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Adolescents and showering – in their own words
August 2016

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1. Introduction - some shower facts

Two billion litres of water are used in the UK's showers every day, the average shower lasts 7.5 minutes, and water for showering (25%) has beaten water for WC flush (22%) into second place in the breakdown of how water is used in UK dwellings.¹ Anecdotal evidence suggests that secondary school pupils are the most likely section of the population to take long (i.e. higher than the average) showers.

Since heating hot water at home results in 6% of the UK's CO₂ emissions,² it is clear that reducing showering times will help to meet the UK's CO₂ reduction commitments as well as ensuring resilience for the UK's water supply, two key drivers for the concerted UK campaign to reduce shower times to four minutes.

There is little published data about the water use of UK adolescents, nor what would persuade them to change their behaviour. In fact there is little published data about adolescents per se.³ As a result, much of the evidence about the showering habits of UK adolescents is anecdotal. It is not known how long and how often they shower, yet alone whether the four minute challenge would be successful in changing their showering habits, and if not, what would persuade them to shower shorter.

From 2010 to 2014 ech₂o collected data from 585 adolescents about their shower habits. From Jan 2015 to March 2016 ech₂o crucially began to ask adolescents (376 in total) what would induce them to get out of the shower quicker, and whether they could meet the four minute shower challenge.

2. Materials and methods

The data from the 356 adolescents was collected as part of a workshop designed and delivered by ech₂o entitled: *'Is your shower killing the polar bears?'* The workshops are part of Thames Water's Water Efficiency in Schools Programme (WESP), which is delivered across primary and secondary schools, and comprises water efficiency upgrades to the school, as well as pupil engagement. Thames Water is keen that any engagement with secondary school pupils addresses the issue of reducing shower times and increases the number of shower timers disseminated amongst their customer base.

Collecting data was not the primary purpose of the workshop; the core aim was to engage adolescents to consider their water use and to understand the environmental effects of excess water consumption with particular emphasis on the link between CO₂ emissions and hot water.

The workshops were delivered in secondary schools to different age groups in different subjects; as part of a PSHE immersion day and a science immersion day; in design and technology, science and geography classes. Pupils from Year groups 7-12 (ages 11-18) attended the workshops, with the main year groups being Years 7, 8 and 10 (ages 11-15). The data analysed in this paper

¹ *At Home with Water*. Energy Savings Trust.

[http://www.energysavingtrust.org.uk/sites/default/files/reports/AtHomewithWater\(7\).pdf](http://www.energysavingtrust.org.uk/sites/default/files/reports/AtHomewithWater(7).pdf)

² *ibid*

³ In comparison, the Netherlands publishes yearly data of water consumption broken down by age, with a category of 13-17. Dutch Drinking Water Statistics 2015.

http://www.vewin.nl/SiteCollectionDocuments/Publicaties/Dutch_Drink_water_statistics_2015.pdf

comes from four London secondary schools; it was collected between February 2015 and April 2016.

Pupils were asked the following questions:

1. How many times do you shower a week? (With an option that they don't shower because they bath instead)
2. How long do you run the shower before you get under it? And what are you doing in that time?
3. How long is your usual shower?
4. What type of shower do you have?
5. Do you think you could meet the four minute shower challenge?
6. If you shower for longer than four minutes what would persuade you to have shorter showers?

The replies to questions one, three, five and six are analysed below.

3 Results and discussion

3.1 How many times do you shower a week?

This question was asked as anecdotal evidence from previous workshops with secondary school pupils was that lots of adolescents shower more than once a day, but empirical evidence was missing.

Out of 376 pupils, 370 regularly have a shower and so answered this question. 83% of adolescents shower 6 or 7 times a week, with the majority of them showering every day.⁴ The range is 1-21 showers a week and the average shower frequency is over once a day at 7.5 times a week. In comparison, At Home with Water reports the average frequency of showers for all UK users at 4.4 times a week (or five if no access to a bath).⁵

In an on-line survey by ech₂o in 2015 of 100 self-selected respondents (all 18+) 45% showered once a day and 10% showered more than once a day.⁶ A Reddit user poll in 2015 found that 13.6% of men and 5.3% of women shower more than seven days a week.⁷ The corresponding number among adolescents in this study is higher than both; 21% of adolescents shower more than seven times a week, with most of that sector showering twice a day, every day.⁸ At this rate of showering, it is clear that reducing the time in the shower becomes even more essential.

