



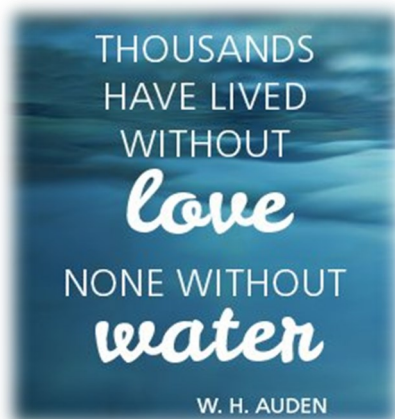
A Newsletter for Water and Wastewater Treatment Plant Operators!

THE WATERDRUM

July 2022

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Thank you

Aboriginal Water and Wastewater Association of Ontario first in person conference since 2020 after the long unprecedented pandemic, was held this year in June at Delta Sault Ste. Marie, ON. The conference could not be a success without the dedication and leadership to the board and operators which made this years conference a huge success.

On behalf of AWWAO, we would also like to extend our gratitude to the Delta hotel for the successful event that we had in June. The 27th Annual Training Conference is a very important event for our organization and it would not have been nearly so successful if it hadn't been for your superb service.



Sponsored by: Indigenous Services Canada and First Nations Inuit Health Branch



The meaning of the AWWAO logo as described by the artist:

- Tree—represents Mother Earth*
- Sun—brings Life to our Environment*
- Eagle—watches over the Environment*
- Sky—ensures the Cycle of Water*

ABOUT US

The Aboriginal Water & Wastewater Association of Ontario is an information source for water environment and Operator training and certification issues and technology. AWWAO's members include professionals from Ontario First Nations, Environmental Health Officers, Tribal Councils, Municipal Suppliers and some Government Agencies.

AWWAO is dedicated to the transfer of information and concepts regarding all areas of the water environment. As members of the American Water Works Association (AWWA), the Ontario Water Works Association (OWWA), the Water Environment Federation (WEF) and the Water Environment Association of Ontario (WEAO), we provide an invaluable network for those involved in water and wastewater industry. AWWAO, through a partnering agreement with Keewaytinook Okimakanak and Health Canada co-operates and liaises with the above noted associations, and all provincial and federal government agencies. AWWAO has a volunteer seat on many of the various association's committees.

AWWAO offers its members the opportunity to:

- ◆ Be updated and informed about issues that affect the water environment.
- ◆ Interact with persons in various fields of water expertise.
- ◆ Promote concerns of the membership through a collective voice.
- ◆ Exchange information and ideas to other members, the public and Chiefs and Council.

To date, the AWWAO consistently rank the training and certification of Plant Operators as its top priority. The attainment of Certification is widely recognized as essential to performing a good job, at a high level, in the water and wastewater treatment plant operations, and an indicator of a responsible and contributing community member.

MEMBERSHIP

\$200.00 Membership Fee for First Nations Water and Wastewater Treatment Plant Operators per operator. This Membership entitles the Operator(s) to the AWWAO Newsletter, monthly bulletin, Annual Report and the Annual General Assembly and Training Conference cost reimbursement, if applicable.

\$400.00 Membership Fee for Non-Operator, Public Works Management, Administration and Management of a First Nation or Non-First Nation. This Membership entitles the Member to the AWWAO Newsletter, monthly bulletins, Annual Report and invitation to the Annual General Assembly and Training Conference.

Please Print

Name: _____

Name: _____

Name: _____

Name: _____

First Nation/Business: _____

Address: _____

Phone: _____ Fax: _____

E-mail: _____

VISION

Our Vision is to be the Association that best understands and satisfies the training, education, certification and licensing needs of Operators of Ontario First Nations. Our dedication to supporting Operators touches not only health, but safety, spirit and empowerment ... most of all knowledge.

