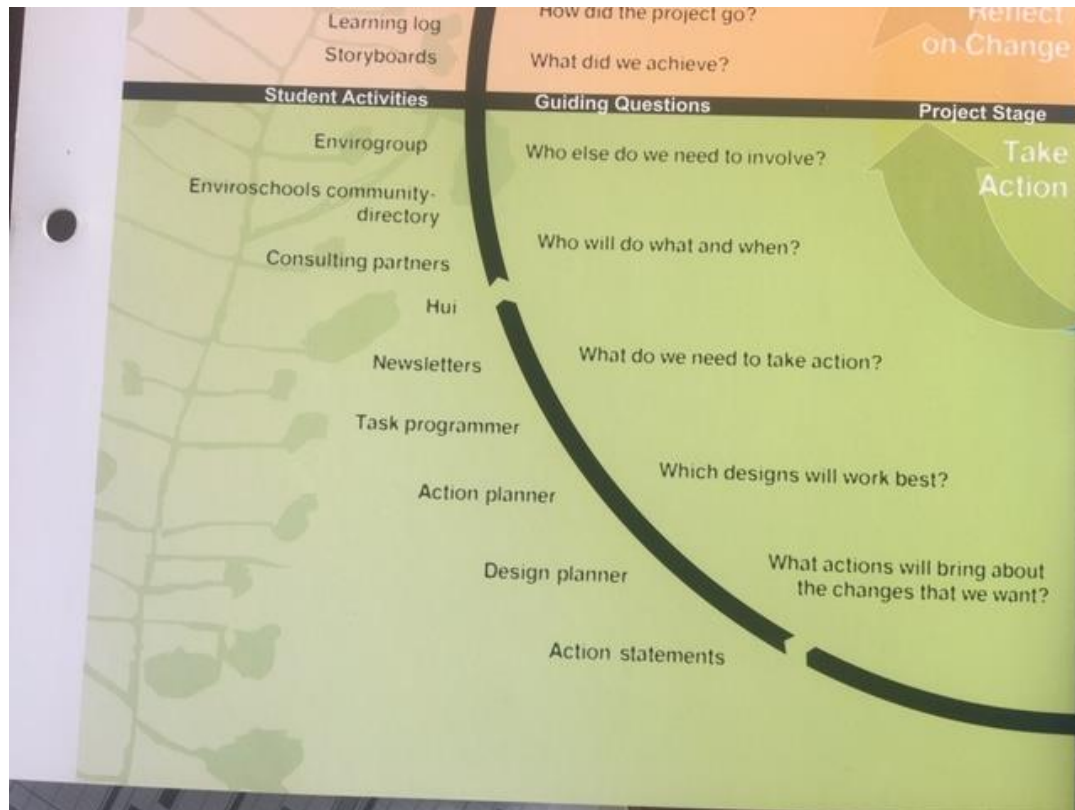
### **3.2.2 Supporting adults surrounding young people**

The project team agreed the importance of doing groundwork with the layers of adults who surround young people and their families. There is a need to educate adults about community development and empowering ways of bringing the knowledge of warm dry healthy homes to young people. The layers of adults include all in the project, the HPA trainers, the supportive ecosystem of HPA advisors, regional councils (host and direct ES programmes), the school, Enviroschools facilitators, teachers and whānau. This made explicit the depth of understanding and support needed by all to develop a robust programme that can meaningfully engage young people with their home performance journey. This is an indicator that this project is not just ticking the box of completing a school trial.

The project team provided intensive support to the classroom teachers throughout the trial, engaged with whānau through the student exhibition, and started conversations with community-based stakeholders so they were aware of this trial. In meeting with teachers, it was also an opportunity to weave in some professional development through experiencing the activities themselves. This proved crucial for changing the way teaching and learning is approached. Teachers appreciated the support provided to motivate, inspire and guide their teaching and learning. Particularly valuable was seeing, touching and making sense of different products and materials used in the building construction industry. This is where expert specialist knowledge and support was most needed. Others also unfamiliar with building science were supported and challenged during this input time. Seeing Ian (HPA) and Heidi (Toimata) work alongside teachers helped break down the information into playful, well-grounded activities for everyone to enjoy and learn from. The project team in turn also learned more about working with students and the constraints on teachers. In this way, learning was facilitator-led, teacher-led, student-led, expert-led and peer-supported. This was a more thorough level of support than Enviroschools is usually able to provide.

## **3.3 Took action to trial Healthy Homes**

This stream of work is where the Healthy Homes activities were trialled with a partner (stage 3 of the action learning cycle). This involved Toimata building from their existing relationship with Waikato Regional Council, who, as the host of local Enviroschools' Facilitator, had to agree to the direction and focus of this project. Once secured, Toimata approached Maeroa Intermediate School and developed a working partnership on behalf of the project. In parallel, the project team drafted a programme of healthy homes work suitable for intermediate aged children. Heidi Mardon and Pam Jones developed the overall programme, Pam and Adrienne Grant wrote a series of activities to scaffold students into the building science, and Vicki Cowan, Ian Mayes and Heidi Mardon drafted the building science activities. Adrienne Grant and Pam Jones liaised with teachers in advance of the trial, seeking input and providing professional support. This mentoring of teachers continued intensively throughout the trial.



**Figure 5: Action learning cycle stage three: take action**

### **3.3.1 Established partnerships to underpin school trial**

The project team decided that the best level to engage with a school for a trial was intermediate level. This was for a range of reasons: capability of the students, whānau engagement with the school and curriculum capability. Several Hamilton-based options were identified as potential school partners, based on their existing Enviroschools engagement/relationships and the wider ecosystem available in this area (an Eco-design advisor, trained HPA who run the local enviro-centre/curtain bank etc).

Toimata's model for Enviroschools is that local facilitators are hosted by local councils so to trial this new programme, Toimata approached Waikato Regional Council (WRC) the agency that coordinates Enviroschools in the Waikato region. The Council confirmed it was keen to develop and trial the healthy homes programme beginning with a small manageable trial that can grow in following years.

Toimata led early discussions with Maeroa Intermediate head teacher and ten staff. The teachers and their students are currently involved in a wide range of Enviroschools explorations that will contribute to a long-term Vision Map for their school and were very interested in the topic of Healthy Homes. The project provided a two-page overview for the school (Appendix 1: Project communication for Maeroa Intermediate )

In mid-June (midway through Term 2), the team met with the teachers to go over the draft Healthy Home activities, get their input and ideas, decide how many classes will be involved, plan the class processes, and determine staff professional development or other support needed.

These discussions confirmed the trial would run over Term 3 (22 July – 27 September 2019) as was the best time for classes to engage in activities and explore the Healthy Homes topic. Four teachers were very keen and, as two of the teachers jointly manage one large ‘class’ (60 pupils), in practice the trial ran with three classes. In Term 4, the team carried out reflection and review of the trial to see how it can be developed expanded to other classes, schools and regions.

The project developed ethics documentation, which the BRANZ external expert signed off. The four teachers all formally consented to participate in the trial (see document in Appendix 2: Teacher participation consent). Maeroa Intermediate’s usual consent process covered the photographing of students and their engagement in the trip to Maungatautari.

Toimata also shared the project with a wider group of community partners surrounding Maeroa Intermediate. These exploratory discussions were held with the Waikato Environment Centre, Sustainable Business Network and Habitat for Humanity. The aim was to build relationships that can support home retrofits at a later stage. Habitat for Humanity is very supportive of the educational trial and is keen to have further discussions about how they may be able to support students in the investigation of the health of different houses.

### **3.3.2 *Developed a healthy homes programme suitable for 10-12-year-old children***

Early co-design work had developed the teams thinking about the healthy homes’ material in terms of Māori perspectives and different styles of delivery. Pam Jones, an experienced teacher, Royal Society Teacher Fellow and facilitator involved in the early development of Enviroschools, was employed by Toimata to write a draft resource. Pam brought significant skills from her grounding in education for sustainability and encouraging genuine children’s participation. To become more familiar with the technical side of the healthy homes’ material, Pam attended HPA’s day-long training (Certificate in Home Energy Awareness). Pam worked alongside Ian Mayes (HPA), the teachers, the Enviroschools facilitators to design the teaching and learning resources.

Learning to date identified these considerations needed to be included into the resources:

- Activities that are engaging for a diversity of students, to explore concepts of healthy homes, such as keeping the heat in, heat, ventilation, moisture control and other principles.
- Ensuring that students are experiencing the topic of Healthy Homes from a positive perspective rather than focusing on the adult-created problems of mould, moisture and cold houses that are potentially extremely worrying for young people.
- Weaving Māori perspectives through the learning process to enrich and deepen students’ understanding and experience of home and health and holistic connections to the environment.

- Exploring the support that teachers need to feel confident in facilitating their students' learning in the topic of Healthy Homes.

The Healthy Homes programme sought to:

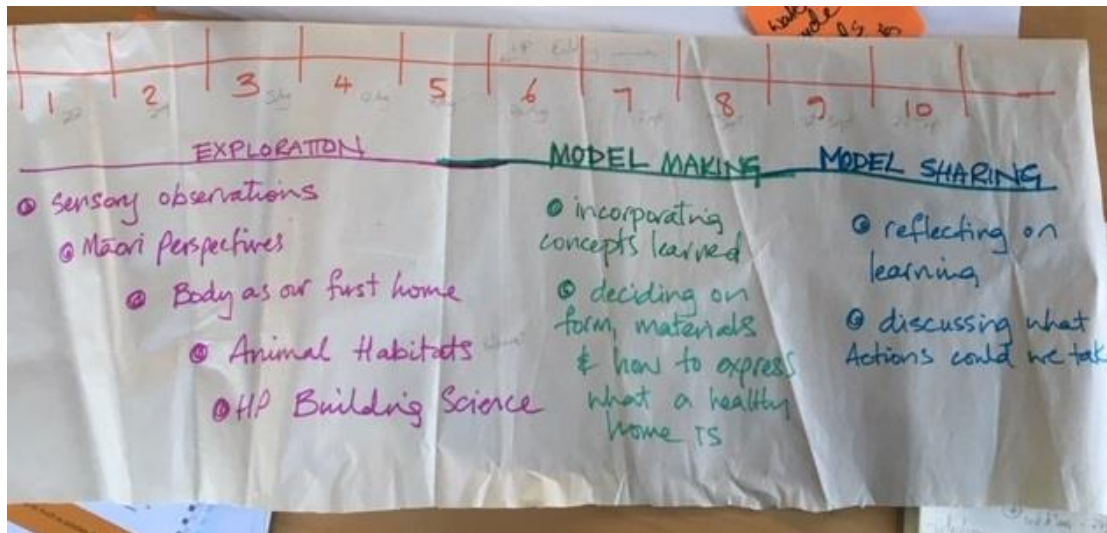
- Support young people in understanding how our homes/houses work and how to create wellness through the built environment
- Model teaching and learning that would change the way we think about homes and how we design, build and retrofit our homes
- Empower young people to feel connected and enabled to take action for their own well-being in a positive and creative way.

Both teachers and students experienced a diverse range of activities to ignite curiosity and interest for an inquiry into “What is a healthy home?” The learning journey was designed to develop a sense of care for themselves and their surroundings and to build their confidence to participate in the creation of healthy homes. It was anticipated they would increase awareness and understanding of what makes homes healthy by creating models and sharing their knowledge within their own community.

### **3.3.3 Healthy homes programme planning**

The co-designed programme of work for the 10-week term was divided into three stages: exploration, model making and model sharing (Figure 6). The teachers' planning resource is in Appendix 3: Teachers planning overview Healthy homes. The **overview chart** includes activities, key questions and reflective questions. The overview is based on the EnviroSchools **Action Learning Cycle** and follows the first part of the cycle: *Identify the Current Situation*". The overview offers a suggested path – its function is as a reference guide for teachers to know the place they are at in the enquiry. It's not intended as a prescriptive sequence of events. The overview and the activities provide **KEY QUESTIONS**, and **REFLECTIVE QUESTIONS** which are more important. This allows teachers creative choice, flexibility to design and implement a 'living' curriculum tailored to the needs of students, and that reflects their local place and community. Each enquiry journey became different for each teacher and class – a journey they documented and recorded in their own planning documents supervised by their school senior management system. This variation underpins the project's learning from the trial (Section 4).





**Figure 6: Healthy Homes – high level plan of the term's work**

The concepts of the Healthy Homes programme were planned out in weeks as follows:

|          |   |
|----------|---|
| Week 1   | Te Taiao/the environment in which we live. Explore natural environment from a Māori Perspective and connect to what you already know.   |
| Week 2   | Your Body as Your First Home – the foundation for your well-being   |
| Week 3   | Habitats are homes for all children of Ranginui and Papatūānuku (explore where animals live how do they make their homes)   |
| Week 4   | Sanctuary Mountain Maungatautari Trip - sensing Te Wao Nui O Tane, our native bush as a healthy home  |
| Week 5   | Building our own shelters/The Mauri of buildings  |
| Week 6   | Building Science tapping into Tamanuiterā/the sun with measuring activities, explore building materials and their life cycle, play with hygrometers                               |
| Week 7   | Building Science play with mini-houses and think about comfort (temperature and humidity), energy resources that make our homes work, explore a variety of homes around the world |
| Week 8-9 | Model making (in groups create model homes to show others what you have learned, think about good design for sun, materials you will use)   |
| Week 10  | Exhibition – share your knowledge by displaying your models and healthy homes activities. Invite your whānau, school community, and the project team.                             |

Many of the activities in this plan drew from other Enviroschools resources, while the teachers developed others within the guidance of the plan.

An important aspect of the programme planning was the sequencing of a number of concepts. *The exploration stage* began with sensory observations to attune students to environment around them, as well as connecting with the Atua and Māori perspectives to ground the learning in a holistic framework. Next, students engaged in activities to understand how their own bodies feel in different environments and to recognise that their body is their home and that they are in control of their ‘first home’. Following this, students engaged with animals and the homes that different animals create and then visited an ecological sanctuary to experience first-hand what a healthy home for other creatures feels like. These experiences then led to questions about how humans build their own homes and the use of some building science tools to investigate of different aspects of healthy homes.

*The model making stage* that came next was a hands-on way for students to bring together all their learning to date and creatively explore their own ideas about designing a home.

*The exhibition* was the final stage where the whole term’s learning went on show for students, teachers and whānau, and those of us in the Healthy Homes project team. The exhibition gave students an opportunity to see their models presented in the context of the whole learning journey and other student models. Students had the opportunity speak to their models and have conversations with visitors about how their design worked and why they made certain design decisions.

### 3.3.4 Building science activities and props

This block of work is reported on separately as it involved the development of new activities co-designed by Toimata, HPA and Beacon. The plan was that Ian Mayes would visit the school as a local building science expert and share some of the more technical aspects of these activities. Overall, nine building science activities were developed with supporting sets of props under four main headings: the environment, materials we use to build homes, resources to make homes healthy and healthy homes for people (Table 1).

**Table 1: Building science activity list**

|  |   |   |
|--|---|---|
| Environment – where we build our homes | 1 | Tracking Tamanuiterā/sun outside using set of bamboo sticks and string. Leave one up and monitor over a day. What pattern do you see  |
|  | 2 | Tracking Tamanuiterā/sun using a portable sundial. What do you see?   |
|  | 3 | Explore temperatures and humidity using the hygrometer, what are the readings in different parts of the school, how do you feel in those spots?   |
| Building materials                     | 4 | Explore different examples in the kit, where do you see this material in housing  |
|  | 5 | Building materials life cycles - match each example in the kit with the relevant natural environment source card (beach, forest, mountains, river, fields of crops), process card (glass, aluminium, concrete, timber, insulation, brick) and end of use card (back to origin, recycle, reuse, landfill). |

|                              |   |   |
|------------------------------|---|---|
| Resources to keep us healthy | 6 | Energy - think about all the ways we use energy in our homes, can you group them? (Potential groups: things-with-switches, hot water, heating)? |
| Healthy homes for people     | 7 | Keeping the heat in and heating - explore temperature and humidity using the hygrometers  |
|                              | 8 | Play with the mini-houses – what happens to the temperature and RH readings when you move the house position to the sun, open the roof?         |
|                              | 9 | Homes from around the world – look at the range of pictures, where is it, what is it made of, why was the house made like this?                 |

Many of the activities had a set of props to support learning – the aim was to provide a minimum of 4 sets, one for each classroom.



