00:15:50 Cindy Bryant: Greetings from Springfield, MO. Thank you for joining session 49! Please change your audio setting to All panelists and attendees so everyone can see your posts.
00:15:57 Trena Wilkerson: Hello from Waco, TX!
00:16:06 Firoza Rahman: Hello from Bronx, NY!
00:16:07 Sarah Patterson: Hello from Los Angeles!
00:16:07 Cindy Luper: Hi from Arkansas
00:16:11 JoAnne Magden: PHX, AZ
00:16:11 Thi Nguyen: Greeting from Gladstone, MO.
00:16:12 dana dulzo: hello from dana novi mi
00:16:14 Tanya Landry: Greetings from Baton Rouge, LA!
00:16:14 Karoulin Aljoris: MI
00:16:14 LANY JAMERO: good morning from the Philippines
00:16:15 Lawanda Mahomes: Hi there! Chicago, Illinois
00:16:16 Debra Reed: Las Vegas
00:16:16 Christina Tully: Hi from Las Vegas, NV
00:16:16 David Wees: Hi from Courtenay, BC!
00:16:17 Tina Hill: Howdy! from Bristol TN
00:16:18 Catherine Bronikowski: Hi from Milwaukee, WI
00:16:18 Bony Cellars: left coast
00:16:18 Stephanie Ruggiero: Hello from Monroe North Carolina
00:16:19 Olga Kosheleva: Hello from El Paso, TX!
00:16:20 Russell Maciag: Hello, Oak Park, MI!
00:16:21 Sheila Kirton-Robbins: Hello from Nashville, NC
00:16:22 Esther Winikoff: hello from Baltimore!
00:16:23 Ayunda Sri Wahyuningrum: hello from Indonesia
00:16:24 Michael Lanstrum: Hello from Cleveland, OH
00:16:24 Dr. Yankey: GA
00:16:24 Katherine Marsden: Martinez, California
00:16:24 Paula Wardell: Hello from Detroit!
00:16:27 Shashidhar Belbase: Hello from United Arab Emirates (UAE) 😊
00:16:27 Christy Werner: hello from Shillington, PA
00:16:28 Shannon Hammond: Hi from Worcester Mass!
00:16:29 JERRAME IBABAO: hello good morning! from Philippines
00:16:30 Diane Thole: Bronxville, NY hi!
00:16:30 India Puch: India from Columbia, SC
00:16:32 Nora Marasigan: Hello from Philippines
00:16:32 Maureen Charron: hi from poughkeepsie ny
00:16:33 RATI JONEJA: RATI JONEJA FROM India
00:16:34 Michelle Funai: Aloha from Honolulu, HI!
00:16:35 Michelle Davey: Northern Michigan
00:16:36 jill brown: Hi from Australia
00:16:36 Patrick Montague: Hello from Weslaco, Tx
00:16:36 Ron Napper: Hello from Murfreesboro, TN
00:16:37 Erica Krick: Gilbert, Arizona
00:16:38 Mary Jo Davis: Hello from Saline MI
00:16:38 Sharon Black-MacKinnon: Good evening from sunny NB, Canada
00:16:40 Richard Miles: howdww
00:16:42 Jeff Shih: Hi from Las Vegas! Always looking forward to learning from David Wees!

00:16:49 Chonda Long: Hello from Northern VA
00:16:49 Ann Assad: Hello from Paducah KY
00:16:51 Noe Eugenio: Hello from Philippines!
00:16:51 Hank Kepner: hi from TX & WI
00:16:52 Amy Tucker: Hello from Wayne, Maine!
00:16:53 Nancy Turner: Hi, from Tucson, AZ
00:16:55 Chance Nalley: Chance Nalley, in NYC
00:16:59 Aya Zvaigzne: Nashville, TN represents. Warmest regards to all.
00:17:02 Mary Dugas: hi! Louisiana in the house
00:17:04 Samantha Bustos: Hello from Collierville, TN
00:17:05 Dalila Rivera: Hello from Kingsville,Tx
00:17:05 Jennifer Henderson: Hello from Acworth Georgia
00:17:07 Leslie Sorace: Hi from AZ!
00:17:10 Ysrael Sarmiento (Philippines): Hi there! I'm from the Philippines. :-)
00:17:15 Karin Marshall: Hello from Houston, TX
00:17:15 Maral Aznavour: Hello from Texas!
00:17:15 Jaclyn Murray: Hi from Cumming, GA
00:17:18 Dominador Guillermo: Jax, FL
00:17:24 Dexter Carpio: Hello from Philippines ♡
00:17:24 Myra Absin: Good Morning from Philippines.
00:17:26 Bishnu Khanal: Hello from Kathmandu, Nepal
00:17:26 paloma carrera: Hi from El Paso, Tx
00:17:27 Gail Saltveit: Portland, Oregon
00:17:31 Mary Fisher: Hello from KCMO!
00:17:42 Katherine Raiguel: Hello from Willow Grove, PA
00:17:44 Rolando II Delos Reyes: Good morning from Manila Philippines! PH
00:17:45 Scott Hamilton: Hello from Los Angeles
00:17:54 Judy Radigan: Hi, I am from Maine!
00:17:57 Jorge Veloso: Hi from Angola.
00:17:59 Jet Yeung: Hello Everyone--Jet from Henderson, Nevada
00:18:05 matthew roberts: What up from Phx Az
00:18:06 Tiffany Jones: Hello from San Antonio, Texas! Be smart, stay safe!
00:18:07 Amy Tucker: Howdy, fellow Mainah
00:18:08 Christa Charlton: Hello from rural Illinois! Happy to be here:)
00:18:10 Abdul Razak Othman: From malaysia
00:18:10 Nell Thurlow: Hello from Lafayette Louisiana
00:18:11 Justin Klinger: Hello From Romeoville IL
00:18:13 David Wees: Make sure to change the chat window target to all panelists AND attendees. :)
00:18:19 Adam Perry: Hi from Oakland CA!
00:18:19 Jamie Cook: hi from Mesa, AZ
00:18:20 Geraldine Hayden: Good evening, Geri from Virginia Department of Correctional Education
00:18:29 jeanine colwell: hello from Newport, NC
00:18:31 Catherine VanNetta: Hello from Baltimore, MD
00:18:32 MaryJo Swann: Hello from Kansas!
00:18:32 Kathy Medrick: Hello from Cleveland, OH
00:18:36 Jennifer Winne: Hello from Albany, NY

00:18:37 Joyce Meier: Hello from IL!
00:18:40 Christine Rudakewycz: Hello from New York City!
00:18:41 Kelly York: Mooresville, NC here
00:18:49 Abigail Santiago: Hi from KY
00:18:49 Kendra Cole: Hi from Atlanta, Ga !
00:18:58 Masooma Razzak: Aloha from Houston!
00:19:00 Patrick Guerra: hi from Philippines
00:19:01 Kendra Edwards: Hi from Brooklyn, NY
00:19:01 Chris Pons: Chris from Kinsgton, PA (on vacation in Ocean City, NJ)
00:19:03 Tanya Dewland: Hi from Tucson, AZ
00:19:05 Kathy Felt: Hi from Illinois!
00:19:16 Jessica Edrington: Hi from Indiana!
00:19:19 Paula Fitzpatrick: Lake Chelan,WA
00:19:20 Mugdha Patil: Hello from Fremont, CA!
00:19:27 Rita Modrzynski: Hello from North Georgia! :)
00:19:29 Joanne Schmitt: Hi from Sequim, WA
00:19:32 Reycel Pacaanas: hi from new mexico
00:19:35 Jayson Sentinellar: hello from Philippines
00:19:41 Mark Vasicek: Ankeny Iowa
00:19:45 Candace Bailey: Hello from NC
00:19:46 David Barnes: Hello all from Northern Virgina!
00:19:48 MAYLYN MAGNO: Good Morning from Davao City, Philippines
00:19:49 Lesly Brown: Hello from Tennessee. Lesly Brown
00:19:49 April Hone: there! San Antonio Texas wool!!
00:19:50 Melissa Sawyer: Hi, from NC
00:19:56 Eduardo Enjambre: Hello from Maryland.
00:20:06 Fran Heckermann: Greetings from Jacksonville, FL
00:20:14 Kelly Claridge: Hello from Syracuse, NY
00:20:17 Rene McNeal: Hi from Alabama
00:20:21 Bobby Flores: hello from Houston, TX
00:20:24 Gladys Okugbeni: Gladys from Maryland /DC
00:20:26 Maria Melendez: Hello from IL
00:20:35 Patrick Guerra: Mabuhay
00:20:45 Daniel Irving: Hello from North Providence, RI!
00:20:57 Joanne Schmitt: David is great!
00:21:00 Angelita Beltran: Hello from Waukegan, IL
00:21:01 Rosalie Macaspac: hello, from Philippines
00:21:05 Haohao Wang: greetings from southeast MO state University!
00:21:08 Nicole Walden: Nicole from Central Ohio
00:21:09 Rosalyn Bantay: Hello from Philippines
00:21:11 Viragni Chand: Hello, from Bay Area, California
00:21:14 Robin Schwartz: Hi from NYC
00:21:18 Faith Peddie: Welcome David!!!
00:21:19 David Wees: Don’t forget to change your chat window from all panelists to all panelists and attendees.
00:21:24 Randolph Chapman: hello
00:21:30 Catherine Abbott: Yay!
00:21:30 Chris Primeaux: Hello everyone. Chris from Stillwater.
00:21:33 WARA SABON DOMINIKUS: hello fro Kupang Indonesia

00:21:34 Katrina Hall: hello from N.H.
00:21:38 Sharon Black-MacKinnon: Welcome David
00:21:44 Shonda Moore: Hello from Austin, TX
00:21:44 Robin Schwartz: good o seeing you David
00:21:49 Ioana Boca: Hello from Champaign-Urbana Illinois
00:21:50 Denise Walston: hello from Chesapeake, Va
00:21:50 Laura Bowsher: Do any of you ever get a notice that says we're sorry you couldn't attend 10 minutes before the webinar? When it hasn't even started yet?
00:21:55 Genesis Docena: hello from Washington DC
00:22:04 Sreevelmurugan Vamadevan: Sreevelmurugan Vamadevan from Miami Az
00:22:06 Carrie Fraher: Hello from Chicago
00:22:16 jill brown: Laura i have not :)
00:22:24 Nithya Soundararajan: Hi everyone
00:22:34 Catherine Abbott: Hello UMCP and PGC
00:22:57 Christina Atkins: hi from Nebraska
00:23:29 Pamela Liegl: Good evening from Streator, IL
00:23:29 Alexandra Groseta: Hi from AZ
00:23:32 Sharon Black-MacKinnon: @Laura it is usually for the previous session … you may have missed one that you signed up for...it has happened to me on nights when I have had no power and was not able to get connected
00:24:58 Faith Peddie: @Donna, yes your mics are muted.
00:25:22 Anupama Anand: Good evening all
00:25:22 Catherine Abbott: Routines are helpful for all students, but they are critical for emerging bilingual students to participate at a higher level in math class
00:25:28 Michael Oluwo: Good evening from Hyattsville, Maryland
00:25:42 Anupama Anand: Sorry for bieng 5 minutes late
00:25:45 Faith Peddie: @Alma Miho, Carol Stream is where I was born! Hi from Reston, VA!
00:25:51 harry holloway: hi sorry a bit late
00:26:30 Alma Miho: I am glad to hear
00:26:42 Nick Polak: @Catherine That's a great point. The more comfortable students feel with their routines, the less they need to focus on the and the "what" and get to focus on the "why"
00:26:46 harry holloway: routines are great for students, I hate them.
00:27:14 LeAnna Deveaux-Miller: FROM NEW PROVIDENCE, THE BAHAMAS..GOOD EVENING
00:27:14 NEIL ANGELO FULLENTE: Hello! I watch from Sorsogon City, Philippines
00:27:15 Jill Ethridge: Hello from Smyrna TN
00:27:16 Robin Schwartz: Hi Harry good to see you if you don't mind...why do younot like them
00:27:41 Adam Perry: Routines or Students?
00:27:42 NEERU SANDHU: Hello. Neeru from Toronto
00:27:59 Catherine Abbott: @Nick....thanks
00:28:05 Faith Peddie: ChongMin do you have a specific question?
00:28:06 Joanna Nilsen Badami: Hello from Washington state
00:28:16 Dr. Yankey: routine help students to focus and reduce behavior

