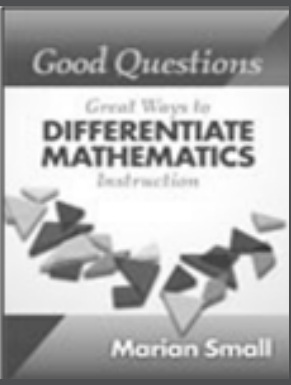


Summer 2011 • Problem Set



This following set of problems are from “Good Questions: Great Ways to Differentiate Mathematics Instruction” (Marian Small 2009). The samples of open questions are one example of implementing differentiated math instruction into the classroom.

Guiding principles for Open Questions invite:

- correct responses at the variety of levels of abilities
- students to participate together as a class in follow-up discussions.

When assessing the student’s work, it is helpful to keep the mathematical Big Ideas in mind. They can reveal what your students genuinely know and understand.

Here are some Patterns and Algebraic Thinking big ideas to guide the following tasks:

- Patterns can be represented in a variety of ways.
- Some ways of displaying data actually highlight patterns.
- Much of mathematics of the other strands is built on a pattern foundation.
- Algebra is a way to represent and explain mathematical relationships and to describe and analyze change.
- Relationships between quantities can be described using variables.



Marion Small

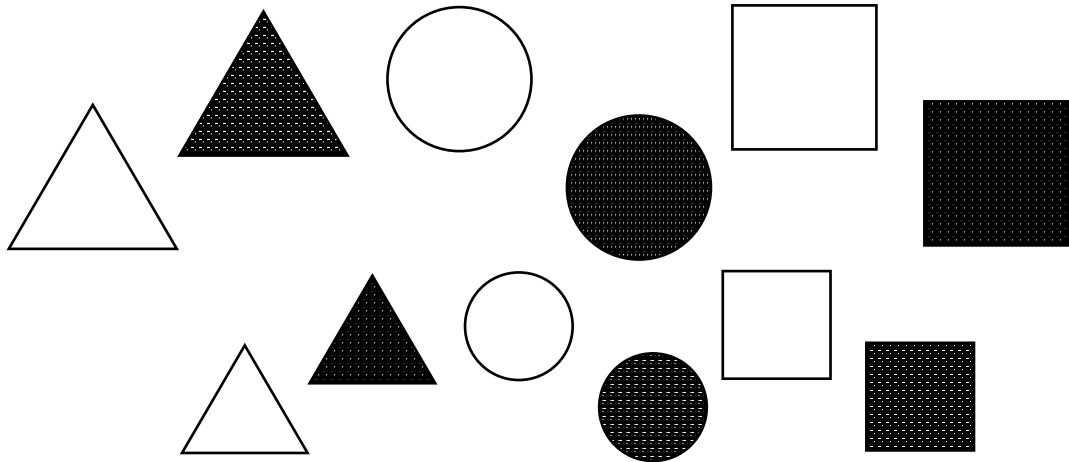
<p>GRADES K-2</p>	<p>BIG IDEA. Any pattern, algebraic expression, relationship, or equation can be represented in many ways.</p>
<p>Sabrina made the pattern below.</p> <div style="text-align: center;"> </div> <p>Make a pattern that you think is like this. Tell why the patterns are alike.</p>	
<p>REFERENCE Small, Marian. Good Questions: Great Ways to Differentiate Mathematics Instruction. New York: Teachers College Press, 2009.</p>	

GRADES
3-5

BIG IDEA.

A group of items form a pattern only if there is an element of repetition, or regularity, that can be described with a pattern rule.

Use shapes like these to make a pattern that changes in two ways.



GRADES
6-8

BIG IDEA.

A pattern, algebraic expression, relationship, or equation can be represented in many ways.

A number pattern can be described by a table of values. The first number tells the position of the number in the pattern, and the second number is the pattern value. For example, the pattern 2, 4, 6, 8, ... is described by:

1	2	3	4	5	6
2	4	6	8	10	12

Then the table of values can be graphed; the x-coordinate is the position number and the y-coordinate is the term value. Suppose the graph for a pattern goes (2,3). What could the pattern be?

British Columbia Association of Mathematics Teachers

What does the BCAMT do?

Our goals and objectives include:

1. to promote excellence in math education throughout the province, including all areas from K-12
2. to promote development and implementation of sound curriculum
3. promoting good communication with members, other educators, Ministry of Education, parents, students and the community

How do we do this?