**Figure 7: Sundials to track Tamanuiterā – two models**





**Figure 8: Building Materials kit: concrete, treated wood (in plastic bags), untreated wood, fibreglass insulation (in plastic bags), polyester insulation, aluminium**



50% glazing



25% glazing



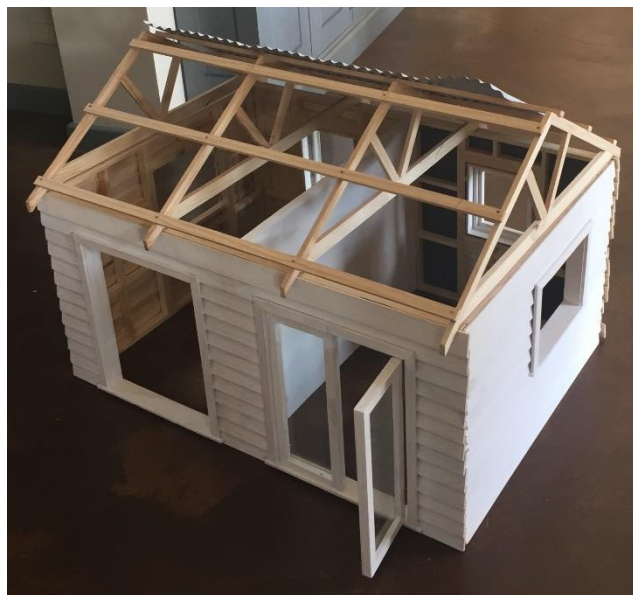
7% glazing

**Figure 9: Mini houses with installed hygrometer and three levels of glazing (50%, 25%, 7%)**



**Figure 10: Class set of Hygrometers to support learning about temperature and relative humidity**

In addition, Ian Mayes made this model house, built to (mini) building code to demonstrate what homes look like behind the walls, insulation etc. The model was used for discussion but is yet to be fully explored as a teaching tool.





**Figure 11: Ian Mayes' model NZ Home, half with insulation, half without, to demonstrate the bones of typical house**

### **3.3.5 Trialled Healthy Homes programme in 4 classrooms**

Learning was facilitator-led, teacher-led, student-led and peer-supported. A diverse range of activities was offered from a variety of perspectives, including Māori perspectives, and holistic and building science concepts. Guided by the Action Learning Cycle (Enviroschools Kit) teachers explored storytelling, art, experiential games, sensory exercises, bush immersion and observation exercises, artistic and scientific discoveries. They investigated sun direction, how houses store and lose heat, building materials, types of houses around the world, energy and other elements that contribute to a healthy home.

Regular fortnightly meetings were held with teachers to hear their observations of the programme, to assist them in forward planning and to understand what support they needed. Students and teachers were encouraged to take time recording in personal learning journals, to take photographs and/or record observations online using a shared platform (Google Drive).

At the end of the ten-week trial, an exhibition was held over two nights at Maeroa Intermediate. Students shared with parents, friends and partners the poetry, writing and models they had created during the Healthy Homes programme.

The partnership between teachers and project team was intensive. As part of the four teachers consent to participate, they agreed to regular meetings with the project team. To support this work, they developed their own tikanga/agreed custom for these sessions as follows:

**Healthy Homes Tikanga (teachers and project team joint meetings)**

- Working as equals to weave together different strengths
- Muck in - don't be precious
- Our home is your home
- Being open with communication
- Be open to what everybody - teachers, students and facilitators bring to the trial
- Good listening skills
- Valuing all ideas
- Being flexible
- Honesty
- Not putting children in vulnerable situations
- Being open to ideas

The process was that the material was introduced to the teachers in these planned meetings by the school-based project team, which was always the Enviroschools facilitator, Adrienne Grant, and either Pam Jones or Heidi Mardon of Toimata. In these meetings, the Toimata team modelled the kaupapa of the unit. An illustration is an extract from the agenda of the first teacher/project meeting

**Healthy Homes Enviroschools trial – Maeroa teachers intro hui, 17 June 2019**

What we would like this workshop to achieve for teachers.... we would like teachers to:

- Feel excited and motivated to be part of the learning trial in Term 3.
- Experience a sample of different activities that they will be facilitating their students through.
- Experience some different ways of knowing that help build a collaborative pool of knowledge.
- Be confident in their roles as teachers in the process
- Give feedback on the process and identify the support they may need
- Engage with us in some joint planning of next steps.



In addition to the scheduled meetings, Adrienne Grant visited the classrooms regularly and was in email contact most weeks with the teachers offering guidance and support to their planning and reflection. Adrienne planned the trip to Maungatautari (forest park) for the school (Toimata supported) and led activities on the trip. For the building science part of the timetable, Ian Mayes joined the planning meeting to introduce the material to teachers and he and Heidi Mardon had an active role teaching each class for these activities.

This was more intensive engagement than Toimata's usual practice and reflected the demand of this trial, the nature of new material (teaching and learning style), the research underpinning the project and the innovative approach being taken.

**Table 2: Teaching material and implementation of Healthy Homes programme**

| Main theme   | Source of material   | Commentary  |
|--|--|---|
| <b>Te Taiao/<br/>environment in<br/>which we build</b> | Storytelling Ranginui (the Sky Father) and Papatūānuku (the Earth Mother). Story from existing Enviroschools resources, activities developed by Pam Jones  | Project team modelled and connected teachers to resources. Teachers delivered in classroom<br>Figure 12   |
| <b>Body as our first<br/>home</b>                      | Adding a sensory perspective to see the body as a monitoring device. Activities developed by Pam Jones:  | Project team modelled and teachers delivered.   |
| <b>Animals and their<br/>habitats</b>                  | Connecting with nature, biodiversity, animals. Adrienne Grant organised and led a trip to forest reserve, Maungatautari. Activities developed by Adrienne Grant, drawing on her area of interest with guidance and support by Pam. | Project team modelled and mix of teachers and Enviroschools facilitator delivered in classroom/forest reserve trip. Weather delayed trip, which limited time for reflection and impacted on time for building science   |
| <b>Building science</b>                                | Activities developed by Ian Mayes, Vicki Cowan and Heidi Mardon. Props made by Ian Mayes. See 3.3.4.   | Project team modelled activities AND delivered in classroom. Time constrained (trip delays)   |
| <b>Exhibition</b>                                      | Part of Toimata's learning action cycle - evaluation. See 3.4.1  | Teachers led model making. Pam worked with 2 classes drawing relationships between their model homes, land and community and what this means. Selected children were guided to construct a community for their models as an exhibition (visual display of all learning) |

The following images document some of the activities.

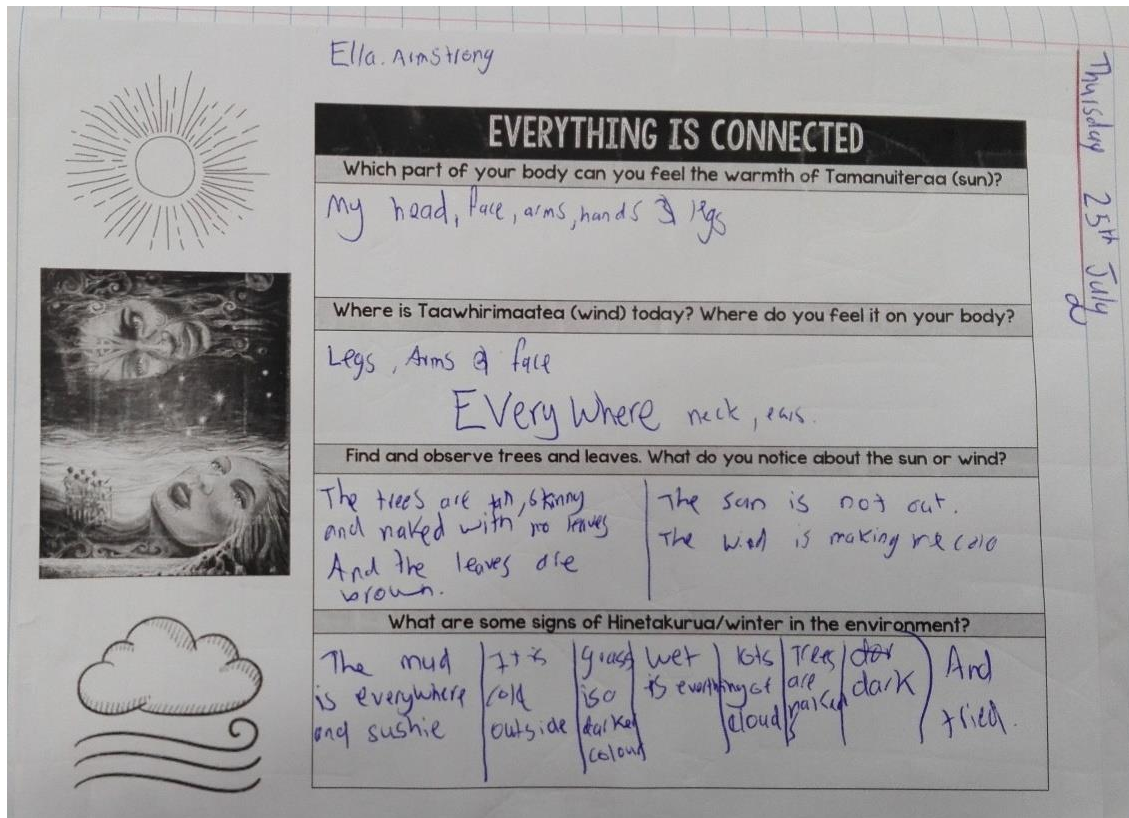


Figure 12: Te Taiao, pupil's working on everything is connected



Figure 13: Body as first home – display of well-being walkabout at school



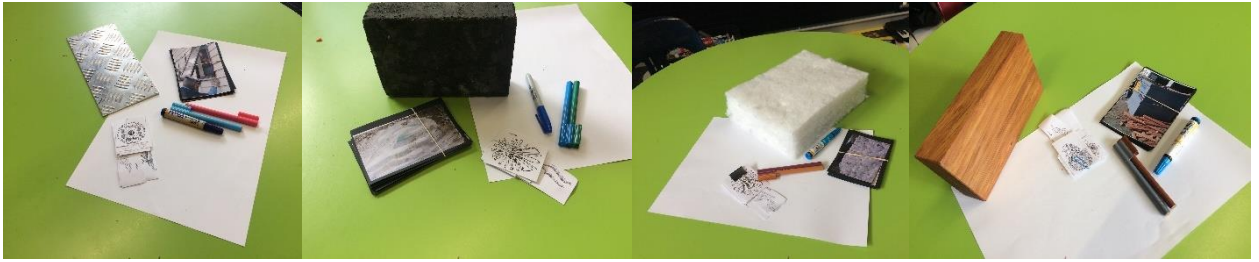


**Figure 14: Habitat activity – sky walking at Maungatautari**



**Figure 15: Building science activities: tracking the sun (top), monitoring temperature/RH in the mini houses (right)**





**Figure 16** *Materials activity, each table had one material, atua cards and process cards*

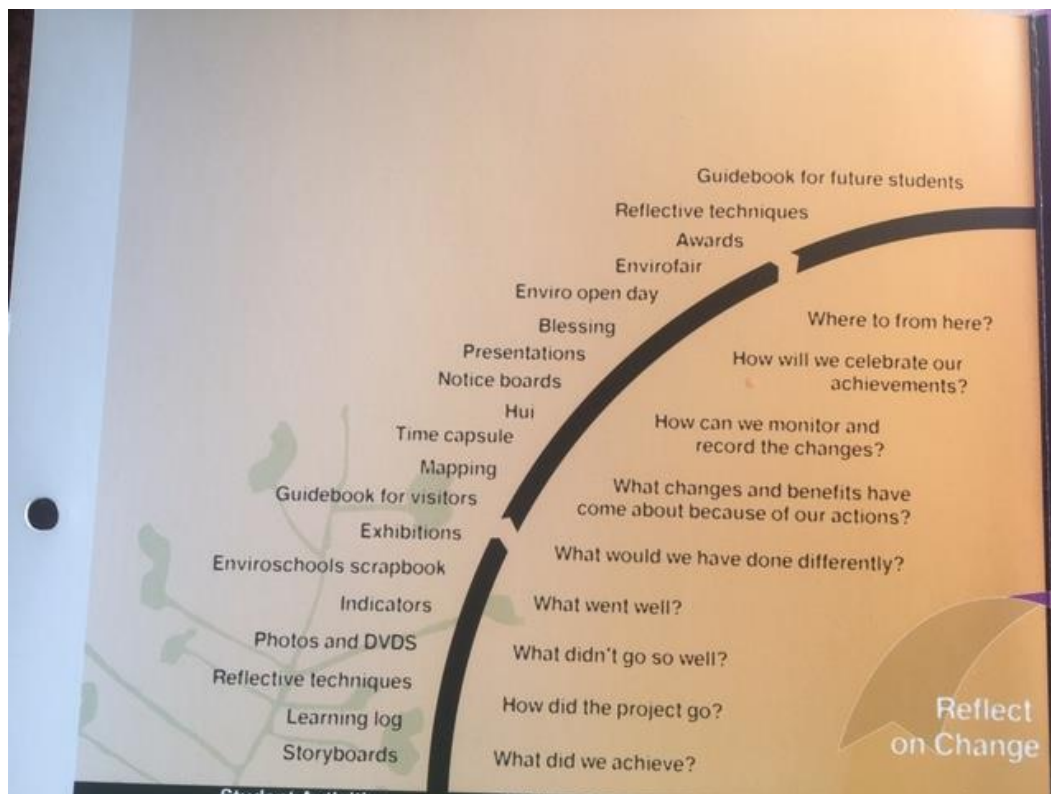


**Figure 17** *Pupils ordering the process cards for their material to show its transformation from its original form in the environment into a building material*



### 3.4 Evaluated the project

To undertake the fourth phase of the action learning cycle, the team reflected on change in a variety of ways. Pupils, teachers, whānau and the project team evaluated the Healthy Homes trial through an exhibition of the pupils' model houses and learning. In addition, Pam Jones conducted reflective workshops with children and teachers. Pam Jones and Ian Mayes presented the project on a stand at the 2019 Eco Design Advisors conference (Climate change, housing and energy, October 2019). Finally, the project team reflected on all this material to evaluate the trial and the wider project during December 2019. As part of the BRANZ Levy process, Vicki Cowan and Heidi Mardon presented the project in February 2020: discussion and feedback has been incorporated into this report.



**Figure 18: Action learning cycle stage four: reflect on change**

### 3.4.1 Exhibition

The exhibition step was a significant activity for everyone in this project.

The exhibition was a celebration for pupils of all their learning to date, they could share with their teachers, friends, whānau what they had learned. The pupils worked on their models and many different approaches were taken. Some pupils worked on homes for animals, inspired by their trip to Maungatautari and discussion of environment, habitat and biodiversity (Figure 21). Others made models of homes for people. Some pupils made dual models: one side 'poorly' performing the other side more sustainable (Figure 22). The exhibition provided a focus for pupils to finish their models and gather the activities they had completed in the Healthy Homes trial.

