

CHOOSE A PATH THAT INCLUDES MATH

Dr. Lynda Colgan
Faculty of Education
Queen's University

March 20, 2018



CALCULATING THE TIME CHILDREN SPEND AT HOME vs. at SCHOOL FROM BIRTH TO AGE 18

- Assume children sleep 8 hrs/day.
- $24 \text{ hrs/day} - 8 \text{ hrs sleeping} = 16 \text{ waking hrs/day}$
- $365 \text{ days/yr} \times 18 \text{ years} = 6\,570 \text{ days}$
- $6\,570 \text{ days} \times 16 \text{ waking hrs/day} = 105\,120 \text{ waking hours by age 18}$
- Average 6 hrs per day at school.
- Average 190 school days/year
- $190 \text{ school days/yr} \times 6 \text{ hrs/school day} = 1\,140 \text{ hrs per school year}$
- $1\,140 \text{ hrs/school year} \times 13 \text{ school years (1 yr Kindergarten + 12 years through to end of secondary school)} = 14\,820 \text{ school hours}$
- $14\,820 \text{ school hours} \div 105\,120 \text{ waking hours} = 0.1409817351598174$
or just 14% of waking hours by age 18 spent in school

The Family Path

- “...half of the achievement we’re responsible for as educators happens out there, so if we can do something out there to encourage more productive learning conditions, we can hit some home runs!” (K. Leithwood, 2012: Co-Producing Learning: The Family Path, video)

Parent involvement as a high-leverage student success strategy

- the support of parents as “...the single most important contributory factor to student achievement” and note that “in terms of raising student achievement, parents matter significantly”
- (Harris, Andrew-Power and Goodall (2009), p.2)
- the research over three decades is consistent and persuasive: student success is positively impacted by parent and family involvement regardless of background, socioeconomic status, or parents’ level of education (Jeynes, 2005).

Parent involvement as a high-leverage student success strategy

- “parent programs that provide resources and assistance that parents may use with their children at home are more likely to have an effect on students’ academic progress” (Stelmack, 2013 p. 3)

Overview of today's presentation

1

Council of Ontario Directors of Education

2

Responding to recent research

3

Development process

4

Choose a path that includes math

5

Questions and Discussion

Council of Ontario Directors of Education

Parent Engagement is Important to Student Success



CODE MATH TOOL-KITS

« Mon parcours inclut les maths », une boîte à outils en ligne conviviale qui est à la fois une source d'information exhaustive et une source d'inspiration pour les adolescents et les parents de l'Ontario qui souhaitent explorer des choix de cours de mathématiques du secondaire.

www.parcoursmathsontario.ca



mathconnects



Conseil ontarien des directeurs de l'éducation

Financé par :



Ontario

www.ontariodirectors.ca

Responding to recent research



SPOTLIGHT ON SCIENCE LEARNING:
*The High Cost of Dropping
Science and Math*

AMGEN

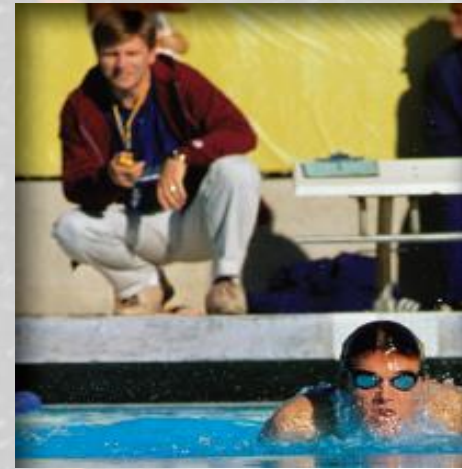
let's talk science
inspiring discovery

Less than 50 per cent – The average annual percentage of secondary school graduates, across a selection of provinces, completing Grade 11 and 12 level mathematics and science courses.

Spotlight on Science, 2012

Memorial University of Newfoundland requires ALL incoming students to have Grade 12 math and science credits. In general, students without Grade 12 math can expect to be excluded from 40 to 75 per cent of program areas and those without Grade 12 science can expect to be excluded from 30 to 65 per cent of programs at Canadian universities. Students without Grade 11 or 12 math can also expect to be excluded from half of community college programs⁸.