OBJECTIVES

- ◆ To act as a voice and forum for First Nation Plant Operators in Ontario, publish a newsletter, promote communications and networking among Plant Operators and other persons interested in AWWAO's objectives;
- ◆ Promote the importance of a safe and potable water supply and the highest standard of wastewater operations;
- ◆ Promote the development and delivery of continuing education and training programs for Plant Operators and others involved in water and wastewater treatment;
- ◆ Promote the importance of technical training in maintaining and upgrading the Operator's knowledge of proper water and wastewater operation and maintenance requirements;
- ◆ Promote the importance of involving qualified Operator's in the design, construction or upgrading of water and wastewater treatment plants;
- ◆ Promote the importance of proper training, certification and licensing of Operators;
- ◆ Promote the importance of enhanced lab testing of potable water and monitoring of wastewater effluents; and
- ◆ Promote the importance of establishing an effective Operations & Maintenance Management Plan to ensure proper care is performed for the assets.

MISSION STATEMENT

We are a member oriented, non-profit Association, providing province-wide and year-round high-quality services and an annual forum for the First Nations Water and Wastewater Treatment Plant Operators, allowing for networking opportunities at the same time. We are committed to providing high quality information on the water and wastewater industry through the quarterly newsletter. We are dedicated to promoting, preserving and protecting the water, natural resources and environment through the education, training and networking of the Ontario First Nations Water and Wastewater Treatment Plant Operators.

Aboriginal Water and Wastewater Association of Ontario's newsletter is published quarterly by the AWWAO at Box 20001, RPO, Riverview Postal Outlet
 Dryden, ON P8N 0A1
 Tel: (807) 216-8085
 E-mail: info@awwao.org

Advertising opportunities and/or submission or request of information, please contact the Association Coordinator.

Exam Prep Conferences- Register Now!

Aboriginal Water and Wastewater Association of Ontario is pleased to announce that we are offering a Southern Exam Prep Week from September 12-15, 2022 held at the Holiday Inn, Sudbury, ON.

Selected Course (s):

Title: Exam Preparation OIT

Title: Exam Preparation Water Treatment I & II

Title: Exam Preparation Water Distribution I & II

Deadline to register is July 12, 2022

&

Aboriginal Water and Wastewater Association of Ontario is also pleased to announce that we are offering a Northern Exam Prep Week from November 21-25, 2022, held at the Best Western Plus Nor'Wester Hotel & Conference Centre in Thunder Bay.

Selected Course (s):

Title: Exam Preparation OIT

Title: Exam Preparation Water Treatment I & II

Title: Exam Preparation Water Treatment III & IV

Deadline to register is September 30, 2022

Course tuition, exam fees, accommodations, breakfasts, luncheons and health breaks will be covered by AWWAO. You must be an AWWAO member to participate in the course.

Earn CEUs as you increase your skills.

- ◆ Please note: Course attendance requests from your First Nation will be honored.
- ◆ 100% participation is mandatory and expected by our funding agencies.
- ◆ Let's work together to make sure you have all of the tools you need for the big day!
- ◆ A four-day exam prep course before an exam will yield the best results if you have a good understanding of the course topics.




SIGN UP NOW



Six Strategies for Effective Learning



Learn to study using...Spaced Practice



LEARN TO STUDY USING...

Spaced Practice

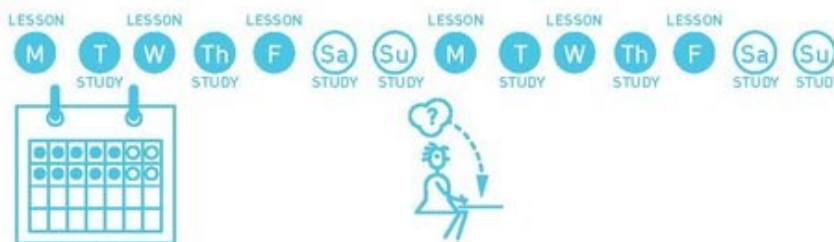
SPACE OUT YOUR STUDYING OVER TIME

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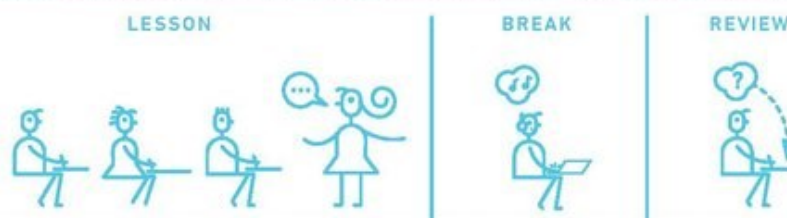