1. Conferences
 - Fall Math Conference every October – see image for this year’s conference
 - New Teachers Math Conference every spring
 - Interior Math Conference every spring
 - Partner with North Central Zone Conference every spring
 - Regional professional development meetings throughout the province for elementary, middle, and secondary teachers
2. Publications
 - Vector – math education journal published since the 1960s
 - Newsletter 3 times a year
 - Various other initiatives, such as recent “Questions Worth Asking” publication
3. Communication
 - Thriving math education listserv with over 800 members
 - Website www.bcamt.ca
4. Grants & Awards
 - Various teachers awards (new teacher, elementary, secondary, service, lifetime membership)
 - Grants to teachers for initiatives that support our goals

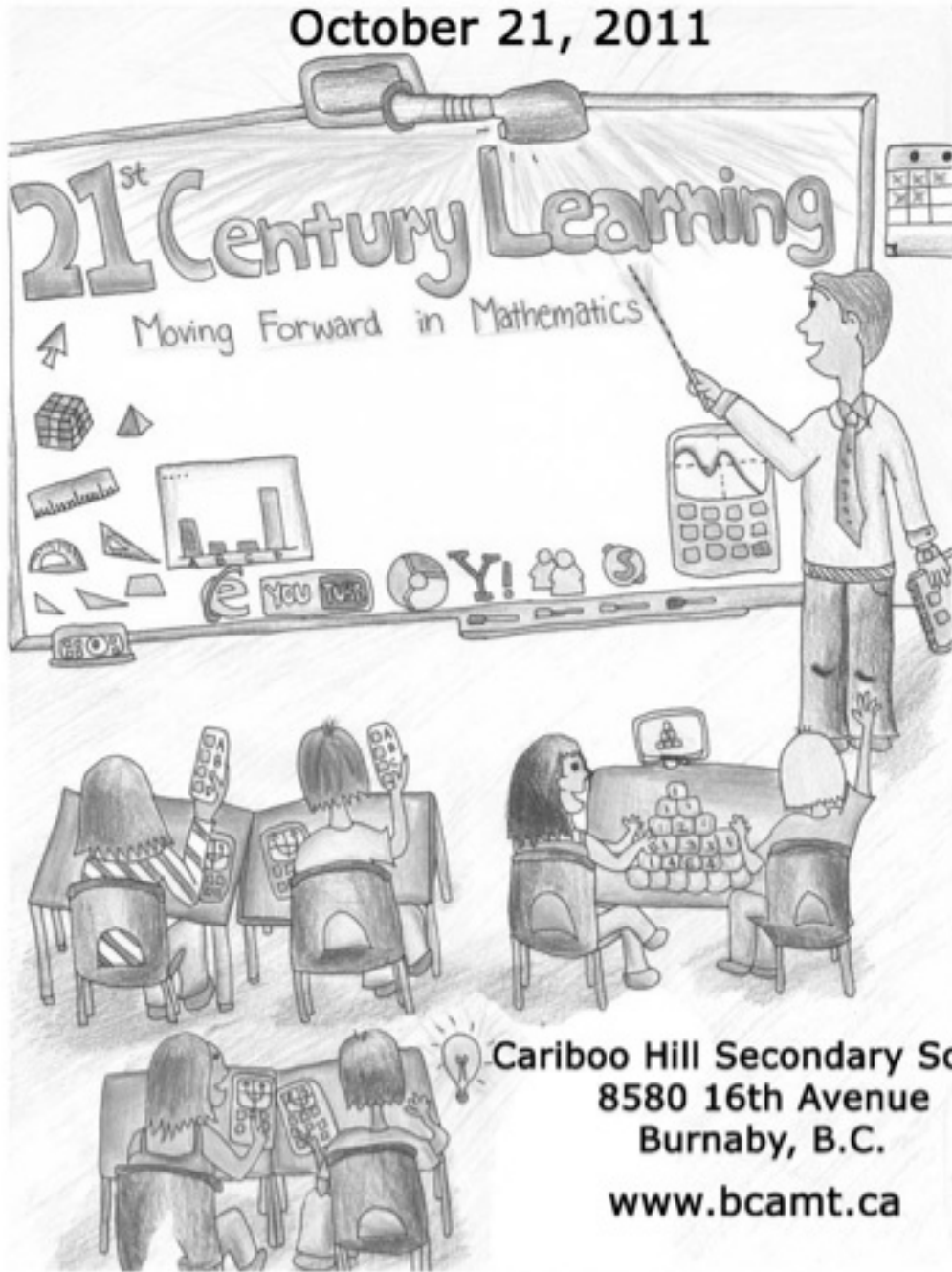
What you get when you join?