Responding to recent research: Provide better roadmaps and clearer pathways throughout school to work.



Responding to recent research



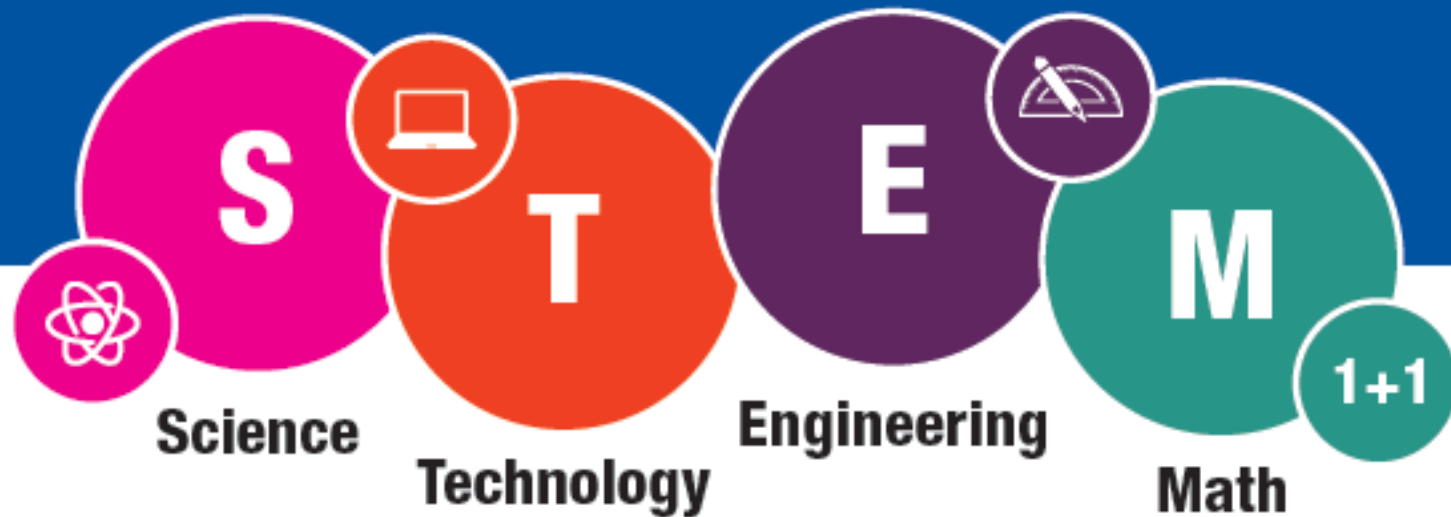
SPOTLIGHT ON SCIENCE LEARNING

EXPLORING PARENTAL INFLUENCE:

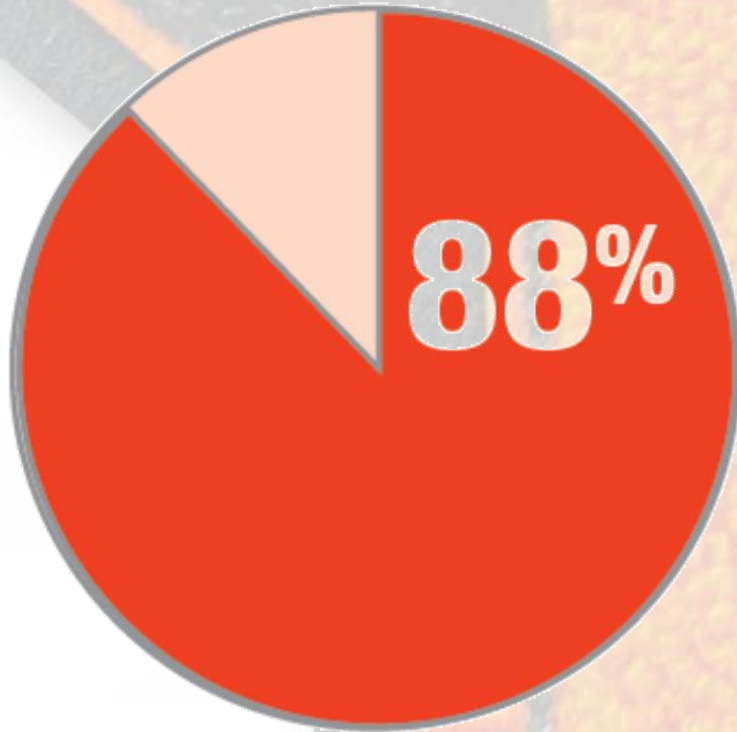
Shaping teen decisions regarding science education

