

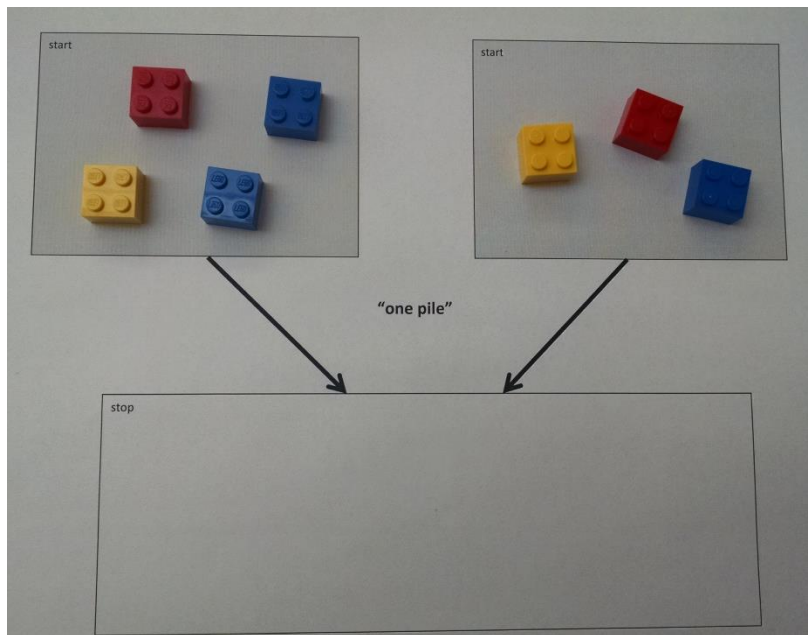
Adding numbers together involves skill but also an underlying concept of combining values/quantities to get a total. The concept is often overlooked. The following is an approach to teach and assess the concept of addition.

Overview of the steps presented on the following pages:

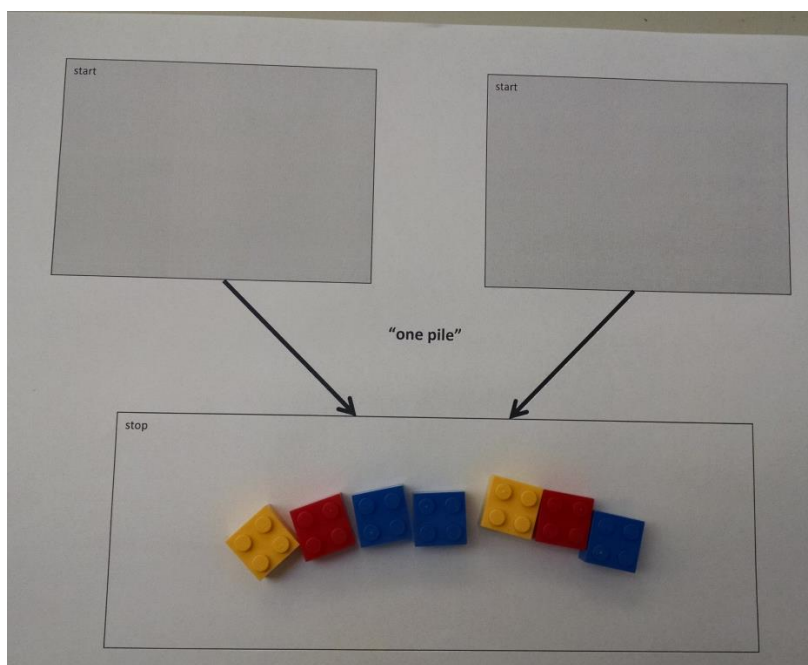
- Phase 1
  - A Concrete-Representational-Abstract (CRA) approach is used by focusing on a concrete view of addition.
  - Students are taught to physically demonstrate addition with manipulatives – the initial terms is “pull together”
  - They are also taught 2 other tasks: taking away and sorting.
- Phase 2
  - These other 2 tasks are used as distractors. The idea is that when prompted to “pull together” the student demonstrated the addition task as opposed to one of the other tasks.
- Phase 3
  - The use of the symbol “+” is gradually incorporated.

