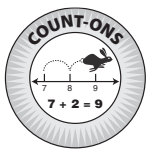
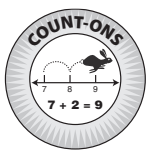
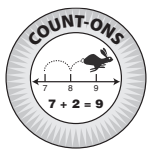
StrADDegy: When, Where and What

StrADDegy assumes:

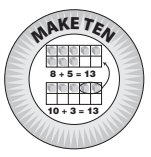
- One-to-one correspondence
- Subitizing is an ongoing classroom routine
- **Counting:** Learners have stable order to 12, progressing to 20 and beyond
- A burgeoning understanding of addition as combining and subtraction as take away (subtraction as *comparison* and *missing addend* are explored in StrADDegy)

Landmark Concept	Strategy Connected to the Concept	StrADDegy Module	Progression of Thinking		
Moving from counting to quantifying.			**Construct - See it**	**Trust - Believe it**	**Own - Use it**
Cardinality	*Necessary but not sufficient for counting on and counting back*		When I count, the number name I say as I count the last object tells me how many there are altogether.	I count a collection of objects to find out how many there are. I don't have to count a second time. As long as I don't add more or take any away, the total will always be the same.	After counting, if I add more objects to the collection, I don't need to count the first group again. I can just keep counting on from where I finished.
Models			**StrADDegy Learning Experiences with High ROI (Return on Instruction)**		
			Construct	**Trust**	**Own**
* Nuzzlers * Going Digital * Rekenreks * Rek 'N' Track * Digital Ten-Frame			• Story Starter • Number String • Going Digital • Sounds Count	• Stay Close • Count On Concentration	• All Aboard • **Digital Game** - Nim
Landmark Concept	**Strategy Connected to the Concept**	**StrADDegy Module**	**Progression of Thinking**		
Quantifying and seeing relationships.			**Construct - See it**	**Trust - Believe it**	**Own - Use it**
Hierarchical Inclusion	*Combined with cardinality lays the foundation for counting on and counting back*		When I count, the number I say next is always one more than the number that came before.	When I count, 4 always comes before 5 and 5 always comes after 4. 4 is always 1 away from 5. I notice that larger numbers are made up of smaller numbers.	If 4 is always 1 less than 5, then 4 + 1 must always be 5 and 5 - 1 = 4.
Commutative Property	*"Take Charge, Start Large"*		I can break up my collection into smaller groups and move these groups around.	The order I use to combine my groups doesn't matter. The total will be the same.	When I see 2 + 6. I know that I can reverse the order. I will *take charge and start large* and count on from the 6: "**7**", "**8**".
Models			**StrADDegy Learning Experiences with High ROI (Return on Instruction)**		
			Construct	**Trust**	**Own**
* Nuzzlers * Going Digital * Rekenreks * Rek 'N' Track * Digital Ten-Frame			• **Learning Map** (video) • Change 0	• Find a Home • Stay Close	• **PROBLEM BANK** *Target Practice* - Roddles • **PROBLEM BANK** *Task Cards* - 2,3,4,7
Landmark Concept	**Strategy Connected to the Concept**	**StrADDegy Module**	**Progression of Thinking**		
Quantifying and seeing relationships.			**Construct - See it**	**Trust - Believe it**	**Own - Use it**
Hierarchical Inclusion	*Deriving from a known fact - Think Doubles*		When I count, 5 always comes before 6.	5 is always a part of 6. 5 and 1 more is always 6.	When I see 6 + 5, I can think of the 6 as 5 and 1 more. So, 6 + 5 is the same as (5 + 1) + 5, which is double 5s plus 1.
Models			**StrADDegy Learning Experiences with High ROI (Return on Instruction)**		
			Construct	**Trust**	**Own**
* Nuzzlers * Going Digital * Rekenreks * Cloud as context for a function machine			• Story Starter and Investigation for *Where Do All the Socks Go?* • Rek 'N' Flash • Follow Me	• Helping Doubles • Feely Socks	• **Investigation** - *Where Do All the Socks Go* - Almost Doubles (Board 1 & 2) • **PROBLEM BANK** *Task Cards* - 1,3,4,9 • **PROBLEM BANK** *Target Practice* - **If, Then**
Landmark Concept	**Strategy Connected to the Concept**	**StrADDegy Module**	**Progression of Thinking**		
Building more relationships through decomposition and composition of number.			**Construct - See it**	**Trust - Believe it**	**Own - Use it**
Part-Whole Relationships	*Deriving from a known fact -Think Doubles* (associative property)		When I count, 6 is always 2 less than 8.	When I look at 8 things, I can also see the collection as 6 and 2. 6 is always part of 8.	I can think of 8 + 6 as (6 + 2) + 6, or double 6's and 2 more.
	Deriving from a known fact -Think Doubles (associative property leading to compensation and equivalence)		When I count, the order is always 6 , 7 , 8.	7 is one away from both 6 and 8.	When I think of 8 + 6, I know that 7 is both 1 more than 6 and 1 less than 8. I can take 1 from the 8 and give it to the 6 to turn the problem into a double, 7 + 7.
Models			**StrADDegy Learning Experiences with High ROI (Return on Instruction)**		
			Construct	**Trust**	**Own**
* Nuzzlers * Going Digital * Rekenreks * Cloud as context for a function machine * Part-Part-Whole Board			• Story Starter and Investigation for *Keeping in Balance*	• Thinking Caps • Bookshelf	• **Digital Game** - Think Doubles • **PROBLEM BANK** - *Story Problems* - Part-Part-Whole • **PROBLEM BANK** - *Puzzlers* (1 - 4)