⁴ The analysis includes adolescents who shower six times a week with those who shower seven times a week. Out of 221 pupils, 31 (14%) have a shower six times a week and a bath on the seventh day.

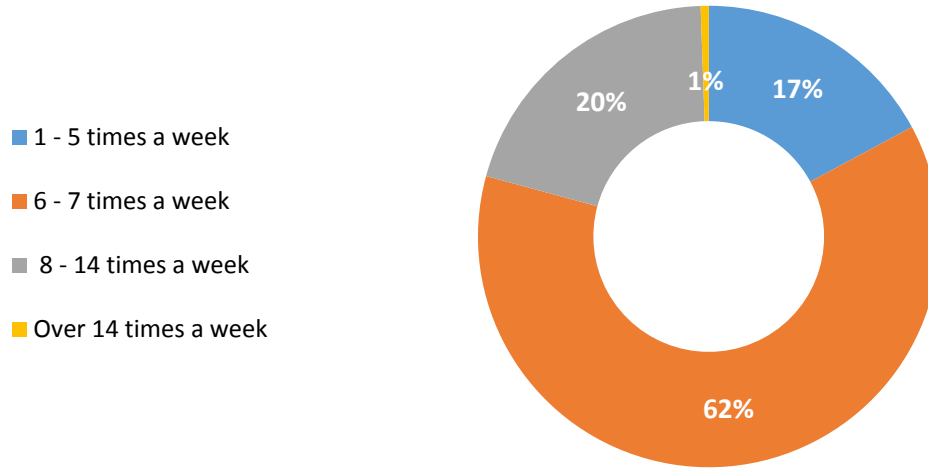
⁵ The data set is 160,000. Respondents fill in the survey on behalf of their household so individual frequency of use cannot be ascertained unless it is a single person household. The average is consistently less than once a day across all household sizes. There is no breakdown by age.

⁶ Dare you take our shower survey? - The Results. 2015 by ech₂o
<http://www.ech2o.co.uk/downloads/Shower%20Survey%20Report.pdf>

⁷ 562 self-selected on-line participants. <http://imgur.com/XstAjrH> No break-down of country of origin or age

⁸ Some pupils shower more than seven times a week because they are undertaking sporting activities on certain days. But over 90% all the pupils who shower twice a day do so to "get clean" regardless of what they have done during the day.

How often are you in the shower? ech₂o adolescent survey



Frequency of showers				
School	Responses	Ages	Average frequency per week	Range of frequency per week
Bishop Stopford's Secondary School	39	11-13	9.5	4-16
Burlington Danes Secondary School	81	11-12	7.9	3-14
Chelsea Academy	149	11-18	6.2	1-21
St Thomas More Language School	101	14-15	7.1	2-14

