



# Schools water education and engagement project 2014-15

## The evaluation report



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eco action games 2015



## Executive summary

### Contents

01 Background	3
02 What we did	4
03 Evaluation of the project	5
04 Our findings	6
children – baseline	7
families – baseline	9
children – post project	11
families – post project	13
secondary students	14
05 Discussion	16
06 Conclusion	18



**“The students are really excited to take the games into our local primary schools and share what they learned.”**

Lead eco teacher, Secondary school

### In 2014-15 eco action games ran a school education and engagement pilot project on behalf of Thames Water. The project concentrated on engaging twenty primary and secondary schools in the south London area.

The aims of the project were to: establish a baseline for the existing attitudes, opinions and actions of pupils, and their families, regarding water use; educate children about the potential for water savings through behavioural change both at school and home; test out our unique games-centric approach to eco education and engagement in schools and, finally, to monitor and evaluate the impact of the project. This report presents a summary of our findings.

The pilot project was successful in raising the awareness of children about how precious water is and how to use it wisely. We discovered from the baseline questionnaire that although, in general, children understand that water is a precious resource, this didn't necessarily always translate to a personalised understanding of the need for them to use water wisely. Hence one of our major successes was improving the relatively low number of children (46%) that had thought about their personal water use before the project to 92% post project.

Behaviours changed too. Post-project, 80% of children agreed they had learnt new ways to save water at school and home, and we saw positive upturns in the number of children eschewing deep baths for short showers and declaring they now only put the three 3Ps\* down the toilet.

The family baseline results were interesting because while they declared overwhelmingly that they try to save water whenever they can, further probing into their water using behaviours revealed a range of water hungry habits with regard to showering and bathing and also a large majority of families who admit to tipping their waste oils down sinks and drains.

Positively our post-project family findings were very encouraging with 81% of respondents declaring their children had shared the water saving messages with them, and 75% of them stating they have learnt new water saving actions as a result of the project.

With secondary school students we clearly saw the need for improvements in their water using habits. Nearly two thirds of them like deep soaks in the bath and three quarters enjoy long, hot showers.

We did make progress with this group however, with 82% of them agreeing they had learnt new ways of saving water through this project.

Encouraged by the success of this pilot, Thames Water have commissioned a scaled-up version of the project. We are currently working with 40 schools in the north London area. We will report on the impact of this project in summer 2016.



## 01

In 2014, Thames Water commissioned eco action games, and our programme delivery partner – paula owen consulting, to develop and deliver a schools focused water education and engagement pilot project to a group of schools in the south London area. The programme was delivered over the autumn 2014 and spring 2015 school terms.



“It was a fantastic session and the students loved the games! Even I learnt quite a bit and I was only watching.”

Science Lead, eco team leader,  
Secondary School.

## Background

We recruited a total of 20 schools for the pilot: 15 primary schools and five secondary schools mainly located in the London Borough of Lambeth. For each school in the cohort the project was delivered over a three month period.

The project had three main objectives:

**1.**  
water education  
and engagement  
with students  
and staff

**2.**  
water audit  
and retrofitting  
of water saving  
devices

**3.**  
measurement  
of the water  
savings within  
schools

This report summarises the quantitative and qualitative evaluation findings of the project in terms of the improvement of awareness, attitudes and actions towards water savings for both the pupils involved and their wider family unit.

It also illustrates the success of our unique, games-centric approach to environmental education at both the primary and secondary level.

The education and engagement elements of the project were delivered in parallel with the technical elements of the project that involved an audit of each school's water using devices, and, where necessary, the replacement of and/or fixing of water consuming equipment that was not considered to be performing optimally.

The water savings achieved by the schools were either monitored by an Advanced Metering System (AMS) installed by Thames Water, or when that was not possible, water savings were calculated through estimates made by the technicians.



## 02

**The project's engagement and behavioural change aspects were delivered through water focused assemblies to the entire school cohort – either in one whole school assembly or two covering KS1 and KS2 separately, and workshops with selected groups of pupils to educate, engage and inspire the students and staff.**

**The water focused assembly had the following objectives:**

- Explain to students and staff the importance and relative scarcity of fresh, clean, treated water
- Explain the reasons why water is precious even in countries such as the UK where it appears plentiful
- Illustrate how simple and easy it is to learn how to use water wisely
- Demonstrate the importance of not throwing inappropriate materials down toilets, sinks and drains
- Introduce the technique of using fun and games to teach children, and adults, about the many ways in which they can reduce unnecessary water wastage and use water appliances appropriately
- And finally, and most importantly, to start the change in long term, lifestyle behaviours towards sustainable water use at a young age

## What we did

### The water education and engagement project

#### The eco action playground workshop

In each primary school, directly after the assembly presentation, the eco action team would take a core group of between 12-20 children, typically 'the green/eco team' and/or school council members, and utilise a workshop setting to train them to be the school's eco water 'game makers'. This was achieved by empowering the group to deliver water saving messages to the rest of the school through running their own 'eco action water playgrounds' in their year groups and through dedicated 'eco playground' sessions for the whole school.

The children chosen to become 'eco water games makers' were typically from Years 2-6, children in Year 1 were considered too young to take on the role. The eco action playground, water themed, is part of the eco action games educational product range. The playground itself consists of all games in the range, with a majority of them redeveloped into dedicated water saving themes. The games are designed for indoor as well as outdoor play, so they are all-weather resources. The elements of the water playground are shown in Figure 1.

