

thinking  
water

June 2013



This report summarises key pieces of research and studies conducted over the last decade, which examine the importance and impact that adequate hydration can have on a school. It examines the reasons why a school should be interested in providing hydration for children, and suggests ways to overcome common objections that schools may have against implementing a system of hydration.

The importance of hydration for children and the positive impact it has on the school environment



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## Introduction

This report is being written at a time when it's never been more urgent to bring water into schools to hydrate both children and teachers. It focuses on children, as they are more at risk of dehydration than adults. This is because of their higher ratio of surface area to mass, because they tend to be more active than adults, because their thirst mechanism tends to be less strongly developed and also because they are more likely to forget to have a drink. However, everything recommended in this report also applies to adults.

This report is being written following new research conducted by the Natural Hydration Council with Netmums, the UK's largest online parenting site<sup>1</sup>. This included both in-depth focus group research as well as a survey of more than 1000 parents across the UK of children aged 4 – 10 years old.

Some startling results have been obtained through this research. Almost a quarter of parents worry that their child's performance suffers at school due to dehydration, and 64% say that water is banned from classrooms. 69% of parents say that their child is thirsty when they get home from school, and almost half regularly notice other symptoms of dehydration, including tiredness and irritability. It's also noteworthy that eight out of ten parents would like their children to drink more water.

While 91% of parents accept chief responsibility for their child's hydration, the same study revealed that almost two thirds (63%) of parents didn't know how much their child should be drinking, and a quarter weren't giving their children a drink to take to school. Last year, a study of 452 UK schoolchildren aged 9-11 years old showed that the majority (60% arrived at school insufficiently hydrated (Barker et al, 2012).

Schools bear a responsibility to care for children's hydration needs, in that most children spend almost a third of their time at school – more than half of their waking hours, on weekdays. Schools are habit forming places; children respect what they learn at school and many habits formed at primary school are carried well into adult life. A lot of responsibility falls on schools to teach the importance of hydration, and to provide ready access to water and encouragement to drink.

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<sup>1</sup> <http://naturalhydrationcouncil.org.uk/press/parents-call-for-greater-access-to-drinking-water-in-primary-schools/> Accessed on 28 May 2013.



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## **Why do we need to drink?**

### **For survival**

All humans need water to survive. The human body is approximately 60% water; the brain is 70% while the lungs are almost 90% water. Each day, we lose up to 2.5 litres of water through perspiration, urination, and simply through breathing, and this has to be replaced.

The body will use water in many ways. Water keeps the body temperature constant, provides a moist environment internally and in the mouth, eyes, ears and nose, acts as a solvent and a means to remove waste; it cushions joints, protects internal organs and nourishes the body, especially the brain, with the oxygen and nutrients it needs to keep functioning.

### **For optimum efficiency**

Lesser known is the fact that we also need water to keep our bodies functioning at optimum efficiency. The body is a machine, needing water to export waste, to deliver nutrients and oxygen and to regulate the temperature and moisture of its internal environment to optimum level. Keeping the body hydrated with its optimum level of water is necessary so that it can deliver an optimum performance.



## **What is dehydration, and what are its symptoms?**

### **What is dehydration?**

As according to the NHS<sup>2</sup>, dehydration happens when the body loses more water than it takes in. Moisture loss is constant, through breathing, sweat and excreta, so frequent 'topping up' is vital. The body is between 60% to 70% water, and a delicate balance is maintained between the ratio of water to sugar and mineral salts; when this balance is upset, it affects the way the body functions.

### **Mild to moderate dehydration**

Symptoms of mild to moderate dehydration, which is by far the most common form of dehydration, include feeling thirsty, a dry mouth, dark coloured and strong smelling urine, fatigue and headaches or migraines. Other common symptoms are light-headedness, dizziness, irritability and inability to sweat or pass urine.