00:28:16 Faith Peddie: Melanie, do you have a specific question?
00:28:23 harry holloway: my mind resists them. I consider them valuable just really hard, and something that my phicy rejects
00:28:46 Carly Jardinier: Hello from MD, USA :)
00:28:53 Shashidhar Belbase: Yes, choosing an appropriate strategy based on learners' readiness and prior knowledge may be a good way to start meaningful discussions with critique and argument.
00:28:58 Jessica Edrington: I lost audio - anyone else?
00:29:04 Tonya McIntyre: Hi from Wadmalaw Island, SC :)
00:29:11 NEERU SANDHU: I can't hear
00:29:17 Nick Polak: I can hear fine
00:29:17 David Barnes: I can hear.
00:29:18 Russell Maciag: i can
00:29:18 Kelly York: I can fine
00:29:19 Amy Tucker: I can hear
00:29:19 Tonya McIntyre: I can hear
00:29:21 Adam Perry: I can hear!
00:29:24 Sheila Kirton-Robbins: Audio good
00:29:26 Abigail Santiago: Perfect
00:29:26 jill brown: i can hear in Aus :)
00:29:26 Firoza Rahman: I can hear.
00:29:26 Shauna Brown: hi from New York
00:29:28 Karoulin Aljoris: good
00:29:29 Anupama Anand: i can hear
00:29:30 Faith Peddie: @Jessica, the audio is working. Please check your Zoom audio settings
00:29:48 Alma Miho: I can
00:30:33 Shashidhar Belbase: Skepticism may demonstrate students' awareness and consciousness toward what they are doing. Thank you.
00:30:46 harry holloway: why would you solve first?
00:31:01 Denise Juern: Hi from IL
00:31:10 Alma Labrador: Are we given access to some of these resources?
00:31:22 David Wees: Yes, Alma.
00:31:27 Alma Labrador: thanks
00:31:32 Jessica Edrington: @Faith - and what should they be? I tried playing with it, but it was working and then cut out.
00:31:35 harry holloway: this is not a problem, it is an exercise.
00:31:37 Karoulin Aljoris: b a
00:31:38 Faith Peddie: @Alma, the resources will be shared throughout the webinar and tomorrow at www.nctm.org/100
00:31:45 Catherine Abbott: Wait time can be hard
00:31:57 Myra Absin: b
00:31:58 Alma Labrador: A to 2
00:31:59 Karoulin Aljoris: b1
00:32:03 Gladys Okugbeni: A TO 1. B TO 2
00:32:05 Adam Perry: @Harry it’s a warm up
00:32:06 Amy Tucker: 3a and 2b
00:32:09 Dr. Yankey: B1
00:32:15 Christina Atkins: B1 and A3
00:32:18 Sharon Black-MacKinnon: Three rows of (x +2) for a total of 3 x's

and 6 units so B belongs with 2
00:32:19 Faith Peddie: @Jessica: "Select a speaker" -> Speakers/headphones. Do you see that?
00:32:22 Gladys Okugbeni: B TO 2 ,A = 1
00:32:22 harry holloway: still not a problem...
00:32:24 Shashidhar Belbase: A-3, and B-2
00:32:25 Alexandra Groseta: Each long rectangle represents 1 x
00:32:25 Myrna Cabreros: A to 2 because of the big tiles and small tiles
00:32:28 Christine Rudakewycz: B = 2. There are three groups of (x + 2).
00:32:29 Kathleen Bliss: I know the squares are worth 1, the sticks we don't know so they're x. A shows 3 x's and 2 ones, so that's #3
00:32:29 Ayunda Sri Wahyuningrum: A3 - B2
00:32:30 Amy Tucker: 3a - there are three bars and two unis
00:32:32 Michelle Funai: bar = x, square = 1
00:32:33 Faten Thabet: b1 and a3 because the long one is 10s and the small ones are ones
00:32:33 Nick Polak: Remember, you won't be able to convince others of your reasoning if you can't first convince yourself!
00:32:35 Firoza Rahman: I agree with 3a because I'm assuming the rectangles represent x and the squares represent integers
00:32:35 Rosalyn Bantay: B2 A3
00:32:35 Jon Phillips: rectangle is x and square is 1. A3 and B2
00:32:35 Alexandra Groseta: each small square represents 1 unit
00:32:36 Nancy Turner: I matched A to 3 because there is 3 of one typed of shape and 2 of another
00:32:36 Virgil Tang: 2 matches with B because there are 3 groups of x (which is the long tile) and two one tile blocks
00:32:36 MaryJo Swann: A connects to 3 because 3x represents the three large rectangles, while the 2 is represented by the small squares
00:32:36 jill brown: B shows 3 rows each with x + 2 hence 2
00:32:36 JoAnn Santiago: B1 and A3
00:32:37 Art Scrivener: A goes with 3x+2. x is the long bar, squares are constants.
00:32:37 Veronica Kwok: A has 3 long pieces and 2 small pieces so it looks like #3
00:32:38 Sheila Kirton-Robbins: a=3 bc there are 3 large bars and 2 small
00:32:38 Mugdha Patil: B connects to 2 because I can form 3 groups of x + 2
00:32:38 Adam Perry: I really want B to match 1
00:32:38 Zorica Lloyd: I presume the small boxes are 1 so the larger boxes must be x. So A is 3x +2 b/c there are 3 large and 2 small
00:32:40 Jennifer Eaton: The long rectangles are x and the squares are 1's. So A - 3 and B -2
00:32:40 Jamie Foster: If x= long bar and the small square is a unit, A has 3 long bars and 2 squares so it is 3x+2 which is 3
00:32:40 Jennifer Winne: Long bars are x, squares are constants, so A is 3x+2
00:32:40 Nora Marasigan: A3, B2
00:32:41 Christa Charlton: B2 & A3. A3 because there are 3 long (x) bars and 2 squares
00:32:42 Milla Aldona Efendi: A3 B2
00:32:42 Joanne Schmitt: B 2 because there are three groups of long + 2

00:32:42 Dr. Yankey: A -3 B-2
00:32:42 Bishnu Khanal: A3, B2
00:32:43 Jacqueline Fox: B matches 2. There are three similar groups. Each group has x and 2 more single squares.
00:32:43 Adam Perry: I can give an argument
00:32:44 Russell Maciag: B matches with 2 since there are 3 rows and in each row the long rectangle could represent the x and each square could represent a 1
00:32:45 Catherine Abbott: Visual A is connected to 3x + 2. Literally you can see 3 long blocks ( that is 3 times x) and there are 2 more squares (+2)
00:32:46 Jennifer Henderson: A to 3, because there are 3 of one thing and two of another
00:32:46 Kathy Felt: B to 2 because there are 3 (x+2)’s
00:32:47 Aya Zvaigzne: B has three identical rows of X plus 2
00:32:48 Mark Phipps: #3 has three x and 2 ones, just like picture A
00:32:48 Amy Tucker: 2b there are three sets of a bar and 2 units
00:32:49 Catherine VanNetta: A matches with 3 because the two small squares are the 2 and the three long rectangles are the 3x
00:32:49 Robin Schwartz: looking at how the 3 bars and 2 unis would be 32 would base 10 blocks
00:32:49 Alma Labrador: longer are x’s while cubes are ones
00:32:49 Kelly York: A-3 and B-2… there are 3 of the x bars and then 6 of the little boxes. The other is 3 of the x bars and 2 boxes
00:32:50 Nithya Soundararajan: A to 3 and B to 2; there are 3 x(big rectangles) and 2 small squares for A
00:32:51 Shannon Hammond: 3x means 3 of x's and 3(x+2) means 3 of (x+2)'s
00:32:51 Sheila Massingale: B is connected with 2 because 3(x+2) means there are 3 sets of one long bar and 2 dots.
00:32:52 Christine Rudakewycz: A = 3 because there are 3 bars with area x and 2 squares with area 2.
00:32:53 Ratu Ilma Indra Putri: A3 & B1
00:32:56 Viragni Chand: A with 3 if you take each strip as X and each square as a unit you end up with 3x + 2.
00:33:00 RATI JONEJA: A goes with 3x+2. x is the long bar, squares are constants.
00:33:00 harry holloway: assuming the long bar stands for x, and the squares stand for 1, A matches with 3 since there are 3 long bars
00:33:00 Anupama Anand: 3 to a and 2 to B
00:33:01 Shashidhar Belbase: 3long + 2 units
00:33:01 Jamie Foster: B is 3x +6 which is 1
00:33:01 Laura McGuigan: the long rectangle can be the ‘x’, the small square is the numeric digit 3A, 2B
00:33:02 Sarah Patterson: B matches 2, because each row is a long amount (x) plus 2 more units, and there are 3 rows. So one row is (x +2) and the whole thing is 3 times (x+2). B matches 2.
00:33:02 Sheila Kirton-Robbins: b=2 bc there are 3 large bars and 6 small
00:33:02 Gail Saltveit: I see 2 single squares in A and 3 is the oly one with 2 singles
00:33:03 Kathleen Bliss: With B there are 3 rows with same stuff in it - one x stick and 2 one’s. so that’s #2