The workshop takes approximately 1.5 hours to run. The group is introduced to each of the games in turn. However as they are popular, well known games the majority already know how to play. Hence the main explanatory element of the workshop is describing what the water-themed eco twist is for each game and how to convey the water saving elements of the games to their peer groups. They then had the opportunity to both play and practice facilitation of the playground.

The workshop concludes with the challenge given to the eco team to take the eco playground and run it within their own year groups. We recommend, at least to start with, that two children facilitate each game, so a team of eight children plus a teacher is required to run the playgrounds.

#### Secondary school workshops

For the secondary schools, the workshop is run on similar lines. With a group of students aged between 12 and 15 years, around 12-20 in total, attending a longer workshop where we start with a presentation about water, focusing on the relative scarcity of freshwater and highlighting the issues of showering and bathing in particular. The games are then demonstrated and the students given a chance to play and facilitate the games.

With the secondary school implementation of the project, the students are given a choice of options. They may run the sessions with their peer groups within the school; or use the games with their 'feeder' primary schools as part of their outreach activities and open days. For schools that run the Duke of Edinburgh award scheme, the playground event sessions can count towards their 'Volunteering' activities. Indeed Lambeth Council officially endorsed these activities to be part of the requirements for the volunteering element of DofE.

**Figure 1: the games contained in the eco action playground set**



## 03

**Evaluation of the efficacy of this pilot to educate and change behaviours towards water use was a key aspect of the programme. An evaluation framework was a fundamental part of the project plan.**



“Something I found personally helpful about the project was that it could be used as evidence for our Green Flag award renewal, and as the project was so thorough I found that it ticked a lot of boxes (parent involvement, whole school assemblies, Green Team leadership and data from the surveys). Thank you!  
eco school lead teacher,  
primary school.

## Evaluation of the project

**The aim of the pilot was to not only assess the learning and behavioural changes in the children involved in the project, but also to ascertain what ‘diffusion effects’ occurred, if any, where the children take the learnings back home to their family group and discuss with parents, siblings and others. The evaluation methodology took the following form:**

- Children (from Year 2 upward) were surveyed on their attitudes, thoughts and current behaviours towards water use, directly before the assembly (primary) or talk (secondary).
- After the assembly the children were given a family questionnaire to take home for their family to fill in regarding the existing habits, attitudes and water related behaviours in the household.
- After approximately a term; giving the school and pupils time to spread the water saving messages through running the playground sessions, the children were surveyed again.
- Similarly, the parents were surveyed at the end of the project to determine how far the messaging about water saving had spread beyond the school gates.

To help facilitate widespread engagement with children and their parents, incentives were provided to ensure they took the surveys home and the parents filled them in. For every completed pre-project form, children were given stickers, a 4-minute shower timer and a voucher to send off for water saving devices for the home. For the post-project questionnaire, if the pupils brought them back to the school they were rewarded with a pack of water trumps to take home.

Our return rate on the questionnaire, for the primary schools, was impressive and as a result we have a high level of confidence in the data, this is particularly true for the pre-project questionnaires where our baseline data count for pupils was around 1800 returns. The response rates of the various questionnaires are highlighted in the boxes below.

For the post-project questionnaires, only a selection of the schools were asked to take part, this explains why the post-questionnaire return numbers are lower.

### Pre-project surveys

# 1786

completed baseline surveys covering attitude and actions towards water use – children aged 6-11

# 548

completed baseline attitude and actions towards water use – family questionnaires covering 2356 individuals

### Post project surveys

# 351

completed post project surveys – children’s feedback

# 176

completed post project questionnaire – family surveys covering 732 individuals

## 04

**The baseline questionnaire was designed to give us an understanding of the then-current (pre-project) level of awareness and attitudes in primary school pupils towards water use.**



## Our findings

The project commenced by surveying all primary school aged children in the cohort, but we soon realised that Year 1 (5 to 6 year olds) were too young to provide sensible results. Hence we disregarded all 5 year old's responses and early on in the project restricted the surveys to Years 2 - 6.

Our response profile, defined by age, is shown in Graph 1. The lower number of 11 year olds is explained by the fact that we carried out the project in the first two terms of the school year, hence there were proportionally fewer children that had turned 11 in the Year 6 classes.

We asked questions probing their current levels of understanding of whether they consider water a precious resource or not, and also if they consciously took personal measures not to waste it. We contrasted and compared these attitudes towards water with their prevailing views of energy use and waste and recycling to gain a comparative understanding of how water is viewed when compared alongside other popular eco actions such as saving energy and recycling and reducing waste.

We also asked about their current habits and behaviours regarding water usage at home and in school. The following headline findings give us a rich, detailed picture of the state of water knowledge and everyday habits in children aged between 6 and 11 in an urban environment.

We found that generally, a large majority of children, 80%, understand that water is a 'precious resource'. However, less than half of them, 46%, have considered water saving themselves. This is an entirely understandable starting point for primary school children. They often are confronted with pictures of droughts and desert conditions in other parts of the world and learn about the long, arduous walks many people have to undertake to get water from wells. In contrast, they live in a country where water is literally 'on tap', there whenever they need it, and, of course, it rains frequently. Hence, a personalised understanding of the need to use water wisely, and not to waste it, is not necessarily something they may have thought of or have been talked about in their school or family group.