Most of us will have experienced these symptoms at some time or other, but if we're not in the habit of drinking water regularly, it's possible that we could suffer from chronic mild dehydration without even knowing it, which could lead to longer term problems such as kidney stones, liver and joint damage, constipation and cholesterol problems.

### **Severe dehydration**

Less common, but much more serious, is severe dehydration. Symptoms include low blood pressure, a weak and rapid pulse or palpitations, sunken eyes, fits, fainting or unconsciousness, vomiting, and finally, coma, and potential death.

Mild and moderate dehydration is easily remedied by drinking water. Severe dehydration may require professional medical aid; it is obviously much less common than mild or moderate dehydration, but it highlights the importance of hydration and ready access to water.

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<sup>2</sup> <http://www.nhs.uk/Conditions/Dehydration/Pages/Introduction.aspx>. Accessed on 28 May 2013



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## How much water should we be drinking?

The European Food Safety Authority recommends that adult men drink 2 litres of water and women drink 1.6 litres, in addition to fluids from food sources<sup>3</sup>. This differs for children: children between the ages of 4 and 8 should drink 1.3 litres per day; for children aged from 9 to 13 it increases to 1.5 litres for girls and 1.7 litres for boys, and from the age of 14 upwards, the recommendations for adults apply<sup>4</sup>.

This is supported by the Department for Health<sup>5</sup>, which gives guidelines of 6-8 glasses of water each day – younger children need smaller glasses, (e.g. 150ml to 200ml) and older children should have bigger servings (250ml to 300ml.)

More water should be consumed in hot weather, however, it's important to remember that hydration is also important in winter: central heating can be very drying on the body, and this often goes unnoticed.

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<sup>3</sup> EFSA Journal 2010; 8(3):1459, Scientific Opinion on Dietary Reference Values for water.

<sup>4</sup> EFSA Panel on Dietetic Products, Nutrition, and Allergies (NDA) (2010) Scientific Opinion on Dietary reference values for water. EFSA Journal 8(3):1459. [48 pp.]. doi:10.2903/j.efsa.2010.1459. Available online: [www.efsa.europa.eu](http://www.efsa.europa.eu)

<sup>5</sup> NHS Choices: Water and drinks, April 2011



## **Why water (as opposed to other drinks)?**

### **No calories**

Other fluids do contribute to the daily recommended fluid intake, but they can contain calories in the form of fat (e.g. milk) or carbohydrates (e.g. fruit juice, fizzy soft drinks). While some calorie intake from drinks is acceptable, studies have linked frequent consumption of sugary drinks, fruit juice and whole milk to obesity and obesity related conditions<sup>6</sup>.

### **No additives**

Some soft drinks contain additives, in the form of colourings, flavourings, preservatives and flavour enhancers. Besides the fact that many parents are concerned about potential health problems caused by these additives, some have been linked to causing hyperactivity in children.<sup>7</sup>

### **Recommended by dentists**

Dentists, and the British Dental Health Foundation, recommend that the kindest drinks for your teeth are plain water and plain milk, since they are neither sugary nor acidic. (However, milk can contain fat, hence the British Nutrition Foundation recommend it in moderation<sup>5</sup>.)

### **Recommended by the British Nutrition Foundation**

The British Nutrition Foundation gives guidelines for the types of fluid to drink, and water is the only fluid which they recommend drinking "plenty of"<sup>8</sup>.

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<sup>6</sup> Patel AI, Cabana MD (2010) Encouraging Healthy Beverage Intake in Childcare and School Settings. [www.researchgate.net/publication/46124789\\_Encouraging\\_healthy\\_beverage\\_intake\\_in\\_child\\_care\\_and\\_school\\_settings](http://www.researchgate.net/publication/46124789_Encouraging_healthy_beverage_intake_in_child_care_and_school_settings). Accessed on 27 May 2013

<sup>7</sup> Dawson CR (2007) Food Standards Agency communications on food additives and children's behaviour. [www.food.gov.uk/multimedia/pdfs/board/fsa080404a5.pdf](http://www.food.gov.uk/multimedia/pdfs/board/fsa080404a5.pdf). Accessed on 29 May 2013

<sup>8</sup> Benela.MB, Wyness L (2010) Hydration and health: a review. Nutrition Bulletin Volume 35 March 2010 British Nutrition Foundation, Healthy hydration guide, 2010 .