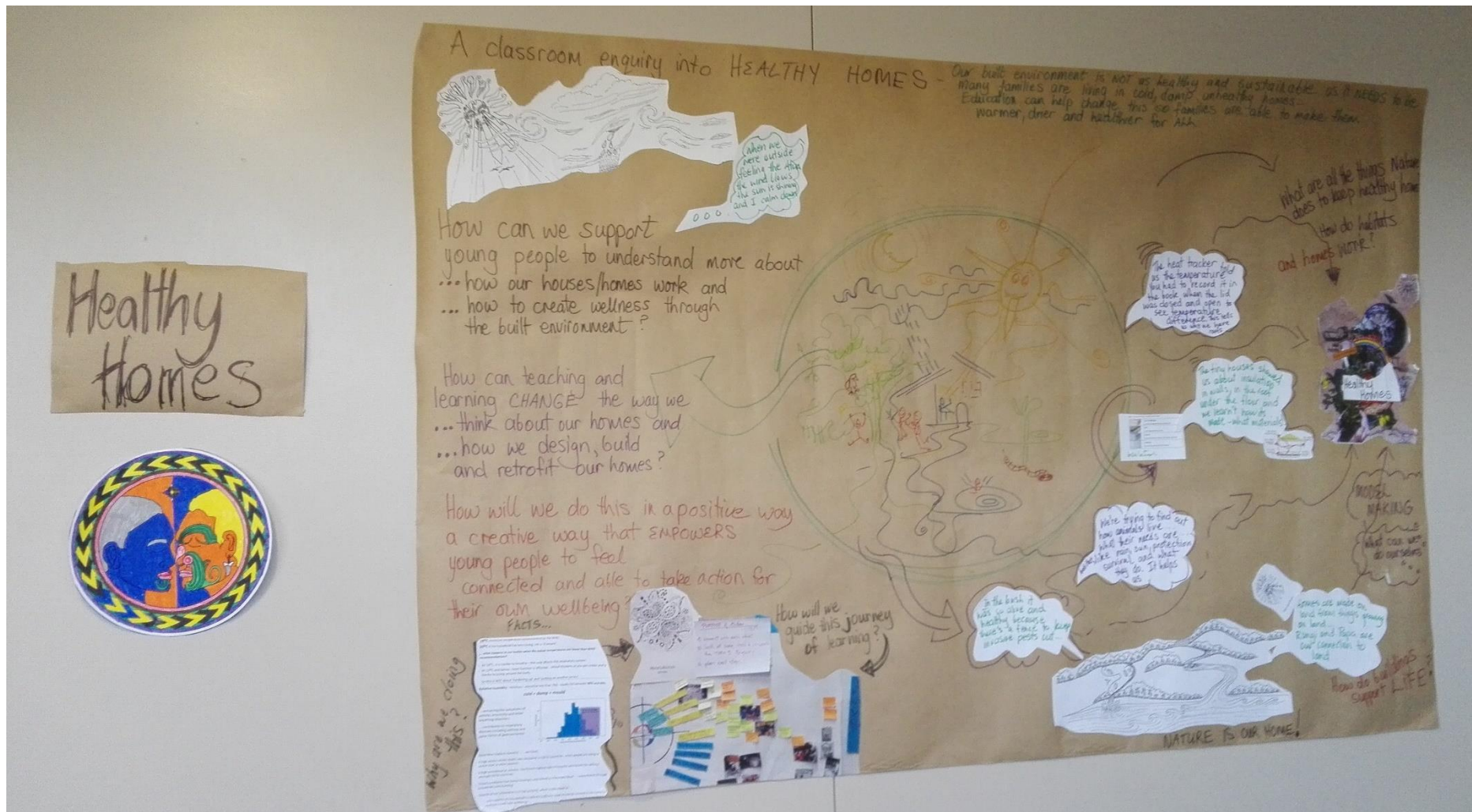


Pam Jones led a classroom activity for pupils and teachers to bring the Healthy Homes programme together – retelling the story of Papatūānuku and Ranginui, reminding them of the journey they had been on and the purpose of the exhibition. Pam Jones supported the teachers by curating this exhibition, using art to bring all the individual models back to the environment (mountains, rivers etc) and relationship with each other (neighbourhoods).



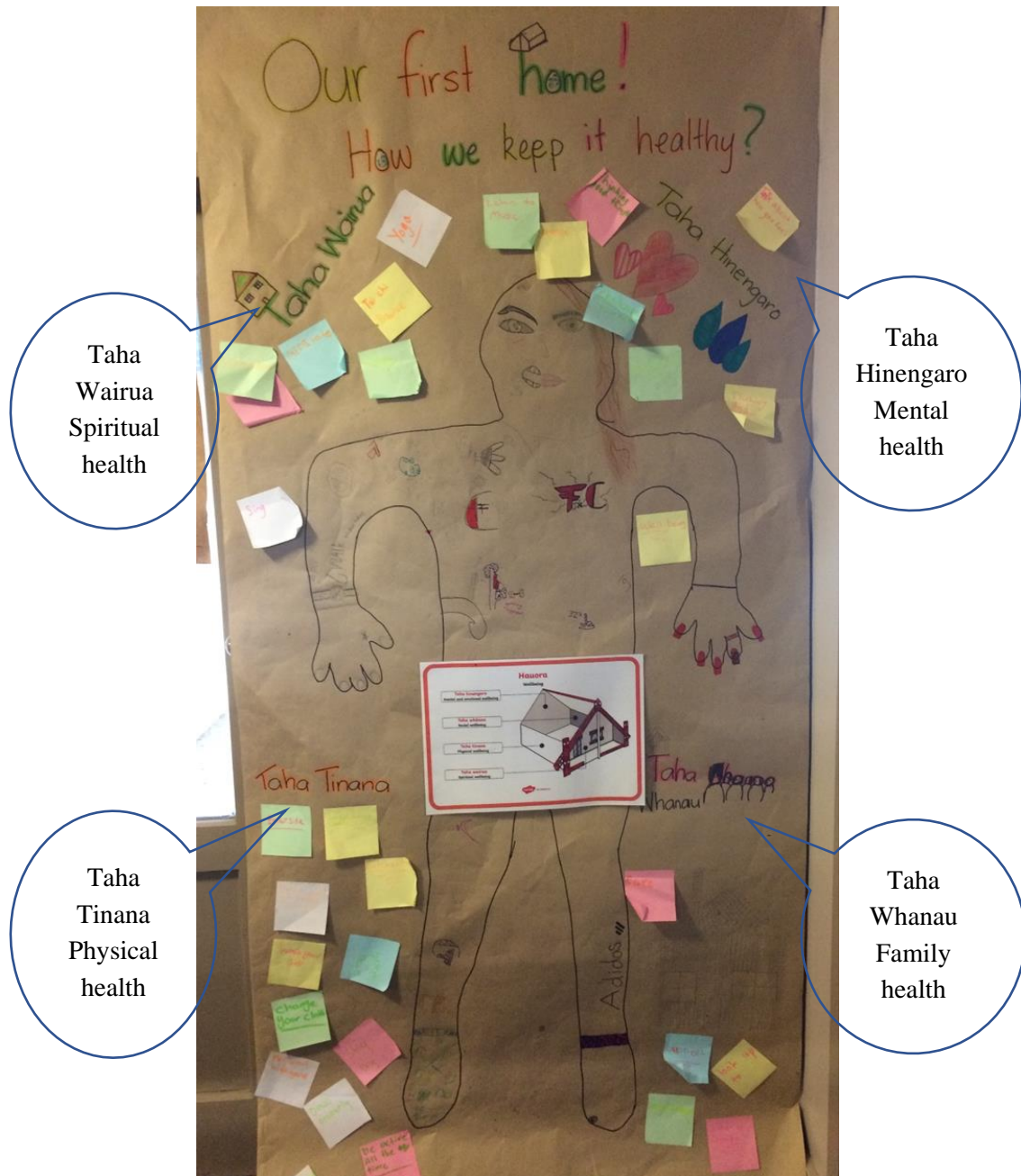
A large information display welcomed visitors to exhibition and provided the context of the Healthy Homes programme (Figure 19).





**Figure 19: Exhibition, overview of Healthy Homes enquiry**

Figure 20 shows the display reflects the beginning of the enquiry – Your Body as Your First Home.



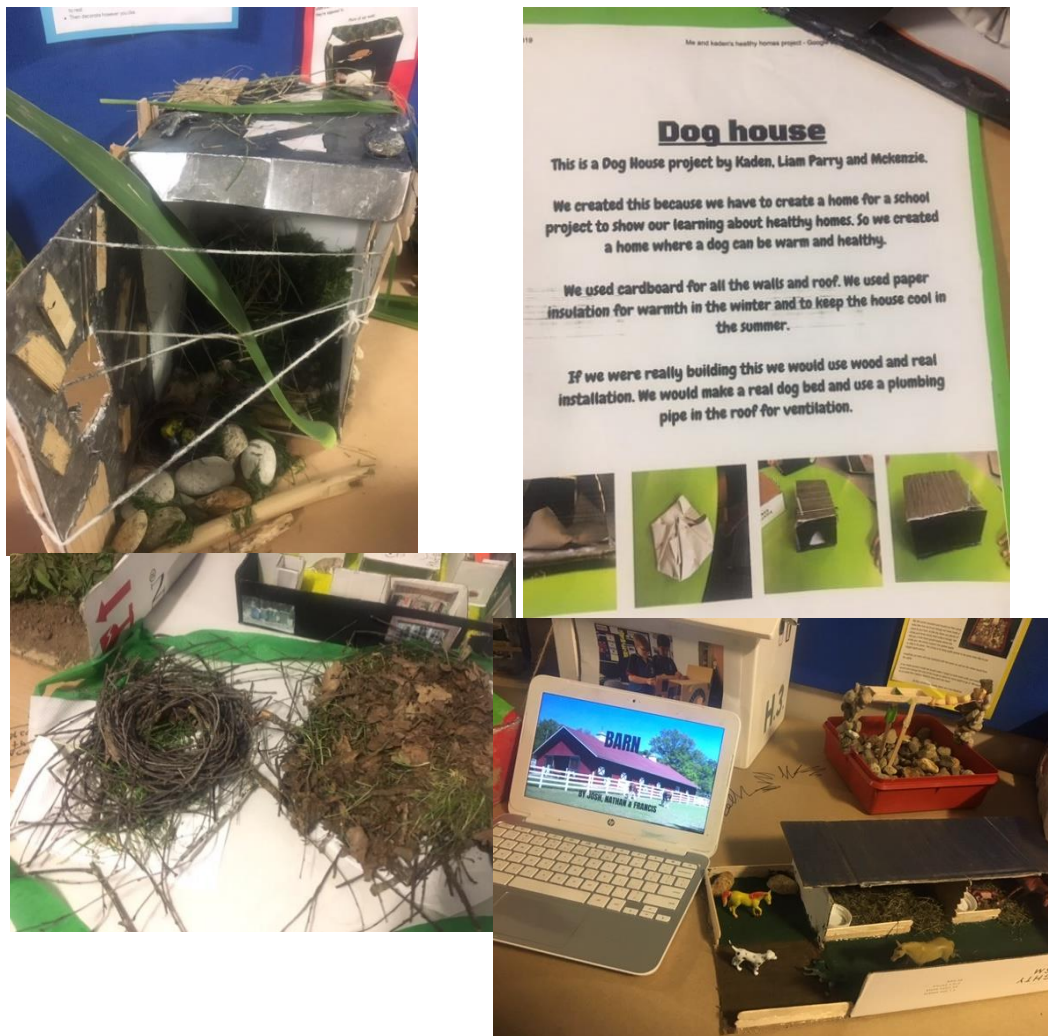
**Figure 20: Exhibition display - body as your first home**



*While you are alive, your body is your first and permanent home – the foundation for well-being. Your body is also an instrument – and for it to “play” well for you it needs to be in good order, and you need to be able to use it. Activities involve you observing and paying attention to all senses, not just sight, smell, sound, taste and touch helping you to monitor your own health and well-being. Your senses are working all the time – the key is when you pay attention to them.*

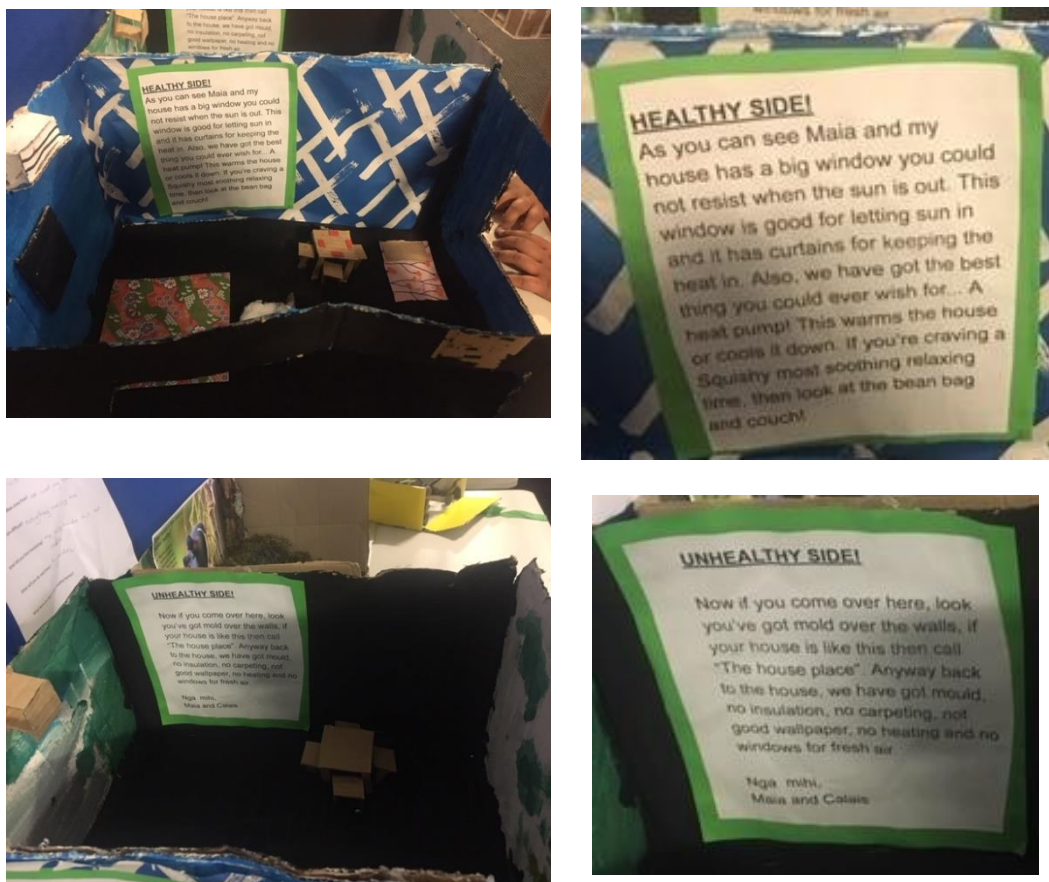
Extract from teaching resource for Body as your first home unit

The team considered the focus by some pupils on making models of animal housing (rather than for people) both reflected their child development (wanting to look after cute animals, where their interest was) and teacher direction (i.e. one thought her pupils were engaged at this level and it was important to let that play out). The choice of materials and consideration of what an animal needed was evident in the written and oral descriptions of their models at exhibition (Figure 21).