I have been using StrADDegy with a grade ½ and grade 2 class and I wanted to let you know that you have developed an absolutely fantastic resource. The students love the stories and the games. The teachers that I am supporting like the videos that explain the strategies. Thanks for your work in improving math instruction!
Jillian (Teacher, Saskatchewan)

Landmark Concept	Strategy Connected to the Concept	StrADDegy Module	Progression of Thinking		
Building more relationships through decomposition and composition of number.			**Construct - See it**	**Trust - Believe it**	**Own - Use it**
Part-Whole Relationships	*Conceptual subitizing*		I can look at a collection and see smaller groups within it.	When I look at a collection of objects, I don't have to count every item to find out "how many?"	I can break up a whole into smaller parts and recombine them to find out "how many".
Conservation of Number	*Decomposition*		I can break a collection into many different groups.	No matter how I decide to break up my collection, the total number of items is always the same.	Every number can be broken into different parts. It will take me some time to know all of the combinations, but 7 can be 6 + 1, 5 + 2, and 4 + 3.
(Commutative Property)	*Using "turn arounds"*		I can break up my collection into smaller groups and move these groups around.	The order I use to combine my groups doesn't matter. The total will be the same.	I know that 4 + 3 is 7, so I also know that 3 + 4 = 7. This sure makes the number of combinations I need to remember a lot easier.
Part-Whole Relationships	*Using 5 and 10 as benchmarks*		When I count 5 is always 2 more than three and 2 less than 7. Seven is also always 3 less than 10.	Knowing all of the combinations of 5 is very helpful in figuring out answers when adding and subtracting.	When I see 6 + 4, I know that 6 is 1 more than 5 and 4 is 1 less than 5. I can see it as 5 + 5, which I know is 10.
	Think Addition		I can break up a whole into one or more parts.	I can find the amount of the whole by combining the parts.	If I know the whole and one of the parts, I can figure out the missing part by thinking about a relationship I already know.
Identity Property of 0	*Add 0*		When I count, the number name I say when I touch the last object tells me how many there are altogether.	If I don't add or take away any items from my collection, the total will stay the same.	If I add or take away 0 from a number, the number stays the same. So, I have to remember that 7 + 0 also equals 7.
Models			**StrADDegy Learning Experiences with High ROI (Return on Instruction)**		
			Construct	**Trust**	**Own**
* Nuzzlers * Going Digital * Rekenreks * Part-Part-Whole Board			• Story Starter and Investigation • Simon Says What? • Hi Five!	• Same, But Different • Find A Friend	• Birds on a Wire • Tic, Tac, Ten • **Digital Game** - Squirmy Wormy • **PROBLEM BANK** *-Twisters* - 1 & 4 • **PROBLEM BANK** *-Task Cards* - 1,3,4