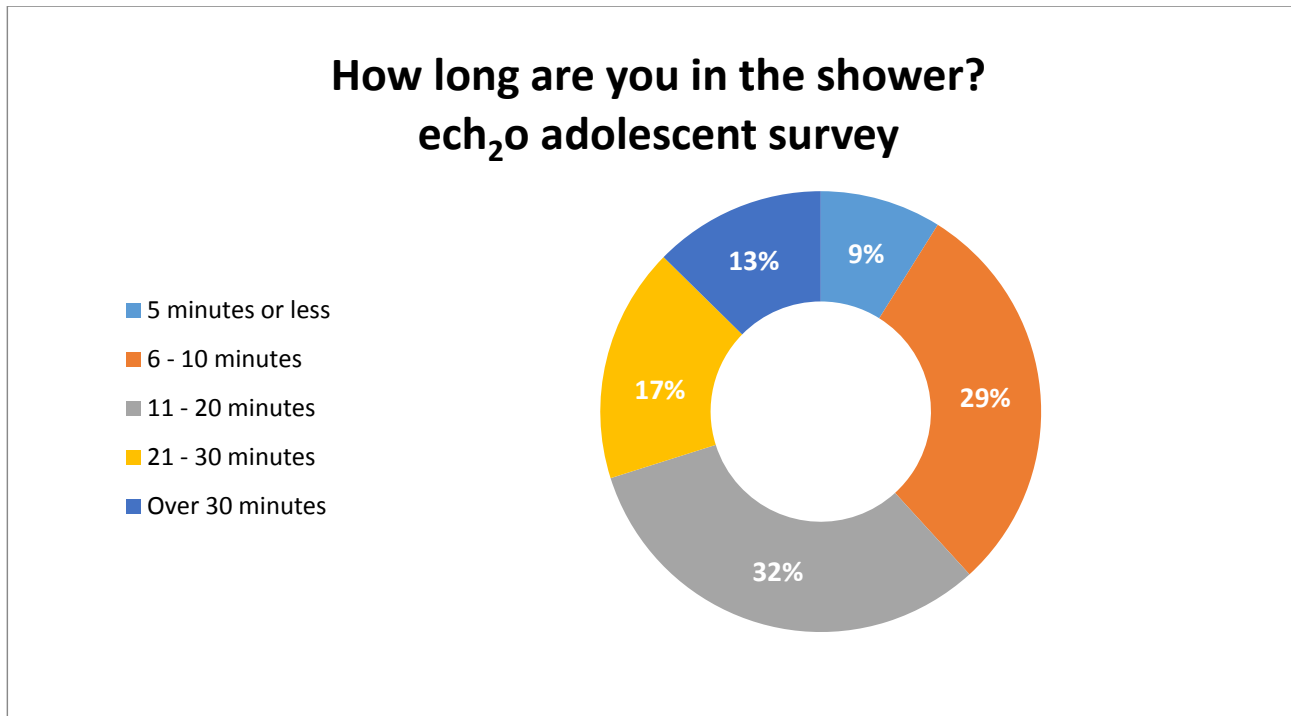
3.2 How long are you in the shower?

Out of 376 pupils, 356 answered this question. Of that 356, 295 (83%) have a shower that is longer than the UK average of 7.5 minutes. Comparing both sets of data, it is apparent that adolescents do indeed shower for longer than the average person. 62% of adolescents shower for longer than ten minutes compared to the average in the UK of 32%. As shower times increase so does the disparity between adolescents and the population as a whole. 30% of adolescents shower for more than twenty minutes against 3% for the UK as a whole; 14% shower for more than 30 minutes compared to just 1% of the UK as a whole.

This preponderance of long shower times results (as expected) in an average shower time that exceeds the UK average. Amongst the adolescents in this survey the average shower time is 20.5 minutes with the range in the separate schools from 17.1 to 27.3 minutes. The range is from 1 minute to 90 minutes and the median is 15 minutes. This can be compared against 7.5 minutes

(Energy Savings Trust self-reported on-line survey)⁹ and 6 minutes 37 seconds (Unilever timed survey).¹⁰

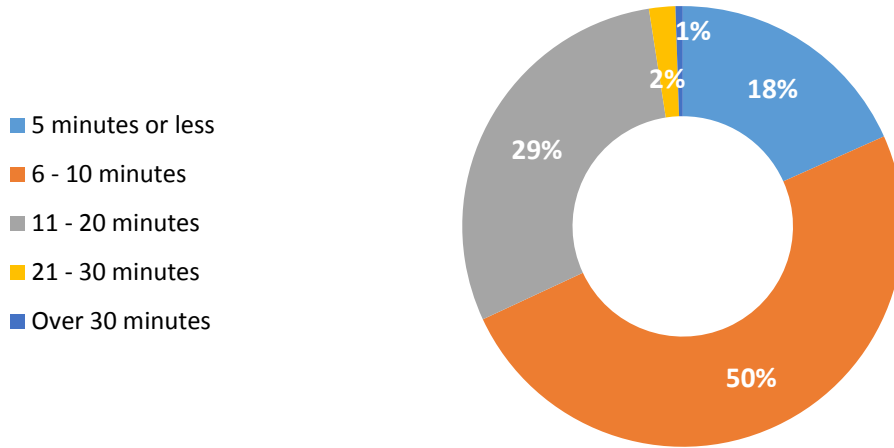
At Home with Water research shows that the larger the household the longer the average shower. This could be young adults (18-25) in student or other shared households, or adolescents in family households.



⁹ At Home with Water. Energy Savings Trust

¹⁰ In the Unilever survey the range was 1-28 minutes. Participants knew they were being surveyed. Average water use was 54 litres. *Objective measurement of showering behaviour in the UK and a behavioural intervention to reduce water use in the shower.* Hendrickx
http://www.watefnetwork.co.uk/files/default/resources/Conference_2015/Presentations/06-HendrickxFinal.pdf.