# 80%

of children surveyed think that water is a precious resource.

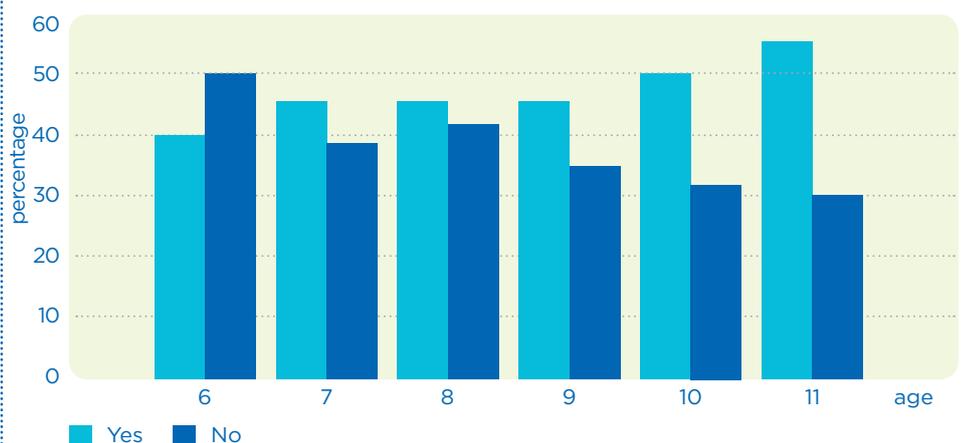
# 46%

children surveyed have thought about water saving

**Total numbers of children surveyed, by age**



**Had the children thought about personal water saving?**



## Children's water using habits revealed

However, even though over half of our sample group have not actively thought about saving water, it seems that some positive, water wise habits have already formed at an early age:

Less positively, there are also many examples of water habits where there is much room for improvement:



We also asked a number of control questions regarding children's views and attitudes concerning recycling and energy in the home, and found that the messages around reducing energy use and the need to recycle have penetrated more successfully than water saving:

### 85%

of children turn the tap off when cleaning their teeth

### 80%

of the children say they make sure they only flush the toilet once

### 52%

of children surveyed state they have short showers

### 57%

of children surveyed like to have deep baths

### 51%

of children surveyed say they tell a teacher if they see a tap constantly dripping

Given it is in our bathing habits where we can make the biggest difference to our water (and energy) use, then these findings are useful to guide us as to where to direct the emphasis on water use education in the next phase of the project.

### 63%

I try to save energy when I can

### 57%

I recycle and get my family to recycle also

### 46%

I have thought about saving water

This illustrates the comparative difference between the adoption of energy saving and recycling behaviours versus water saving habits. It seems the water saving message has not penetrated as successfully as the first two.

Interestingly, there was an emergent, age-related trend seen within the majority of statements regarding water related attitudes and actions. There was often a positive peak around children aged 8 to 9 years old.

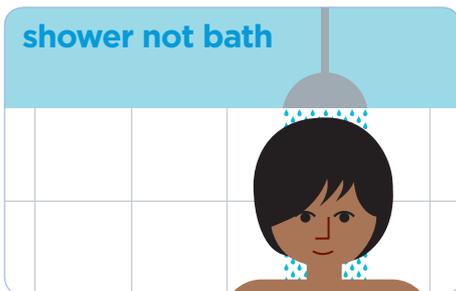


Figure 2 depicts student responses for different age groups to a number of the statements. The resulting peaks in positive statements occur at eight and nine year olds.

It might be argued that what we are seeing here is an optimum age in which to get across the water saving message, where the child might be most susceptible to change and influence with the correct messaging and educational pointers. An interesting further study would be to try to understand the influences that create the decline in the positive trend at 10 years and above.

**Gender aspects**

We also thought it would be interesting to investigate whether there were any gender differences with regard to the age group studied.

Our split of gender was almost equal in our group, 47% girls and 48% boys and the remaining 5% not answering the question on gender.

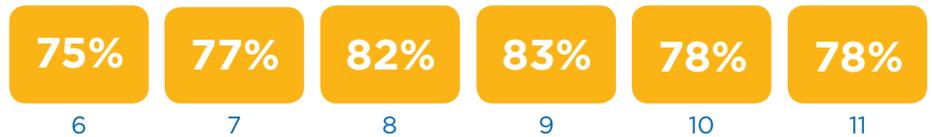
Interestingly, girls were generally more aware of water usage than boys across the board, but the differences were not generally significant.

Perhaps less surprisingly, the only category that girls were significantly below the boys was in time spent in the bathroom, 5% more girls were asked to hurry up in the bathroom by their parents as compared to the boys.