## What are the benefits of hydration to a school?

### Legal requirement

The law on drinking water for children, as stated in the Education (School Premises) Regulations 1999, says that “A school shall have a wholesome supply of water for domestic purposes including a supply of drinking water.”

While this is rather vague, there are other regulations, guidelines and resources that require and encourage schools to provide free, fresh drinking water throughout the school day. Notably, the Children’s Food Trust standards state that throughout the school day, “Children and young people must have easy access at all times to free, fresh drinking water in schools.”<sup>9</sup>

### Benefit to learning & cognition

It has been conclusively proven time after time, in study after study, not only that dehydration negatively affects academic and physical performance, but also that drinking water even when already hydrated actually improves performance: in other words, it’s not so much a question of maintaining the status quo, but of improving it.

Research conducted more than 10 years ago at Leeds University by paediatrician Dr Trevor Brocklebank showed that children’s ability to do arithmetic was impaired if they were more than 1%-2% dehydrated – not even enough to feel thirsty<sup>10</sup>.

A study took place four years ago on 58 children aged 7 to 9 years old. Children who received water rated themselves as significantly less thirsty than comparison group, and performed better on visual attention tasks<sup>11</sup>.

Another study in the same year, this time conducted on children aged 6-7 years old, showed that whether children were sufficiently hydrated or dehydrated, simply having a drink of water improved visual attention and visual search skills<sup>12</sup>.

Schoolchildren that arrived at school with a hydration deficit, which according to Barker is 60% of UK schoolchildren, (Barker et al, 2012), performed worse in cognitive tasks than

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<sup>9</sup>Children’s Food Trust standards, Drinking water. <http://www.childrensfoodtrust.org.uk/the-standards/the-food-based-standards/final-food-based-standards/drinking-water> Accessed on 31 May 2013

<sup>10</sup> Brocklebank, JT. (2002) St James’ University Hospital, Leeds.

<sup>11</sup> Edmonds, CJ, Burnford, D. (2009) Should children drink more water?: the effects of drinking water on cognition in children. *Appetite*, 52(3): 776-9.

<sup>12</sup> Edmonds, CJ, Jeffes, B. (2009) Does having a drink help you think? 6-7 year olds show improvements in cognitive performance from baseline to test after having a drink of water. *Appetite*, 53 (3): 469-472.





those children who were sufficiently hydrated. The same study also showed that water supplementation improved visual attention and fine motor skills such as handwriting<sup>13</sup>.

Another study on children aged 8 or 9 years old included a letter cancellation task, ball catching and a computer based 'whack a mole' style game. Children had significantly higher scores in the computer game when supplemented with water (in this case, a drink of just 168ml or about half a glass of water), higher scores in the letter cancellation task and consuming more than 200ml improved ball catching skills.<sup>14</sup>

Yet another study last year, on London university students, showed that students who took a bottle of water into their exams achieved grades which were on average 5% higher, and up to 10% higher, than their counterparts who did not take water in. This study took ability into account and showed that it wasn't the academic potential of the student of the student that made the difference, it was the physiological effect of the water.<sup>15</sup>

The possible placebo effect of drinking water was also investigated last year at the University of East London, and it was found that effects of water consumption, but not expectancy, affected subjective thirst ratings and letter cancellation tasks, while the effects of drinking water were heightened by expectancy on digit span tests and reaction time.<sup>16</sup>

### **Benefit to concentration & attention**

Symptoms of mild dehydration, including light-headedness, dizziness, headaches or migraine and fatigue, all contribute to a lack of alertness and concentration. Once the symptoms have progressed to thirst, at which stage children can have lost up to 2% of their body weight in water<sup>17</sup>, mental performance including memory, attention and concentration can decrease by up to 10%.<sup>18,19,20</sup>

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<sup>13</sup> Booth P, Taylor B, Edmonds C. (2012) Water supplementation improves visual attention and fine motor skills in schoolchildren. *Education and Health*, vol 30, no. 3.