00:33:03 Shonda Moore: Let the rectangle be x and the square is a constant (1). Count the boxes and the rectangles
00:33:03 Christina Atkins: sorry, B2, because it's 3 times x AND 3 times 2
00:33:03 Erin Meunier: In B there are three groups of a long piece and two small pieces --- if x is the long pieces and the little pieces are "2" then B matches up with 2
00:33:04 Joanne Schmitt: A matches 3 because there are three longs and 2 short
00:33:05 Lyubov Presnetsova: In B we have a rectangle, its area is LxW, so x +2 is length, there are 3 rows, so 3(x+2)
00:33:05 dana dulzo: 2B 3 long pieces and 6 small pieces like 3 times x and 3 times 2
00:33:05 Robin Schwartz: for B there are 3 tens and 6 unis
00:33:06 Melinda Lee: B2 There are three groups of an unknown length, x, and two singles
00:33:06 Denise Walston: 3 groups of (x +2) goes with 3(x+2)
00:33:06 Jeanetta Glass: B2 because there are 3 groups of each factor
00:33:06 Robert Steede: Visual B is 3 lots of something
00:33:07 Mary Reyes: Picture a has 3sx's and 2 ones so 3 matches
00:33:07 Suzanne Mixa: Each bar is x and each square is 1 so A is 3x + 2 (3) and B is 3x + 6 or 3(x+2) (2)
00:33:08 Dominador Guillermo: the long piece represents a length we do not know - x. the square represents 1 unit.
00:33:09 Yong Foster: A3, B2
00:33:09 Ysrael Sarmiento (Philippines): B2 and A3
00:33:11 Beth Blumberg: B goes with 2 because if you just look at the bottom line there is a long bar representing x and 2 small squares that whole unit is repeated three times
00:33:17 Alma Labrador: A to 3
00:33:18 Richard Miles: b - 2 because there are three lines of an unknown and 2-1's
00:33:21 Russell Maciag: B could match with 1 since there are 3 rows and the x could represent the variable and each square could represent 3
00:33:21 Debra Reed: A to 3 bc there are 3 long pieces and 2 short so 3x+2 B with 2 bc each row is long and 2 small so x+2 and there are 3 rows
00:33:22 Denice Ward: I would first distribute the in 1 and 2 so all expressions were in same form. Since there are 3 long bars and 6 small I would connect that to number 2, because there expression is 3x+6
00:33:22 Katherine Marsden: If x is a rectangle and 1 is a square, then the first line of B is x+2 that repeats three times so the expression 2 3(x+2) is the answer
00:33:23 Rolando II Delos Reyes: A to 3 since there are three long boxes and 2 little ones independent of each other
00:33:23 Candace Bailey: A matches to 3 because there are 3 longer sticks that represent x and two smaller blocks. B matches to 2 because there are three sets of x plus two
00:33:25 harry holloway: need to clarify what the symbols mena
00:33:25 Alma Labrador: and B to 2
00:33:26 Carrie Fraher: To use the distributive property in part 2, we'll

need 3 groups that are the same.  3 groups of x+2 matches B.
00:33:26	Shashidhar Belbase:	3 pieces of (x + 2) from 3.
00:33:28	Sheila Massingale:	3 is connected with A because it means there are 3 long bars (represented by x) and 2 dots.
00:33:30	Jennifer Henderson:	B to 2 because when you distribute the 3, you get 3x+6 there are three long bars and 6 small boxes
00:33:31	Linda Hwa:	B2 and A3
00:33:31	Randolph Chapman:	B go with 2; x is a large rectangle and each small rectangle equal 1. Each will be multiplied by 3
00:33:31	Nancy Turner:	I think b goes with 2 because each row has a large and 2 small shapes and there are 3 rows
00:33:32	Zorica Lloyd:	B has 3 Xs and 6 ones but it has 3 sets of x and 3 sets of 2 (to get the 6) so 3(x+)
00:33:32	Christina Atkins:	A has to be with #3, because it's 3 times x AND 2 extra
00:33:34	Mugdha Patil:	A connects to 3 because there are 3 rectangles and 2 squares
00:33:34	Ratu Ilma Indra Putri:	A2 B3
00:33:39	Ioana Boca:	x corresponds to a big rectangle, one unit in "2" to a smaller square
00:33:42	Ann Assad:	Eliminated the odd one and then found the one with 2
00:33:43	Claudine Clarke:	B has three rows of objects that are the same, so it could be 1 or 2 (speaking as a student thatmay not be familiar0
00:33:45	Viragni Chand:	B with 2, there are 3 sets of a strip and a square. Each strip is x and each square a unit.
00:33:45	Beth Blumberg:	Similarly A goes with 3.  There are 3 bars representing x and 2 small ones
00:33:48	Catherine Abbott:	Visual B is related to 3(x+2). If you create 3 groups where the group is a long bar(x) and 2 more (+2).
00:33:48	Sharon Black-MacKinnon:	A and 3 go together because there are three x's and two units; not an area model which 1 and 2 are demonstrating
00:33:49	Faith Peddie:	https://docs.google.com/document/d/1A7h3opXvmEuDXyqCzYjaeSJ9m-BvDtOlPr-SqemiNvw/edit
00:33:52	Mark Phipps:	B has 3 xs and 6 ones. It looks like three rows containing an x and a 2. This looks like 2 because item 1 is 3 groups of x and 6.
00:33:55	Shashidhar Belbase:	This is good thinking and reasoning exercise.
00:33:57	WARA SABON DOMINIKUS:	A3, B2
00:33:58	Ioana Boca:	so A3, B2
00:33:58	janine addison:	b has 3 bars and 6 squares, which is 3x +6  If I divide out 3 I should get 3(x+2)
00:33:59	Sarah Patterson:	A matches 3.  Because  we have 3 long blocks that are the same – that is 3 times x or 3x.  Then there are 2 additional units, making 3x +2.
00:33:59	Judy Radigan:	There are 3 groups of an unknown and 2 singles.  So the unknown and 2 is multiplied by 3.  So b goes with 2.
00:34:02	Saul Gonzalez:	Consider each square as 1 unit square. for A, we have 2 and for B we have 6. Looking at our solution we can see that 2 goes with A and 3 goes with B.
00:34:03	Faith Peddie:	Here is a link to the task:

https://docs.google.com/document/d/1A7h3opXvmEuDXyqCzYjaeSJ9m-BvDtOlPr-SqemiNvw/edit
00:34:14 Ysrael Sarmiento (Philippines): x = rectangle, constant = square
00:34:21 Faith Peddie: Thanks Annette!!
00:34:32 Chonda Long: http://davidwees.com/m/nctmtask
00:34:45 Chonda Long: http://davidwees.com/m/nctmtask
00:34:46 Catherine Abbott: Jo Boaler hurray!
00:35:20 David Wees: Routines for Reasoning
00:35:31 Dominador Guillermo: We sometimes think problems are easy until we need to explain our reasoning behind our answers.
00:35:54 Russell Maciag: good point Dominador
00:36:25 Catherine Abbott: Card tasks likes are found at https://www.map.mathshell.org/
00:36:45 Nick Polak: @Dominador That’s a great point, and it’s a great realization to lead students to, also. If you introduce this in classrooms, starting with simpler tasks is advantageous for this exact reason - it allows students to focus on the routine and the why behind the process, instead of the problem itself
00:37:22 Cindy Bryant: audio is great on my end
00:37:23 David Wees: Is the audio coming through?
00:37:26 David Wees: Thanks!
00:37:31 Shonda Moore: http://curriculum.newvisions.org/math
00:37:31 Russell Maciag: audio is good, video is choppy.
00:37:33 Claudia O'Keefe: the "Which one Doesn't Belong?" tasks are great for building arguments and reasoning
00:37:33 Gil Geeran Bangeles: Yes.
00:37:34 Amy Lovelace: yes
00:37:36 Faten Thabet: yes
00:37:37 Denice Ward: Yes
00:37:37 janine addison: yes audio is fine
00:37:39 harry holloway: yes, fine.
00:37:41 Faith Peddie: The audio is working!
00:37:44 David Wees: Can you paste in the link to the video?
00:38:03 Faith Peddie: https://drive.google.com/file/d/15sp2sr-hMUm6Q4BoqLzxV7H9mW45Q2bo/view Here is a link to the video
00:38:14 David Wees: Thanks, Faith!
00:38:17 Zorica Lloyd: I love the point and speak ides b/c it allows both parties to know for certain that the listener understands or at least gets the essence of what the speaker is talking about.
00:38:21 matthew roberts: video is choppy, but not unwatchable. Enough to get the point across
00:38:28 Chonda Long: Here is the link to the video - https://drive.google.com/file/d/15sp2sr-hMUm6Q4BoqLzxV7H9mW45Q2bo/view
00:38:42 Shashidhar Belbase: Nice, that one speaks and other points
00:38:59 Firoza Rahman: I respect the student self-corrected
00:39:05 Adam Perry: One speaks and the other points
00:39:09 Robin Schwartz: Hi Ms Rhaman
00:39:12 Robin Schwartz: Rahman
00:39:13 Kelly York: I wonder if the students knew they would have to do that before they had to go up?
00:39:13 Claudine Clarke: Love this great way to involve more

students.
00:39:18 JoAnn Santiago: Love how they worked as a team, both critical thinkers.
00:39:20 Firoza Rahman: Hey Ms. Schwartz! :D
00:39:29 JoAnne Magden: I've used this after training with Dr. Rob McDuff and Cognitive Math Modeling
00:39:36 Kathleen Bliss: she saw 3 groups...
00:39:39 harry holloway: 3 groups
00:39:42 Deborah Herring: distributive property
00:39:50 Shonda Moore: It helps those that are struggling and will get a learning opportunity and possible learn if they don't understand.
00:39:50 Kathleen Bliss: and each row/group had an "x" and two ones
00:39:52 dana dulzo: they saw six small boxes connected to 3 times 2
00:39:52 Sheila Kirton-Robbins: point and share
00:39:54 Alma Labrador: representing expressions with illustration
00:39:55 Catherine Abbott: Do the students create the sentence frames?

00:39:56 Dr. Yankey: the three groups
00:39:58 Andrea Nelson: They think that 3 goes with b because there would be 3 x's and 3 groups of 2
00:39:58 Christa Charlton: she used parethesis to explain a row and then said 3 was the 3 rows
00:39:58 Laura Bowsher: groups
00:40:04 Donna Misciagna: There were 3 groups of x + 2.
00:40:04 JoAnn Santiago: She used the distributive property.
00:40:06 Sheila Kirton-Robbins: pairs
00:40:09 Maureen Charron: she saw that there were 2 boxes three times and one bar three time
00:40:10 Nithya Soundararajan: When one student points to what the other student has to say, we get that they actually discussed and both of them understood..
00:40:10 Judy Radigan: The repetition of three same groups so you multiply them by three.
00:40:11 Claudine Clarke: She said three rectangle and there times the thing in the parentheses.
00:40:12 William Sabor: The students grouped into three sets of x + 2.
00:40:15 harry holloway: this is a good desmonstrtion of exploring language and mathematics, but not skepticism
00:40:16 Robin Schwartz: connected the algebra to the visual representation
00:40:21 Jamie Foster: She was looking at the differences in the shapes and relating them from the visual to the math statement
00:40:22 Shashidhar Belbase: The teacher is engaging students in reasoning with thinking, reasoning, and decision making...
00:40:25 Viragni Chand: she saw 3 groups with same things and used distributive property
00:40:25 Dvora Celniker: Connected visuals to numbers by row
00:40:34 Nancy Turner: They thought the rectangle was x and the square was 1 because there were 3 groups of them
00:40:35 Stephen Alapa: She allowed student to own what they learning
00:40:37 Cindy Bryant: Please change your chat setting to All panelists and