- 5% more girls are asked to hurry in the bathroom
- 4% more girls recycle
- 5% more girls are careful about amount of toilet paper they use
- 5% more girls turn tap off while brushing teeth
- 8% more girls would tell a teacher if they see a tap dripping

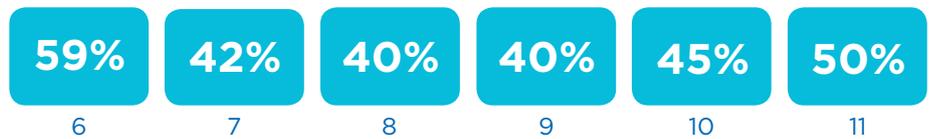
Percentage of each age group that agreed with the statement:

**'I think water is a precious resource'**



Percentage of each age group that agreed with the statement:

**'I like to spend a long time in the shower'**



Percentage of each age group that agreed with the statement:

**'I prefer to have baths not showers'**

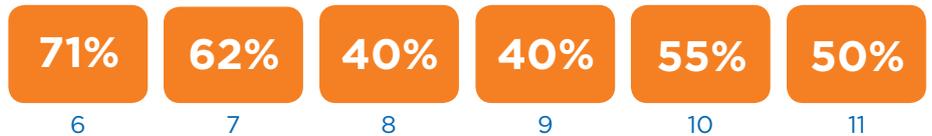


Figure 2: water use related statements and an age breakdown of responses

**We received a high response rate from the families of children in the project, with over 500 families responding to our baseline questionnaire.**



**“I am really pleased my school participated in this project, it has certainly taught the children across the school a lot about viewing water as a precious resource, which is a fantastic message to spread.”**

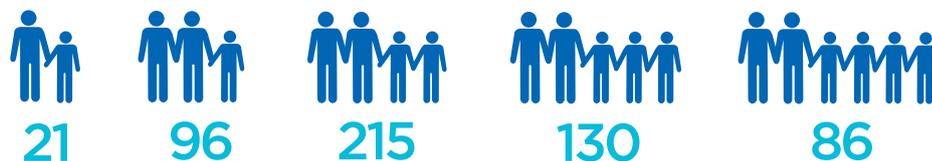
Lead teacher, primary school

## Family pre-project questionnaire findings

### Family baseline surveys

The total number of individuals within these households was 2356.

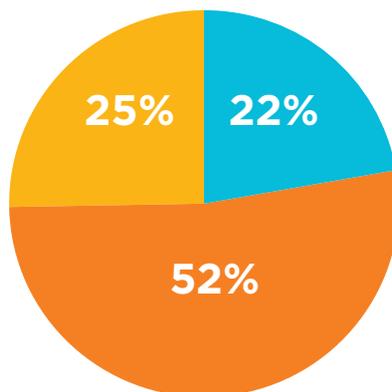
### Make up of family profile (no. of responses received)



Typically the survey was filled in by an adult member of the family, on behalf, where possible, of the whole family unit. The findings are interesting.

**We asked whether the family was on a water meter, or paid a fixed rate for their water, or if they did not know. The results are shown below:**

### Are you on a water meter?



- water meter
- fixed tariff
- don't know / not sure

We can see the majority of our households are on a fixed tariff for their water usage, and just over one in 5 households are on a water meter.

However, the relatively high number of people, one in four, who 'don't know' is fascinating. We did not enquire into the ownership/tenancy status of the household, but a possible reason for this high level of uncertainty may be because they are tenants and the water bill is included in their general rental payment so they never see an actual water bill. If, on the other hand, they are the home owner, or indeed are renting but do pay their own water bill, and still are not aware of whether they have a meter or not then this could be a good starting point for a general awareness campaign about the options and potential savings available to them.

When we turned our attention to family attitudes towards water saving, we received a very positive response to the general question 'we try to save water when we can', with an overall 88% agreeing. However the general trend was that level of agreement dropped slightly the bigger the family grouping.

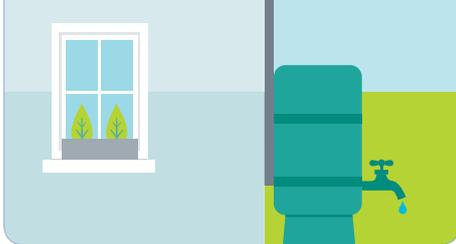
Percentage of household that agreed with the statement:

### 'we try to save water when we can'



Given the high agreement with the positive water saving intention stated by our families, it is interesting to turn to the water using behaviours declared by the households to see if the stated attitudes actually correspond with current behaviours:

### fill that waterbutt



### use a bowl



### tea for one?



“Eco action games provide an engaging and effective way of introducing themes of water conservation to children. The eco games complement our ethos of child-centred learning, and children at our school have taken ownership of the games and their messages.”  
Lead teacher, primary school

# 24%

admit to having deep baths

# 20%

admit to having long showers

# 21%

have water butts

# 74%

tip oil and fat down the drain

# 40%

wash up under a running tap

# 39%

admit to overfilling the kettle for just one cup of tea

So, we can see from the answers our families gave us concerning their current water use habits, that even though they believe they do try to save water whenever possible, there is quite some scope for improving the water using habits of households generally, and especially their bathing habits.

Our findings paint an interesting picture of water use in south London households. A quarter of them admit to liking to indulge in long hot deep baths – at around 100 litres each time, that’s a lot of water, and energy, they are consuming on a daily basis. One in five of them state they like long showers. Showers can be typically more water efficient than baths, but not if you spend a long time under them.

Kitchen water habits don’t fare any better. With around 40% of families washing up under a running tap, rather than in a bowl or with the sink plug in place and an equal number overfilling the kettle for one cup of tea or coffee. Simple behavioural changes in these areas could save a lot of water and energy and hence have a positive effect on their utility bills.