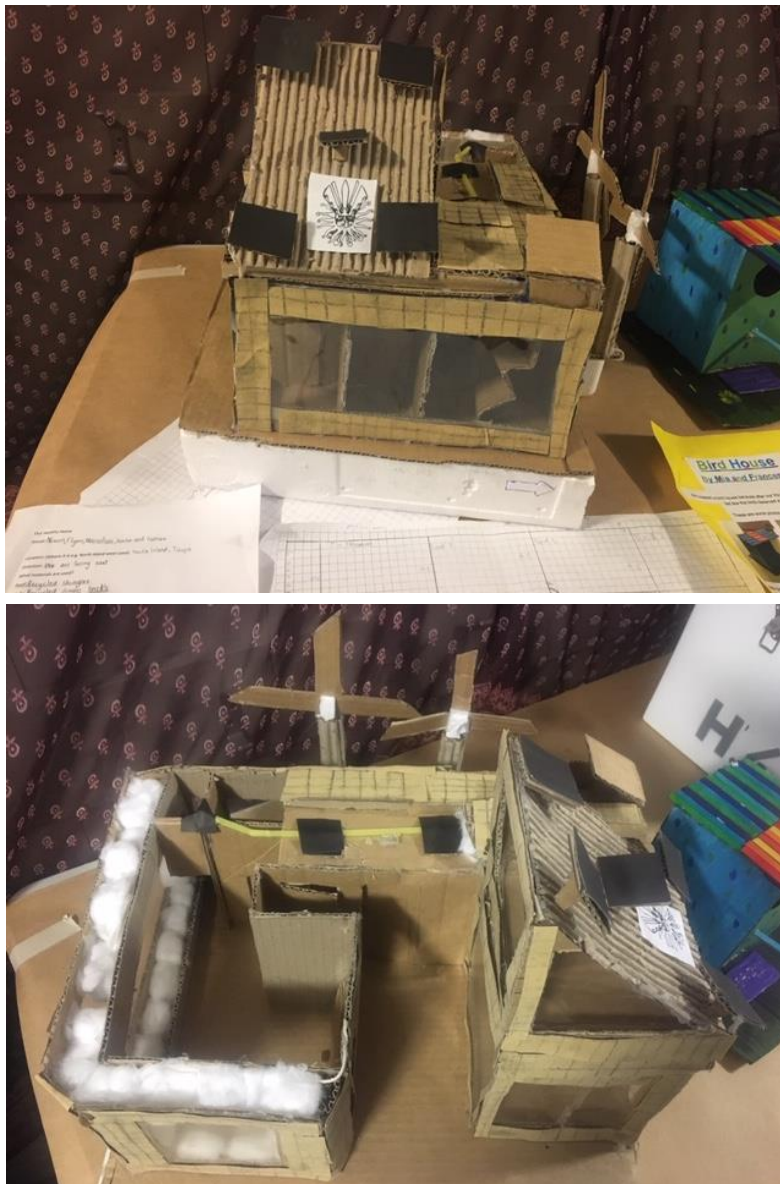
**Figure 21: Models of homes for animals (birds, dogs, farm livestock) displayed at exhibition**

Some pupils made dual models. This was an interesting approach and the team's reflection on these dual models was they mirrored adult awakening about housing. Many stories are told of homeowners and tenants changing their perspective and expectation about their housing, after they have experienced what it is like to live in a warm dry home. The embodied experience highlights the contrast of what they are used to (cold and damp) and what they could aspire to. This adult awakening is often credited with driving action to change homes and modify behaviour to improve housing outcomes. The group home sector knows this: it is the reason they rely on show homes so people can walk through a home, imagine themselves living there, and guide their purchasing choices.



**Figure 22: Dual model of a home demonstrating healthy (top) and unhealthy (bottom) elements**

Māori perspectives were incorporated in the exhibition models, mostly through the use of Atua cards. For example, the model in Figure 23 has an Atua card for Tamanuiterā on the roof next to the solar panels. This group had windmills installed and used batteries to store the generated power. They installed high levels of wall insulation (cotton balls) and double glazing (two layers of Perspex window material). Kōrero/conversations with this team at exhibition revealed one of the pupils had talked about his model at home and his father worked in the industry. They had lots of discussions at the dinner table and the pupil brought his learning about renewable and sustainable features possible in homes back to his team at school.



**Figure 23: Model showing insulation, renewable energy options, add Māori perspectives**



The exhibition also showed classroom material of the student's activities. For example, the resource book of "Homes around the World" (Figure 24). Each page had an image of very different type of home



**Figure 24: Homes around the World resource book**

The pupils answered a series of questions related to each image:

- What materials are these different homes made from?
- Where have the resources to make these homes come from?
- Why do you think these materials were used?
- What are some of the special features of this home?
- Do you think it would be easy or difficult to make this home?
- Who do you think made this home?
- Why do you think this home was made this way?

The teachers reported this activity was a powerful activity in the classroom. Consideration of houses around the world opened ideas for the pupils (see a sample of the types of homes they explored in this activity in Figure 25). One of the conversation threads reported was about the price of homes. This focus on money probably tapped into their growing interest in money and reflects the dominant conversation about homes around them (e.g. real estate billboards, media). This led to an awakening of the issues by these pupils as they mused "could I buy a home" "could I make my own home". This is considered evidence that this Healthy Homes trial encouraged pupils to think about things beyond the school project and see possibilities for themselves – having their own place in the world.





**Figure 25: Sample of houses from *Homes around the World* resource book**

While it was clear from feedback from teachers and pupils that some of the healthy homes' material had been taken home, exhibition was a key event for whānau to engage directly with the material. This was identified early in the project's process that for young people to make meaningful changes to their home environment, their whānau needs to be part of the journey. It addresses the vulnerability of young people. By actively engaging them in the classroom, their school community and their whānau at home, the project provided a supportive network around young people as they explored new ideas about achieving warmer, drier, healthier homes.

### 3.4.2 Reflections on the school-trial evaluation

The project provided teachers with several ways to reflect on the trial while it was running. A shared google doc encouraged each teacher to carry out a personal reflection as the trial ran. Only one of the four teachers actively used this document, others citing lack of time as the reason they had not. Adrienne Grant, the EnviroSchools' Facilitator, provided more opportunities for the teachers to reflect during the term, through her engagement in the classroom and through follow-up emails.

After exhibition, Pam Jones led an evaluation of the school-trial through a series of engagements with teachers. They all met after school twice and Pam led the teachers through a process to explore what they'd noticed about the trial, the activities, their own practice, and their classroom's response. Pam also spoke to several pupils about their experience of the Healthy Homes programme.

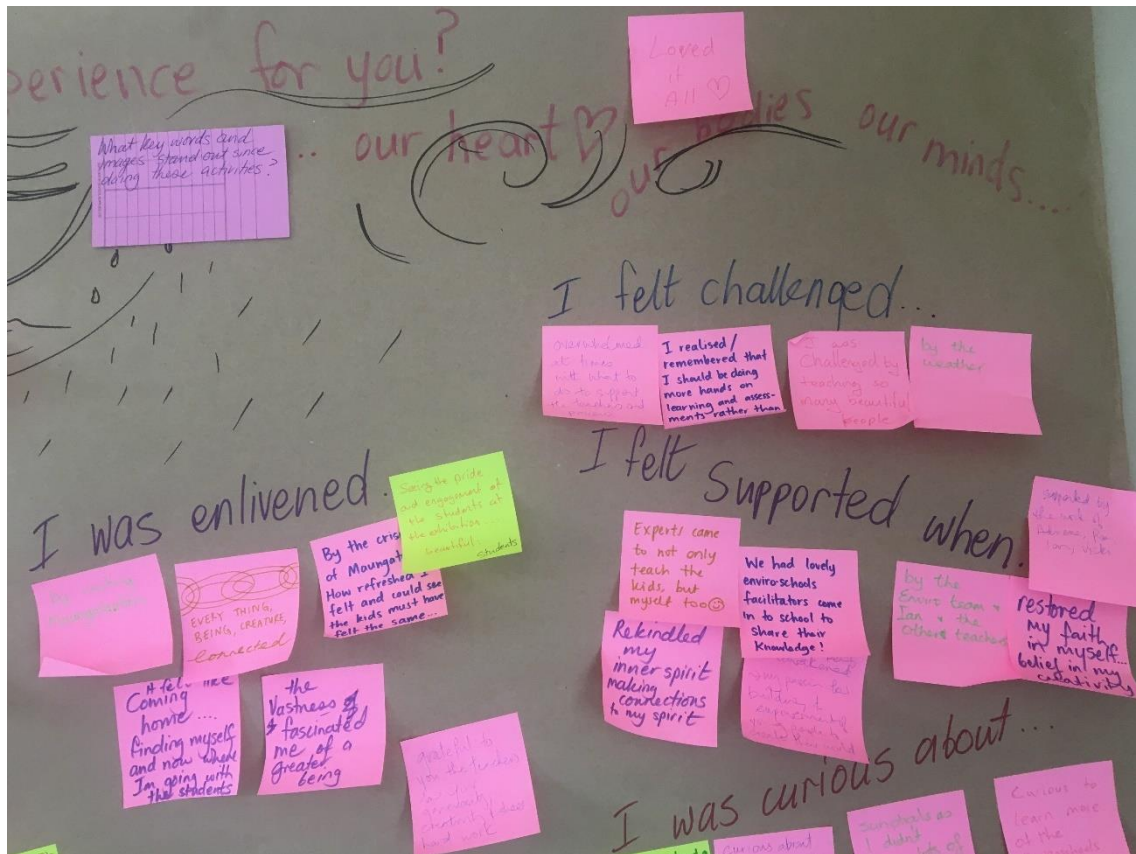
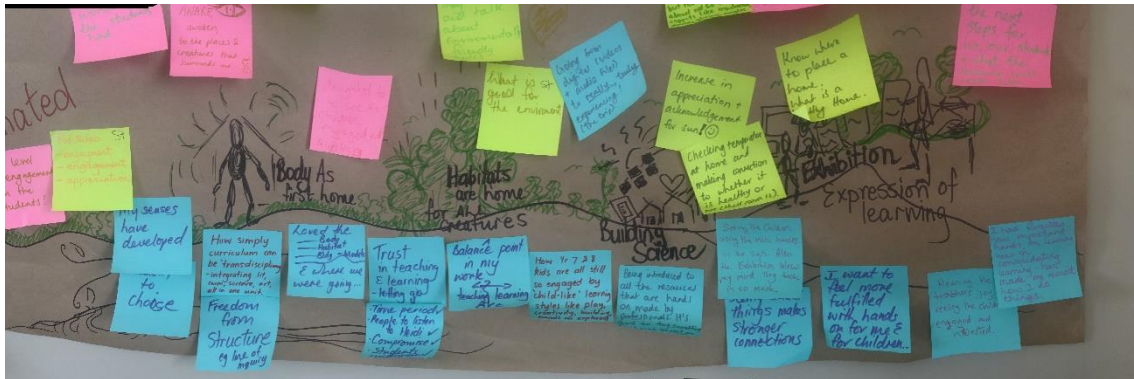


Figure 26 Findings from evaluation workshop with teachers

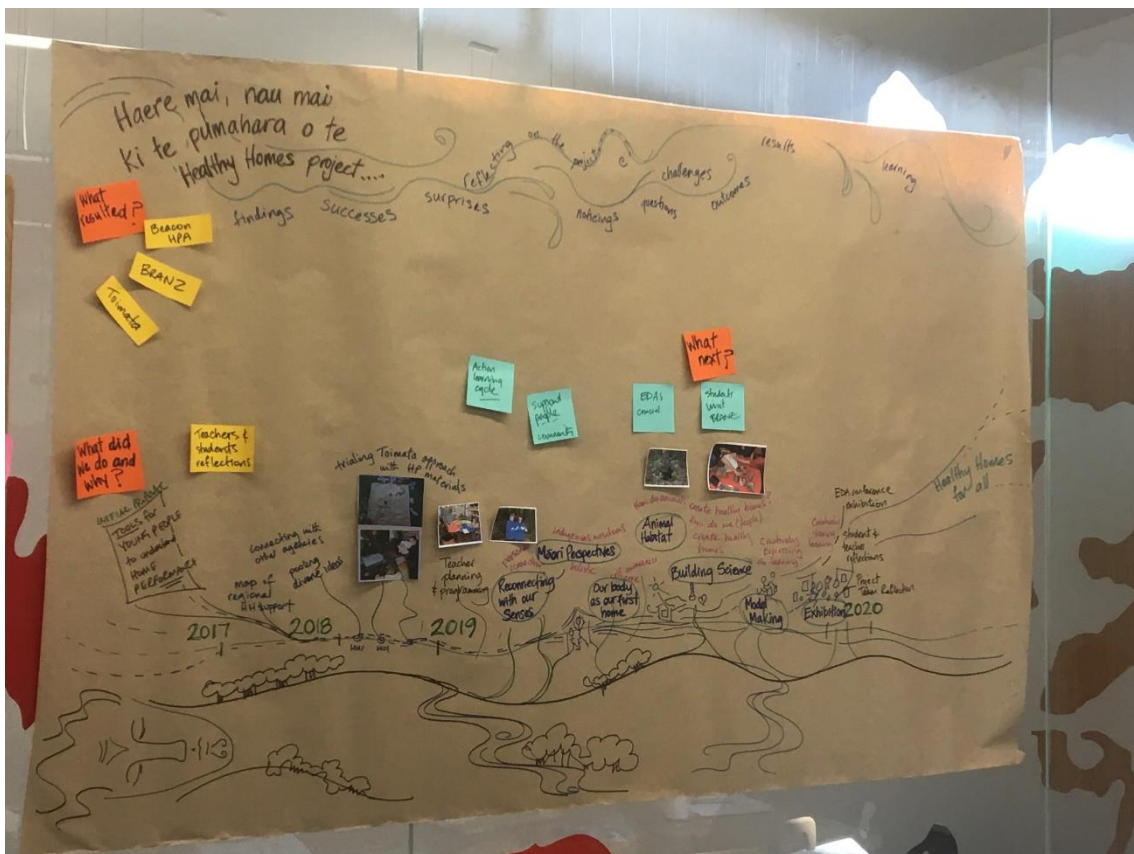


This material was used as a resource for the project team's evaluation hui in December. This day-long session involved the project team: Heidi Mardon, Pam Jones, Adrienne Grant, Vicki Cowan and Ian Mayes.



**Figure 27** Project team evaluation of teacher insights on the Healthy Homes pilot

A final evaluation occurred at the project completion meeting in February 2020 when Heidi Mardon and Vicki Cowan presented the project to BRANZ.



**Figure 28** Project team sharing project with BRANZ

### 3.4.3 Shared the project with EDA conference

The Healthy Homes project displayed their work at the 2019 Eco Design Advisors (EDA) conference in Auckland in October. Pam Jones and Ian Mayes set up a display with several of the children's models, some of the materials used to support the building science activities. The conference participants enjoyed visiting the stand and were overwhelmingly supportive of the hands-on nature of the materials and the idea of introducing homes to school aged children. The concept of 'your body as your first home', understanding environment/habitat, and only then talking about building science/healthy homes was drawn into discussions at the conference. It reflected the focus of the conference to consider housing in the context of climate change/the environment and the need for homes to work well for people.



**Figure 29: EDA conference participants visiting the Health Homes stand**



## 4 What we learned

The learnings from this research are rich. Project team members, hui participants, staff in all organisations, and most significantly the pupils of Maeroa Intermediate have progressed in their personal journey of understanding home performance. All project organisations - Beacon, Enviroschools and Home Performance Advisor Training programme- have benefitted greatly from the insights provided by this work and are changing as a result. The following themes have been drawn out of the evaluation.

### 4.1 The children's experience

These findings come directly from the children (in their discussions with Pam) as well as the observations of their teachers and project team members who worked with them. An overall comment from one teacher: “the kids were more inspired and interested in their homes at the end than at the beginning”. Teachers noticed an ‘awakeness’ in students doing this Healthy Homes’ work: from simple awareness through to discovering complex concepts.

The **Māori perspectives** engaged the children and grounded them in the three big ideas: your body, habitat, and healthy homes. The teachers introduced the story of Papatūānuku in different ways, one told the story, another played a video. Pupil A told Pam she was fascinated with the story of Papatūānuku. Pupil N said his parents came from India, they are Hindu, and he liked hearing about Māori gods and speaking with my parents at home. Pupil L said he knew about Rangi and Papa and the connection with the land - he said “Atua (the elements) bring joy to me when wind blows and sun is shining, it helps calm me down”.

The children's **senses were awakened**. All the adults (teachers and Enviroschools facilitator) were particularly struck with the impact of the trip to Maungatautari. Adrienne asked everyone to be quiet as they came off the bus as a sign of respect that they were entering Tane's home. One



boy told Adrienne on the trip that he'd never been in "quiet like that". For many children, this was their first experience of being in nature. The teachers noted that kids found it hard to not speak and be still. Pupil G said she like learning about the bush and Pupil A said the bush was interesting because "I like birds and nature". Pupil H said that he like thinking about senses and using them differently "the bush was fresh, the birds greeted us...reminded me of music" (going onto to talk about playing an instrument). Pupils L and M said they had fun in the bush, "seeing the bird's homes, it was alive and healthy because there's a fence to keep invasive things out". One of the teachers commented that she was refreshed by being in nature and "could see the kids must have felt the same".