attendees so everyone cans see your posts.
00:40:37 Russell Maciag: they think the 3 represents the three groups because in the parenthesis there is a x + 2 and that rectangle and 2 squares is repeated 3 times
00:40:38 Denice Ward: She made the connection with B and 2 by how many xs with the long bar and then how many small squares there were in B and how 3 times the 2 in the parenthesis.
00:40:43 Christa Charlton: I don't think she used distributive, just repeated addition
00:40:44 Gil Geeran Bangeles: She used the visuals of rectangles and squares to make meaning of the expressions.
00:40:46 Dominador Guillermo: best interpretation of the illustration - 3 groups of x + 2
00:40:50 Nick Polak: @Harry Skepticism will come when students are asked to choose between arguments and choose the one that makes more sense to them
00:40:54 RATI JONEJA: she is engaging students in reasoning with thinking, reasoning, and decision making...
00:41:03 Reycel Pacaanas: she's just a facilitator to guide students think independently
00:41:16 harry holloway: that is not skeptiism
00:41:25 Lesly Brown: Great illustration.
00:41:34 Shonda Moore: Process vs answer
00:41:35 harry holloway: before and after
00:41:39 Dvora Celniker: The way they are grouping the visuals
00:41:39 matthew roberts: strictly structure
00:41:39 William Sabor: One is algebraic and one is geometric/conceptual.
00:41:40 Christa Charlton: first is repeating sets. @nd is distrubute
00:41:41 Bishnu Khanal: Grouping of x and 2.
00:41:42 Robin Schwartz: grouping
00:41:43 Faten Thabet: they are the same
00:41:45 Lyubov Presnetsova: different grouping
00:41:45 Kathleen Bliss: one relies on applying distributive property first
00:41:45 Shashidhar Belbase: Whole and part distrubtion.
00:41:46 Kelly York: One sees 3 of the same groups. The other shows area
00:41:52 Sheila Kirton-Robbins: grouping method
00:41:56 harry holloway: they are not the same.
00:41:59 Alisha Bhimji: 3 copies of (x + 2) on the left
00:41:59 Jennifer Eaton: Argument 2 requires you to understand the distributive property
00:42:00 dana dulzo: argument 2 distributive property
00:42:01 Sheila Massingale: in the first, there are 3 groups of x+2
00:42:02 Mary Reyes: one shows 3vgroups of x+2 a\
00:42:02 Alma Labrador: process and answer
00:42:03 janine addison: 1st is x+2 -3 times (like video)
00:42:03 Randolph Chapman: order of op
00:42:04 Aya Zvaigzne: two different representations - focus on different ways of grouping the elements
00:42:04 Christine Rudakewycz: The first argument sees the problem as a multiplication. The second one sees it as an addition of two terms.
00:42:05 Shashidhar Belbase: Wholistic thinking

00:42:08 Denice Ward: A2 shows the math distribution. A1 shows groupings.
00:42:09 Dominador Guillermo: 3 groups of x + 2 and 3 of x plus 6 of the squares
00:42:09 Faten Thabet: in the first one we factored the 3 and the second one we distributing
00:42:11 Melissa Sawyer: Grouping
00:42:12 Catherine Abbott: Difference the student has applied distributive property before reasoning. the answer.
00:42:15 Leatham Forrester: 1 focuses on the 3 and 2 focuses on distributive
00:42:15 Linda Hwa: Argument 1 Sees the grouping horizontally. Argument 2 Sees the grouping vertically.
00:42:17 Shashidhar Belbase: Distributive thinking
00:42:17 Sheila Massingale: in the second, there are 3 long bars and 6 boxes
00:42:18 harry holloway: before and after
00:42:18 Joanne Schmitt: keeping groups of x+2 and seeing 3 groups. Vs distributive property of seeing 3 rectangles and 6 squares
00:42:18 JoAnn Santiago: second argument uses the distributive property to solve
00:42:19 Kathleen Bliss: one looks at groups/chunks and one looks at like terms but need to change the expressions first
00:42:21 janine addison: rt one is distribtuion
00:42:22 Nancy Turner: The second argument shows that the rectangles have been multiplied by 3, and the 2 has been multiplied by 3
00:42:25 Shauna Brown: Argument 2
00:42:28 Claudine Clarke: Grouped by rows, Grouped by shape
00:42:30 Mary Reyes: nd the other show 3*x +3*2
00:42:34 Sheila Massingale: left is more multipliative
00:42:36 Nicole Walden: 1st groups them the same as the ( ) do
00:42:37 Donna Misciagna: Argument 1 shows the given statement. Argument 2 shows the statement after it has been algebraically manipulated.
00:42:38 Jamie Foster: Argument 1 sees 3 groups of x+2. Argument 2 sees a group of 3x's and 3 2's
00:42:39 Sheila Massingale: right is more additive
00:42:42 harry holloway: aone assumes distributive one deos not
00:42:45 Viragni Chand: First one shows 3 groups of (x+2) and the second one is looking at 3 of the strips as X , so 3x and the 6 squares as 6 units so 3x + 6
00:42:46 Reycel Pacaanas: shows two different factor sets of the same expression when simplified
00:42:47 Shauna Brown: Argument 2 looks more clear
00:42:48 Linda Hwa: x+2 is grouped 3 times.
00:42:52 Maureen Charron: don’t see a difference
00:42:52 Zorica Lloyd: The 2nd argument found an equivalent form and showed that the pic matches the equivalent form.
00:42:55 Catherine Abbott: I like Argument 1 because A2 had to add an extra step before reasoning their answer.
00:43:21 Shashidhar Belbase: Yes, it is different form of each other in a way they look at the pieces.
00:43:32 Alma Labrador: 1 repeated addition while 2 algebraically

00:43:33 Eko Yulianto: what if students argue 6x+3 ?
00:43:37 jill brown: i agree @Catherine, adding more than is shown
00:43:46 Zorica Lloyd: I prefer argument 1 because it uses uses the definition of multiplication.
00:43:47 Dr. Yankey: Argument good very good
00:43:55 Dominador Guillermo: both arguments work. i will not see both reasoning if arguing is not encouraged in the classroom.
00:43:59 Maureen Charron: I think having the 3(x+2) with 3x +6 so started same
00:44:05 harry holloway: nothing is missing.
00:44:07 Nicole Walden: key
00:44:10 Sheila Massingale: definitions
00:44:13 Sheila Kirton-Robbins: make connections between the two groupings
00:44:17 jill brown: words
00:44:17 harry holloway: define improve
00:44:19 Sheila Massingale: what is x?
00:44:20 Shonda Moore: vocabulary
00:44:20 Christa Charlton: Good call EKO!
00:44:22 Claudine Clarke: labels on the rectangles
00:44:22 Kathleen Bliss: where did the x come from?
00:44:23 Catherine Abbott: I don't understand your questions "Where is it missing?"
00:44:25 Maureen Charron: missing what you are looking for
00:44:26 Shashidhar Belbase: Making groups differently.
00:44:27 Lianfang Lu: why do they equal?
00:44:30 Adam Perry: Make them dynamic / animated
00:44:30 Kathy Felt: 1 explains what is happening and 1 gives the “answer”
00:44:31 Karli Floyd: describing exactly what the images represent
00:44:33 Nancy Turner: If there was a clear way to show multiplication is happening
00:44:34 Faten Thabet: using mathematical language
00:44:35 Stacy Haines: In the second group thow they got there, distributive property, is missing
00:44:35 Dvora Celniker: The color helps but words to describe with the visual would be helpful
00:44:35 Art Scrivener: Defining the meaning of the two different shapes
00:44:37 Alma Labrador: property involved
00:44:38 Myra Absin: representation is missing
00:44:40 Zorica Lloyd: For argument 1 I’d explicitly say by definition of multiplication there should be 3 groups…
00:44:41 Denice Ward: equivalent forms
00:44:43 Linda Hwa: Argument 1 did not combine like terms. Argument 2 did not show 3(x+2).
00:44:44 NEIL ANGELO FULLENTE: Representation of variables is the missing part
00:44:45 Denise Walston: can you look at seeing it both ways
00:44:46 Melissa Sawyer: Equations and vocabulary
00:44:46 Anupama Anand: distributive property
00:44:48 Candace Bailey: I think what is missing is saying that the x was

represented by rectangles and 1 unit represented by squares
00:44:50 Shonda Moore: Purpose of parenthesis
00:44:52 Kelly York: I would have the 3(x+2) and just 3x+6 to see the difference in the arguments. Without showing the 3(x+2) is the same as 3x+6
00:44:55 Sheila Kirton-Robbins: l=distributive property
00:44:56 Dvora Celniker: By labeling the picture
00:44:57 Viragni Chand: What variable x represents
00:44:58 Nicole Walden: take out the space
00:44:59 harry holloway: some words
00:44:59 Shashidhar Belbase: Three groups of a long and units.
00:45:01 Mary Dugas: give x a value
00:45:02 JoAnne Magden: You could draw a picture
00:45:02 Adam Perry: It has to be spread out over panels, or animated
00:45:04 Dominador Guillermo: the parentheses are GROUPING symbols
00:45:05 Fran Heckermann: You could label the rectangles and squarea
00:45:05 Nancy Turner: Maybe use arrows to show where the groups have ended up
00:45:06 Dvora Celniker: write x in the bar and 1 in the square
00:45:08 Mark Phipps: Draw an arrow to the 1-2-3 from the 3
00:45:10 Alma Labrador: multiplication as repeated addition
00:45:11 Shashidhar Belbase: Sum of three longs and six units.
00:45:12 Russell Maciag: for argument 1, you could rewrite the equation as (x+2) + (x+2) + (x+2)
00:45:16 Claudine Clarke: labeling the rectangles and then drawing arrows
00:45:18 Tanya Landry: area model
00:45:18 Alisha Bhimji: x + 2 + x + 2 + x + 2
00:45:18 harry holloway: not if color blind
00:45:19 Judy Radigan: Circling made it more clear and the colors.
00:45:19 dana dulzo: variable is different from the numers
00:45:20 Jeffrey Bitton: labels
00:45:20 Karli Floyd: identifying that 3 outside parenthesis indicates multiplication, which means groups
00:45:21 Dominador Guillermo: order of operations in the argument 2
00:45:22 Deborah Herring: couple with written explanation
00:45:23 Kathleen Bliss: maybe state 3(x=2) = (x+2) + (x+2) + (x+2)
00:45:23 Alisha Bhimji: 3x + 6
00:45:24 wendy Janerico: add in vocabulary
00:45:25 Christa Charlton: Yes, Claudia:)
00:45:29 Shonda Moore: Use the numbers in front of the parenthesis as sets/group
00:45:31 Candace Bailey: You could have arrow drawn. I always try to use colors to help students see the connections
00:45:33 Chris Pons: Left: horizontal grouping vs vertical stac
00:45:36 Randolph Chapman: connect the left argument to order of operation. The one on the right connects to distributive prop
00:45:38 Catherine Abbott: Arg 1 is pretty clear. Great use of color. Maybe add labels to blocks. to Arg 1
00:45:38 Dr. Yankey: yes the color help very well
00:45:38 Shashidhar Belbase: Thank you for bringing this to discussion.