On a positive note we see that over 20% of them state they have installed a water butt. Given the number of families that live in flats and apartments in the capital, where installing water butts is not usually a option, then this is an impressive result.

Less positively, it seems as though tipping waste oils and fats down the sink and outside drains is a common practice, nearly three quarters of our respondents saying that they do this. Although not strictly a water saving action, disposing of oils/fats properly, ie either onto the garden, or bottled and placed in the rubbish bin, is an important water quality related action as it prevents our sewers being clogged up with large masses of solidified gunk.

What we are witnessing here is the discrepancy between people’s self-declared beliefs and opinions regarding their own attitudes and beliefs and their actual behaviours and habits. There is often a difference between people declaring themselves to be ‘green and eco friendly’ in their daily lives, but their actual habits and behaviours tend to be the opposite of their espoused views. This is what we appear to be witnessing in this study.

## Post project results

**We were keen to find out how effective the project had been in its dual aims of educating children and improving their water using behaviours, and seeing if the messages had permeated beyond the school gates and into their homes and families. As part of the evaluation we revisited a selection of the schools, and gave the children, and their families, a post project feedback form to complete.**

**70%**

of children surveyed had played some or all of the games during the term

**94%**

of the children agreed with the statement "I now understand why water is precious".

**92%**

of children now think it is important to use water wisely

**80%**

of children stated they had learnt new ways to save water as a result of playing.

### Children

Approximately three months after the start of the project in the individual schools, pupils were surveyed again to ascertain the level of penetration of the games throughout the school; the changes, if any, in perceptions about water – its preciousness and use; whether the children had learnt any new ways to save water, and most importantly if they had changed any of their behaviours or formed any new water saving habits. We inquired as to whether the children had played the games in the intervening period since we had visited the school and left the eco/green team in charge of the games.

Positively, a high percentage of children stated they had played the games, with over 70% being the average in the schools surveyed. In one school, Sunnyhill Primary, over 80% of children surveyed had played the games, which is an impressive result as this was the largest primary school in our cohort with over 600 children. From the gender perspective, we found slightly more boys than girls played the games.

We then asked how many children agreed with the statement 'I now understand why water is precious, and saw the previous figure of 80% rise to 94% of children surveyed. This constituted a general 14% rise throughout our schools, but in one school, Sunnyhill, where the number of children who had played the games was higher than the average, that rise was nearly 20%.

Over 90% of children thought it important to use water wisely after they had engaged in the project, this is a very positive result as it is a doubling from the 46% who stated that they hadn't thought about personal water saving before the project started.

We then asked the children if they had shared the water saving messages they had learnt through the assembly with their families. Pleasingly we saw an average of around 67% had shared the learning. We found that the older the child, the less they talked to their families about the project. Interestingly we found that 6% more girls, than boys, reported speaking to their families about the water saving actions they had learnt about.



Percentage of each year group that agreed with the statement: **'I have talked to my family about water saving'**



**Taking one of our schools as a case study, Sunnyhill Primary, if we compare the before and after results for the water saving actions we found the following changes in behaviours:**



“The facilitators were fantastic, full of energy and able to capture the attention and interest of the year 9 STEM students, not an easy task. The students thought it was a fun and exciting way to learn about water and the need for water conservation, wishing that all subjects could be as much fun.”  
Lead teacher, secondary school

## 51%→74%

The before and after results of children who agreed to tell a teacher if they see a tap constantly dripping

## 63%

The number of children who agreed they would now swap a long deep bath for short 4 minute showers.

## 46%→64%

The before and after results of children who had short showers (characterised by being no more than 4 minutes long).

## ↑10%

The increase in agreement to be careful with the amount of toilet paper I put down the toilet.

quick shower



## 89%

of children claimed they only now flush the 3Ps down the toilet.

We saw a small increase in the number of children that now turned the tap off when brushing their teeth, this rose to 87%, however that was to be expected as the starting point for that behaviour was high, at 85%. So there is a stubborn 13% of children who still insist on letting the tap run while cleaning their teeth. Getting to them will be our next challenge!

One of the themes of the assembly was to teach children about the importance of not throwing anything down the toilet that wasn't supposed to be flushed, and we used the graphic example of the 'fatberg' phenomenon, encountered frequently in our old Victorian London sewers, to show how serious the problem is becoming.

To illustrate this we used the idea of the 3Ps, this is a simple mnemonic that highlighted the fact that only three materials, all beginning with the letter 'P', should be flushed down the toilet – Pee, Poo and Paper.

Very pleasingly, 89% of children now claim to abide by the 3Ps rule, and not throw anything else down the loo. This probably shows the power of a rather gruesome photo, shown on the right, to get the message across.



**A Thames Water engineer emerging from a sewer with a lump of 'fatberg'**

## Family findings

**We sent children home with a post project questionnaire to ascertain how and if families had taken onboard any of the water saving messages that had been brought home by their children and to see if that had resulted in changes in behaviour from the pre-project family baseline. The highlights are shown here:**

# 81%

of families who responded said that their children had shared the water saving message with them

# 71%

of families received a 4 minute water timer from Thames Water

# 39%

of all families sent off for water saving devices offered in the voucher



We asked the question about water meters again, to probe into whether the number of families who were unsure of whether they were on a meter or not had changed as a result of their water awareness being raised through the project. No change was apparent: 20% said yes they were on a meter (cf to 22% who claimed they were on the baseline questionnaire), 54% (cf 52%) said no they weren't and 26%, compared to 25% pre-project, didn't know if they were on a meter or not. So we can say that there is a consistent quarter of our sample of families who don't know how they pay for their water use.