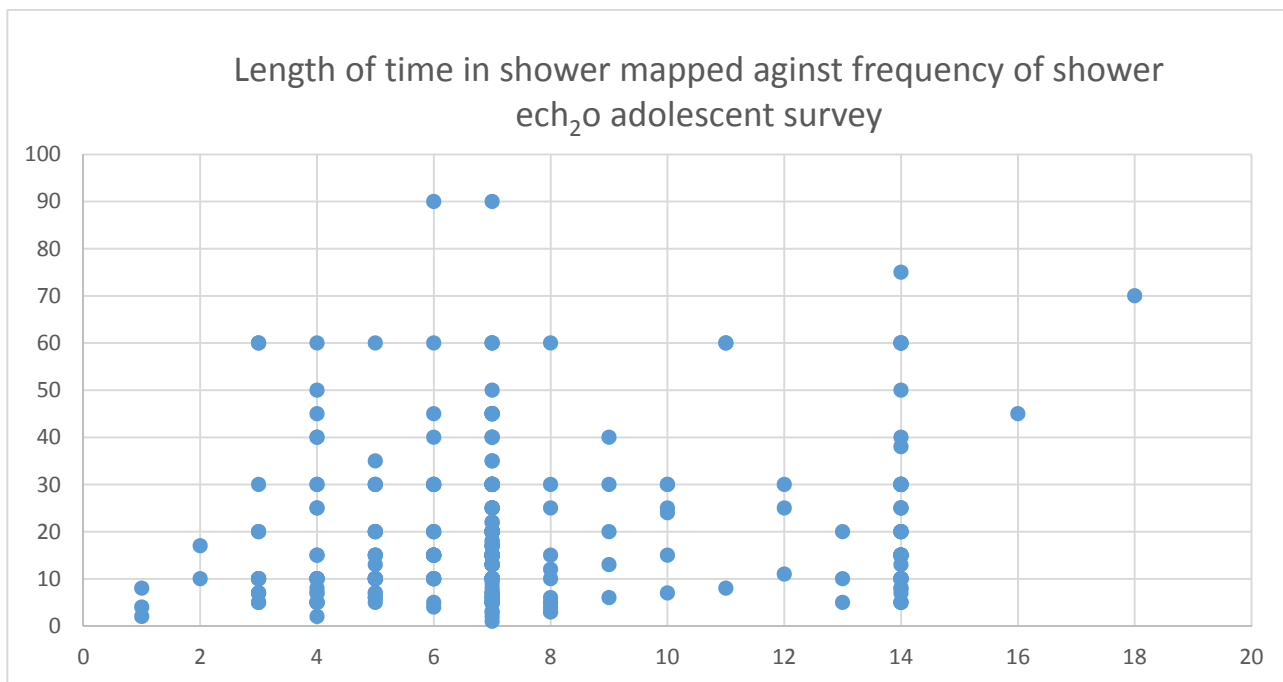
How long are you in the shower? Energy Saving's Trust 'At Home with Water' survey



Length of shower				
School	Responses	Ages	Average length of shower *	Range of length of shower
Bishop Stopford's Secondary School	33	11-13	27.3	3-60
Burlington Danes Secondary School	80	11-12	17.3	4-60
Chelsea Academy	149	11-18	23.1	1-90
St Thomas More Language School	94	14-15	17.1	2-60
Note: * Stated shower times of two hours or greater were discounted				

Could adolescents be mistaken by how long they are in the shower? Are they just overestimating the time? When primary school pupils are asked the same question they will often reply that they don't actually know. However, secondary school pupils rarely express any uncertainty. It used to be considered that people are not good at estimating the time spent on an activity. However, recent research showed that people are better at calculating their time in the shower than was previously considered.¹¹ In the course of this research pupils were often asked if they were sure and responded in the affirmative; 'Yes of course I'm sure I'm in for an hour. I'm watching xxx' (various hour-long TV programmes) or are listening to a set selection of songs. They appear confident they know how long they are in the shower.