HOW TO DO IT

Start planning early for exams, and set aside a little bit of time every day. Five hours spread out over two weeks is better than the same five hours all at once.



Review information from each class, but not immediately after class.



After you review information from the most recent class, make sure to go back and study important older information to keep it fresh.



HOLD ON!



When you sit down to study, make sure you are using effective study strategies rather than just re-reading your class notes.



This may seem difficult and you may forget some information from day to day, but this is actually a good thing! This forces you to retrieve information from memory (see Retrieval Practice poster).



Create small spaces (a few days) and do a little bit over time, so that it adds up!


RESEARCH

Read more about spaced practice as a study strategy

Benjamin, A. S., & Tullis, J. [2010]. What makes distributed practice effective? *Cognitive Psychology*, 61, 228-247.



Learn to study using... Retrieval Practice



LEARN TO STUDY USING...
Retrieval Practice
PRACTICE BRINGING INFORMATION TO MIND

LEARNINGSOCIETISTS.ORG



HOW TO DO IT

Put away your class materials, and write or sketch everything you know. Be as thorough as possible. Then, check your class materials for accuracy and important points you missed.



Take as many practice tests as you can get your hands on. If you don't have ready-made tests, try making your own and trading with a friend who has done the same.



You can also make flashcards. Just make sure you practice recalling the information on them, and go beyond definitions by thinking of links between ideas.



HOLD ON!



Retrieval practice works best when you go back to check your class materials for accuracy afterward.



Retrieval is hard! If you're struggling, identify the things you've missed from your class materials, and work your way up to recalling it on your own with the class materials closed.



Don't only recall words and definitions. Make sure to recall main ideas, how things are related or different from one another, and new examples.

RESEARCH

Read more about [retrieval practice as a study strategy](#)

Roediger, H. L., Putnam, A. L., & Smith, M. A. (2011). Ten benefits of testing and their applications to educational practice. In J. Mestre & B. Ross (Eds.), *Psychology of learning and motivation: Cognition in education*, (pp. 1-36). Oxford: Elsevier.

Learn to study using...Elaboration



LEARN TO STUDY USING...

Elaboration

EXPLAIN AND DESCRIBE IDEAS WITH MANY DETAILS

LEARNINGSOCIETISTS.ORG

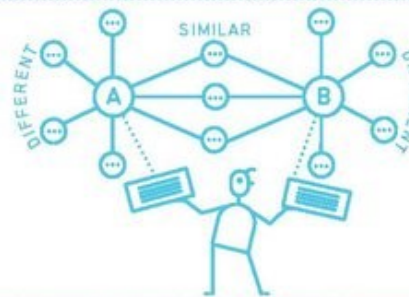


HOW TO DO IT

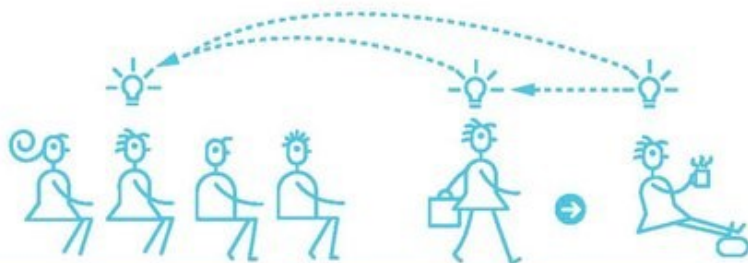
Ask yourself questions while you are studying about how things work and why, and then find the answers in your class materials and discuss them with your classmates.