<sup>14</sup> Edmonds, C. (2012). Study performed with a sample of 15 children between the ages of 8 and 9 years old.

<sup>15</sup> Pawson, C, Edmonds CJ et al. (2012) Drink availability is associated with enhanced examination performance in adults.

<sup>16</sup> Edmonds, C.J. Gardner, M.R., Crombie, R., Ballieux, H., Dawkins, L. (2012) Water consumption and cognition: the role of expectancy. *Appetite*, 60, 148-153.

<sup>17</sup> Kleiner SM. Water: An essential but overlooked nutrient. *Journal of the American Dietetic Association* 1999;99:201-7

<sup>18</sup> Rogers PJ, Kainth A, Smit HJ. A drink of water can improve or impair mental performance depending on small differences in thirst. *Appetite* 2001;36:57-58

<sup>19</sup> Gopinathan PM, Pichan G, Sharma VM. Role of dehydration in heat stress-induced variations in mental performance. *Archives of Environmental Health* 1988;43:15-17

<sup>20</sup> Sharma VM, Sridharan K, Pichan G, Panwar MR. Influence of heat-stress induced dehydration on mental functions. *Ergonomics* 1986;29:791-99



It was also reported by schools who took part in the Food in Schools water provision pilot scheme that provision of water led to a noticeable improvement in the learning environment. Teachers said that “enhanced water provision contributed to a more settled and productive learning environment, as well as helping to instil good habits.”<sup>21</sup> It has also been suggested that this more settled learning environment helps with behaviour management in the classroom.

### **Benefit to weight management**

Continued hydration has been repeatedly linked to weight management, for a number of reasons: among other reasons, thirst signals can be confused with hunger signals, and water can actually help to fill the stomach up, helping it to feel fuller for longer. Added to this, if water is drunk instead of sugary soft drinks, fruit juices or smoothies or full-fat milk, that’s between 100 and 350 calories per 500ml drink which is no longer being consumed.

Stahl proved in 2007 that hydrated children had a more ‘preferable dietary profile’ than the children at risk of insufficient hydration<sup>22</sup>.

What is more applicable for schools is a 2009 study conducted in socially deprived areas of German cities. This showed that over a 12-month period, school-based intervention consisting of simply a water fountain and four classroom lessons promoting the benefits of drinking water, and thus increased water consumption of 220ml daily, reduced the risk of being clinically overweight by up to 31% among children in elementary school, even in a population from socially deprived areas<sup>23</sup>. (Reinehr et al, 2009)

### **Benefit to happiness**

Another lesser known effect of hydration, is that drinking water can actually make us happier. A study conducted at the University of East London in 2009, where 6 and 7 year old children were asked to rate their happiness, showed that children who were hydrated rated themselves as more happy than those suffering from mild dehydration<sup>24</sup>— mild dehydration could easily take place in the classroom, and at this stage children may not even feel thirsty.

Another study took place at the University of Chicago later the same year, seeking to explain this phenomenon. This investigation took place on rats, and showed that in the same way

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<sup>21</sup> Food in Schools: Water Provision Toolkit.

<http://foodinschools.datacenta.uk.net/home.asp?idTopic=0&idPage=1> Accessed on 29 May 2013.

<sup>22</sup> Stahl, A et al. (2007) Relationship between hydration status in children and their dietary profile – results from the DONALD study. *Eur J Clin Nutr*, December 2007.

<sup>23</sup> Reinehr t, Kersting M, Muckelbauer R, Libuda L, Clausen K, Toschke AM. (2009) Prevention: randomised, controlled cluster trial promotion and provision of drinking water in schools for overweight. *Pediatrics* 2009; 123, e661-e667

<sup>24</sup> Edmonds, CJ, Jeffes, B. (2009) Does having a drink help you think? 6-7 year olds show improvements in cognitive performance from baseline to test after having a drink of water. *Appetite*, 53 (3): 469-472.