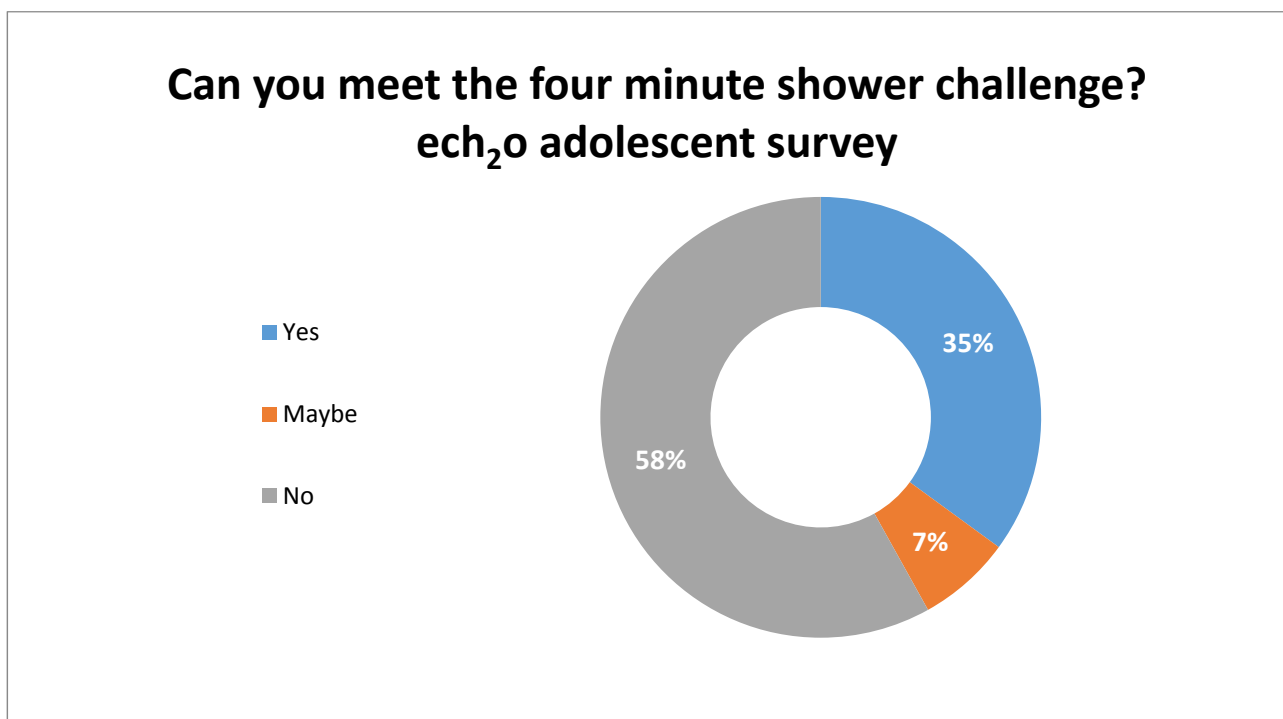
¹¹ At Home with Water 2 <http://www.energysavingtrust.org.uk/sites/default/files/reports/AHHW2%20final.pdf>



3.3 Can you meet the four minute shower challenge?

Of the 376 pupils who shower, just eleven (3%) currently meet the four minute shower challenge.

332 pupils answered this question. 58% say they could not meet the four minute shower challenge but 35% believe they could meet it.



Can you meet the four minute shower challenge?						
School	Responses	Ages	Do not currently meet	Yes *	No	Maybe
Bishop Stopford's Secondary School	34	11-13	84%	11	23	0
Burlington Danes Secondary School	75	11-12	99%	31	43	1
Chelsea Academy	152	11-18	99%	50	85	17
St Thomas More Language School	71	14-15	94%	23	43	5

Note: * Includes those who already do

3.4 Who or what would persuade you to have a shower shorter?

Pupils had different amounts of time to consider the question 'If you shower for longer than four minutes who or what would persuade you to have shorter showers? Sometimes they were asked to work in groups to answer this question.¹² They were given free rein to say whatever they wanted (i.e. no tick box choices).

A total of 122 pupils answered this question and data was analysed from 117 pupils.¹³ Some pupils had more than one reason as to what would induce them to change their behaviour. In such cases their data responses were split. There were 143 different reasons given to start having shorter showers.