As you elaborate, make connections between different ideas to explain how they work together. Take two ideas and think of ways they are similar and different.



Describe how the ideas you are studying apply to your own experiences or memories. As you go through your day, make connections to the ideas you are learning in class.



HOLD ON!



Make sure the way you are explaining and describing an idea is accurate. Don't overextend the elaborations, and always check your class materials or ask your teacher.



Work your way up so that you can describe and explain without looking at your class materials.

RESEARCH

Read more about elaboration as a study strategy

McDaniel, M. A., & Donnelly, C. M. (1996). Learning with analogy and elaborative interrogation. *Journal of Educational Psychology, 88*, 508-519.

Wong, B. Y. L. (1985). Self-questioning instructional research: A review. *Review of Educational Research, 55*, 227-268.



Learn to study using...Interleaving

 LEARN TO STUDY USING...
Interleaving
SWITCH BETWEEN IDEAS WHILE YOU STUDY

LEARNINGSCIENTISTS.ORG



HOW TO DO IT

Switch between ideas during a study session. Don't study one idea for too long.



Go back over the ideas again in different orders to strengthen your understanding.

TOPICS
A B C



STUDY
SESSION
1

TOPICS
C B A



STUDY
SESSION
2

TOPICS
A C B



STUDY
SESSION
3

Make links between different ideas as you switch between them.



HOLD ON!



While it's good to switch between ideas, don't switch too often, or spend too little time on any one idea; you need to make sure you understand them.



Interleaving will feel harder than studying the same thing for a long time. But don't worry - this is actually helpful to your learning!

RESEARCH

Read more about interleaving as a study strategy

Rohrer, D. (2012). Interleaving helps students distinguish among similar concepts. *Educational Psychology Review*, 24, 355-367.

Learn to study using...Concrete Examples



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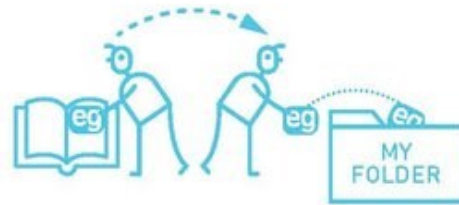
LEARN TO STUDY USING... Concrete Examples

USE SPECIFIC EXAMPLES TO UNDERSTAND ABSTRACT IDEAS



HOW TO DO IT

Collect examples your teacher has used, and look in your class materials for as many examples as you can find.



Make the link between the idea you are studying and each example, so that you understand how the example applies to the idea.



Share examples with friends, and explain them to each other for added benefits.



HOLD ON!



You may find examples on the internet that are not used appropriately. Make sure your examples are correct - check with your teacher.



Ultimately, creating your own relevant examples will be the most helpful for learning.

RESEARCH

Read more about concrete examples as a study strategy

Rawson, K. A., Thomas, R. C., & Jacoby, L. L. (2014). The power of examples: Illustrative examples enhance conceptual learning of declarative concepts. *Educational Psychology Review*, 27, 483-504.



Learn to study using...Dual Coding

LEARN TO STUDY USING... Dual Coding COMBINE WORDS AND VISUALS

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HOW TO DO IT



Look at your class materials and find visuals. Look over the visuals and compare to the words.



Look at visuals, and explain in your own words what they mean.



Take information that you are trying to learn, and draw visuals to go along with it.

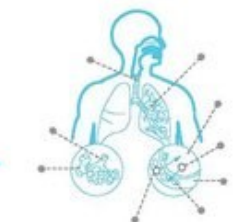
HOLD ON!

Try to come up with different ways to represent the information visually, for example an infographic, a timeline, a cartoon strip, or a diagram of parts that work together.

INFOGRAPHIC



CARTOON STRIP



DIAGRAM

TIMELINE



GRAPHIC ORGANIZER

Work your way up to drawing what you know from memory.