Interestingly, when we looked at the instances where families stated they were on a meter, or on a fixed rate, and then correlated that to their stated water using behaviours, we saw insignificant differences in their answers.

### 'I have short 4 minute showers'

#### Overall result:

**58% agree, 27% disagree, 14% don't know/not applicable**

#### People on a meter

**55% agree, 30% disagree 15% don't know/not applicable**

#### Not on a meter

**54% agree, 30% disagree 14% don't know/not applicable**

#### People who didn't know

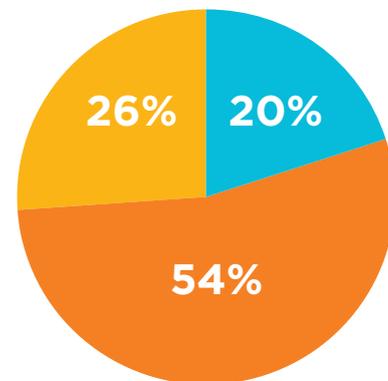
**68% agree, 17% disagree 12% don't know/not applicable**

**We wanted to assess the influence of the children on their parents with regards to water saving behaviours. We asked them how far they agreed with the following:**

# 75%

of parent agreed that they had learnt new ways to save water since the project started

## Are you on a water meter?



■ water meter ■ fixed tariff ■ don't know/not sure

What this is indicating is the lack of knowledge, for people on a water meter in particular, that there is a significant money saving to be made from reducing the length of time they spend in the shower – both from the water bill and energy bill perspective. Interestingly, people who don't know if they are on a meter or fixed rate are more likely to have shorter showers – this is a curious finding that defies explanation at this time!

We gave 4 minute shower timers, and vouchers to send off for free water saving equipment, to the children of families who filled in the pre-project questionnaires, hence we were interested to see how many of the families had received the timers and further, what proportion sent off for more water saving gadgets. We can see that 71% of those that responded had received a 4-minute timer, with 58% actively using them, and 39% sent off for further water saving devices.

# 69%

of parents agreed that they now try to save water where they didn't before

# 58%

of parents agreed that they now have short 4-minute showers using the Thames water timer

# 76%

of parents agreed that they have showers not baths

## Secondary school results

### What the students said:

“I can remember everything from the presentation and I think this should continue as children my age will find it useful and will change the way they use water.”  
pupil age 12

“I found this workshop very resourceful and very fun.”  
pupil age 12

“I enjoyed playing all of the games because they were fun and informative.”  
pupil age 11

“I enjoyed the day it was educational and fun.”  
pupil age 13

**For the secondary schools, we had much smaller sample groups to work with, hence the results shown here are only indicative and cannot be seen to be statistically significant. What the results provide is an early indication of the baseline attitudes of teenagers, aged between 11 and 15 on water and their current, typical water use profiles.**

#### Baseline survey

We surveyed 59 children in total. The gender ratio was almost 2:1 swayed towards boys in this project, primarily because one of our secondary schools was a boys only college. We surveyed 21 females (36%) and 38 males (64%). An average age of 12.8, and the age range was 12 to 15 years old. The baseline results show there is much room for improvement with teenage children.

**‘I haven’t really thought about water savings before’**  
46% agree, 46% disagree,  
8% don’t know/not applicable

Coincidentally, this result is identical to the baseline result with the primary school children, with only 46% of them thinking about water savings. This indicates the gap in education around personal water use, and the need to use it wisely, doesn’t improve from primary to secondary school.

**‘I really like to soak in a deep bath of water’**  
59% agree, 32% disagree,  
8% don’t know/not applicable

**‘I like to spend a long time in the shower’**  
71% agree, 20% disagree,  
8% don’t know/not applicable

Well over half of the teenagers surveyed like a soak in a deep bath of water, but that is dwarfed by the number who like to take long showers, over two thirds admit to spending a long time in the shower.

**‘I only fill the kettle for one cup, when I want one cup of tea’**  
24% agree, 56% disagree,  
20% don’t know/not applicable

It doesn’t get much better with tea and coffee making, with only a quarter agreeing that they only put enough in the kettle to make themselves a cuppa.

So there is plenty of room for improvement with our teenage cohort.

# 46%

of the teenagers agree that they hadn’t considered personal water savings before

# 59%

of teenagers agree they like a long soak in the bath

# 71%

of teenagers agree they like to spend a long time in the shower

# 56%

of teenagers admit they overflow the kettle

#### Post project surveys

We only analysed surveys from one of our secondary schools, who were surveyed approximately two months after the workshop, so care must be taken with the confidence we have in these findings, but what we saw was encouraging.

For example, all of the teenagers, after the workshop, stated they thought it was important to use water wisely and not waste it (this was up from 71% pre-project); 92% of teenagers stated they had learnt new ways to save water by playing the games; 92% teenagers declared they now turn the tap off when they brush their teeth (up from 69% beforehand) and 58% stated they only spend a short time in the shower (compared with only 29% before).

