

Computing in Elementary School: An Exploration of Computational Thinking Approaches and Concepts Across Disciplines (1813224)

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The intention of the exploratory study is to better understand the current landscape of how elementary teachers engage students in the skills and concepts associated with computing, so that future implementation efforts are viable and improve teaching and learning in all disciplines.



Multilevel Models Sample Size

A-priori Sample Size Calculator for Hierarchical Multiple Regression

Example: $\hat{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$

Set A Set B

Anticipated effect size for set B: ?

Desired statistical power level: ?

Number of predictors in set A: ?

Number of predictors in set B: ?

Probability level: ?

Calculate!

Minimum required sample size: **87**

SES,
Location,
technology
access

Experience, PD,
Grade level, Level
of Concern

Sample	Current	Need
Teachers	147	1232
Schools	16	87

Soper, D.S. (2019). A-priori Sample Size Calculator for Hierarchical Multiple Regression [Software]. Available from <http://www.danielsoper.com/statcalc>

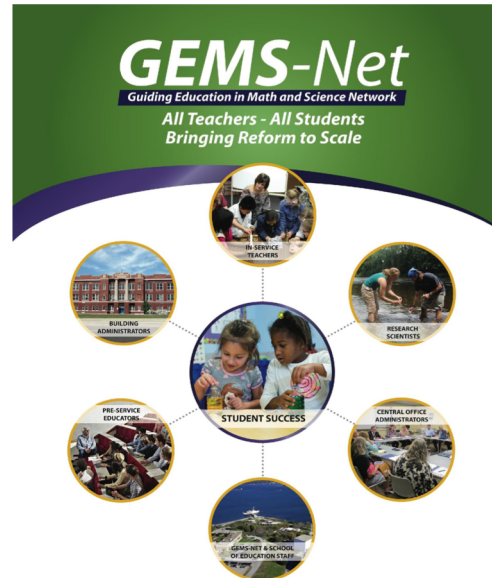
Lesson Learned/ Changes Made

TIMING

Elmwood Park Community Unit District 401						
2019-2020 School Calendar						
July 2019						
Su	M	Tu	W	Th	F	Sa
1	2	3	4	5	6	
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			
August 2019						
Su	M	Tu	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
September 2019						
Su	M	Tu	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					
October 2019						
Su	M	Tu	W	Th	F	Sa
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
November 2019						
Su	M	Tu	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
December 2019						
Su	M	Tu	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				
January 2020						
Su	M	Tu	W	Th	F	Sa
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
February 2020						
Su	M	Tu	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
March 2020						
Su	M	Tu	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				
April 2020						
Su	M	Tu	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	
May 2020						
Su	M	Tu	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
June 2020						
Su	M	Tu	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

○ First and Last Day of School △ Parent Teacher Conferences

RELATIONSHIPS



At GEMS-Net, we balance leading educational research and current school policy in the practical context of the classroom.

Since 1995

INCENTIVES



Teacher Growth and Support

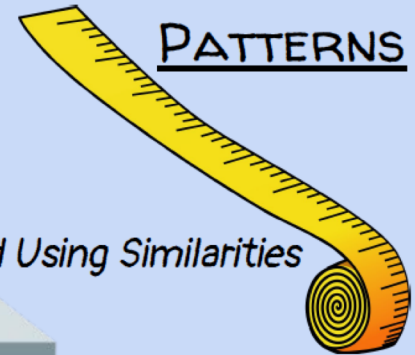
*What thinking tools do we use
in our classroom?*

DECOMPOSITION



Breaking Down Into Parts

PATTERNS

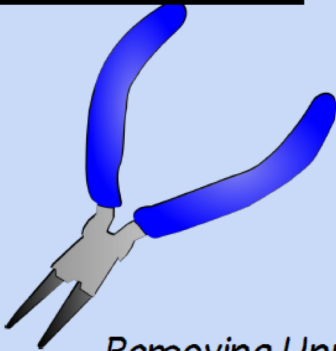


Spotting and Using Similarities

Computational Thinking Toolbox

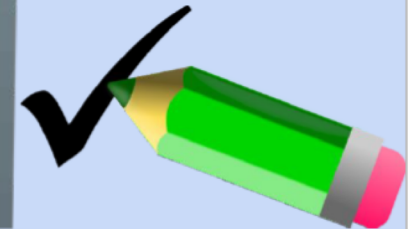
TINKERING	-----	experimenting and playing
DEBUGGING	-----	finding and fixing problems
COLLABORATING	-----	working together
CREATING	-----	designing and making
PERSEVERING	-----	keep working

ABSTRACTION



Removing Unnecessary Details

ALGORITHMS



Making Steps and Rules

Teacher Professionalism

1 PLU Toward Recertification



What else?