RESEARCH

Read more about dual coding as a study strategy

Mayer, R. E., & Anderson, R. B. (1992). The instructive animation: Helping students build connections between words and pictures in multimedia learning. *Journal of Educational Psychology*, 4, 444-452.

Ontario Water Works Conference and Trade Show 2022

The Aboriginal Water and Wastewater of Ontario booth at the Ontario Water Works Conference and Trade Show 2022 was a complete success.

The conference was a great success for meeting and sharing what AWWAO represents and what we provide to our membership with new companies, students and Municipality Operators, plus reconnecting with our present supporters and colleagues.

A special thank you to OWWA to providing AWWAO with a free booth.

Miigwech/Nia:wen

Stacey Kicknosway & Jonathan Riberdy



Operator Math Corner

Article #2 – The Wonderful World of Units

Operators Math Corner

By Hany G. Jadaa; C.Chem., M.Sc. Eng.

LEXICON Environmental Consulting Services Inc.

Article #2 – The Wonderful World of Units

Hello everyone, and thanks for joining me again in Article #2 under the series “Operators Math Corner”. In the previous issue, my first article (titled *Un-learning Math*), we talked about the importance of applying math in our day-to-day life as operators and managers alike, from process troubleshooting and optimization, to solving math questions typically encountered on MOE certification exams. We’ve also talked about a few important rules for solving these types of problems; rules that I believe will tremendously help you especially if you have trouble with math.

In this issue, I intend to start with some real basics, namely tackling the topic of units and unit conversions. And who amongst us have never had challenges when dealing with units and converting them from one form to another? But let me start first by talking a bit about the history and the evolution of units over the years. I will then introduce to you the most common types (or categories) of measurements that we typically deal with in our industry (along with their units of expression).

A bit about the history of units first. Different units of measure have been in existence since the dawn of civilization (Babylonian, Egyptian, Greek, and Roman). Units were used in many industries and related activities, including construction, food, and fashion. Various methods of measure have taken a variety of forms over the course of history, from simple and informal to more elaborate and complex. Units of measure have also continued to change and evolve with the passing of time in more complex manners, simply because of many societal influences and our own developed understanding of the laws of nature and physics.

In our modern history, I can simply say that there are two or three common systems of units that have been widely adopted and are used around the world today. These are the *Metric System* (adopted by the French in 1799 and accepted worldwide during the 1800s and 1900s), the *Imperial British System* (which evolved as a combination of the Anglo-Saxon and Roman systems of measurements back in the early 1800s), and the *American Customary System* (which retained some original units from the Imperial British System but has some added a few different definitions and changed some numerical values).

Without dabbling too much in history, let me introduce at this point some of the common types (or categories) of measure that we deal with in our day-to-day business of water and wastewater. For each category, I will list some of the more common units that are used to express these measurements. Please note that the units I am including below are not listed in any particular order or in any form of personal preference.

Length. Length is simply defined as the physical distance between two points (A and B, as shown below) and hence it is a single dimension (a dimension is a measure in one direction, such as length, width, or height of an object). We typically measure distances (or lengths) in the common units of meters (m), centimeters (cm), millimeters (mm), kilometers (km), feet (ft), inches (in), yards (yd), miles, etc. A ——— B

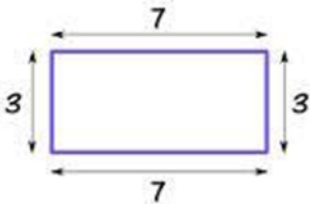
Area. An area of an object is defined as the amount of space contained inside the boundaries of any flat object, such as a square, a rectangle or a circle. Hence an area is a 2-dimensional measurement that is expressed by a 2-dimensional unit. We typically measure areas in units of meters squared (m^2), centimeters squared (cm^2),

Cont'd

millimeters squared (mm^2), kilometers squared (km^2), feet squared (ft^2), inches squared (in^2), yards squared (yd^2), miles squared, and let's just add etc. squared. And a "squared" measurement means you take one side of a flat object, measure its distance (say in m), then you multiply it by the distance (or length) of the second side (also in m), and you end up with a unit of m^2 . Simply put, $\text{m} * \text{m} = \text{m}^2$.