Responses were originally divided into twelve different categories. After some discussion this number was rationalised to a total of ten.¹⁴ Pupils at Thomas More Language School worked in groups and were not allowed the option of saying nothing would persuade them to shower for a shorter time. Therefore, the choice of 'extreme violence' (Thomas More Language School) and 'nothing' (Burlington Danes and Bishop Stopford's School) are classified in the same bracket. Rewards and bribery are also combined.¹⁵ The four minute shower challenge category includes responses that mentioned the word challenge, even if there was no actual mention of the four minute shower timer.

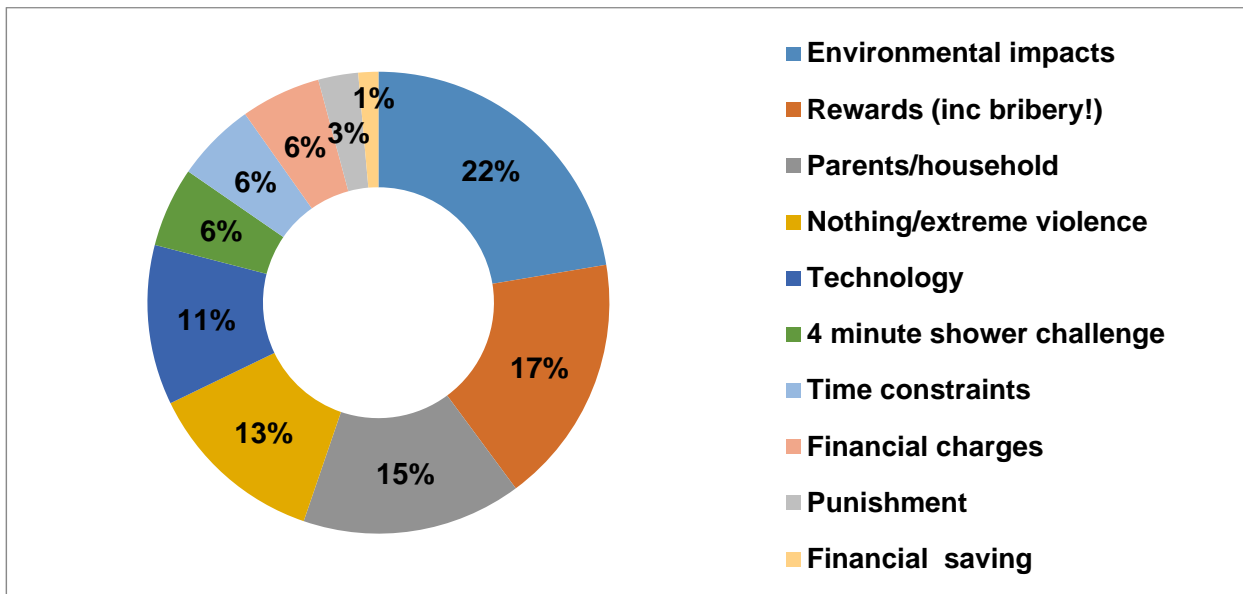
The top driver for adolescents (at 22%) to reduce their time in the shower is environmental impacts, whether this is the effect on the polar bears, other people (in the UK or abroad) or the environment itself. Rewards – mostly monetary but also including food, time on computer games and free stuff – and bribery is second at 17%. Parents, and other household members also have a role to play, whether using the stick (metaphorically), the carrot or a combination. 15% of adolescents would respond to pressure from parents or other household members. Of course, parents may well feel that they have other more pressing things to harangue their kids about, and anyway, lots of parents are also long showerers themselves. 13% of adolescents say that nothing would persuade them to have shorter showers and 11% would be persuaded by technology that forced them out of the shower after four minutes.

¹² Group work occurred during the PSHE immersion day and in the design and technology class.

¹³ No pupils at Chelsea Academy were asked this question. From the remaining three schools, five students replied that they did not know what would make them shower shorter.

¹⁴ A list of all comments and how they were classified appears in the appendix.

¹⁵ Bribery tends to be for higher rewards or has the term bribery in the answer.



Categories	Thomas More	BD and BS	Total	Total
Environmental impacts	11	21	32	22%
Rewards / bribery	10	14	24	17%
Parents / household	6	16	22	15%
Nothing / extreme violence	6	12	18	13%
Technology	10	6	16	11%
4 minute shower challenge	1	8	9	6%
Time constraints	6	2	8	6%
Financial charges	7	1	8	6%
Punishment	4	0	4	3%
Financial saving	2	0	2	1%

4 So... What exactly did they say?

We asked the question, 'Who or what would persuade you to have shorter showers?' And here are some of the replies we got...¹⁶

4.1 The 'no-chance!' adolescents

Nothing and no-one can persuade me

Year 7 girl. 2 showers a day. 30 minutes in morning and 1 hour in evening. Runs shower for 20 minutes before gets into it while she is on her phone.