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as chocolate releases endorphins from the brain to create a euphoric feeling, so does water. A light bulb was used to create heat below the floor of the cage, and under normal conditions the rats felt slight pain. However, when they consumed chocolate chips or drank water and the test was repeated, the pain reaction was not only delayed but also dulled. It was also shown that when the rats were made ill by a drug treatment, chocolate did not delay their response to pain, whereas water did<sup>25</sup>. Further research has yet to take place proving this is the same for humans, however scientists have identified the part of the brain on which water has this effect, and believe that this effect would similarly work on humans.

Another study on the same subject took place last year, studying the effect on mild dehydration on healthy young women (aged 23 years old). It was found that dehydration of just 1.36%, which could easily take place unnoticed, led to “degraded mood, increased perception of task difficulty, lower concentration, and headache symptoms”.<sup>26</sup>

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<sup>25</sup> Foo, H and Mason, P. (2009) Analgesia accompanying food consumption requires ingestion of hedonic foods. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2785220/> Accessed on 30 May 2013.

<sup>26</sup> Armstrong LE, Ganio MS, Casa DJ, Lee EC, McDermott BP, Klau JF, Jimenez L, Le Bellego L, Chevillotte E, Lieberman HR (2012) Mild dehydration affects mood in healthy young women. *J Nutr.* 2012 Feb;142(2):382-8. Epub 2011 Dec 21, <http://www.ncbi.nlm.nih.gov/pubmed/22190027> accessed on 30 May 2013.



## **What is the best means of hydrating children?**

There are a number of options open to schools to encourage children to take a drink, none of which have to be expensive, including water coolers, water fountains, and taps; reusable cups, parent-provided water bottles and school-provided water bottles. These are all effective in varying degrees, and schools have used all of these successfully, but there are a few general guidelines to stick to.

### **The whole school has to support hydration**

The school has to believe in hydration, consistently and across the board. Only then will enthusiasm transfer to the children and the parents. Staff should be educated about the benefits of hydration and the effects of dehydration, and should be encouraged to set a good example themselves, by drinking throughout the day. Classroom lessons teaching the benefits of hydration are also a good idea, and you could also send letters home to parents outlining why the school is taking this pro-hydration stance, and asking for their support and cooperation.

### **Water has to be readily available**

Big gulps are not as effective as small, frequent sips throughout the day: frequent topping up with water will help keep the body at its optimum functional level, whereas drinking a lot of water just at break times allows time for children to get mildly dehydrated before rehydrating, and will not provide as much water as these small and frequent sips.

Water breaks should be provided at regular intervals, ideally every 30 minutes or so. In order to provide as little disruption to lessons as possible, many schools encourage children to keep water in front of them in cups, or (better) bottles, since a bottle will not spill over classwork if it is knocked over.

It should always be easy to get access to more water if it is needed, and so jugs of water, water fountains or water coolers should be made accessible and kept clean. Ask yourself: would you be happy to use your school's water fountains?

### **Facilities should be hygienic**

This goes not only for water fountains or water coolers, but also for the water bottles or cups used by the children. Water coolers and fountains should be regularly sanitised, usually two or three times a year; most suppliers will be able to supply you with self-sanitisation kits. Water fountains should be cleaned frequently, and children should be told not to drink directly from the spigot: these should not be situated in toilets or outdoors due to hygiene issues.

Reusable water bottles and cups are generally dishwasher safe, but check this with the manufacturers, because some cheaper products require washing by hand. This should not



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pose too much of an issue if the school policy is to ask parents to wash cups or bottles at home, but the school should check that this is carried out. Bear in mind that more durable options are easier to maintain, can usually be washed in the dishwasher, and can often last several times as long as cheaper cups or bottles, for a relatively small increase in the price.