## Water audit and refurbishment

**Alongside the educational and engagement activities that were occurring in each school, a technical audit of the school's water using appliances was also undertaken to assess their water efficiency and to test for any leaks or other problems with the equipment.**

Where problems were discovered, for example uncontrolled urinals, these are urinals that flush frequently, 24/7, regardless of usage patterns, dripping taps/showerheads, old, high water use toilets etc, upgrades were installed, the most common replacements being uncontrolled urinals and adding water displacement devices to old toilets.

If we exclude the schools where no improvements, or insignificant improvements, and/or underlying issues were found that were beyond the scope of this project - 6 in total, we can see that the average water saving, in money terms, for the 14 remaining schools is £860 per year.

If we consider the schools' per person usage<sup>2</sup> after the audit and retrofit, we saw that, at the end of the project, they were all in the 'Good' or 'Typical' category of water use (excluding the schools with underlying, undetected water usage issues). Six schools moved from 'Typical' to 'Good' usage and two schools moved from 'Poor' to 'Typical' usage. In fact, over 50% of our schools moved up a category in water efficiency terms as a result of this project.

**Divided into primaries and secondaries schools we can see that the average water bill saving per year:**



**£614**

the average saving for primary schools per year (the biggest yearly saving in a primary school was £1750)

**£1500**

the average saving for secondary schools per year (the biggest saving in a secondary school was £2,142)



**50%**

of our schools have moved up a whole category in water efficiency terms

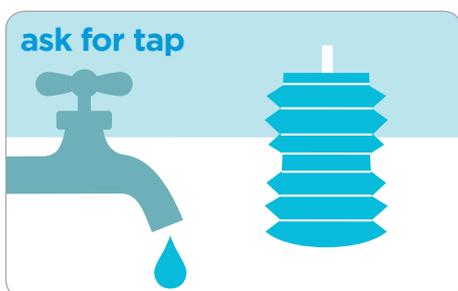


<sup>2</sup>The measure of how efficient schools are in terms of water usage, all units are M3 per pupil per year. The categories are as follows:

Primary	Secondary
Poor: 5.6	Poor: 5.9
Typical: 3.8	Typical: 3.9
Good: 2.7	Good: 2.7

## 05

**Our findings from this first pilot project of the Water Efficiency Schools Project have been fascinating and paint a detailed picture of attitudes towards water use in primary school children and their families in a typical urban London borough.**



## Discussion

We can see that children generally are aware that water is a precious resource, four in every five of them claiming to agree with this statement, but interestingly they were not equating that view with their own use of it, with under half, 46%, thinking about their own water consumption and how to reduce wasting it.

Contrasting that with their thoughts and actions towards the two other main areas where younger children can adopt less wasteful and more eco-positive actions, in the areas of energy use and recycling, we see water saving does not typically garner the same amount of attention or action.

On the positive side it does seem as if some water wise habits are widespread amongst the younger generation, with a large majority of them, 85%, turning the tap off when brushing their teeth. However their bathing habits are not so frugal, with over half of them enjoying long showers and deep baths.

**So how did our games-centric approach to children's education and behavioural change fare in changing attitudes, opinions and behaviours?**

We can report some impressive successes in this pilot. A near doubling in the number of children who, post project, think about and act on water saving. An increase from 46% pre-project to an overwhelming majority of 92%. We also increased the number of children who took short showers by 15%, but reducing the passion for deep baths seems a greater challenge.

The infiltration of the games throughout our schools, through games sessions led by the children themselves, was extremely popular. With an average of 70% of the children reporting they had played the games over a term, and, of those that did play, 86% of them stated they had learnt new ways to save water.

We found some interesting results regarding difference in age and gender. With 8 to 9 years old girls being the most receptive to water saving messages and the most waterwise of all our children. We see a dropping off of interest and active participation in children at the ages of 10 and 11, maybe a sign of impending puberty and those awkward teenage years?

When we turn to the wider family unit, we see an interesting finding in the number of families who claim they do not know whether they are on a water meter or a fixed tariff. The number who claimed not to know was a consistent one quarter of all respondents both pre- and post-project. And only around one in five families were on a water meter.

What we did not enquire into is the tenancy of the families, whether they were owner occupiers or renting. This might provide an insight into the quarter of families who do not know how they pay their bills.





Moving to our findings on family attitudes and stated opinions regarding water saving, we saw an overwhelming majority claim to save water whenever they can, over 80%, however when it came to a closer inspection of their water-using habits, it seems that their actual behaviours do not always live up to their stated good intentions, with a substantial minority of families enjoying deep baths and long showers.