Responding to recent research

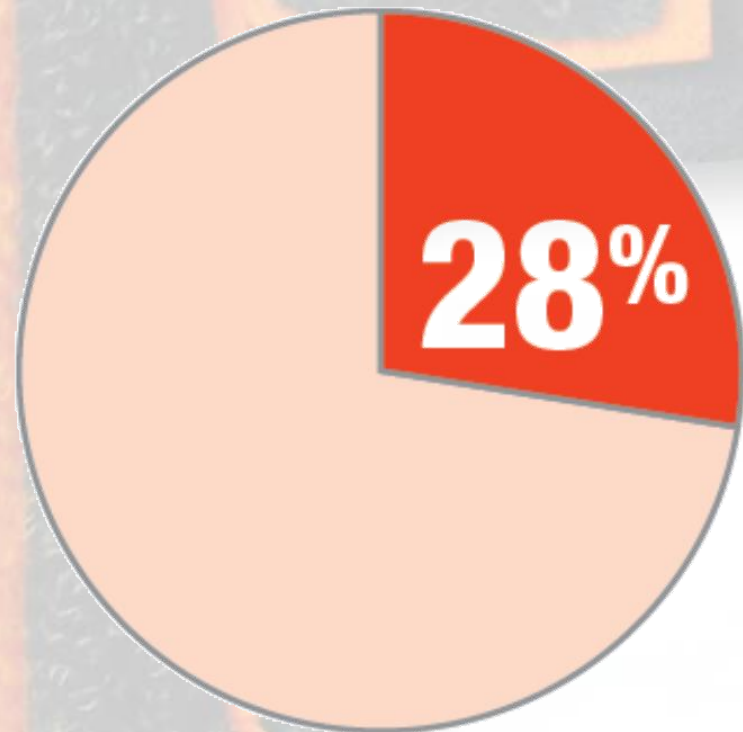
Parents are influential, but not
having *the talk* with their kids



Responding to recent research



of Canadian parents believe that they can help guide their children's learning.



BUT only a small percentage of parents actually discuss the value of a STEM education with their children.

Responding to recent research



59%

31%

...par... be... e sci... is a
...nd... y a... em... requirement
...ugh... sp... - it isn't!

Responding to recent research

Student interest in STEM areas



46%

TECHNOLOGY
(instrument technician,
computers, etc.)



40%

SCIENCE
(research, manufacturing,
pharmacy, etc.)



36%

SKILLED TRADES
(automotive, cook,
cosmetician, etc.)



28%

ENGINEERING
(civil, electrical,
chemical, etc.)



22%

MATH
(accountant,
economist, etc.)



39%

ENTREPRENEUR

Development Process



*Throughout the Capsules and Guides, the term parents refers to both parents and guardians.
**All content is for informational purposes only.
***All content is for informational purposes only.

Development Process



Choose a path that includes math

“Choose a Path that includes Math” is a comprehensive, user-friendly online tool kit for Ontario Students, their Parents, and Teachers. This resource shows us WHY selecting high school math courses is so important, and HOW we can all work together to support ‘math success’ and bright futures for our youth!

www.mathpathontario.ca



mathconnects



CODE

Council of Ontario Directors of Education

Funded by:  Ontario

A large, stylized letter 'Q' logo. The 'Q' is composed of a dark green outer ring and a blue inner ring. A dark green diagonal stroke crosses through the center of the 'Q' from the top-left to the bottom-right.

and

eh.?

References

- Patall, E., Cooper, H. & Civey Robinson, J. (2008). Parent involvement in homework: a research synthesis. *Review of Educational Research*, 78(4), 1039-1101.
- Sheldon, S. & Espstein, J. (2005). Involvement counts: family and community partnerships and mathematics achievement. *The Journal of education Research*, 98(4), 196-206.