## Advantages and disadvantages of popular ways to hydrate children

	Advantages	Disadvantages
<b>Traditional water fountains</b>	<ul style="list-style-type: none"> <li>○ Water is readily available</li> <li>○ Fairly low maintenance</li> <li>○ Can be used without accessories, e.g. cups, or bottles (although this alone will not provide adequate hydration)</li> </ul>	<ul style="list-style-type: none"> <li>○ Hygiene – must be cleaned frequently</li> <li>○ Must be used alongside other means of hydration where water can be stored (e.g. cup or bottle)</li> <li>○ Health &amp; safety: possible slipping risk</li> <li>○ Must be situated by water mains</li> </ul>
<b>Water coolers</b>	<ul style="list-style-type: none"> <li>○ Water is readily available</li> <li>○ Low maintenance</li> <li>○ Water can be chilled</li> <li>○ Modern – often makes water more attractive</li> <li>○ Bottle-sourced water coolers can be situated anywhere</li> </ul>	<ul style="list-style-type: none"> <li>○ Hygiene – must be cleaned frequently</li> <li>○ Must be used alongside other means of hydration where water can be stored (e.g. cup or bottle)</li> <li>○ Health &amp; safety: possible slipping risk</li> </ul>
<b>Jugs of water</b>	<ul style="list-style-type: none"> <li>○ Water is readily available anywhere</li> <li>○ Easy, low cost and handy for lunchtimes</li> </ul>	<ul style="list-style-type: none"> <li>○ Can spill easily – slipping hazard and possibility of spoiling schoolwork</li> <li>○ Limited water supply – need frequent refills</li> <li>○ Can be heavy for children to carry</li> </ul>
<b>Disposable cups</b>	<ul style="list-style-type: none"> <li>○ Easy to use and provide, with low maintenance</li> <li>○ Hygienic</li> </ul>	<ul style="list-style-type: none"> <li>○ Works out expensive</li> <li>○ Wasteful – not environmentally friendly</li> <li>○ Litter</li> <li>○ Storage issues for supplies of cups</li> <li>○ Spillage – slipping risk, and can spoil schoolwork</li> </ul>
<b>Disposable bottles</b>	<ul style="list-style-type: none"> <li>○ Easy to use and provide, with low maintenance</li> <li>○ Hygienic</li> <li>○ Less likely to spill than cups</li> </ul>	<ul style="list-style-type: none"> <li>○ Works out expensive</li> <li>○ Wasteful – not environmentally friendly</li> <li>○ Litter</li> <li>○ Storage issues for supplies of bottles</li> </ul>
<b>Reusable cups</b>	<ul style="list-style-type: none"> <li>○ Easy to use and provide</li> <li>○ Easy to clean</li> <li>○ More environmentally friendly than disposables</li> </ul>	<ul style="list-style-type: none"> <li>○ Possibility of spillage – slipping risk and spoiling schoolwork</li> <li>○ Can be difficult to identify whose cup is whose (see</li> </ul>



		next section for possible remedies)
<b>Parent-provided, reusable bottles</b>	<ul style="list-style-type: none"> <li>○ Ready source of fresh water available at any time</li> <li>○ Easy to implement</li> <li>○ Possibility of non-spill or non-leak bottles</li> <li>○ Eco-friendly</li> </ul>	<ul style="list-style-type: none"> <li>○ Possible storage issues</li> <li>○ Expensive for parents</li> <li>○ Possible hassle if child does not bring a bottle</li> <li>○ Lack of uniformity</li> <li>○ Fashion or 'I want the fairy one!' related problems</li> </ul>
<b>School-provided, reusable bottles</b>	<ul style="list-style-type: none"> <li>○ Uniformity – looks smart, especially if branded with the school's logo</li> <li>○ Possibility of non-spill or non-leak bottles</li> <li>○ Low maintenance – many are dishwasher safe</li> <li>○ Long lasting</li> <li>○ Eco-friendly</li> <li>○ (If sold) Can work out less expensive for parents than supermarket bottles</li> <li>○ Identification is easy – can write names on bottles</li> <li>○ Spares can be kept to give or sell to children who lose or forget to bring their bottles</li> </ul>	<ul style="list-style-type: none"> <li>○ Can be issues identifying whose bottle is which (see next section for ways to remedy this)</li> <li>○ Bottles may not be dishwasher friendly or may be otherwise difficult to wash (see the next section for ways to remedy this)</li> </ul>