00:45:40 Scott Hamilton: Wholes vs parts
00:45:42 Myrna Cabreros: I cho0se the first one because it is easy to present the multiplication
00:45:49 Jamie Foster: Argument 1 clearly defines the distributive property in that you have 3 groups of x+2 while argument 2 can shows the next step in the distributive process where you combine similar terms. Argument 2 groups similar terms
00:46:03 Fran Heckermann: You could write 6 as 3(2)
00:46:05 Sharon Black-MacKinnon: write x above the rectangles and +2 above the units
00:46:27 Zorica Lloyd: For argument 2 I'd give the step that I feel is missing. The step that proves 3(x +2) =3x + 6. Say Distributive Property. Or put 3(x) + 3(2) or something.
00:46:30 Shashidhar Belbase: Variable X
00:46:32 Joanne Schmitt: shading/more color
00:46:32 Tanya Landry: define x
00:46:33 Kelly York: Labeled the rectangles as the x
00:46:33 Jennifer Eaton: defining what x is
00:46:35 Kathy Medrick: color coding
00:46:38 Faten Thabet: using the shading and color help associating with the problem
00:46:40 Nick Polak: Do you need to define x?
00:46:41 Sheila Kirton-Robbins: Left x = defined
00:46:41 Sheila Massingale: It defines x as representing the long bar
00:46:42 Joanne Schmitt: shows what x is standing for
00:46:43 Catherine VanNetta: Clarifies what geometric figure represents x
00:46:44 Jessica Edrington: Using shading to tie pieces together.
00:46:45 Dvora Celniker: The coloring in a way to label the bars representing x
00:46:45 Maureen Charron: defines the bar
00:46:46 Kathleen Bliss: shaded x's to link the rectangle to the unknown
00:46:46 Candace Bailey: Showing that x is represented by the rectangles
00:46:46 Nancy Turner: It shows where the variable is in the new representation
00:46:46 Denice Ward: Identifying that the long bars represent x
00:46:46 Lauren Davis: This change provides a clearer visual for Argument 1 about what "x" is.
00:46:47 Andrea Nelson: changing the color illustrates that the rectangle and the squares may not have the same value
00:46:48 Mary Reyes: the underlining numbers are blue
00:46:48 Jennifer Henderson: defines what x is to draw attention to it
00:46:49 Melanie Doody: matching symbol to tiles
00:46:49 Judy Radigan: The 1,2, and 3 are outside and then inside.
00:46:50 Chris Pons: defining x
00:46:50 Aya Zvaigzne: better labeling using color and numbers
00:46:50 Rolando II Delos Reyes: number and color coding
00:46:50 Viragni Chand: defined x represents the strip
00:46:51 Gladys Okugbeni: Numbers
00:46:51 Claudine Clarke: Confirming that the rectangles have the same value

00:46:52 Shonda Moore: I use "bunny hops" to show distributing
00:46:52 Catherine Abbott: Arg 1 you can clearly identify X in the oringal.
00:46:53 Alana Viverito: color coding to identify
00:46:54 Lyubov Presnetsova: shaded x in both expression and pic to see which one represents x
00:46:54 Carrie Fraher: Defining x makes it clear that each row is x+2
00:47:00 Randolph Chapman: Connect the variable to the rectangle
00:47:00 Sheila Kirton-Robbins: 3x = defined
00:47:02 Adam Perry: It got more confusing
00:47:08 Alana Viverito: distributed
00:47:10 Lyubov Presnetsova: counted rectangles x
00:47:11 Jennifer Henderson: number the long rectangles?
00:47:11 Kelly York: 3x is defined
00:47:12 harry holloway: did we need too? they numbered thigns
00:47:12 Linda Hwa: The variable and the rectangle are both the same color. They numbered the rows.
00:47:13 dana dulzo: connecting xto the visual on left
00:47:13 Dvora Celniker: They added the 1, 2, 3 to the blue box
00:47:14 Dr. Yankey: 3x
00:47:15 Zorica Lloyd: They've added the numbers 1 2 3
00:47:16 Adam Perry: Why is X so special that it gets the peach color?
00:47:17 Kathleen Bliss: counting the x's not the groups of 2 ones
00:47:18 Aya Zvaigzne: count and label the x representations
00:47:18 Alma Labrador: grouped x's as one
00:47:18 Sheila Massingale: The colorcoding and numbering shows where the 3x is
00:47:19 Shashidhar Belbase: Three pieces of X
00:47:20 JoAnn Santiago: color coded
00:47:21 Nihal Katirci: row base vs column base categorization
00:47:22 Candace Bailey: On the right they added numbers to show that there were 3 x's
00:47:23 Rolando II Delos Reyes: variable numbered
00:47:25 Joanne Schmitt: right, counted the rectangles
00:47:28 Gladys Okugbeni: Colors matching
00:47:30 Judy Radigan: x is defined better on the right because it is inside of the circle.
00:47:31 Chris Pons: right: labels for the horizontal rows of x
00:47:32 Nick Polak: Does knowing what "x" is change your opinion? Do we need to know what a variable represents to solve a problem involving a variable?
00:47:32 Sharon Black-MacKinnon: By adding the numbers 1, 2, 3 I can easily see the 3x's
00:47:33 Randolph Chapman: Color coordinated on the right
00:47:33 Lianfang Lu: label them?
00:47:35 Faten Thabet: using the number to define 3 and the color still being used
00:47:37 harry holloway: or something is over explained.
00:47:39 Catherine Abbott: Arg 2 is clearer because where the 3 comes from. Why did you not apply the numbers to the 6 blocks.
00:47:40 Shashidhar Belbase: Three pieces of variable X and 6 units

00:47:46 JoAnne Magden: Yes, depends on how you group
00:47:46 Mark Phipps: I really like that. These would be nice in an asynchronous situation where it gets presented as a screencast and students have to pause and respond.
00:47:59 Alma Labrador: 2 property used is implied
00:48:03 Sharon Black-MacKinnon: the color around the x matches the shading in the rectangles for argument 1
00:48:08 Kendra Cole: Would we be explaining that their needs to be more clarity in their arguments and giving them a chance to make that clarity? Or would we as educators provide the clarity?
00:48:10 Catherine Abbott: This works with Number Talk topics too.
00:48:21 Kelly York: I have my students (as I do) color code their notes while working problems so that they can see where something went and came from.
00:48:23 Bishnu Khanal: Rctangle-x, square-1
00:48:23 harry holloway: do they know already what the long bar symbol stands for ?
00:48:25 Eko Yulianto: Thank You Christa, to be honest, we have some case of students who argued like that. we have to appreciate them. The point is how to improve students can argue their argument by logical reasoning. And its very possible that students answer come out of teacher expectation.
00:48:41 harry holloway: the bar syombl should not be new
00:48:47 Jamie Foster: Argument 1 defines the x as a bar. On thr right you can then say that you have 3 of the the bars. The right looks at the notion of distributing the 3 to the x and having 3 of those x's. Then it shows 3 groups of 2 which is the same as a group of 6
00:48:47 Dr. Yankey: depends on how you Group the students
00:48:52 Joanne Schmitt: the length of the bar is x, the width is 1
00:48:57 Nick Polak: @Kendra Good question. The goal is to guide them to adding that clarity on their own as part of their argument strengthening
00:49:02 Shashidhar Belbase: In most cases these conceptual learning are missing pieces in mathematics classroom. Most often these are considered obvious and then students may not understand them.
00:49:11 Sheila Kirton-Robbins: confusing
00:49:22 JoAnne Magden: Oh I can really SEE this now
00:49:25 Kathy Medrick: know what x represents
00:49:34 Chris Pons: Algebra Lab anyone? Algebra Lab: High School | www.MathEd.page - Henri Picciotto
00:49:38 Tanya Landry: Clearly label
00:49:44 Judy Radigan: It is important to make it clear what each of the pictures represent in the equation.
00:49:49 Kathleen Bliss: be clear (constructing), look closely (critiquing)
00:49:50 Sheila Kirton-Robbins: read the problem before answering
00:49:55 Russell Maciag: students would probably say they never worked so hard on an explanation
00:49:56 Alma Labrador: give them prompts so they would know what the expectations are
00:49:57 Nancy Turner: make all of your thinking is as clear as possible, other people do not think like you
00:49:57 Dr. Yankey: confused
00:50:02 Sharon Black-MacKinnon: show your thinking because it will make it

easier to understand
00:50:05 Rolando II Delos Reyes: it is important to make enough representations for each figure
00:50:05 Denise Walston: love the algebra lab gear and Henri P's work
00:50:10 Mary Reyes: important to be clear about each step
00:50:10 Carrie Fraher: The routine help students focus on reasoning and not just being correct. It helps them communicate more clearly.
00:50:10 matthew roberts: when constructing - explain everything, even the "obvious"
00:50:12 Chris Pons: State the definitions of the pieces.
00:50:12 Maureen Charron: understand what outcome will be or is asked for
00:50:12 Russell Maciag: students might say they like getting feedback away from people that aren't the teacher
00:50:13 Claudia O'Keefe: it is important to have a shared vocabulary because we want to talk about the same thing
00:50:15 Candace Bailey: They need to figure out how to clearly connect the ideas
00:50:22 Catherine VanNetta: When constructing arguments it is important to color code to help classmates connect the variable to the geometric figure
00:50:24 harry holloway: the lab gear is ok. It works for some studnets
00:50:27 Katrina Hall: label all work because your thinking is not the same as somebody else
00:50:27 Linda Hwa: constructing - to use math vocabulary because we want everyone to understand.
00:50:27 Ariane Eicke: explain all parts of your answer because you don't want to assume we know;
00:50:31 Judy Radigan: When critiquing it is important to look for a way to clarify any misconceptions.
00:50:31 Catherine Abbott: Before ….important to show each step because someone else might miss a step.
00:50:32 Kathleen Bliss: tell what you see/how you figured it out
00:50:36 Denice Ward: know what the parts mean because you can't say anything about something if you don't know.
00:50:36 Alma Labrador: clarify the target skill
00:50:41 Ariane Eicke: ask questions because we don't want to assume we understand
00:50:43 Denise Walston: it is important to connect my thinking to someone else but see the differences
00:50:45 Christa Charlton: Labeling is impt
00:50:46 Rolando II Delos Reyes: when critiquing arguments it is good for you to point out what is missing in the representation
00:50:47 Lyubov Presnetsova: compare the argument with your inner understanding to see if anything is missing
00:50:48 Todd Smallcanyon: agree, be on the same track
00:50:50 Sheila Kirton-Robbins: when critiquing … important to understand the problem because you should be able to explain your reasoning
00:50:50 Eduardo Enjambre: Personal connections with students.
00:50:51 Jamie Foster: It is important to identify your visual because it tells what the variable represents.