Now keep in mind that there are many more units that are used to express an area measurement, some are more common than others. For example, an acre is equivalent to $4,047 \text{ m}^2$ (or $43,560 \text{ ft}^2$ or $4,840 \text{ yd}^2$). A hectare is equivalent to $10,000 \text{ m}^2$ (or 2.47 acres). And so on and so forth. As you can see, there are many units of expression that have been adopted throughout the years to equal a certain number of other units, with the history of their evolution in many cases is unknown.

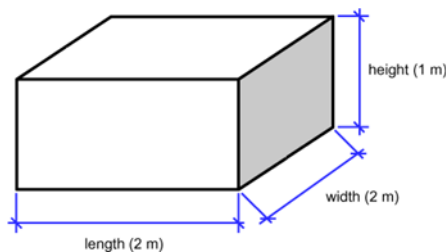
Now let's take a closer look at the diagram below.



What's wrong with this picture? You guessed it right. No units! If you recall Rule #2 from my first article, it says that "numbers alone are meaningless (and useless in most cases)". And if I cannot define the units of length on this diagram, then for sure I cannot know the units of its area either.

Volume. Volume is the measure of the amount of space inside of a solid figure, such as a cube or a cylinder. Hence a volume is a 3-dimensional measurement that is expressed by a 3-dimensional unit. We typically measure volumes in units of cubic meters cube (m^3), cubic centimeters (cm^3), cubic millimeters (mm^3), cubic feet (ft^3), cubic inches (in^3), cubic yards (yd^3), cubic etc. And a "cubic" measurement means you take the distance of one side of a solid object (say in ft), you multiply it by the length of the second side (also in ft), and you multiply it again by the length of the third side (also in ft), and you end up with a unit of ft^3 . Simply put, $\text{ft} * \text{ft} * \text{ft} = \text{ft}^3$.

Note that on the diagram below, all the units used to express the length of its sides are in the unit of m. Therefore the volume of this solid figure is in m^3 (that is $\text{m} * \text{m} * \text{m}$).



When it comes to volumes, there are countless other units that have been in use in various places around the world for many, many years (in fact as early as the thirteenth century). And without turning this into an article in history again, the term "litre" and the term "gallon" have become two of the most widely used units of volume measurement in modern history. So let's add those two to our collection of volume units.



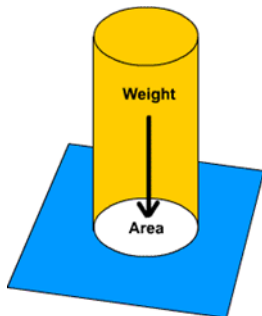
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Weight. Without having to bring up the complex topic of Newtonian Physics or the Relativity Theory, let's just say that weight is simply a measure that indicates how heavy an object is. Some of the common units of weight include gram (**gm**), kilogram (**kg**), milligram (**mg**), microgram (**ug**), pound (**lb.**), grain, short ton, and long ton (or tonne). Some of the least used units of weight include dram (used mainly in the whiskey industry), scruple (used historically by physicians and apothecaries for medical recipes), troy and carat (customarily used for precious metals and gemstones), etc.

Time. Do we need to define it? Well why not? It is a measure of the duration of an event or the interval between two or more events (time to fill a tank, time to flush a hydrant, time for a chemical to react, etc.). Units of time include seconds (sec), minutes (min), hours (hr), days, weeks, month, years, decades, centuries, eras, etc. You get the idea.