Landmark Concept	Strategy Connected to the Concept	StrADDegy Module	Progression of Thinking		
Decomposition of teen numbers as ten ones (one ten) and some more ones.			**Construct - See it**	**Trust - Believe it**	**Own - Use it**
Unitizing	*Using the pattern of tens*		When I count 10 items I can think of them as 10 units or 1 ten.	When I build a collection greater than 10, I write the number as one ten and some more ones. For example: 8 and 7 is written as 15.	I can break up teen numbers in any way I like, but one way that can be helpful is to think of the teen number as one ten and some more ones. 17 is 10 + 7.
	Taking from 10		I can group collections greater than 10 as a group of 10 ones and some more ones.	Any teen number can be broken up as one ten and some more ones.	When I take a number away from a teen number, I can think of the teen number as one ten and some more ones. 17 - 9. 17 is 10 + 7. I can take the 9 from the 10 and add the 1 that is leftover to 7 to make 8.
Models			**StrADDegy Learning Experiences with High ROI (Return on Instruction)**		
			Construct	**Trust**	**Own**
* Nuzzlers * Going Digital * Rekenreks * Compare It Double Number Line * Make Me A Teen Building Board			• **Learning Map** - Prerequisite videos • Story Starter and investigation *- Ten Stick* • Number String • Give Me Ten	• Show Me the Way • Ear Drops • I Say, You Say, We Say • Make Me a Teen	• **Digital Game**- Missing Muffins • **PROBLEM BANK** *- Story Problems* - Separating • **PROBLEM BANK** *- Task Cards* - 5,6,7 • **PROBLEM BANK** *- Target Practice* **Take From Ten, Compare It**

Landmark Concept	Strategy Connected to the Concept	StrADDegy Module	Progression of Thinking		
Decomposing and recombining numbers to use "10" as a benchmark.			**Construct - See it**	**Trust - Believe it**	**Own - Use it**
Part-Whole Relationships - Equivalence - using compensation and the associative property	*Make Ten*		When I break a whole into parts and combine the parts in different ways, the total is the same. Is that always true?	It doesn't matter how I break up the whole or how I recombine the parts, as long as I don't add any new items or take any away, the total stays the same.	When I am adding a 7, 8 or 9 to another number and the total is greater than 10, it might help me to break up the other number into parts. I can combine one of the parts to the 7, 8 or 9 to make ten and then add on the rest. 8 + 6 is the same as 8 + 2 + 4. 8 + 2 makes 10 and 4 more is 14.
Part-Whole Relationships	*Meet Me at Ten*		When I count to 20 and beyond I always pass 10.	All teen numbers have a 10 inside and 10 has every other number from 1 - 9 inside it.	When I subtract two numbers that are both close to ten, I can count up from the smaller number to 10 and back from the teen number to 10. The number of times I count is the difference between the two numbers.
Models			**StrADDegy Learning Experiences with High ROI (Return on Instruction)**		
			Construct	**Trust**	**Own**
* Nuzzlers & Digital Balance * Going Digital * Rekenreks * Compare It Double Number Line			• **Learning Map** - Prerequisite videos • Story Starter and Investigation • Fingers Fly	• Here Comes the Sun • Friends to Visit	• Random Rack • **Digital Game** Blockers • **PROBLEM BANK** *- Story Problems* - Compare • **PROBLEM BANK** *- Puzzlers* (1 - 4) • **PROBLEM BANK** *- Target Practice* - **Meet Me at 10, Can I Borrow Some?**