**Maungatautari Field Trip programme**  
**Maeroa Intermediate/Enviroschools Healthy Homes programme**  
**Wednesday 28 August and Friday 30 August**

**Background**  
 People and forests/ngahere are vitally connected - both were created by Tāne. A magical realm guarded by lizards, birds and other creatures, ngahere provided Maori with necessities of life. As well as resources and food the ngahere also provided mana, rangatiratanga, responsibility, spiritual relationship, wellbeing and survival depending on its trees and shrubs for food, medicines, building materials and clothing.

**Purpose:**  
 Our intention is for students to

- See, feel and experience nature as home (Te Waonui a Tāne) and explore how nature is home to a vast array of flora and fauna that includes people
- Experience Maungatautari as the most healthy home for native wildlife in the Waikato

**Figure 30: Maungatautari Field trip planning document to set the scene for this trip**

Some activities stood out; for example, working with the **sun dials was particularly powerful**. The children were awakened by this work, realising the significance of the sun in their lives. The teachers noticed an increase in appreciation and acknowledgement for the sun. The Atua card for Tamanuiterā/sun was carefully used in the models and children were able to tell Vicki and Ian which way they would face their models to let sun in and were articulate about the sun bringing light and warmth which was important for a healthy home. The activity of measuring temperature in the mini houses when they were positioned differently in the sun was valuable in reinforcing importance of free heat. They could clearly see sun coming in larger windows raised the temperature.



**Figure 31: Students experimenting with the mini houses after they'd finished their models**



The children loved the **hands-on nature** of many of the activities. They talked about the model making for exhibition with Pam. Pupil H said he loved building the models: “everyone was busy but calm. It was challenging. I needed more trees to soften the sound around my model”. Pupils L and M said they found the model making interesting “because I get to make something”. The model making stimulated Pupil Z’s thinking about what he’d do differently “I would draft a plan of the house to stop mistakes”. Pupils Z and J said, “we used a compass to help face the model north for warmth”. One of the teachers was surprised at how engaged her students were during the house building – significantly her most ‘off-task’ students.

The children’s **understanding of the healthy homes** was demonstrated clearly in their model making, teacher reflection and the way they talked about the work to team members in the evaluation discussion and during exhibition. The teachers were “utterly blown away” by how much the kids got out of the work, the complexity of the models and the exploration. One teacher felt that the kid’s ideas of healthy homes before this trial were more on a visual level of their bedrooms, but now they think about not so obvious aspects like insulation, double glazing. Teachers noticed that the children were able to verbally explain their learning, the project team noticed this at the exhibition as the children spoke to them about their models and the activities on display.

The **links between personal health and homes** were evident in children’s learning. Some classes had quite extensive conversations about hygiene (personal and their home) and this was evident in written descriptions of models, displayed stories and discussions at exhibition. They wrote about the importance of hand washing, showering, cleaning clothes keeping rooms clean, not leaving food out, wiping benches etc. This was not part of any healthy homes’ activities, rather their teacher followed the curiosity and interest of her pupils and explored this issue. It is, however, a critical link between homes, habitat and healthy homes. It is also an achievable action for children to take in their homes – look after your own body and think about what you can do to keep the house clean and tidy. They related hygiene to dust (sneezing), mould, bedbugs, bathroom germs and pests such as mice.

The children picked up a lot about **building materials**. When Ian and Heidi joined the classrooms as ‘visiting experts,’ they talked through the material samples in the kit. Pupils J/L said they “liked feeling the building materials”. Others reflected on the materials they use for their models, talking about changing what materials they would use next time for their models to make it more robust. The “Homes Around the World” activity reinforced that homes are made from many different materials and is depending on where you live, your climate and what you need your home to shelter you from. Unfortunately, the process cards for building materials (where did the material come from and what can you do with it at end of life) was an activity which was not fully explored in the classroom. This was due to the weather delaying the trip and squeezing time available for building science. Similarly, the energy activity was not explored due to time constraints.

The students picked up technical information from their self-directed enquiry: the project team noticed material in exhibition that was beyond the resource materials and information shared by ‘visiting experts’ (Ian and Heidi). The stories, models and other exhibition material talked a lot about heat pumps for example. Some classes spent time researching their topics on-line and found this material. They incorporated it in context, discussing role of heat pumps in heating (and cooling) homes and keeping them dry so they are healthy.



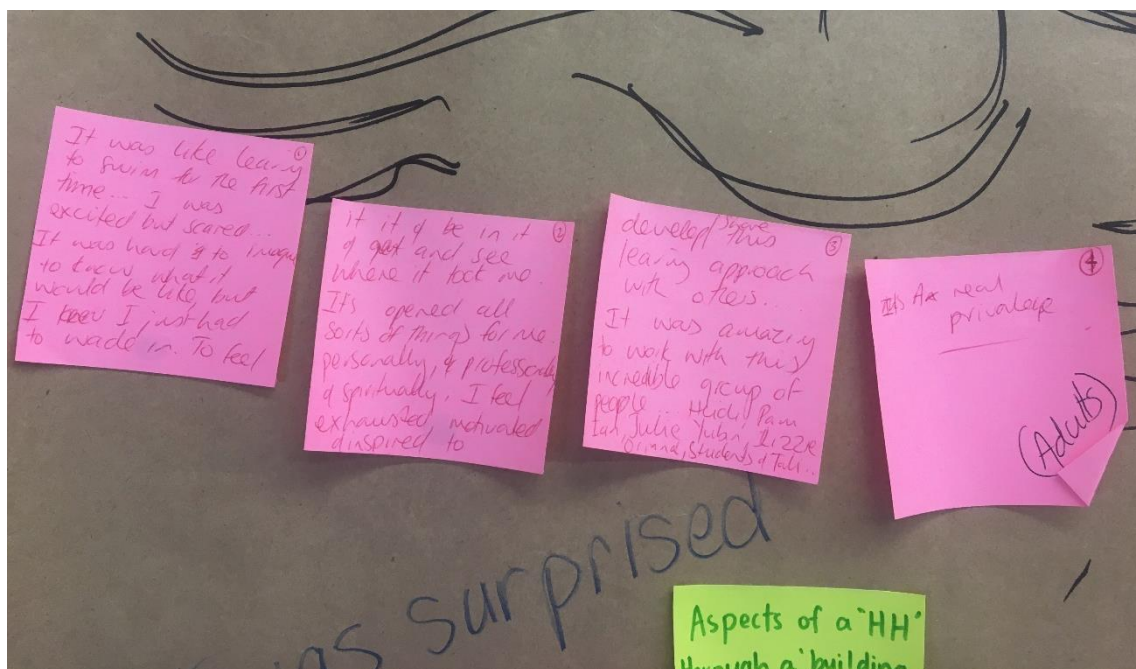
**Figure 32: Healthy Homes Pool of Knowledge by Maeroa Intermediate**

## 4.2 The teachers' experience

The evaluation encouraged the teachers to reflect on their personal experience, their class' response, and to provide comments on the journey overall. The Healthy Homes programme proved to be inspirational and extremely challenging for the four teachers.

The trial was **transformational at a personal level**; one teacher likened the experience to an onion – keep peeling off the layers of learning and understanding. The experience of being in nature (i.e. the trip to Maungatautari) stimulated an epiphany for one teacher, Teacher O, who made these observations:

- I felt like coming home, finding myself, and now where I am going with the students. This re-kindled my inner spirit.
- My passions were reawakened – my passions for building and empowerment of young people to create their world.
- This restored my faith in myself and my creativity.
- Gave me an opportunity to live into the activities alongside the students, I gained a balance between learning and teaching.



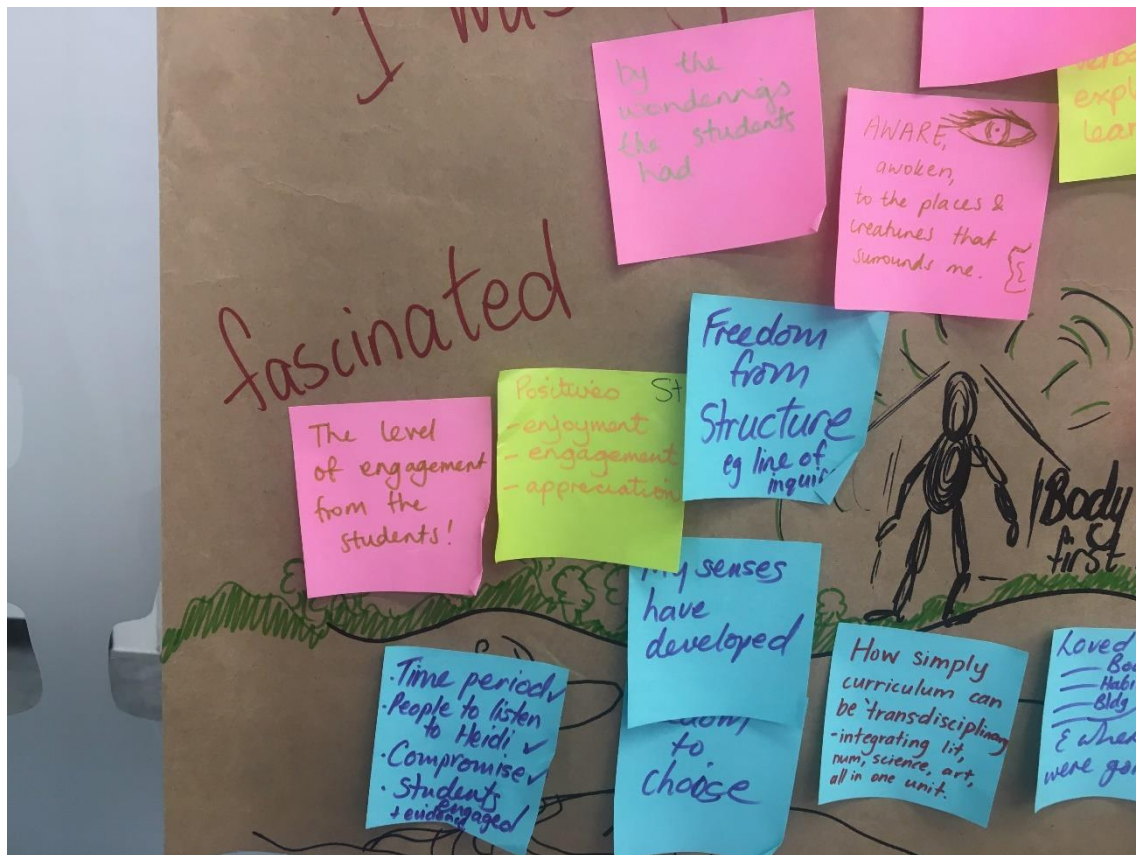
**Figure 33** Teacher reflection “I was surprised by...”

The module and style of activities also modelled **alternative teaching practices** for all teachers. Significantly, the Healthy Homes **activities were hands-on** requiring the pupils to be outside more than usual (building the sundials), moving around the playground with the tiny-houses to explore orientation and temperature, being able to touch and engage with real things (e.g. the props) and finally building their models. One teacher commented that the trial consolidated the importance of hands-on learning and is making her revisit how she does things in the classroom. The Healthy Homes trial helped the teachers **discover new ways to present learning**. They all



commented on the significance of the trip to Maungatautari, noting the value of going “**from digital to really truly experiencing**” the bush. The teachers noticed that the style of the Healthy Homes trial encouraged **modelling** which is different from getting students to just copy.

Important **connections** were made by teachers and their students. The teachers observed the stronger links between environment and self and the vast interconnectedness of the environment, ourselves, habitat and home. One noted “an increased awareness of the places and creatures around me”.



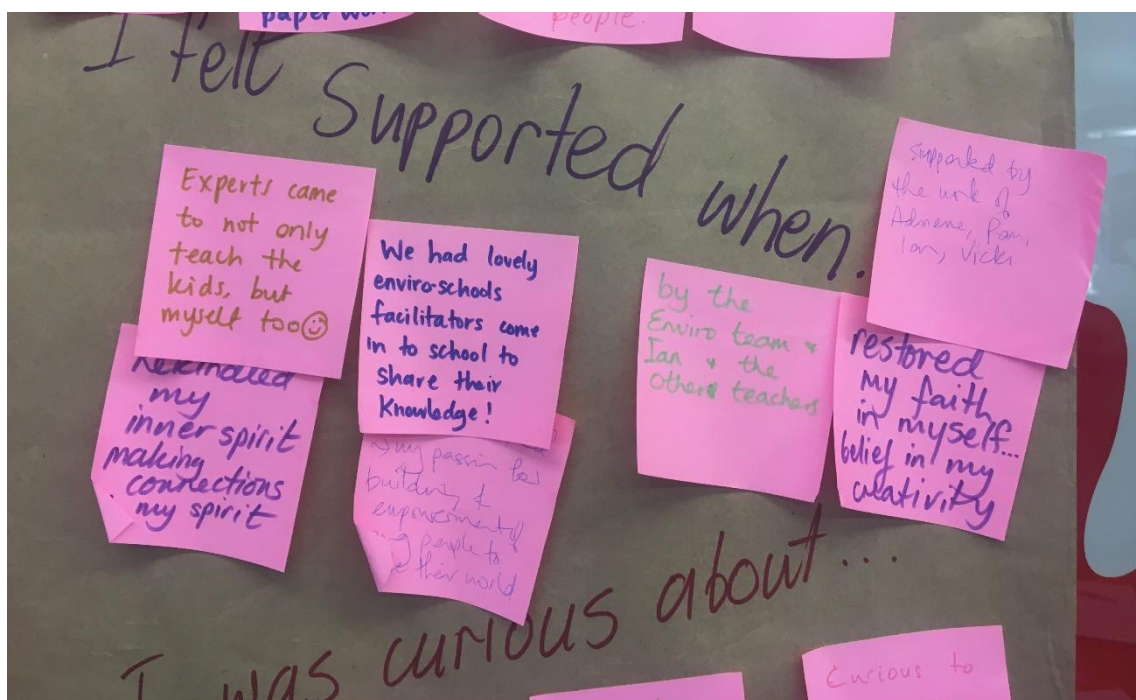
**Figure 34** Teacher reflection “I was fascinated by...”

The Healthy Homes work **introduced new ideas**; one example was the topic of senses in “Your Body as Your First Home” segment. The usual list of five (sight, smell, hearing, touch and taste) were expanded to twelve<sup>2</sup> by adding movement, balance, warmth etc. all of which are key to well-being. The teachers could see the children exploring these senses in the Maungatautari activities (e.g. string observation, still hunting, sky walking). They felt these activities **awakened the**

<sup>2</sup> Rudolf Steiner introduced 12 senses in 1909: touch, life, movement, balance (tell us about our bodies); smell, taste, sight and warmth (tell us about the environment we live in); and, hearing, word/language, thought/meaning and ego/self (tell us about others). Source: <http://imagostudio.co.nz/articles-and-background-information/five-senses-what-about-12>

**student's senses**, made them more aware of what's around them and led to more sustained observations.

The teaching team appreciated the Healthy Homes module, recognising it was different from other EnviroSchools resources. They liked the **professional opportunity** to work as a team (four teachers + project team) and were grateful for the time to learn and support provided by experts. One teacher noted that the module was a nourishing change for her and her students, she felt the atmosphere changed in the classroom and relationships improved. The team's regular meeting times were important to support the good communication of this trial and felt they developed trust (with each other and the facilitator) through collaboration.



**Figure 35** Teacher reflection “I felt supported when...”

There was recognition that **timing was a challenge**; the trial started slowly as poor weather delayed the trip to Maungatautari several times. But it was noticeable to all (i.e. teachers and project team) that the trip to the bush was a turning point, switching on everyone's interest and generating momentum for Healthy Homes. One consequence of the trip delays was that the building science segment was rushed. The teachers noted it would have been good to have more time between teaching and learning what was coming up next.

