Comment: Science, math vital for tomorrow’s leaders

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The world as we know it is constantly changing. Our knowledge of the world and our place and actions within it are heavily driven by science, technology, engineering, and mathematics, also known as STEM.

Enhancing knowledge and interest in these so-called STEM areas is the primary focus of the Canadian charitable organization Let’s Talk Science. Its 2015 report, entitled Spotlight on Science Learning Report: Exploring Parental Influence, makes for some interesting — and disturbing — reading.

Prolific author and biochemist Isaac Asimov wrote: “The saddest aspect of life right now is that science gathers knowledge faster than society gathers wisdom.” Since our society is increasingly more reliant on knowledge of science, technology, engineering and math to make wise decisions, a solid foundation and interest in STEM is critical for this to actually happen.

In the report, the vast majority of Canadian parents (88 per cent) think the strongest influence on their kids’ educational and career pathway decisions come from them. But the report indicates science education isn’t being supported at home. Only 28 per cent of parents actually discuss the importance and value of STEM education with their kids despite 75 per cent agreeing that most jobs for their kids will require basic math and science knowledge. Further, almost 50 per cent of parents would choose to spend extra funding on delivery of STEM.

What is the basis for this disconnect? Confusion about what is actually offered in schools might be part of the problem. Just over 30 per cent of parents believe that science courses are mandatory throughout high school. Despite that belief, in no province in Canada is a Grade 12 science course mandatory for graduation.

We must improve public knowledge of STEM, both in schools and the public. Knowledge and skills in science, technology, engineering and mathematics belong to all of us and are only going to increase in importance. In my science-education work, I believe in using popular culture as access points to communicate STEM concepts.

To engage people in STEM requires more than simplification of the material. Instead, timely, relevant and interesting links between the concepts and the experiences and interests of the client — your kids, my kids and all of us — are needed. Many, whether kids or adults, are put off by scientific topics because they can’t relate to the message and because they are afraid of the work involved. Both involve an aspect of discomfort, if not fear.

Pop culture is everywhere and is, by definition, comfortable for most people. So, using icons such as superheroes can be exploited to explore science. The superhero can be used as a familiar frame of reference through which the scientific message can be conveyed in an accessible manner.

In schools, these kinds of approaches can be used to enhance efforts aimed at encouraging teens — and particularly young girls — to maintain and explore fully their early interests in science. Empowering this younger generation is fundamental to communicate science in schools and to the broader public can only serve to increase the scientific literacy of our society.

If we can do it in an interesting, engaging and fun way, it won’t even feel like that much work. As the friendly neighbourhood physics professor James Kakalios wrote in 2005 in his excellent book, The Physics of Superheroes, using superheroes for science might make you “so busy enjoying this superhero ice-cream sundae that you won’t realize that I am sneakily getting you to eat your spinach at the same time.”

We have some clear challenges ahead, including dealing with the effects of climate change, understanding the need for vaccinations and solutions for global pandemics, and, on the side of exploration, possible visits to Mars. Achieving meaningful advances in all of these areas requires a knowledge and facility with STEM.

We are only going to become more reliant on science, engineering and technology. It’s up to all of us to do everything we can to ensure a safe and enlightened future by fostering an appreciation of science.

It must start at home and in schools where the roots of STEM are laid down and supported — and it needs to continue everywhere and at all times. A strong comfort, interest and knowledge of STEM will yield important fruit enabling and sustaining the futures of us all.

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