00:50:51 Faten Thabet: they might think about order of operation and how it was applied to solve this problem
00:50:52 Shashidhar Belbase: When constructing arguments it is important to justify each relationship because you are going to prove or disprove something based on evidence.
00:50:52 Kathleen Bliss: critiquing - have an open mind if they figure it out differently than you
00:51:07 William Sabor: Make all pieces of the argument explicit, not implied.
00:51:07 Christa Charlton: Love the open mind Kathleen B
00:51:17 Maureen Charron: critiquing need to understand the argument - know all terms
00:51:17 JoAnne Magden: Math is very literal—the diagram, numbers and words must match
00:51:17 Cindy Bryant: If you want EVERYONE to see your posts, please changes your chat setting to All panelists and attendees.
00:51:20 Denise Walston: would have been good to also say 3(2)
00:51:23 Myrna Cabreros: when critiquing arguments it is important to know distributive property because they need to simplify the mathematical phrase
00:51:29 Anupama Anand: it is best to explain step by step using color coding or pointers
00:51:29 Laura McGuigan: be clear and use correct language because all parts/steps need to make sense to another person
00:51:35 Catherine Abbott: After ….important to use pictures and colors because it helps other people to see what it is that you see.
00:51:36 Linda Hwa: critiquing - important to respect the arguments provided because they use mathematical vocab
00:51:37 Jamie Foster: Argument 2 shows distributing to each part.
00:51:40 Stephen Alapa: Ii is important to know why students approach the question the way they do.
00:51:48 harry holloway: that might have made it less clear.
00:51:52 Claudia O'Keefe: tha's sad
00:51:54 Genesis Docena: 😂
00:52:02 Genesis Docena: too true
00:52:04 Adam Perry: Arguing is supposed to be fun!
00:52:05 Adam Perry: too
00:52:07 Randolph Chapman: When constructing it is important to present visual connections to prior knowledge
00:52:21 Jennifer Henderson: important to have good teacher guided construction of arguments and critiques
00:52:26 harry holloway: If you have taught them what an argument is they will not do that.
00:52:40 Bishnu Khanal: Let students to think on their own way
00:52:43 Jamie Foster: So you could have that discussion as a lead in about the expectations.
00:52:51 Adam Perry: Where is the line between argument and strategy?
00:52:58 Anupama Anand: mathematics should be visual and clear the abstract concepts
00:53:00 Chris Pons: encourage risk taking, not grade making.
00:53:10 Catherine Abbott: Many students are very scared of being

wrong. Modeling "mistakes routines" is critical for this.
00:53:15 Jennifer Henderson: @Chris Pons - YES!!
00:53:18 Anupama Anand: @chris well said
00:53:18 Zorica Lloyd: It might be cool to ask the questions before the routine and then again after. And end the class with a I used to think, but now I think reflection.
00:53:29 Shashidhar Belbase: Either students construct arguments or critique arguments, they should focus on mathematics, not persons...good view, David.
00:53:40 Dominador Guillermo: @catherine I agree
00:53:42 harry holloway: it is also critical to establish givens. what is the knowledge you are starting with.
00:53:50 Denice Ward: This can be used with the rule of 4 quite well.
00:54:25 harry holloway: then there many not be an agurment.
00:54:31 Catherine Abbott: To find meaty problems, check out "Number Talk" problems and Card Tasks at mathshell.org.
00:54:46 harry holloway: oh never mind.
00:54:54 Dominador Guillermo: or some students just do not want to discuss their thinking?
00:55:08 Michelle Funai: pairs change
00:55:12 Catherine VanNetta: The problem or task changes
00:55:12 Kelly York: Math vocabulary and confidence will change
00:55:14 Sheila Kirton-Robbins: same: Students solve the problem
00:55:17 Deborah Herring: think -pair-share stays the same
00:55:19 Shonda Moore: Changes: They math reasoning
00:55:20 Mary Reyes: sme: steps
00:55:21 Zorica Lloyd: The students who present change.
00:55:22 Nell Thurlow: steps stay the same, content of problem differs
00:55:22 Kathleen Bliss: the steps stay the same. student comfort level increases hopefully
00:55:24 Chris Pons: same: students supporting each other.
change: context
00:55:24 harry holloway: if the problem is easy why focus on the agument?
00:55:28 RATI JONEJA: argument
00:55:29 Linda Hwa: The answers changes, but the presentation of the argument stays the same.
00:55:29 Sheila Kirton-Robbins: Diff: solve diffrently
00:55:32 Scott Hamilton: I or we , not you or they
00:55:32 Jennifer Henderson: The sentence frames stay the same, the students can look for what they need to fill them
00:55:32 Judy Radigan: The prompts stay the same.
00:55:34 Alexandra Groseta: The steps and the problem changes
00:55:34 Shannon Hammond: Students who resist sharing at first will eventually come around if it's a routine
00:55:34 Robert Steede: The 5 steps remain the same
00:55:35 Suzanne Mixa: routine stays the same, outcomes improve with student experience
00:55:35 William Sabor: What remains the same is the focus on the analysis & argumentation, rather than the answer.
00:55:37 Jeffrey Bitton: instructions stay the same . groups and problem

change
00:55:38 Michelle Funai: same instructional routines
00:55:38 Rolando II Delos Reyes: what changes are the way the present arguments and critique them
00:55:40 Tanya Landry: Same prompts, different questions
00:55:40 dana dulzo: same solutions come from students work first
00:55:40 Jennifer Henderson: the context of the problem changes
00:55:42 Anupama Anand: students and teachers remain same , problems and arguments change and also the presenter and presentation
00:55:42 Shashidhar Belbase: Mathematics stays the same, but person's voice may change
00:55:43 Catherine VanNetta: Students grow in their ability to hear others and revoice arguments
00:55:43 Russell Maciag: changes: students start being more precise
00:55:45 Firoza Rahman: They can become more open to alternate solutions
00:55:47 Alma Labrador: concepts stay the same
00:55:49 Faten Thabet: the problem will change
00:55:51 Judy Radigan: The student groups and the problem changes.
00:55:53 Kathleen Bliss: move from visual to written arguments?
00:55:53 Candace Bailey: The pairs could change, the steps stay the same and the sentence frames are still provided as supports
00:55:54 Mary Reyes: changes: improvement in thinking and explaining with practice
00:55:54 Catherine Abbott: Dan Meyers www.101qs.com has great visual problems that early bilingual students can ponder and explore.
00:55:56 Aya Zvaigzne: Same- students know the instructional routine - Different - hopefully students improve their thinking skills and academic discourse capabilities
00:55:58 Kathy Medrick: 5 steps are the same; task changes
00:55:59 Nancy Turner: solve with other, share, feedback, teacher chooses who shares
00:56:01 Alma Labrador: problems change
00:56:01 dana dulzo: changes-discussions between students
00:56:01 Susan Bardenhagen: students' eagerness to share/solve remains; the collaboration and risk taking changes/evolves
00:56:02 Viragni Chand: focus and prompts
00:56:03 Jayson Sentinellar: its studet's own process
00:56:04 Randolph Chapman: The complexity changes
00:56:04 Firoza Rahman: The structure of the questioning will stay the same but the depth of the conversations will increase
00:56:04 Rolando II Delos Reyes: changes is a critical mind
00:56:06 Sandra Lambes: students gain more confidence
00:56:08 Gladys Okugbeni: Concept is the same but the argument changes
00:56:11 Judy Radigan: Can you have problems with more than one answer?
00:56:11 Sheila Kirton-Robbins: Diff: new insights lead to new ways of looking at the problem
00:56:12 Myrna Cabreros: students will be more critical in analyzing a problem
00:56:15 Maureen Charron: what changes is their ability to defend their solutions

00:56:15 Alana Viverito: confidence improves over time
00:56:16 Faten Thabet: process will stay the same
00:56:18 Jamie Foster: Process stays the same for the students. Solutions are going to be different. designed to get students to understand the process and how to verbalize the math systematically
00:56:18 Nithya Soundararajan: Students gain confidence, trust, and proper math vocab
00:56:19 Catherine VanNetta: Students become more skilled at stating what helped them understand the argument (the reflection)
00:56:20 Dominador Guillermo: concept stays the same, different methods/thinking
00:56:21 Candace Bailey: The critical thinking and construction of arguments improve
00:56:22 Lianfang Lu: get used ways of reasoning
00:56:24 Kathleen Bliss: level of rigor use of vocabulary increase over time
00:56:25 Shashidhar Belbase: Rule remains the same, concepts same, but reasoning may change.
00:56:32 Esperanza Dennis: Students get better at finding different arguments that work. then possibly start to argue about which is better
00:56:33 Katherine Raiguel: Students see things in different ways
00:56:35 Eduardo Enjambre: The conceptual idea is the same
00:56:38 Nora Marasigan: Argument changes but the concepts remain the same
00:56:42 Catherine Abbott: The steps you gave the beginning (the routine) stays the same. The specific problems change each time.
00:56:42 Nancy Turner: Students eventually will not need sentence frames
00:56:43 Bishnu Khanal: Same mathematical concept can be understood differently
00:56:43 Deborah Herring: change in level of skill from knowledge to critique and analyze
00:56:43 Denice Ward: The comfort within the learning environment increases.
00:56:45 Yong Foster: The rule stays the same but the way of solving and presentation changes
00:56:49 Genesis Docena: structure and process of setting up argument or solution will stay the same
00:56:52 harry holloway: why is multiple soltuions better?
00:56:55 Lianfang Lu: the math is the same
00:56:56 Mary France Imperial: students' reasoning develop
00:56:58 Sharon Black-MacKinnon: The process remains the same, the students ability to think critically and receive criticism in a useful manner
00:56:59 Katherine Raiguel: Hopefully they learn to value other's solution processess
00:57:18 Jamie Foster: Students would try to improve their strategies for explaining the visuals in more math centered language
00:57:20 Jessica Edrington: Multiple solutions for more open-ended questions in higher level classes?
00:57:22 Melissa Sawyer: Problems and arguments change, frames stay same
00:57:40 Catherine Abbott: Multiple solutions show flexibility of mind and a different "perspectives" on the solution.
00:57:49 NEIL ANGELO FULLENTE: After considering other arguments, they

improve their own
00:57:57 Oce Datu Appulembang: sometimes I choose to "stays the same" for make sure that all of students get the process
sometimes I choose to "changes" for get the other arguments so students will be rich in solving problem
00:58:04 Art Scrivener: A better way to work a Geometry Proof.
00:58:07 Jamie Foster: Looking at the notion of which makes the most sense to the students and why that is.
00:58:28 Dominador Guillermo: choice of tasks is really critical
00:58:29 Kendra Edwards: \
00:58:33 Catherine Abbott: You can also give students a relatively complex task and the ANSWER and ask the students to find a way to get close to the solution.
00:58:38 Abigail Santiago: Students would improve their strategies for explaining the visuals in more vocabulary math language.

00:58:49 Claudia O'Keefe: YES Catherine!
00:58:51 Dominador Guillermo: need tasks that have different ways to solve
00:59:00 Kathleen Bliss: can’t read that
00:59:05 Mary Dugas: wow! visual
00:59:06 Kathleen Bliss: (blurry)
00:59:23 Robin Schwartz: to make it bigger you can click on the middle of the screen and move it over
00:59:25 David Wees: http://davidwees.com/m/nctmimage
00:59:28 harry holloway: notice this does not begin with solving the problem.
00:59:35 Linda Hwa: Rethink and reconsider are very concepts for our students.
00:59:37 JoAnne Magden: Because kids must learn how to verbalize what they see or what they’ve done—another level of understanding
00:59:47 Dewey Gottlieb: http://davidwees.com/m/nctmimage
00:59:58 Myrna Cabreros: this is somewhat related to Claim, evidences and reasoning
01:00:16 harry holloway: It leaves out going back and starting over.
01:00:38 Robin Schwartz: great support for s's to get to generalization
01:00:39 Catherine Abbott: Can this be related to Socratic Seminar routine?
01:00:42 Zorica Lloyd: The routine helps students learn to organize their thoughts, give their argument in a way that others can understand, justify their ideas.
01:00:49 harry holloway: the rebuttals sends you back. that arrow is missing.
01:01:26 JoAnne Magden: Yes, socratic reasoning
01:01:48 Zorica Lloyd: Because it’s verbal, the routine allows all participants to see where the argument goes wrong.
01:01:59 harry holloway: skepticism requires errors and wrong answers.
01:02:09 JoAnne Magden: I love it when kids find their own errors and rewards that
01:02:22 Rolando II Delos Reyes: what i see as important here is developing students’ critical thinking and being able to present it comfortably with others
01:02:27 Lianfang Lu: Agree: skepticism requires errors and wrong answers.