The teachers felt their students were very **engaged with the material** and their pride at exhibition was obvious. They felt the students gained valuable insights – they could explain healthy and unhealthy homes and were able to use their building science tools, such as thermometers and sun dials, confidently and independently. The activities offered their classes great choice and were suited to pupils needs. The teaching team saw growth in their class's knowledge. At the beginning, students' ideas about Healthy Homes were visual and more on a room by room level.

Now they also think about heat, heat loss, angles of the sun, how nature affects homes and how homes affect nature, temperature at home and whether their own bedroom is healthy and ideas about situating homes to be north facing. The material helped students see their environment differently, importantly they felt their students were empowered to create and make change. The teacher reflection identified that the Healthy Homes module challenged their student's creativity at the right level.

The teaching team's **reflection on the resource** was that it was helpful, practical, developmentally appropriate content for the students. For example, year 7 and 8 students engaged with 'child-like' learning activities (playing, building creating, model making etc). The teachers liked that the activities had helpful prompts for them. One teacher liked the ability to choose activities and revisit some: by following a line of enquiry she was offered freedom from the usual structure of classroom teaching. The teachers used the word "journey" to capture their experience of teaching practice and the children's learning. They felt the Healthy Homes programme offered transdisciplinary support of other curriculum areas - this work integrated literacy, numeracy, science and art all into one unit.

The teachers **welcomed the visiting experts** (Ian and Heidi), and the workshop session which introduced everyone to the building science activities and props. Seeing something tangible and hands-on, sparked the children's exploration and experimentation. The props allowed all learners to have a go. These props and activities encouraged co-operation and guided and focused the children's observations. One teacher said she was "fascinated seeing the children using the mini houses in the sun to experiment" and seeing the props alongside the children's models in exhibition "blew my mind". The teachers were able to identify where they felt challenged by the material and needed support from external experts.

The teachers looked at **their school environment** with different eyes as a result of this work. Early in the trial, teachers expressed some concern the work would generate dissatisfaction amongst the pupils. The contrast between the well-being walk in school grounds and the Maungatautari trip would be significant. The school grounds are typical for many New Zealand schools – sealed playing courts, mostly flat grassed areas with a few trees and formal garden areas. As part of their Enviroschools programme, the pupils have developed a vegetable garden and one of the parents has built them a worm farm and the pupils collect compostable rubbish from their lunchboxes to feed the worms. Students proudly shared this with the project team during exhibition when discussing waste and caring for the environment.

But the school grounds also include a gully, which is off bounds to the children due to health and safety concerns. Discussions started in the trial meetings about how the teaches, children and school might use this gully, a little 'wilderness' constructively.

The four teachers are curious about next steps for their students, and the next iteration of the Healthy Homes resource.



### 4.3 The project team's experience

Our early identification of the need to support the circle of adults around children (Section 3.2.2) played out in the trial. A key relationship was between the children and their teachers. The teachers engaged regularly with Adrienne (their Enviroschools facilitator). In addition, Toimata's Pam Jones and Heidi Mardon backed up staff at key points in the process (introduction, exhibition, new activities). Ian Mayes and Heidi Mardon also acted as subject matter experts at staff meetings and the building science classroom activities. It was clear in reflections with children, their written work, discussions with whānau at exhibition that some pupils took their learning home and discussed with their whānau.

The project team had to come to a shared understanding of the project and merge their world views of education of young people, Māori perspectives, home performance science and advice. The intensive support of the four teachers from Enviroschools was essential to implement the Healthy Homes trial. While the teachers explored the healthy homes material before the children, they relied on Enviroschools support to scaffold their teaching of this new information. This mirrors experience of the HPA programme: newly certified HPAs, who have passed all the assessments so understand the material, often come back to HPA or approach more experienced practitioners to mentor them putting their new knowledge into action. The project team felt there would be value in running the Healthy Homes programme again with the same teachers (some new kids) as so much more could be unpacked.

The teachers all went on a journey: it was personally and professionally challenging as well as inspiring. The trial asked them to change their usual teaching practice. For example, the Healthy Homes trial asked them to spend more time outside with the students, letting them experience things directly, slow down, 'play' and experiment with the activities and the model making. The activities moved teachers away from the front of the room, standing by the white board.

The project team felt the children were thirsty for the new style of learning and the subject matter. The three big ideas of body as first home, habitat and healthy homes let them personalise their learning. Being outside (at school), experiencing nature (on the trip), exploring, playing, model making and experiencing the hands-on activities were novel for many of the children. The wonder of this for children and teachers was a surprise for the project team. This serves as a reminder that hands-on learning is not the norm and more activities that encourage teachers and children to learn this way are needed.

The project overestimated the amount of material that could be shared with the classrooms and this was largely time was constrained. Key pinch points for the Healthy Homes trail included: poor weather (sun dials don't work in the rain, which also delayed the trip) and a busy curriculum which often saw the scheduled enquiry timeslot (Healthy Homes designed to fit in here) squeezed in a week. The team's reflection was that teachers (and students) require quite a bit of unwinding before this kind of work: the Healthy Homes programme asked them to work at a slower pace and do different things than normal school life.

The trial confirmed intermediate schools provide a good level of entry for this type of material: 10-12 year olds have a level of competence to engage with the activities and continue the enquiry on their own, parents are still engaged in their children's education (compared to high school) and so can be drawn into the learning; and the curriculum has capacity to absorb this work an enquiry topic. 10-12-year olds are Year 8 in a mainstream primary school setting.



Figure 36: Project team working during final evaluation session (Dec-19)

## 4.4 The project partner's experience

Toimata's action learning cycle supported the project team's successful **co-design process**. Because the Action Learning cycle is designed to support enquiry, enable participation, value a diversity of ideas and empower learners, it works equally well for collaborative project with multiple partners as it does in the classroom with students. Implicit in this approach is the idea that everyone is learning all the time, so the project team considered BRANZ in this circle of learners and actively sought to engage with BRANZ beyond usual contractual reporting.

The trial helped us develop and refine a number of healthy building concepts, and to design activities to support teachers in their delivery. It also enabled us to see first-hand the impact of certain activities on students, and therefore what teachers need if they are to deliver these activities to students themselves in the future.

It was confirmed to Toimata that the Enviroschools Facilitator plays a crucial role in enabling teachers to access to unfamiliar topics and teaching approaches such as this hands-on, action-based building project. The relationship that the facilitator has with the school and the teachers is key in supporting this type of teaching and learning. In addition, Toimata staff saw the huge value that was gained by having a number of people with different expertise supporting the Enviroschools Facilitator. The collaborative way of working created an exciting co-design environment where new ideas could more easily emerge. Mentoring and knowledge sharing occurred which built confidence in everyone who participated. One aspect of the trial that gave Toimata staff pause for thought was the huge impact that the visit to Maungatautari ecological sanctuary had on the students and teachers. The realisation that many students (and teachers) are rarely going outside of their workplaces and homes, let alone into the bush, was an alarming eye-opener.

Toimata Foundation staff noticed that even though the school had been engaged in Enviroschools for a few years, teachers still found some of the approaches and activities novel. Teachers commented that the Healthy Homes trial reminded them of the importance of things like sensory and hands-on activities. From an education perspective, this suggests to us that the schooling system is not supporting this kind of pedagogy and it is becoming harder for teachers to teach in these ways. Teachers are in an environment where there is an increasing focus on digital technology, larger classes, a widening range of curriculum subjects, and many social and political pressures, and they are doing the best they can for their students with this type of working pressure – this makes it all the more important to have the type of team support approach as modelled in this trial.

HPA learned the value of building a teaching session from what was already known in the room, this is changing delivery of the entry level course where participants are exposed to first principles of home performance and energy. HPA has moved to emphasise principles first and to encourage seeking solutions to issues creatively and not prescriptively. HPA is also reframing how it talks about homes, making explicit the connection between homes, energy use and the planet. The

tension for HPA is how practitioners might talk to householders about their energy use (key issues, energy hardship, direct household carbon emissions and seasonal/daily peak impact on the energy sector) while ensuring they can keep their homes healthy (New Zealanders need to use more energy to heat than currently to make homes warmer).

This Healthy Homes project reads directly to Beacon's vision to create homes and neighbourhoods that will work well into the future and don't cost the Earth. The project reinforced Beacon's experience in a novel context (exploring healthy homes in the school system for young people) and has added depth to Beacon's understanding of broader perspectives needed to overcome housing challenges and approaches to generate shared learning and action.

Over 16 years of engaging the residential sector, Beacon has learned that the oft wished for 'silver bullet' that will transform New Zealand's housing stock does not exist. Beacon understands that research-based knowledge and tools need to be explored and contextualised with partners: there is no simple end-user adoption of plug-and-play solutions to achieve meaningful change. Barriers to uptake are revealed through partnerships, just as the co-design of Healthy Homes revealed challenges in the school system that the project could understand and address with teaching staff. This project confirmed better outcomes are achieved with good partnerships involving shared learning.

Beacon has an established record of building high performing demonstration homes (e.g. Beacon's first home, the Waitakere NOW Home, built in 2005 outperforms a sample of new stand-alone homes built in 2012 and 2016<sup>3</sup>). Just like the pupils' model making, Beacon's demonstration homes provide proof of concept and valuable experiential learning for everyone involved. This Healthy Homes project also reinforced Beacon's learnings on the importance of including multiple perspectives (i.e. beyond researchers, designers and builders!), making time to enable learning to take place and communicating the principles behind the many decisions taken to build a particular home. These insights are valuable reminders: demonstration projects need to engage hearts and minds to stimulate the transformation Beacon seeks.

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<sup>3</sup> Jaques, R. (2019). Measuring our sustainability progress: New Zealand's new detached residential housing stock (first update). BRANZ Study Report SR426. Judgeford New Zealand: BRANZ Ltd

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## 5 What we think it means

If we (i.e. New Zealanders) want to create sustainable homes that support the health of all New Zealanders and the planet, we need to create a new pool of knowledge, one that joins everything up and creates a holistic and integrated understanding of buildings. Being in nature and understanding our wider ecosystem ‘home’, and our place in it, is fundamental. Whether we are architects, engineers, product manufacturers, students or home-dwellers, understanding ourselves as part of nature helps us understand how to design, build and live better in our homes. Understanding indigenous perspectives of ‘home’ and buildings is also fundamental, because we live in New Zealand and value Māori perspectives. Indigenous perspectives have nature and people as one, not separate from each other, and therefore indigenous building concepts are inherently sustainable.

A new pool of knowledge requires a more diverse range of people involved in the education, research, design and construction of buildings.

An early insight, in a project originally designed with a focus on young people, was the need to engage an ecosystem of learners in the quest to understand housing and education in New Zealand. Many perspectives were shared: home performance experts, Māori community leaders, teachers, education experts, adult education trainers, Enviroschools facilitators, building scientists, parents and whānau. Many organisations had a stake in this project: BRANZ, Beacon, Toimata Foundation (both Te Aho Tū Roa and Enviroschools), Waikato Regional Council, Home Performance Advisor Training Programme and Maeroa Intermediate School. All were learners and the project has developed a new pool of knowledge around healthy homes. This new pool integrated Māori perspectives, so was automatically holistic, it engaged students in hands on learning, it engaged their senses and the process was participatory, so all perspectives were valued and recognised. This was a participatory learning and action project based in a school with healthy homes at its core. The circle of engaged stakeholders could be widened to include more of the building industry than the researchers represented here.



## 5.1 Outcomes, highlights and learning from the Healthy Homes project.

The following are highlights and learnings from the Healthy Homes project. The project team believes that incorporating these aspects into education and the building industry is crucial if we want to create healthy homes and communities.

- **Māori perspectives** were essential in providing a strong foundation for the building science, communication and education. Integrating Māori perspectives into our understanding of the built environment provides a rich entry to the Healthy Homes material and reflects the reality and opportunity of living in Aotearoa New Zealand.
- Knowledge wasn't 'transferred' from an expert to 'unknowing' participants, rather a series of conversations **developed a joint understanding** of healthy homes.
- Building science was discussed in terms of **key principles** (e.g. heat loss) rather than solutions (e.g. all good curtains need a pelmet) on the basis that if principles are understood then everyone can find solutions that work for them (e.g. culturally, financially, etc)
- The **interconnectedness of healthy homes (health, building, planet)** underpinned the learning and action, rather than delivering as compartmentalised 'subjects' – this flowed directly from integrating Māori perspectives and linking buildings with the natural ecosystem. While specialist skills and knowledge are essential, outcomes depend on how well they come together as homes are built/retrofitted.
- **Everyone's perspective was a valuable contribution** to everyone else's understanding of healthy homes and what is needed to reach better outcomes. At the moment, households are able to 'consume' housing with no real engagement in what they want from their home, how it will perform for them, will it keep them healthy, what is the impact of that home on the environment. Households are not empowered to understand and make decisions about their homes.
- **Students experiencing a fun and different way of learning through the experiential nature** of the project. All senses were engaged; New Zealand's native habitat was visited and activities to understand key building science principles were **hands on**. This type of learning isn't new, people have always learned by doing. But this trial of Healthy Homes rediscovered experiential learning, and it enabled four classrooms of students, their teachers and the project team to collectively explore what healthy housing means. We could observe that seeing and sensing was an important aspect of learning about healthy homes
- There was a shift in student **awareness and knowledge**, and some of them explored beyond the material and activities presented. Almost certainly for some it was an inspirational experience that will impact them in the longer-term.
- It was a **deep and motivating experience for teachers**, reconnecting with their own passion for teaching and reconnecting with the natural world. There was shift in teacher practice and a reminder for the teachers about the empowering nature of sensory and hands-on approaches.
- It was a **professional development opportunity for teachers** where they themselves could learn more about the topic of healthy homes

- The Healthy Homes topic proved a **comprehensive foundation for all school curriculum areas** (e.g. literacy, numeracy, science, art), surprising the teachers with how much core learning the Healthy Homes programme supported.
- The Healthy Homes topic opened **everyone's senses to their own environment**, it stimulated discussion about the school grounds and potential use of gully in teaching and learning. The Healthy Homes activities encouraged a flow of children in and out of the classroom – busy with their learning, change the way the teachers and children used the school environment.
- There was **connection between of a number of agencies** that had not previously engaged with each other, enabling the pooling of ideas from different disciplines and perspectives.
- There was **development of some powerful new tools and activities** that have wide application, in schools, the wider community and the healthy homes sector, particularly HPA.
- The project enabled a higher level of support for the teachers and students than Enviroschools is normally able to provide. Enviroschools support is limited by the regional funding available and **this pilot showed us what can be achieved with adequate resourcing**.

## 5.2 Next steps

The project partners are extremely grateful to BRANZ for supporting this opportunity to bring together experts from the building and education sectors in a rare and much needed collaboration. While this project has been completed there is ongoing work that is being undertaken/planned by Toimata, Beacon Pathway and HPA, and new ideas to explore and projects to scope in the schooling sector and wider built area of healthy built environment.

### 5.2.1 Embedding Healthy Homes into Toimata programmes

The ultimate aim of this project for Toimata is that young people and their whānau are empowered to create and live in healthy homes, as part of their development of healthy, sustainable, resilient communities. There are huge opportunities for Healthy Homes to reach young people and their whānau through Toimata, for the following reasons:

- **Wide reach.** Toimata networks have wide reach nationwide, with experienced Facilitators and Poutautoko maintaining long-term relationships with over 1300 schools, kura and whole communities.
- **Action-learning.** The empowering, collaborative action based approach to education is the basis of all Toimata work. New topics will be enacted as community development - building capacity and creating real solutions.
- **High level of motivation.** Participants, partners and staff of Toimata are highly motivated to create change and develop more healthy, sustainable ways of living. Also there is a huge amount of expertise already in the network and communities that Toimata is working with, we don't have to sell anyone the idea, we just have to help them do it.