- Three Vector journals per year
- Three Newsletters from the President of the BCAMT, updating you on current happenings in BC math education
- Other publications from the BCAMT, such as the recently completed “Questions Worth Asking” book
- Opportunity to apply for a grant to help fund a math initiative that you are involved in
- Access to BCAMT mentorship program
- Ministry updates related to math education



BC Association of Mathematics Teachers Fall Conference

October 21, 2011



Cariboo Hill Secondary School
8580 16th Avenue
Burnaby, B.C.
www.bcamt.ca

Registration deadline: Monday, October 17

Registration Early Bird deadline: Friday, October 7

\$130 BCTF Teachers | \$150 Non-BCTF Teachers | \$70 Student Teachers

Sign up as a member, tick appropriate math checkbox, detach sheet and mail to address shown below.

PROVINCIAL SPECIALIST ASSOCIATIONS

Surname _____ BCTF ID number _____
 Given name(s) _____ Former name _____
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(if different from school)

Name and address of school/institution/business _____
 _____ School district number _____

E-mail address _____
 Visa/Mastercard number _____ Expiry date _____

Approval number _____

PSA membership—BCTF member	
BCTF MEMBER	STUDENT/ RETIREE/TTOC
41 <input type="checkbox"/> \$35.00 Art	<input type="checkbox"/> \$20.00
42 <input type="checkbox"/> \$35.00 Business Education	<input type="checkbox"/> \$23.00
44 <input type="checkbox"/> \$40.00 Counsellors	<input type="checkbox"/> \$25.00
45 <input type="checkbox"/> \$35.00 Immersion/Francophone	<input type="checkbox"/> \$15.00
46 <input type="checkbox"/> \$35.00 English Language Arts	<input type="checkbox"/> \$15.00
47 <input type="checkbox"/> \$35.00 Home Economics	<input type="checkbox"/> \$16.00
48 <input type="checkbox"/> \$35.00 Intermediate	<input type="checkbox"/> \$15.00
49 <input type="checkbox"/> \$40.00 Teacher-Librarians	<input type="checkbox"/> \$15.00
50 <input type="checkbox"/> \$40.00 Mathematics	<input type="checkbox"/> \$20.00
51 <input type="checkbox"/> \$40.00 Modern Languages	<input type="checkbox"/> \$15.00
52 <input type="checkbox"/> \$60.00 Music	<input type="checkbox"/> \$36.00
53 <input type="checkbox"/> \$35.00 Learning Assistance	<input type="checkbox"/> \$10.00
54 <input type="checkbox"/> \$19.00 Physical Education	<input type="checkbox"/> \$15.00
55 <input type="checkbox"/> \$45.00 Primary	<input type="checkbox"/> \$22.50
57 <input type="checkbox"/> \$35.00 Science	<input type="checkbox"/> \$10.00
58 <input type="checkbox"/> \$30.00 Technology Ed	<input type="checkbox"/> \$20.00
59 <input type="checkbox"/> \$30.00 Social Studies	<input type="checkbox"/> \$15.00
60 <input type="checkbox"/> \$30.00 Special Ed	<input type="checkbox"/> \$15.00
62 <input type="checkbox"/> \$35.00 Drama	<input type="checkbox"/> \$20.00
63 <input type="checkbox"/> \$35.00 Gifted	<input type="checkbox"/> \$18.00
64 <input type="checkbox"/> \$25.00 Distributed Learning	<input type="checkbox"/> \$10.00
65 <input type="checkbox"/> \$35.00 Computer	<input type="checkbox"/> \$15.00
66 <input type="checkbox"/> \$25.00 Environmental Ed	<input type="checkbox"/> \$15.00
67 <input type="checkbox"/> \$20.00 Rural and Small Schools	<input type="checkbox"/> \$10.00
68 <input type="checkbox"/> \$25.00 Peace & Global Ed	<input type="checkbox"/> \$10.00
69 <input type="checkbox"/> \$25.00 ESL PSA	<input type="checkbox"/> \$15.00
70 <input type="checkbox"/> \$30.00 Alternate Ed	<input type="checkbox"/> \$15.00
71 <input type="checkbox"/> \$25.00 Aboriginal Ed	<input type="checkbox"/> \$15.00
72 <input type="checkbox"/> \$20.00 Co-operative Learning	<input type="checkbox"/> \$10.00
73 <input type="checkbox"/> \$35.00 Dance	<input type="checkbox"/> \$12.50
74 <input type="checkbox"/> \$20.00 Adult Educators	<input type="checkbox"/> \$10.00
75 <input type="checkbox"/> \$30.00 Culinary Arts	<input type="checkbox"/> \$16.00
76 <input type="checkbox"/> \$20.00 Educators Against Racism	<input type="checkbox"/> \$10.00