01:02:32 Catherine Abbott: learning requires mistakes....if one is always correct, then one is not challenging themselves enought
01:02:46 Shonda Moore: @JoAnne I agree, they tend to remember where they went incorrect and they don't forget it.
01:02:58 Linda Hwa: Students learn most when they realize their mistakes and be able to fix them.
01:02:58 Sheila Kirton-Robbins: Mistakes are proof that you are trying.
01:03:03 harry holloway: this is everything that is wrong with teaching in the US.
01:03:25 Myrna Cabreros: And I think that is one thing that students need to understand, to express their thoughts/ideas then reflect on it
01:03:26 Jessica Edrington: Learning from mistakes: google “my favorite no teaching strategy”… it gives students a chance to pick out what’s right and what needs to be fixed..
01:03:38 Faith Peddie: @Harry - and incomplete answers as well! Sometimes students are onto something but their thinking isn't completely solidified yet. Skepticism can push student thinking forward.

01:03:39 harry holloway: It is all about trying and asking questions!
01:03:43 Geraldine Hayden: During a middle school summer session we engaged in constructive arguments. I would show errors in some problems, and students had to figure out what they did.
01:03:47 harry holloway: this is the same as the routine
01:03:53 Kathleen Bliss: solo time steps 1 & 2, pairs steps 2, 3
01:03:54 Rolando II Delos Reyes: developing healthy discourse among students
01:03:54 Gladys Okugbeni: Help students better organize their thought process.
01:04:04 dana dulzo: there's comfort in routines that support the student to take chances
01:04:08 Lianfang Lu: need conjectures too
01:04:12 Sheila Kirton-Robbins: constantly
01:04:13 Jamie Foster: constructing a case solving the problem and data
01:04:15 Geraldine Hayden: In other problems I wold delete information and they had to verbalize what was missing in that solution
01:04:15 Ariane Eicke: once they have to explain to someone else
01:04:15 Linda Hwa: At the beginning
01:04:16 harry holloway: there are no conjectures if they have solved the problem
01:04:17 Kathleen Bliss: when they are thinking alone & in pairs
01:04:19 Nancy Turner: conjectures happened when they were matching
01:04:20 Myrna Cabreros: in the generalization
01:04:20 Deborah Herring: at the argument
01:04:22 Catherine VanNetta: Solving the problem
01:04:24 Dominador Guillermo: conjecturing during their interaction within groupings
01:04:25 Linda Hwa: Data
01:04:25 Candace Bailey: When the students are solving the problem and in pairs
01:04:26 Kendra Cole: At the beginning when doing up with their strategy

01:04:30 Mary Jo Davis: At the beginning when they are trying to solve the problem
01:04:32 Judy Radigan: In the 2 minutes, they are working on it.
01:04:33 Faten Thabet: reasoning through their answer
01:04:34 Kendra Cole: Bring the presentation
01:04:35 Linda Hwa: Claims
01:04:35 Jamie Foster: claims
01:04:38 Kendra Cole: during**
01:04:38 Kathleen Bliss: in pairs & in presentating
01:04:41 Sheila Kirton-Robbins: Validate when you have to back up your claim
01:04:42 Rolando II Delos Reyes: when they discuss their own arguments with others
01:04:43 Shonda Moore: As they hear other people's reasoning
01:04:43 Deborah Herring: share
01:04:44 Joanne Schmitt: validate when discussing, and share/critique
01:04:44 Stephen Alapa: Claims
01:04:44 Maureen Charron: they are doing that when they are crosscutting their solutions. they validate when they present it to another
01:04:45 dana dulzo: validate with their peer partners
01:04:47 Dominador Guillermo: validating conjectures as they finalize their presentations
01:04:51 Judy Radigan: The validate when they present.
01:04:55 Nancy Turner: they validate when the are forming their arguments for presenting
01:05:03 Randolph Chapman: validating presenting to the skeptics
01:05:04 Candace Bailey: They are validating when they are in the pairs and sharing their argument
01:05:06 Nithya Soundararajan: When we have a routine in place, the students know what to expect and what to do. This flowchart is exactly the same as the routine that was given in the beginning
01:05:12 Catherine Abbott: Validate conjectures when they start making claims
01:05:15 RATI JONEJA: developing problem thinking and logical reasoning
01:05:16 Linda Hwa: Conclusion
01:05:19 Dominador Guillermo: whole group still validates as one group presents
01:05:33 Myrna Cabreros: I agree
01:05:34 Dr. Yankey: At the end
01:05:43 Nancy Turner: this problem did not allow for generalization?
01:05:49 jonathan simon: at the end
01:05:52 Jamie Foster: presenting and discussing helps to validate. Reflecting also helps to validate and make generalizations
01:05:52 Alma Labrador: verifying solutions
01:05:55 Myrna Cabreros: at the end
01:05:56 Linda Hwa: Conclusion
01:05:57 Bishnu Khanal: Validating is comparing and contrasting with logical reasoning
01:06:00 Joanne Schmitt: defending their argument
01:06:01 Kathleen Bliss: when they reflect maybe a bit?
01:06:03 Russell Maciag: when giving other groups feedback

01:06:07 JoAnne Magden: At the end
01:06:09 Rolando II Delos Reyes: I think generalizing happens when all groups have presented
01:06:19 RATI JONEJA: right
01:06:26 Chris Pons: generalizing: when another group's solution is also validated.
01:06:33 Myrna Cabreros: to make a conclusion
01:06:33 Viragni Chand: Explain their reasoning
01:06:41 Sheila Kirton-Robbins: generalizing - drawing conclusions that apply to similar problem
01:06:42 Nicole Walden: make a key
01:06:43 JoAnne Magden: Say that you have the same basic elements in each
01:06:43 Catherine Abbott: Challenge: Once a person has found an solution path most stop looking for other possibility. For the students who finish early, challenge them to see another solution path OR find a clearer explanation.
01:06:47 Randolph Chapman: Present an alternate expression
01:06:51 Nancy Turner: They could create a problem for other students to solve
01:06:55 Linda Hwa: Argument 1 is to demonstrate multiplication.
01:06:56 Kathleen Bliss: show another case and how your reasoning works
01:06:58 matthew roberts: show that it works for other numbers
01:07:02 Denice Ward: Show another example that uses the same process.
01:07:03 Mary France Imperial: after they presented
01:07:04 Myrna Cabreros: see a pattern
01:07:10 Bishnu Khanal: Searching alternatives
01:07:12 Faten Thabet: ability to write a reflection
01:07:13 Viragni Chand: Ask students to present a problem
01:07:15 Katrina Hall: show another example
01:07:17 Alma Labrador: looking at trends
01:07:18 Christina Atkins: yes, change the problem by one number and show that their explaination still works
01:07:22 Jennifer Henderson: they are unable to complete a similar problems
01:07:23 Jamie Foster: Generalizing could be the number outside the parenthesis represents the number of groups. The items inside the parentheses are the things in each group.
01:07:24 Jeffrey Bitton: algebraic expressions can be grouped differently and presented differently
01:07:25 Linda Hwa: Argument 2 is distributive property
01:07:26 Mary Jo Davis: They cannot solve a new problem, then they are not generalizing
01:07:26 Dominador Guillermo: generalize with the distributive property. the alg expression on right is an extension of the one on left.
01:07:27 Sheila Kirton-Robbins: they ask questions, like what would happen if...?
01:07:28 Denice Ward: When they can do it for another problems or even a more difficult problem.
01:07:29 Nancy Turner: Because you didn't tell them to lol
01:07:31 Esperanza Dennis: They generalize when they are summarizing their agreed upon argument and connecting it to prior knowledge

01:07:32 Nithya Soundararajan: Give them variables only
01:07:32 Faten Thabet: reflection that could apply for other problem
01:07:32 Catherine VanNetta: Assess them
01:07:36 Scott Hamilton: Ask them to make up their own problem
01:07:36 Candace Bailey: You will have to ask or have them solve problems
01:07:38 Aya Zvaigzne: ask to do this for large numbers that you might not be able to quickly draw
01:07:44 Sheila Massingale: They aren't generalizing if they can't come up with anpther example of the same concept
01:07:52 Gladys Okugbeni: Because they use previous knowledge
01:07:53 Anupama Anand: we know that they are generalising when they give clear reasoning and can solve similar problems
01:08:09 Catherine Abbott: OR....what is in the group could be different
01:08:33 Shashidhar Belbase: If I give them 3(x+2) and 3x + 7, and check the difference in them, then see if they can generalize.
01:08:48 Linda Hwa: Generalization is important because then they do other problems and communicate their reasoning effectively.
01:08:59 Jamie Foster: They could then say if I changed to 2(x+1), if I follow the same procedure the number of groups will be outside the parentheses. That could lead toward a generalization.
01:09:22 Catherine Abbott: As a teacher...if you highlight when a student makes a statement that shows generalization.
01:09:36 Russell Maciag: good point Catherine
01:10:22 Myrna Cabreros: so you were saying that you can be able to know that students are generalizing if they have one or all of the routine?
01:10:51 Catherine Abbott: Flipgrid, padlet,,Google Docs and other tools to allow students to respond asynchronously
01:11:06 Judy Radigan: Zoom has Whiteboard and you could have the problem up.
01:11:11 Mark Phipps: Do it in Slides
01:11:16 Alma Labrador: jamboard
01:11:20 Karin Marshall: nearpod, you can push anyones screen and share
01:11:24 Mark Phipps: Duplicate and show the next step
01:11:32 Sheila Kirton-Robbins: You can type on the whiteboards
01:11:35 Dominador Guillermo: hellosmart.com
01:11:38 Catherine Abbott: @Myrna....students can make a generalization at any point in the problem solving routine.
01:11:41 Abigail Santiago: Pear deck
01:11:48 Jessica Edrington: How would you apply this to higher levels, like AP Calculus?
01:11:57 Sheila Kirton-Robbins: Padlets are reate to show your work
01:11:57 Dominador Guillermo: mentimeter
01:12:00 Anupama Anand: classpad.net
01:12:02 Katherine Raiguel: You could also set it up as an activity in DESMOS
01:12:15 Dominador Guillermo: @sheila padlets yes
01:12:17 Sheila Kirton-Robbins: Padlets are great to show your work