Pressure. Once again, and for the sake of not losing my readers, I would like to stay away from classical Newtonian Physics and the Laws of Motion and Gravity. Let's just say that pressure is simply defined as the continuous physical force exerted on (or against) the surface of an object by something in contact with that surface. All you need to know at this point is the following:

- ◆ mathematically speaking, pressure is equal to force divided by area
- ◆ force is equivalent to weight
- ◆ Therefore, both force and weight utilize the same units discussed above (gram, kilogram, pounds, etc.).



Having said that, common units of pressure include pounds per square inch (psi), Newton per m^2 , or what is known as the Pascal (**Pa**), or kilo-Pascal (**kPa**, which is equivalent to kilo-Newton per m^2), atmosphere (**atm**), millimeters of mercury (**mm Hg**), inches of mercury (**in Hg**), etc.

Due to the complexity of the topic of pressure and its units, let's just leave this discussion at this for now. We will approach this topic again when it's time to talk about the wonderful world of hydraulics.

With all of these units in place, luckily for us, there are only a very few that we use in our daily life as operators and are perhaps the most common. Let me summarize them for you:

- ◆ *Units of Length* – m, cm, mm, km, ft, and inches
- ◆ *Units of Area* – m^2 and ft^2
- ◆ *Units of Volume* – m^3 , ft^3 , litres, and gallons
- ◆ *Units of Weight* – kg, mg, and lb. (maybe ug if you read lab reports with organic analysis and when you deal with extremely small chemical dosages)
- ◆ *Units of Time* – sec, min, hr., day, week, month, year
- ◆ *Units of Pressure* – psi and kPa.

Cont'd

So now that you know your units, let me ask you a question. If I say to you that I weigh 160 pounds, can you tell me what is my weight in liters? I don't think you can. This is simply because the units pounds (units of weight) and liters (units of volume) belong to two different categories of units. Or if I say to you that a pipe is 600 m long, can you tell me how long it is in units of m^2 ? Again, no you can't. Simply because the unit of m (unit of length) and the unit of m^2 (unit of area) belong to different categories of measure.

Knowing your units becomes one of the most fundamental pieces of information that you need to master in order to help you solve the kind of math problems we typically encounter in our business. Without that solid knowledge of units, any numerical answers you come up with may be wrong and somewhat meaningless.

Let's see how this knowledge is put to practice. If I give you a whole bunch of information about a pipe, and I ask the question "*how long does it take for water to travel through the pipe*" – what type or category of unit would you pick to give me an answer? If you said "*time*", then your choice is correct. It does not matter at this point whether you chose minutes or seconds or hours; as long as you are within the category of time, your answer will be relevant to the question. And how does this piece of information help you further? Well, by knowing that your answer will be in some unit of time, you would now look for a formula that describes time to solve the question. You wouldn't look for a formula that describes volume for instance, would you? In other words, knowing what type of unit to pick will lead you to what formula you need. I always relate to my audience a very important statement – "*let the units guide you through choosing your formulas to solve your math problems*". Units will lead you to formulas. Numbers won't. And don't worry about formulas for now; we will get to those in future articles.

The bottom line – units are your best friend when it comes to solving math problems. Let's summarize:

1. Get to know your units really well.
2. Choose your type of unit based on what the question is asking you to do. When it asks "*how long does it take to do something*", you look for a unit of time; when it asks "*how much dry chemical to use*", you look for a unit of weight; when it asks "*how much liquid alum is being pumped*", you look for a unit of volume; and so on and so forth.
3. Once you've picked the right category of unit, then you look for the formula that describes that category.

So, the next time you are tackling math problems, remember to include a unit to each and every number you use. Work with units; do not work with numbers. And remember, one of the very few numbers in our business that does not have a unit attached to it is π (refer to Article #1 for more info on π).

In the next issue, I will talk about converting from one unit to another, and I will show you a method that has worked for me (and has never failed me) for the last 30 years. Which brings me to the answers to those math problems from my previous issue (included below). Until then, if you have any questions, suggestions or comments please feel free to send them my way via email at lexicon@ca.inter.net.

See you in the next issue.