There are also challenges. The current building paradigm is not geared towards health, sustainability and empowerment of people, and neither is the current education paradigm. Creating health and empowerment requires organisations to maintain innovative practices and provide a diversity of support for participants. Some current challenges in the Toimata network are:

- Many teachers are stretched in their roles and need significant support to maintain and grow their Education for Sustainability programmes.
- Resources and educational material in Te Reo Māori are very limited and this restricts the participation of kura Māori and Māori communities.
- The Toimata Facilitator and Poutautoko network needs a step-change in funding to grow, giving existing Facilitators and Poutautoko more hours and increasing the number of them on the ground.

### **Next steps for Toimata.**

#### **To end of June 2020**

Toimata Foundation has secured some extra funding to the end of June 2020 to boost a number of national and regional projects across Te Aho Tū Roa and Enviroschools. The Healthy Homes pilot is one of the projects that we will take to the next stage. The funding will enable us to do two main things:

1. *Finalise the Healthy Homes materials and processes and integrate them into a working draft of the Enviroschools Theme area*, this involves a number of Toimata staff in the following:
  - Integrating the observations and reflections from the trial
  - Ensuring that the Māori Perspectives are authentically woven through
  - Finalising the key concepts and activities that were developed for the trial
2. *Run a Healthy Homes workshop at the Enviroschools National Hui in April, which brings together over 120 Enviroschools Facilitators and Regional Coordinators working in over 1300 schools and early childhood centres nationwide. At the hui we will:*
  - share the Healthy Homes pilot and some of the new activities
  - discuss how best to support the network to carry the new material into schools.

#### **In the next two years we would work on the following:**

- *Undertaking an Eco building healthy homes road show* around the country to bring professional development to regional Toimata people and their communities, and spearhead and support Healthy Homes projects
- *Identifying good local and regional models of healthy homes* that can be made available by our Facilitators, Poutautoko, schools and communities as part of their learning
- *Identifying other organisations that we could work with to create more models of Healthy Homes*, including organisations that we connected with during this project such as Habitat for Humanity, Waikato Environment Centre etc

### **In the longer term**

Toimata will look to scope a collaborative project to build a healthy home, or homes, in a community setting, using the whole process as a learning opportunity - from design, through construction and post occupancy.

#### **5.2.2 Informing the Home Performance Advisor Programme (HPA)**

The HPA team meet for a technical review each December, and this Healthy Homes project informed the 2019 hui. Insights have flowed into the Jan 2020 revisions of the Principles of Home Performance course material. While the scope and content has remained constant in this course, the style has become more nuanced to emphasise principles rather than ‘just’ solutions. The trainers are also delivering differently after the experience of the pilot and other hui. HPA trainers explicitly recognise knowledge in the room (i.e. all participants) and each session builds from that, adding in the building science knowledge base and the trainers experience in New Zealand homes. Similarly, the February 2020 review of the detailed technical manual for the certification course (three-day residential programme) has been informed by this Healthy Homes project. HPA is planning recruitment of new trainers and the establishment of “training of trainers” professional development informed by insights from this project. The hands-on materials developed for the pilot are being explored as teaching materials within the HPA programme.

The Eco-Design Advisor Network<sup>4</sup> has similar goals to HPA, but EDAs are employed by councils as experts to provide free advice to their ratepayers. HPA (and Beacon) have a close working relationship with the EDA network. All EDAs (Dunedin, Christchurch, Nelson, Hutt City, Palmerston North and Auckland) are certified HPAs and, in turn, the annual EDA conference is recognised as a means for the growing network of HPAs to maintain their certification. HPA will share this project with the network of certified HPAs (includes EDAs) to ensure they know of the work to inform any future engagement with school-based projects.

#### **5.2.3 Stimulating Beacon’s research questions**

This project is stimulating Beacon discussion about the circle of resources needed by households to make meaningful change to their homes and how that might be supported. Beacon will explore this with HPA, EDAs and other community-based organisations (e.g. those running curtain banks etc.) to identify research questions around what comprehensive community support leads to positive action for households and better housing outcomes.

The Healthy Homes project is informing Beacon’s approach to future demonstration home projects. In particular, the range of perspectives needed so the project is an active learning experience that stimulates change (while still meeting research needs for proof of concept etc.). The new pool of knowledge that will develop around each demonstration home needs to be nurtured to support and maintain learning and new ways of working.

Beacon will review this project with the EDAs as a potential contribution to their next conference.

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<sup>4</sup> This initiative was started by BRANZ who still offer annual professional development to the EDAs.

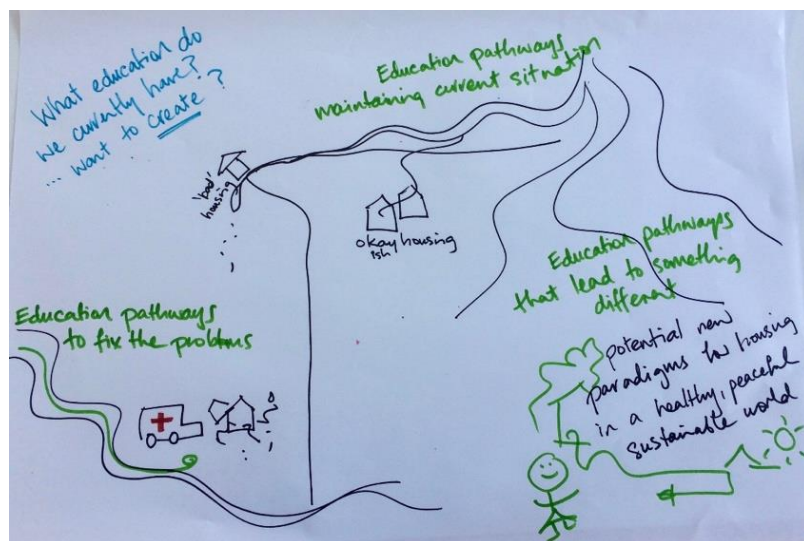
#### 5.2.4 Contributing to developments in the schooling sector

The Healthy Homes trial is timely in that it links closely to two other pieces of work currently being undertaken in the New Zealand education sector:

- The New Zealand education review being undertaken by the Ministry of Education
- The Toimata Foundation reflection and review of the nationwide Enviroschools Programme

At the core of these reviews are questions about where formal education is going, what is its purpose, how are whānau and community involved, and what infrastructure and resources are needed to create fair, equitable and effective teaching and learning.

This Healthy Homes project has a key contribution to make to these three reviews, as we are asking what education pathways will lead to different ways of building and what is the role of young people in this? In the area of sustainability, some would say that we won't get there by tinkering around the edges and that we need a whole new paradigm of thinking and acting. In the healthy home context, there are problems to be fixed right now for the health and comfort of people living in cold damp homes, and there are new ways of thinking that we need to find to avoid the problems in the first place..... these are educational questions.



**Figure 37: Education pathways (Heidi Mardon)**

Toimata Foundation will be integrating the Healthy Homes material into the Enviroschools Ecological Building Theme Area and will draw on the project experiences as they contribute to the Governments education review and the further development of Toimata programmes.

#### Continuing a wider enquiry

This project was initially sparked by the question “could HPA be adapted for use by young people?”. A school trial was envisaged. As the project progressed and explored the topic more widely, the team raised several questions about how to include Māori perspectives, what is age appropriate, and what is the role of adults and whānau in the student educational journey.



This has led us to see the school trial as one part embedded in a wider enquiry, and the team therefore see that the ‘end product’ of this BRANZ project potentially has four aspects to it (the first is within the scope of the existing work, the remaining three beyond).

#### **1. Enviroschools Class Trial (in scope of current project)**

An active trial involving teachers and their classes at Maeroa Intermediate School engaging in healthy homes activities and giving feedback about their experiences. Both the students’ and the teachers’ experiences will be reflected on, and resource development will continue based on the outcomes of the trial.

#### **2. Student learning journey**

The team’s learning could underpin the drafting of an overview of what might be appropriate aspects of Healthy Homes to learn about at different ages and developmental stages of young people in school, and what is culturally appropriate and enriching for the diversity of students through their formal education. This could inform future resource development and may identify further activities to develop for different age groups.

#### **3. Whānau and adult learning alongside children**

Young peoples’ school learning is affected by their home and community life, and we are exploring what support and learning opportunities whānau need alongside young people in their learning and action, and for healthy homes to become a reality. This could contribute to a future professional development project working with whānau and community.

#### **4. Bigger picture of Healthy Home Education**

If we agree that the current home building system is not working for everyone, and we want a built environment that is different, then we must look at the education of more than simply children at school and their families. Everyone involved in the building industry is potentially a participant in learning. Toimata Foundation has an educational role in the school and community aspect of this picture; however, we want to keep this wider context in our sights to enable us to identify links between the school education that we are working on in this project and the tertiary education, trades and the building industry as a whole. An ambitious scale-up project might be an intergenerational design and build project, with a school community learning alongside material manufacturers, architects, building suppliers, and trades to deliver a home that meets the new pool of knowledge this group generates.

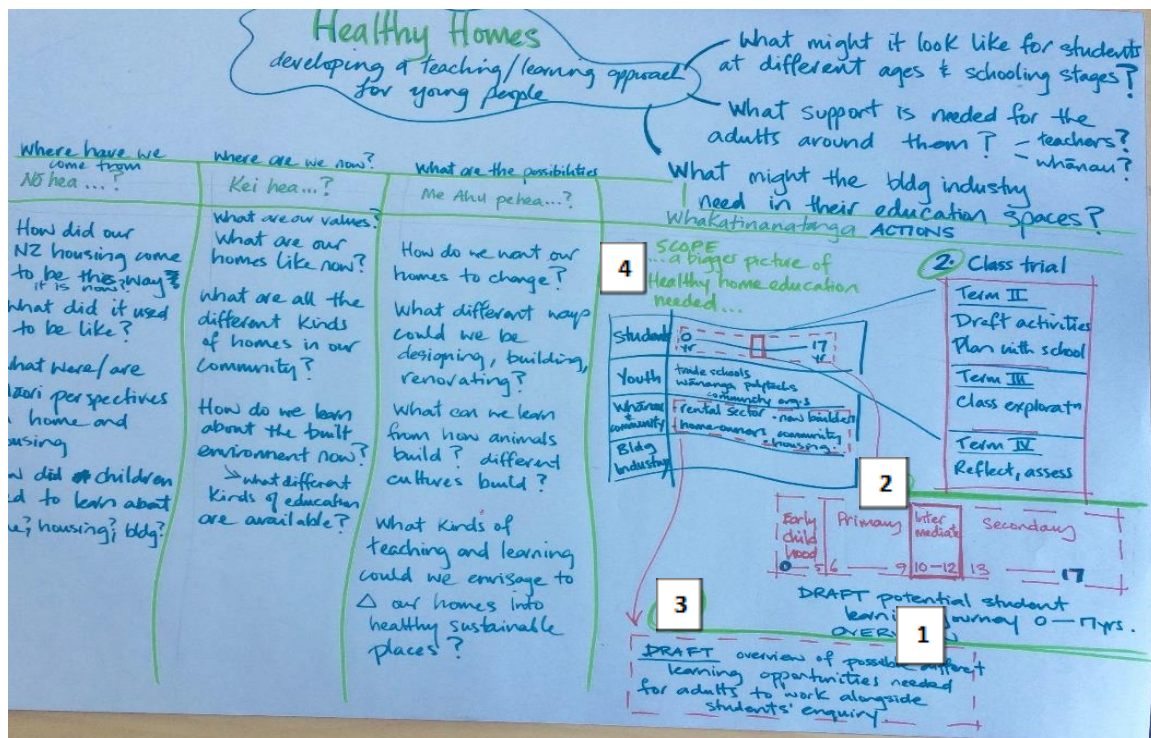


Figure 38: Scoping the broader educational context needed to improve housing outcomes (by Heidi Mardon)

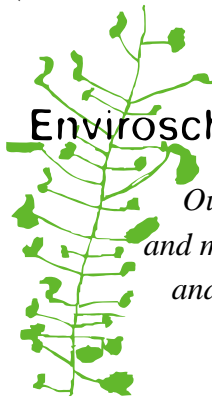
### 5.3 Final thoughts

From the initial proposal to this final report, the project has changed and evolved in a responsive way, with outcomes emerging that could not have been predicted at the outset. The project team's intimate understanding of the school environment was a key driver to us avoiding the development of a 'plug and play' solution that organisations so often want to see dropped onto a classroom. While the project could have ticked a research box by packaging the building science activities into a kit, the project team consider the results would not be as rich and comprehensive as this work.

The project team developed a comprehensive Healthy Homes programme to stimulate excitement and engagement about homes for 10-12-year-old students and collaborated and supported their teachers to trial a different teaching and learning approach. It did that and much more. The project team have reported the outcomes as seen at the conclusion of this project and believe that some participants will continue to experience outcomes from this deep learning experience.

## 6 Appendix 1: Project communication for Maeroa Intermediate

(reformatted into this report template)



**Enviroschools**

### **Enviroschools Healthy Homes trial**

#### **What motivated us to do this trial?**

*Our built environment is not as healthy and sustainable as it needs to be  
and many New Zealand families are living in cold, damp, unhealthy houses.....  
and what is the role of school-based education in changing this situation?*

The Home Performance Advisor (HPA) programme was developed to help families understand about how their houses are performing and how to make them warmer, drier and healthier

Toimata Foundation, Beacon Pathways and the Community Energy Network (CEN) support this training programme

BRANZ, Toimata and Beacon are now supporting the further development of this into schools via the Enviroschools Programme ....



Home Performance and Health Handbook, 2017  
Part of the Home Performance Advisor Training Programme



### **Purpose of Enviroschools Healthy home trial**

To integrate some of the HPA training material into Enviroschools teaching and learning approach and trial a positive, creative learning opportunity for students and young people.

To document the teaching and learning trial and incorporate into the revision of the Eco-building Theme area and Enviroschools Programme.

### *Some current questions....*

How can we support young people to understand more about how our houses/homes work and how to create wellness through the built environment?

How can teaching and learning change the way we think about our homes and how we design, build and retrofit our homes?

How will we do this in a positive, creative way that empowers young people to feel connected and able to take action for their own well-being?

### **Some facts from Home Performance Advisor training**

**18°C** minimum temperature recommended by the WHO

**20°C** if the household has very young, old or ill people

*... what happens in our bodies when the indoor temperatures are lower than WHO recommendations?*

- At 16°C, it is harder to breathe – the cold affects the respiratory system.
- At 12°C and below, heart function is affected....blood thickens as you get colder and is harder to pump around the body.

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So this is NOT about 'hardening up' and 'putting on another jersey'.

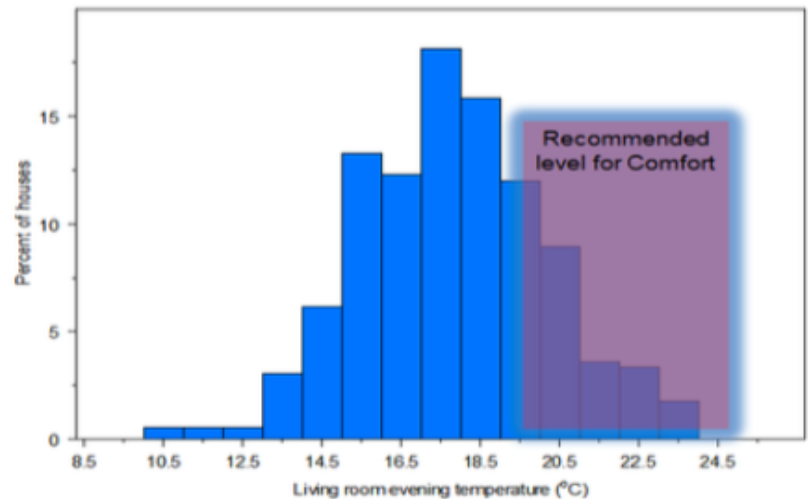
**Relative humidity** - Moisture - should be less than 70% - ideally fall between **40% and 60%**.



## ***cold + damp = mould***

... worsening the symptoms of asthma, bronchitis and other breathing disorders.

... contributes to respiratory illnesses including asthma and some forms of gastroenteritis.