01:12:38 Dominador Guillermo: @katherine desmos too excellent platform

01:12:49 Catherine Abbott: Last night NCTM100Days showed us ClassPad.net which is mash up of Desmos and Padlet. Lots of opportunity for multiple representations.
01:13:15 Muhamad Jamal: so, at the end the generalization toward distributive property?
01:13:32 Dominador Guillermo: @catherine Will explore classpad.net. Is it free?
01:13:33 Linda Hwa: My students want routine.
01:13:33 Myrna Cabreros: can I use this as a station activity especially for ELL class?
01:13:46 Catherine Abbott: If you have a "routine spinner" you can make selecting a routine, a routine.
01:13:50 Jamie Foster: Structure also means they understand the part they actually missed if they were late, etc.
01:13:58 Anupama Anand: yes classpad is free
01:14:08 Catherine Abbott: @Myrna....great idea about stations!
01:14:39 Linda Hwa: Yes, classpad.net is free and if you go to NCTM 100 Days of Learning and listen the lesson posted yesterday, you would get a lot out of it.
01:14:43 Jamie Foster: which apps/sites listed integrate easily with Google Classroom?
01:14:48 Eko Yulianto: how to think like a mathematicians
01:14:51 Catherine Abbott: Good point about the discussions and timing
01:15:13 Chonda Long: You can view recordings of past webinars at www.nctm.org/100
01:15:34 Sheila Kirton-Robbins: Isn't this routine the same as Think-pair-share
01:15:36 Pamela Liegl: David, thanks for a tremendous presentation. This was well presented and USEFUL.
01:15:40 Shonda Moore: @Jamie Using links of any of the apps. You might have to go to the sites (like Desmos) to grade the assignment.
01:15:48 Linda Hwa: Hi, Chonda
01:15:50 Catherine Abbott: Having Anchor Charts with Routine Steps
01:16:03 Jamie Foster: @Eko: absolutely--so important to learn how to think like a mathematician
01:16:13 Chonda Long: Hi Linda
01:16:18 Lianfang Lu: Like the anchor charts idea
01:16:18 Dominador Guillermo: @Chonda Will find that session. Thanks
01:16:19 Lianfang Lu: 1
01:16:21 David Wees: http://curriculum.newvisions.org/math
01:16:31 Anupama Anand: @catherine can you elaborate on anchor charts
01:16:46 Linda Hwa: I called into yesterday's webinar and listened because my wifi was down and I listened to the recording today. That was why you did not see my name.
01:16:56 Nell Thurlow: great presentation of an extremely useful instructional strategy, thank you!
01:16:57 Catherine Abbott: I like routines where students "predict" what will happen.
01:17:03 Lotalinda Castro-Anderson: Will you recommend teaching this to 6th grade?

01:17:12 Robin Schwartz: Thanks so much David
01:17:16 Denice Ward: Thank you for the presentation.
01:17:19 Catherine Abbott: Then do the work to find out what actually happens
01:17:21 Trena Wilkerson: Thank you David—great discussions offered as well from participants with supporting resources and thoughtful reflection!
01:17:24 Chonda Long: @Dominador Great!
01:17:25 Justin Klinger: Thank you
01:17:26 Yong Foster: Thank you, David...it was interesting presentation.
01:17:27 Art Scrivener: Thank you.
01:17:27 Shonda Moore: @Lota Absolutely with 6th graders
01:17:28 Francis Kisner: Thank you for the ideas.
01:17:29 jill brown: Thanks GREAT session :)
01:17:30 Viragni Chand: Thanks for a great presentation
01:17:31 Melinda Lee: Argumentation through skepticism - thank you for great ideas, a strong routine and the encouragement to argue in math…Great Presentation!
01:17:31 Genesis Docena: great presentation thank you!!
01:17:32 Lianfang Lu: Thank you!
01:17:33 Karin Marshall: thank you
01:17:34 Jennifer Henderson: Thank you!
01:17:35 Gail Saltveit: thank you!
01:17:35 Mary Dugas: thank u!! opened links..love resources
01:17:36 Sheila Kirton-Robbins: Thanks
01:17:36 Lyubov Presnetsova: Thank you for the presentation! I will use it for sure
01:17:38 Beth Seyler: Thank you
01:17:38 Judy Radigan: Thank you!
01:17:43 Deborah Herring: Thank you!
01:17:43 Maureen Charron: thank you for a great webinar  can’t wait to use it
01:17:46 LANY JAMERO: thank you
01:17:51 Tanya Landry: Thanks!
01:17:54 Robert Steede: Thanks David.  Some good stuff here
01:17:55 Catherine VanNetta: Thank you for a thoughtful presentation!
01:17:56 Chris Pons: Good session, gracias!
01:17:57 Nancy Turner: thank you
01:17:59 Wenny Liao: Thank you!
01:18:00 Linda Hwa: This is so useful and I would like to try this in my class.
01:18:01 dana dulzo: Thank you for the method to encourage students to explain their thinking
01:18:03 Nithya Soundararajan: Thank you so much
01:18:03 Laura Bowsher: thank you
01:18:04 Marianna Vulakh: thank you!
01:18:04 Linda Hwa: Thank you so much.
01:18:05 Catherine Abbott: Three year olds can argue object permanence
01:18:08 Pascal Despeignes: Thank you so much
01:18:11 Mary France Imperial: Thank you so much! Great presentation
01:18:13 Donna Misciagna: Great workshop.  Thanks.

01:18:19 Anupama Anand: thank you
01:18:26 Alma Labrador: thank you, David!
01:18:27 Ioana Boca: Is it possible to save the chat of this meeting? Get the links from the chat?

01:18:27 Kelly York: thank you!!!
01:18:27 Esperanza Dennis: Enjoyed it.. good info!
01:18:28 Jayson Sentinellar: this is very helpful anduseful. big thanks Sir
01:18:29 Carrie Fraher: Thank you!
01:18:34 Jamie Foster: Thank you so much David! Great ideas for teaching routines to students and helping them to learn the sentence frames. etc.
01:18:34 Laura McGuigan: Thank you!
01:18:37 Beth Blumberg: are there alternate routines… or do you just use this one routine
01:18:41 NEIL ANGELO FULLENTE: thank you!
01:18:48 Myrna Cabreros: thank you so much.enjoyed participating
01:18:49 Ron Napper: Thank you.
01:18:56 Stephen Alapa: Thank you.
01:18:56 Daniel Martinez: Thanks David
01:19:02 Dr. Yankey: can you please send us the PowerPoint?
01:19:04 Cindy Bryant: Routines=Great benefits! Thank you David!
01:19:14 Anupama Anand: 2
01:19:22 JoAnne Magden: Tk you so much!!
01:19:22 Jet Yeung: Thank Your for all the information.
01:19:25 Chonda Long: The PDF will be posted with the recording at www.nctm.org/100
01:19:27 Christa Charlton: thx!
01:19:28 Jamie Foster: Thanks!!!!
01:19:29 Catherine Abbott: Three year olds can argue "fair division" 1 for me; 1 for you. 1, 2 for me; 2 for you; 1, 2, 3 for me and 3 for you. That's not fair."
01:19:30 Gladys Okugbeni: Thank you
01:19:31 Sharon Black-MacKinnon: Thank you so much! Great webinar!
01:19:31 Dr. Yankey: Thank you very much sir.
01:19:31 Shonda Moore: Thanks!
01:19:35 Dominador Guillermo: thanks david
01:19:42 Alisha Bhimji: Great presentation, very engaging and informative. I can't wait to try this when we get back to school.
01:19:42 JERRAME IBABAO: thank you
01:19:42 Lawanda Mahomes: Thank you
01:19:45 India Puch: Thank you!!
01:19:46 FLORENCE MAE DELA CRUZ: Thank you so much!
01:19:46 Christina Atkins: Thank you
01:19:47 paloma carrera: thank you
01:19:47 Candace Bailey: Thank you very much
01:19:52 Eduardo Enjambre: Thank you.
01:19:52 Randolph Chapman: thank you
01:19:55 Jennifer Eaton: Thank you!
01:19:57 Melissa Sawyer: Great presentation, thanks!

01:19:58 Shashidhar Belbase: Thank you very for such nice presentation.
01:19:59 Sandra Lambes: Thank you!
01:20:00 Beth Nalker: Thank you! Wonderful tool!
01:20:03 Daniel Irving: Thank you for this incredible presentation!
01:20:07 Kathy Felt: Thank you!
01:20:07 wendy Janerico: Thank you!
01:20:20 RATI JONEJA: thanks for the session
01:20:22 Judy Radigan: Tomorrows is full:(
01:20:25 Arnold John Bulanadi: thank you
01:20:28 Deborah Herring: It is full
01:20:29 Bishnu Khanal: Thank you very much for wonderful presentation
01:20:32 Shashidhar Belbase: It is full for tomorrow.
01:20:36 Jill Ethridge: Thank you great ideas to enhance discourse
01:20:36 Dr. Yankey: Great presentation. thank you very much sir
01:20:38 Sheila Massingale: It says tomorrow's is full.
01:20:38 Joyce Meier: Thank you!
01:20:42 Lawanda Mahomes: Registration is full for tomorrow webinar
01:20:43 Shashidhar Belbase: Please, re-open registration.
01:20:46 Olga Kosheleva: Thank you!
01:20:49 Chonda Long: You can always watch the session tomorrow on Facebook. It will stream live.
01:20:56 Sheila Massingale: Is it possible to get certs for classes we attend asynchronously?
01:21:00 Trena Wilkerson: If registration is full you can join Live on Facebook!
01:21:02 Mark Phipps: Can't you watch on FB?
01:21:05 Ayunda Sri Wahyuningrum: thank you so much! great presentation
01:21:05 Bishnu Khanal: Registration is full for tomorrow
01:21:08 Chonda Long: We have a limit to the number of people that can attend live so we can't open registration
01:21:09 David Wees: Regarding: “Argumentation and critiquing are importabt mathemtical skills. However these are time-consuming especially if you have only 60 minutes of Geometry class. Any thoughts?” >> If students have experience with these routines, they understand the ideas more deeply, leading to less need to review and recover stuff. Also, with this routine you can use arguments from earlier in the year, allowing you to simultaneously work on students’ arguments and reviewing prior learning.
01:21:14 Chonda Long: Yes you can watch on FB
01:21:20 Bette Barkley: Thank you, great webinar!
01:21:30 Sheila Massingale: What is the Facebook page name?
01:21:35 Chonda Long: You can also watch the recording. A certificate is available at the end of the recording.
01:21:55 Chonda Long: https://www.facebook.com/TeachersofMathematics
01:21:55 Aya Zvaigzne: Thank you very much for an excellent seminar, and also for all the resources.
01:21:58 Russell Maciag: Thank you!
01:21:59 Rhonda Jeffrey: Thank you very much...excellent tools to support scholars to develop mathematical argumentation skills and engage in strong math discussions.

01:22:00 Mary France Imperial: What is the FB page name?
01:22:04 Chonda Long: https://www.facebook.com/TeachersofMathematics
01:22:06 David Wees: What if students change their argument? This happens surprisingly often, I don’t yet have a solution BUT if you use the routine frequently and focus on trying to solve this, you can figure this out and let me know. :)
01:22:12 Sarah Patterson: Thank you!
01:22:13 dana dulzo: thank you for another great presentation
01:22:15 Danielle Grenader: Thank you!
01:22:21 Muhamad Jamal: thank you
01:22:23 Ratu Ilma Indra Putri: Thank you
01:22:27 Rolando II Delos Reyes: Thank you for this webinar! Great option for kids! Thank you David and NCTM! PH
01:22:33 Milla Aldona Efendi: Thank you
01:22:35 Chonda Long: https://www.facebook.com/TeachersofMathematics
01:22:40 India Puch: Thank you!! Great presentation