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Fees include GST (R106779291 RT0001). HST registration R106779291.			
SUBSCRIBER	HST	TOTAL	
41 <input type="checkbox"/> \$53.50 Art	\$6.42	\$59.92	
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44 <input type="checkbox"/> \$58.50 Counsellors	\$7.02	\$65.52	
45 <input type="checkbox"/> \$53.50 Immersion/Francophone	\$6.42	\$59.92	
46 <input type="checkbox"/> \$53.50 English Language Arts	\$6.42	\$59.92	
47 <input type="checkbox"/> \$53.50 Home Economics	\$6.42	\$59.92	
48 <input type="checkbox"/> \$53.50 Intermediate	\$6.42	\$59.92	
49 <input type="checkbox"/> \$58.50 Teacher-Librarians	\$7.02	\$65.52	
50 <input type="checkbox"/> \$58.50 Mathematics	\$7.02	\$65.52	
51 <input type="checkbox"/> \$48.50 Modern Languages	\$5.82	\$54.32	
52 <input type="checkbox"/> \$78.50 Music	\$9.42	\$87.92	
53 <input type="checkbox"/> \$53.50 Learning Assistance	\$6.42	\$59.92	
54 <input type="checkbox"/> \$47.50 Physical Education	\$5.70	\$53.20	
55 <input type="checkbox"/> \$65.00 Primary	\$7.80	\$72.80	
57 <input type="checkbox"/> \$53.50 Science	\$6.42	\$59.92	
58 <input type="checkbox"/> \$48.50 Technology Ed	\$5.82	\$54.32	
59 <input type="checkbox"/> \$48.50 Social Studies	\$5.82	\$54.32	
60 <input type="checkbox"/> \$48.50 Special Ed	\$5.82	\$54.32	
62 <input type="checkbox"/> \$53.50 Drama	\$6.42	\$59.92	
63 <input type="checkbox"/> \$53.50 Gifted	\$6.42	\$59.92	
64 <input type="checkbox"/> \$43.50 Distributed Learning	\$5.22	\$48.72	
65 <input type="checkbox"/> \$53.50 Computer	\$6.42	\$59.92	
66 <input type="checkbox"/> \$43.50 Environmental Ed	\$5.22	\$48.72	
67 <input type="checkbox"/> \$38.50 Rural and Small Schools	\$4.62	\$43.12	
68 <input type="checkbox"/> \$43.50 Peace & Global Ed	\$5.22	\$48.72	
69 <input type="checkbox"/> \$43.50 ESL PSA	\$5.22	\$48.72	
70 <input type="checkbox"/> \$48.50 Alternate Ed	\$5.82	\$54.32	
71 <input type="checkbox"/> \$43.50 Aboriginal Ed	\$5.22	\$48.72	
72 <input type="checkbox"/> \$38.50 Co-operative Learning	\$4.62	\$43.12	
73 <input type="checkbox"/> \$53.50 Dance	\$6.42	\$59.92	
74 <input type="checkbox"/> \$38.50 Adult Educators	\$4.62	\$43.12	
75 <input type="checkbox"/> \$48.50 Culinary Arts	\$5.82	\$54.32	
76 <input type="checkbox"/> \$38.50 Educators Against Racism	\$4.62	\$43.12	

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[http://liveink.bcctf.ca/liveinkdavnodes/828090/PSA Application form to Dec 31 2011 Jun 22 11.docx](http://liveink.bcctf.ca/liveinkdavnodes/828090/PSA%20Application%20form%20to%20Dec%2031%202011%20Jun%2022%2011.docx)
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