Nothing. I ❤️ my showers

Year 7 girl. Showers 16 times a week for 1.5 hours a time.

If I could get £1,000,000

Year 7 girl. Showers once a day for 30 minutes

4.2 Being a good global citizen¹⁷

To think about the people who need the water that I'm using like people in LEDCs

Year 7 boy. Showers once a day for 15 minutes

That people in the world are dying because of how much water I waste

Year 7 girl. Showers twice a day for 10-15 minutes each time

The safeness of the world 😊

Year 7 girl. 20 minute shower

¹⁶ Spelling mistakes have been corrected but the responses are in full and as written.

¹⁷ Sometimes via misplaced knowledge of water as a global not a local resource

If I could save the polar bears losing their homes then drowning

Year 8 boy. Showers six times a week for 5-10 minutes while listening to music.

4.3 Tech solutions

The thing that would persuade me is a shampoo that makes you clean straight away

Year 7 girl. Showers once a day for 20 minutes if washing her hair, 10 minutes if not

A rubbish shower!

Year 7 boy. 30 minutes in shower.

4.4 Parents / other family members

If my mum said if you finish your shower in under 5 minutes you can go on your PS4

Year 7 boy. Showers once a day for 10 - 15 minutes

If I knew that my mum would turn off the hot water

Year 8 girl. 30 minute shower twice a day.

My sister because she is in the bathroom for more than 40 minutes and I'm late to school because of her

Year 7 boy. Showers twice a day for 20 - 30 minutes per shower

If my mum was right behind me and said hurry up

Year 7 girl. 7 times a week, 10-20 minutes per shower

4.5 Rewards

If I got something every time I showered for 4 minutes until I got used to it

Year 7 girl. Showers once a day for 15 – 20 minutes

4.6 Hedging your bets

If I got a prize or if I watched people who don't have water or lived a day without water

Year 7 girl. Showers once a day for 5 minutes

My mum might rush me. Food would persuade me and presents

Year 7 girl. Showers once a day for 20-30 mins

My phone, music, TV, computer, homework, parties, my birthday

Year 7 girl. Showers for 5-10 minutes

If I got a prize or if I watched people who don't have water or lived a day without water

Year 7 girl. Showers once a day. 5 minutes in the shower

4.7 Hard to categorise!

No sweat. No dirt. 😊

Year 7 boy. Showers twice a day for 15 minutes. "Could never meet the 4 minute shower."

Challenges will persuade me to have a shorter time in the shower

Year 7 girl. Showers twice a day for 7 minutes

If I could see a picture of how much water I was wasting.

Year 7 girl. Showers twice a day for 50 minutes.

I can't supply a picture but that is 273,750 litres of water a year which is 1,711 full baths a year or 4.7 full baths every day!!¹⁸

Myself, because I take long showers because I want to but if I want a short one I can do that.

Year 7 girl. 7 minute shower

Someone who works for a water company and persuades me. (Think they meant Cath!)

Year 7 girl. 20 minute shower once a day

5. Conclusions

This research shows that adolescents have longer and more frequent showers than the average person in the UK. Over one third of adolescents think they could meet the four minute shower challenge. There is a range of different inducements that would persuade them to have shorter showers.

The key facts from this research are:

- 83% of adolescents have a shower that is longer than the average UK shower time of 7.5 minutes. The average shower time is 20.5 minutes.
- 30% of adolescents shower for more than 20 minutes compared to 3% in the UK as a whole.
- 21% of adolescents shower more than once a day and the average shower use a week is 7.5 compared to 4.4 for the UK.
- Just 3% of adolescents currently meet the four minute shower challenge. 35% of adolescents think they could meet it.
- Rewards, knowledge about the impacts on polar bears, pressure from parents and technology that forces them out of the shower are the main drivers to make them 'shower shorter'.

¹⁸ This is assuming a shower with a flow rate of 7.5 litres/minute (flow rate from a flow regulated shower fed by a gas combination boiler)

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