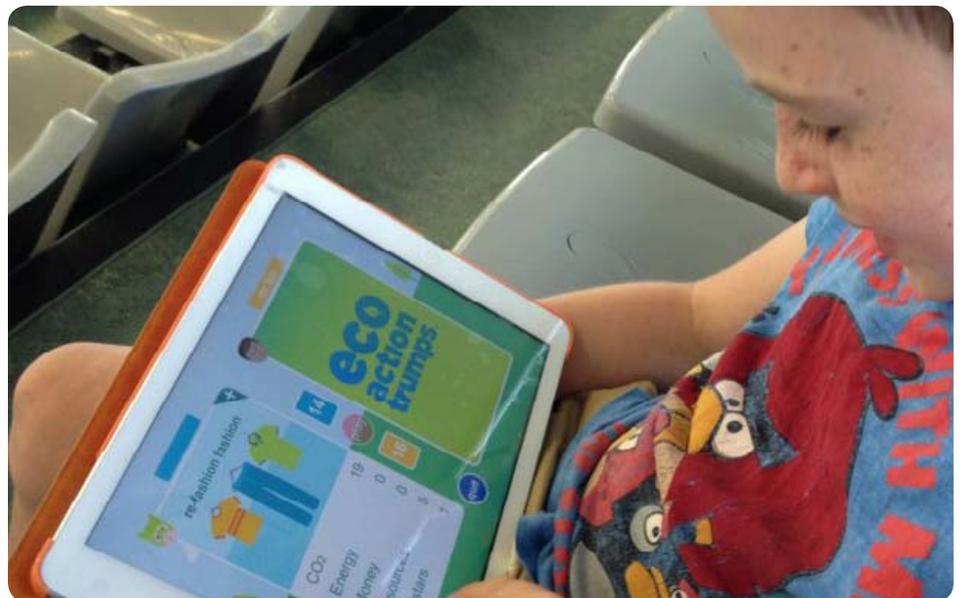
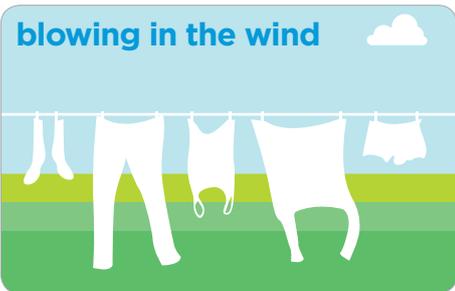
Positively, our initial intention that we would persuade children to take the messages they learnt at school back to their families seems to have been achieved, with 67% of children stating they had talked to their parents about water saving as a result of the project, and 81% of parents who responded saying their children had talked to them about the topic – a very encouraging result.

Additionally, the incentive of giving the children 4-minute shower timers and the vouchers for free water saving devices was a success. Three quarters of parents who responded said they had received the shower timer, and 58% of them stated they had used it to reduce the time they spent in the shower. Additionally nearly 40% of families had sent off for extra water saving devices.

With secondary school students our sample group was far lower in number, as this pilot project was more focused on primary school children. However, the findings have given us useful initial insight into the thoughts and opinions of teenagers when it comes to water use.

Coincidentally exactly the same percentage of teenagers, 46%, compared to the children, have thought about personal water savings pre-project, indicating that water efficiency education doesn't really improve when they transition from primary to secondary school.

The findings from this pilot study have given much food for thought regarding future education and engagement techniques and content for the next stage of the programme. We can confidently say we have a good understanding of the typical thoughts, attitudes and behaviours of children aged between 6 and 11, and to an extent their families too. We will be using these insights to guide our future school work and wider engagement activities.



## 06

**The first pilot project of the Thames Water 'Water Efficiency Schools Programme' was deemed a major success in its multiple aims of:**

- 1. education – of both the pupils and their families**
- 2. self-declared behavioural changes in the domestic environment**
- 3. actual measured water, and money, savings for the schools themselves.**



## Conclusion

At eco action games through this project, we have increased our evidence base that is needed to prove our unique, games-centric approach to education and behavioural change is an appropriate mechanism for teaching eco-issues to the age range 6 to 11, and that it is also an effective approach to get the children talking about the issues with their wider family and friendship groups. We have also witnessed, that, somewhat surprisingly, the games-centric approach appears to be equally popular with the teenage cohort too, albeit this has been tested on a relatively smaller sample to date.

Consequently, the project has been recommissioned for a second year, doubling in scope, with 40 schools in the new cohort, and tackling a new geographical area of London schools – primarily focusing on the north London boroughs of Camden and Islington.

Learnings from the first project include a revamping of the pre-project questionnaires to focus more on the areas of interest in terms of water saving, so we will target washing and toilet habits of the children, and investigate further the potential reasons for such a high percentage of families not knowing how they are changed for their water usage.

A particular focus the next iteration of the schools project however, will be to get a statistically robust sample of secondary school children's pre-project views on water use and their existing habits. The sample selection we obtained from the pilot has given us a good indication of areas to concentrate on and the type of questions to ask.

To conclude, we are delighted to be running this project again for a second year, and are keen to improve on the results we obtained in the pilot.

Watch this space for the next evaluation report to be published in the summer of 2016, that will build on the findings of this report.





**5008700** litres

The total annual water saving from all of our schools in the pilot project.

## Research reports library

**This report, investigating the attitudes, habits and opinions of children and their families regarding water use, adds to our growing body of evidence that is proving the validity of our games-centric approach to behavioural change.**

We add this report to the four earlier studies that have shown very consistent findings with regard to levels of engagement and interaction with this form of educational approach.

All of our research reports are available to download free from our website:

[ecoactiongames.org.uk/reports](http://ecoactiongames.org.uk/reports)

## Thank you

**We would like to thank the following for helping us make this project such a success:**

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Words: Paula Owen

Data: Lydia Rose Makin

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