## Common objections to providing water in school, and ways to remedy them

Objections/ concerns	Suggested solutions
Water coolers/ fountains are difficult to clean	Fountains' spigots should be cleaned at least every day, if not more frequently, since there will always be some children who drink directly from it! They should also be internally cleaned twice or three times per year. Your water cooler supplier should be able to come and do it for you, for a small fee. Otherwise, you can also buy self sanitisation kits, which include step-by-step instructions as to how to clean the machines yourself.
Spilt water may be a slipping risk in areas by water coolers or fountains	This can be easily solved with inexpensive anti-slip matting around the water fountain/ cooler area.
Water bottles or cups can get lost	Losses can be limited either by washing cups or bottles in school, so that they don't go off the premises, or otherwise by requiring the parents to pay for replacements: often, if the parents have had to pay for something, the child takes much better care of it.
Drinking water isn't 'cool'	Children should be educated as to the benefits of hydration to health, to academic and physical performance and to beauty. Many celebrities name 'hydration' as a prominent beauty aid, while sports personalities also frequently stress the importance of drinking water. You can personalise bottles with your school logo to make bottles part of the school uniform, you can also buy bottles ready printed with 'cool' designs which encourage children to drink water.
Disruption to lessons caused by water breaks	If water is constantly available on desks, all that's needed is a reminder from the teacher for children have a drink. This can then fit in with the lesson. There's no getting up and moving around this way. Also, hydrated children are perform better – so the chances are, you'll get more done in the lesson anyway.
May be water fights or other silliness with bottles or cups	Generally, any silliness or misbehaviour is limited to the first day, if then, once the novelty wears off. It's rare that any problems are reported after the first couple of days using water bottles.
Bottles or cups may be mixed up and be unhygienic	Bottles can be named with an ordinary permanent marker pen or washable label – it's often best to do this in school, as there will always be some parents who forget! This should be redone regularly.
Bottles or cups may spill	Look for bottles which have a valved, non-spill lid, which will minimise spills and leakages; push-pull lids can leak if the top is not securely pushed down. Otherwise, children





do get used to taking care.

Children may bring drinks other than water

Look for bottles which are transparent or translucent – with a class full of identical clear bottles, it's easy to spot any discrepancies. Education as to the benefits of water and dental health can also help. Generally, children are happy to fit in with their peers.

Children may fiddle with or chew the cups, bottles or lids

There are studies which suggest that fiddling may actually increase learning for kinaesthetic learners! Some children will always fiddle – if it wasn't bottles, it would be pencils, books or fingers. Alternatively, a desk tidy or bottle carrier can be used to keep bottles in a central position, but still accessible.

Usually, extra bottle lids are available to purchase separately from bottles at a low cost.

Bottles or cups may be difficult to wash

Look for bottles or cups which are dishwasher safe, and send them home with parents to wash. Make extras available to purchase if they get lost. Alternatively, if you prefer to wash them at school, you can fill new, clean dustbin-type containers with a weak sterilising solution, and soak them overnight.

Disruption to lessons caused by toilet breaks

Generally the bladder will quickly adjust to cater for a larger intake. Often, all it needs is for the teacher to remind the children to go to the toilet before coming back in from break or lunchtime. Unlike most soft drinks, water is not a diuretic, making toilet breaks less of an issue. There has also been concern voiced by health professionals, that children do not go to the toilet enough at school – which is a symptom of dehydration.