Hany G. Jadaa; C.Chem., M.Sc. Eng. Director/Senior Technical Advisor
LEXICON Environmental Consulting Services Inc.

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Answers to math problems in previous issue:

Problem 1 – Convert 375 liters/sec to m^3/day .

- a. 4.3 m^3/day
- b. 540 m^3/day
- c. 1,350 m^3/day
- d. 32,400 m^3/day

Problem 2 – Convert 460 imperial gal/min to m^3/day

- a) 3,011 m^3/day
- b) 145.7 m^3/day
- c) 125.5 m^3/day

Stay Hydrated!



Maintaining proper hydration is one of the most important measures we can take to benefit our health. “The human body is made up of 55 to 75 percent water, and proper fluid levels are essential for many important body functions, including nutrient and oxygen transportation, temperature regulation, blood pressure stabilization, removal of waste from the body and muscle repair. Drinking enough water allows for healthy digestion and detoxification, supports hunger control and improves the appearance of your skin, eyes and hair.

Throughout the day, our bodies expend liquid to perform these vital functions. Dehydration occurs when you lose more bodily fluids than you consume. Your body needs water and electrolytes replenished, otherwise you’ll experience symptoms such as dry mouth, thirst, muscle weakness and spasms, headache, dizziness, nausea and fatigue.

How we live today is why we’re so much more dehydrated than we were 30 to 50 years ago. Air conditioning and heating are so drying.

Electronics, prescription drugs, processed foods, fluorescent lighting—all these things coming at us and affecting our cells—are sucking the hydration out of our environments and out of us.

The risks of day-in-day-out, low-grade dehydration—the kind most of us experience—include constipation, joint pain, stiffness, brain fog and cognition problems.

How many times have you heard, “make sure you’re drinking at least eight 8-ounce glasses of water each day”? But what if you don’t have safe drinking water? Luckily, there are other ways you can stay hydrated that don’t involve drinking water.

Stay Hydrated!

Hydration Helpers

- 1. Start your day with oatmeal.** This one is a classic. Not only is it hearty and filling, oatmeal is also very hydrating. When oats are cooking, they expand and absorb the water or milk they're being paired with. Not into warm breakfasts when it's hot out? Try overnight oats. Served cold, overnight oats pack all the benefits of hot oatmeal with no heat. As an added boost, sprinkle chia seeds in your overnight oats when preparing, which soak up 10 times their weight in extra liquid and keep you full all morning.
- 2. Include more moo.** Milk is more hydrating than water or sports drinks due to its source of protein, carbohydrates, calcium, and electrolytes. Bring it on!
- 3. Try carb alternatives.** When it comes to meal planning, ditch dry, carb heavy staples like pasta. Opt for zucchini noodles, or zoodles for short, which can contain about 95 percent water. When paired with a tomato sauce, which usually has about 90 percent water, this meal can pack a hydrating and healthy punch.
- 4. Sip smoothies.** Between the yogurt and all the fresh fruit, smoothies are a great, and tasty, way to stay hydrated. Not sure what fruits and vegetables to pick? Strawberries, peaches, cucumbers, spinach, and blueberries are all excellent options.
- 5. Pack your plate with vegetables.** Much like smoothies, salads are a great way to give you a hydrating boost. Most lettuce greens contain at least 94 percent water, and that's before you add any other vegetables. Next time you whip up a salad, include celery, tomatoes, bell peppers, and carrots.
- 6. Slurp soup.** When the craving strikes for a filling and hydrating meal, look no further than broth-based soups or gazpacho. Served cold, gazpacho won't make you break a sweat come summer. Blend cucumbers, bell peppers, tomatoes, onions, and garlic cloves for this satisfying soup.
- 7. Freeze your fruit.** Feeling nostalgic about the popsicles you used to enjoy as a child? Bring back this classic treat as a delicious way to rehydrate. Blend a hydrating ingredient like watermelon and fill Popsicle molds and freeze for 1 hour.