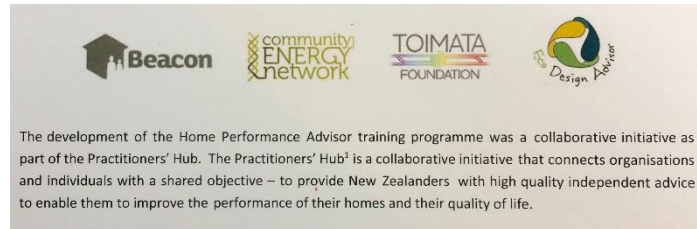
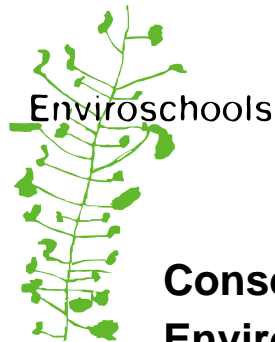
Some New Zealand statistics ..... we have:

- A high excess winter death rate compared to OECD countries - more people are dying in winter than in other seasons
- A high prevalence of asthma – the fourth highest rate of hospital admissions for asthma amongst OECD countries.
- There is evidence that damp housing is also linked to rheumatic fever .... exacerbated through household overcrowding
- Quarter of our population is in fuel poverty, which is described as ....

*...the inability of a household to afford a sufficient level of energy services in the home to maintain health and wellbeing.*



## 7 Appendix 2: Teacher participation consent



### Consent and agreement to participate in the Enviroschools Healthy Homes trial

Nga mihi nui ki a koe,

Many thanks for agreeing to be part of this trial. We are excited by the potential of bringing the concept of healthy homes into the Enviroschools Programme. We are grateful for the opportunity to work with you and your colleagues from Maeroa Intermediate to co-create this material and to provide meaningful and enjoyable experiences for students. Please sign this form to show your agreement to the different aspects of the trial.

I \_\_\_\_\_ agree to participate in the Enviroschools Healthy Homes project.

I agree that this will involve:

- Teaching the Healthy Homes topic for the 10 weeks of Term 3, 2019
- Working with our Enviroschools Facilitator and the Enviroschools trial team to plan the term and undertake the draft activities
- Enviroschools researchers coming to classes as agreed to support certain activities and observe and take photos.
- Providing the researchers with information on:
  - My experience of taking the lessons with my classes.
  - My observations of the impact of the lessons on the students in the classes,
  - Student feedback

I understand that:

- documentation of the effectiveness of the trial may be collected through group reflections, self-complete surveys, and teacher observations.
- photographs may be taken of the classes in progress as part of the project record and for later knowledge dissemination through the revised Enviroschools materials, website stories and other related publications and therefore I will notify researchers of names of all students who may not be photographed.
- individual feedback or evaluation of the project will not be personally identified unless expressly requested for some reason such as use of a comment for a quote.

If I need to withdraw from the project for any reason I will advise Heidi Mardon [Heidi.mardon@toimata.org.nz](mailto:Heidi.mardon@toimata.org.nz) or Adrienne Grant [Adrienne.grant@waikatoregion.govt.nz](mailto:Adrienne.grant@waikatoregion.govt.nz) as soon as possible by email

Date:

Signature:



Funded from the  
**Building Research Levy**



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## 8 Appendix 3: Teachers planning overview Healthy homes

### **DRAFT** Overview Healthy Homes for ALL Enviroschools trial – Maeroa Intermediate Term 3 2019

*How can we transform our environment to create healthy homes for ALL (humans and all living beings)?*

Our intention is for learners to:

- Experience a range of practical activities that will engage, excite and motivate.
- Increase awareness and understanding of what makes homes healthy
- Develop a sense of care for themselves, their surroundings and the confidence to participate in the creation of healthy homes
- Experience some different ways of knowing that help build a collaborative pool of knowledge - (Māori Perspectives, Holistic Habitat and Building Science Perspectives).

| <i>Identify the Current Situation</i>  |  |  |   |   |
|--|--|--|---|---|
| Time   | Activities   | Purpose  | Key Questions to explore  | Reflective Questions  |
| Week 1 and 2 Te Taiao - the environment in which we build (links to Inter-connectedness pgs 53-54 Me In My Environment- MIME ES Kit) |  |  |   |   |
|  | <p><b>1.Ranginui and Papatūānuku and their Children</b> - a story connecting with the Atua as elements of the Natural world.<br/>MIME (pg 92)</p> <p><b>2.Mihi to Atua</b> - a greeting to acknowledge and invoke life, health and well-being.<br/>MIME (pg 109)</p> <p><b>3. A Growing Sense of Place</b> - a reflective drawing showing self and connection to their world. Personal learning journals are introduced to students as taonga to record.</p> <p><b>Pool of Knowledge/Puna Matauranga</b> - Begin to create a classroom visual display from current understandings about healthy homes.</p> | <p>Exploring the natural world from a Maori Perspective and connecting to what you already know.</p> <p>Increasing individual openness and sensitivity.</p> <p>Capturing shared thoughts, feelings and responses arising from activities to help decide on later action.</p> | <p>Where are the elements around you and what can they do?</p> <p>How do each of the elements make us feel?</p> <p>Whose presence do we feel most in winter?</p> <p>What would our world be like without them?</p> <p>What do we know and feel about healthy homes?</p> <p>Where do we feel most at home?</p> | <p>What sensations did you get from the different elements outside?</p> <p>How much did you already know about the elements?</p> <p>How do the Atua and the natural elements affect each other and us?</p> <p>What questions do you have?</p> |

## Identify the Current Situation

| Time         | Activities  | Purpose  | Key Questions to explore   | Reflective Questions  |
|--------------|---|--|--|---|
| Week 1 and 2 | Your body is your first home – the foundation for your well-being   |  |  |   |
|              | <p><b>1. Stretching Out to Sense the world</b> - multi sensory activities to awaken and nourish ourselves and others (and Close Encounters of the Sensory Kind - MIME pg 82 -85)</p> <p><b>2. Well-being Kete and Well-being Walkabout</b> two activities from a digital classroom resource of well-being</p> <p><b>3. Knitting and Yarn Bombing</b> - fun, practical, on-going activities to cover heads, hands and feet</p> <p><b>4. Bringing health and well-being into our classroom</b> - acknowledge what you have learned. Return to activities you strongly connected with.</p> | <p>Adding in a sensory perspective builds on knowledge of ourselves</p> <p>Exploring how to manage big emotions, living in the moment.</p> <p>Exploring how students can contribute to the feeling of health and well-being in the classroom on a daily basis.</p> | <p>What did you notice about your experience in each activity? How would you describe your experience?</p> <p>Did you discover anything about senses, health and well-being that you hadn't noticed before?</p> <p>What can you do in your own classroom to take care of yourselves?</p> | <p>Did you find anything that you didn't know before?</p> <p>What questions do you have about your body as your first home now? How can you group these questions? Which ones are the most important to answer?</p> <p>What are our connections to our environment?</p> <p>How have you/ can you change your classroom to incorporate the things you have learned? Add to your <b>Pool of Knowledge/Puna Matauranga</b> Collect current understandings and questions about senses, health and well-being building a classroom visual display.</p> |

## *Identify the Current Situation*

| Time  | Activities  | Purpose   | Key Questions  | Reflective Questions   |
|---|---|---|--|--|
| Week 3, 4 & 5 Habitats are homes for ALL the children of Ranginui and Papatūānuku |   |   |  |  |
|   | <p><b>1. Animals and their homes</b> . . . brainstorm and tune into how animals live.</p> <p><b>2. Habitat Writing</b> - keep a journal about an animal seen regularly. Imagine a day in the life of one animal.</p> <p><b>3. Building a Bird's Nest</b> (MIME p 142)<br/>Make your own bird's nest/kōhanga using resources from the school grounds</p> <p><b>4. Still Hunting</b> - sitting quietly in nature to observe animals and features.</p> | <p>Observe how animals live in and adapt to their natural environment.</p> <p>Recognise and detail how local animals live in and adapt to their environment.</p> <p>Explore how animals use their environment to survive and keep safe.</p> <p>To observe and be in a natural habitat with other species.</p> | <p>Which of your senses were used more for this activity?</p> <p>What can you learn about birds (and other animals) from how they build their homes?</p> <p>What other life shares this place with you and how might their view differ from your own??</p> | <p>How healthy and alive do you think this place is?</p> <p>What new insights has this experience given you?</p> <p>How safe and warm would a bird feel in your nest?</p> <p>How did using your senses enhance your knowledge and feelings about this place? Why are quiet places important?</p> |



### *Identify the Current Situation*

| Time  | Activities   | Purpose  | Key Questions   | Reflective Questions  |
|---|--|--|---|---|
| Week 3, 4 & 5 Habitats are homes for ALL the children of Ranginui and Papatūānuku |  |  |   |   |
|   | <b>5 Maungatautari Sanctuary Bush Trip</b>   | Sensing, experiencing and feeling Te Wao Nui O Tane – Our Native Bush as home  | How is it to experience this?<br>Can you sense the freshness of the air, the warmth of the sun, the darkness of growing shadows? Does this place (Maungatautari) make a good home for different creatures?<br>What kind of shelters can we make ourselves?<br>If I got lost out here, how would I stay alive? | How was it to experience this? How do animals adapt and continue to build homes under different circumstances?<br><br>How do homes and habitats work?<br><br>Does this change how you think about your school environment as a home for people, plants and creatures?                               |
|   | <b>6. Building our own shelters</b><br>Make your own shelter out of natural and found materials outside <ul style="list-style-type: none"> <li>• School Building Day - Ecological Buildings p 219;</li> <li>• Survival Hike</li> <li>• Wild dens</li> </ul> <b>7. The Mauri of Buildings</b> (Ecological Buildings Theme area p 217) | Have fun and practice skills in making natural structures.<br><br><br>Explore the concept of mauri through personal experiences with buildings | How do different buildings make you feel?<br>Is there anything else would we do in our own classroom?   | What materials did you use? How safe and warm did you feel in your shelter? What did you use it for?<br><br>What did our early ancestors have to do to keep warm and safe? What other questions does it raise for you?<br><br>Describe the mauri of one particular building that is special to you. |

| <i>Identify the Current Situation</i>  |  |   |   |   |  |
|--|--|---|---|---|--|
| Time   | Activities   | Purpose   | Key Questions to explore  | Reflective Questions  |  |
| Week 6 & 7 Home performance building science - things that go into making a warm, dry healthy home |  |   |   |   |  |
|  | <b>1. Tapping into Tamanuiterā - A series of measurement activities</b> <ul style="list-style-type: none"> <li>• Sunsticks - tracking the sun's movement outside over the day</li> <li>• Sundial - a portable tracking device</li> <li>• Temperature Differences - measuring temperature and moisture</li> </ul> | Strengthen connections with the Atua and environment.                             | <p>Why is it important to know where the sun is in relation to our buildings?</p> <p>Does wind, sun and shade affect the use of a space? How? Could you last in the hot sun all day, every day? How long could you last outside in the rain without a coat? Where are the sheltered places?</p> | <p>What are all the things nature does to keep homes healthy?</p> <p>Why do we need to know how the sun/temperature affects you and your classroom/home?</p> <p>What can you add to your Pool of Knowledge.</p> |  |
|  | <b>2. Materials and the Lifecycle of building materials</b> - exploring the birth, life and death of materials used in building - exploring the birth, life and death of materials used in building  | Understand how the materials in our homes are related to the natural environment. | Where do our homes come from? How do materials get processed for building with? What do they do and where do they go after?   | <p>Why do we use materials in the way we do? Where might you see the atua in these processes?</p> <p>How much of these materials do you think the homes you live in contain these materials?</p>                |  |

## *Identify the Current Situation*

| Time   | Activities  | Purpose   | Key Questions to explore  | Reflective Questions  |
|--|---|---|---|---|
| Week 6 & 7 Home performance building science - things that go into making a warm, dry healthy home |   |   |   |   |
|  | <b>3. Mini Homes</b> – comfort levels, managing humidity  | Hands-on finding out about “warm and dry” healthy homes using small models of homes to experiment and record with.                  | How could we use these models? What are all the different measurements or group comparisons we can make? How are homes in NZ built?                             | How does this relate to you and how you live in your home?<br><br>What did we find out about homes that we didn’t know before?  |
|  | <b>4. Resources that make our homes work</b><br>Energy in Homes   | Recognising energy forms and uses - heating, hot water and ‘things with switches’;<br>Conservation and efficiency of energy at home |   |   |
|  | <del><b>5. Field house</b> – Map out a healthy home on the school field</del><br><b>5. Homes around the world - explore a wide variety of homes</b> |   | What does a home provide?<br>What is common with all houses? What happens if we don’t have these things?<br>How does it compare with other countries and homes? | What can we expect from a home if... a storm blows in, it rains, the sun beats down, we need rest, we need privacy we need somewhere family can come together?<br><br>How do buildings support LIFE? How can I be a part of creating the built environment? |

### Identify the Current Situation

| Time   | Activities   | Purpose                                       | Key Questions to explore  | Reflective Questions   |
|--|--|---|---|--|
| Week 8, 9, 10 Model making and Sharing Knowledge |  |   |   |  |
|  | <b>Build a model home</b> to show others what you know about warm, dry, healthy homes vs unhealthy homes.<br>Elements of good design: a balance of protection from the elements, light to enter, personal space and privacy, a design to enfold the family, give space to rise to the sky above. | Create model homes working together in groups | What does our Pool of Knowledge tell us about healthy homes?<br><br>How can we build a model that shows others what we know about healthy homes?<br><br>What materials will we use? | How does each model explain some things that you know about what a healthy home is?<br><br>Is this how you want it to be? What changes could you make?<br><br>What do you need to create, to bring about the changes you would like? |

### Explore Alternatives

| How do we create Healthy Homes? Further your exploration, develop your ideas and plan your next steps. |  |  |  |  |   |
|--|--|--|--|--|---|
| Time   |  | Purpose  | Key Questions  | Activities   | Reflective Questions  |
|  | What can we envisage as a healthy home?<br>How could we model this to show others? | To expand the range of possibilities and options for our actions towards Healthy Homes | How else could it be?<br>What have others done?<br>What are all the actions we could take?<br>What are our priorities for change?<br>How will we decide? | Picture this...<br>What if...<br>Imagine a home that's dry, cosy, warm.... AND exciting, stimulating, in balance with nature, inspiring, restful and quiet, amazing and beautiful. | How do our ideas contribute to our sustainability goals and reflect the qualities we have set out in our vision?<br><br>Which projects come up as priorities? |



## Take Action

What actions do we want to take

| Time | Purpose   | Key Questions   | Activities   | Reflective Questions  |
|------|---|---|--|---|
|      | <p>To decide if we want to take some action e.g. in their own homes in their classroom? school?</p> <p>How might we use our models to teach others?</p> | <p>What actions will bring about the changes that we want?</p> <p>Which designs will work best?</p> <p>What do we need to take action?</p> <p>Who else do we need to involve?</p> | <ul style="list-style-type: none"> <li>• Action statements</li> <li>• Indicators</li> <li>• Action and design planners</li> <li>• Task programmer</li> </ul> | <p>What are we going to do?</p> <p>What people and skills do we need?</p> <p>How do we communicate with others about our project/s?</p> |

## Reflect on Change

| Purpose  | Key Questions   | Activities  | Reflective Questions   |
|--|---|---|--|
| <p>To look back on what we have achieved, how it went, and what difference we have made.</p> | <p>How did the project go?</p> <p>What changes and benefits have come about because of our actions? How will we celebrate?</p> <p>Where to from here?</p> | <p>Big picture reflection</p> <ul style="list-style-type: none"> <li>• Photo shoot</li> <li>• Reflecting on Guiding Principles and Whole School/Centre Approach</li> <li>• H-forms</li> <li>• Sustainable celebrations</li> <li>• Next steps</li> </ul> | <p>How did taking the time to reflect and celebrate make us feel?</p> <p>Which aspects of our Vision are we advancing?</p> |