**PHASE 1****STEP 1**

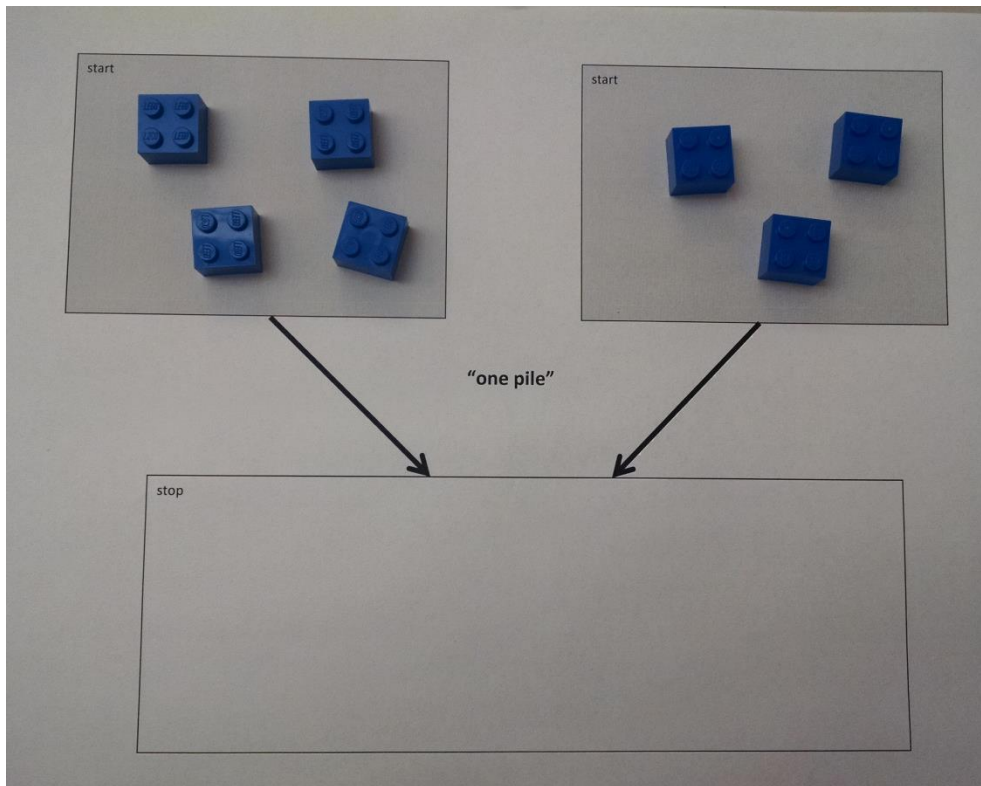
1. Use the “one pile” mat
2. Put items in both boxes.
3. Give oral prompt to “pull into one pile” or “pull together” (your choice, be consistent) – see photo below



4. The end result should look like what is shown in the photo below.
5. Ask the student to find the total. You may use “how many” and move towards the term “total.”

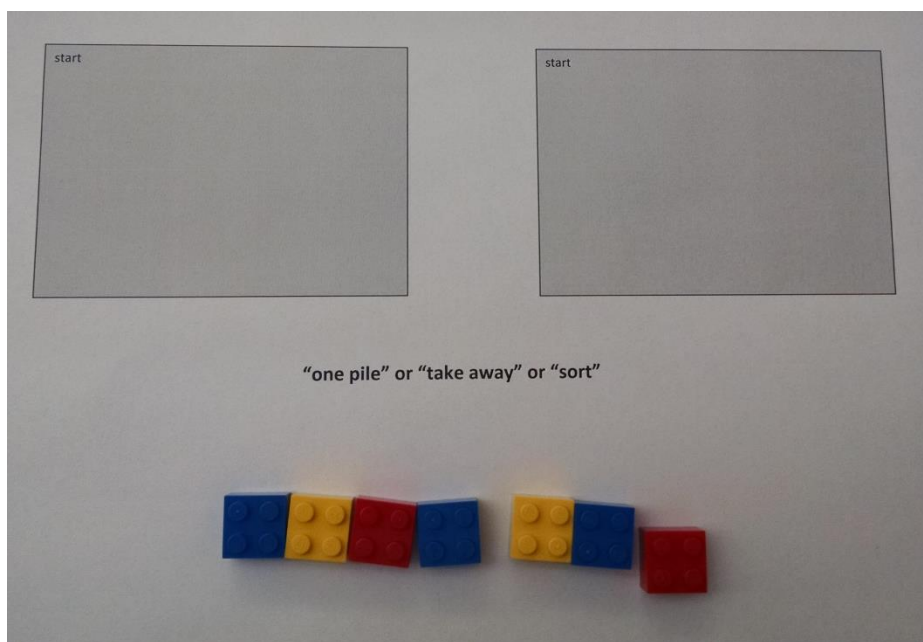
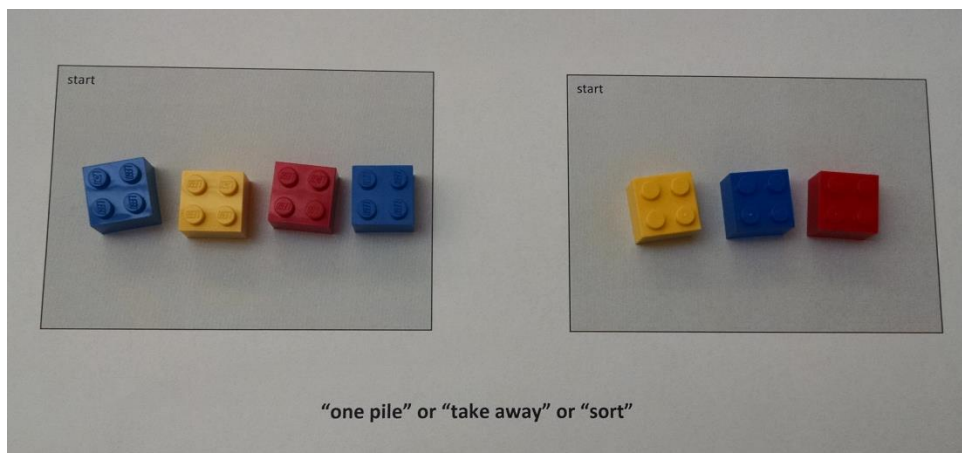


Note: If the different colors cause confusion, use a uniform color to develop the “pull into a pile” performance then move to multi-colors. The reason for using multi-colors is to allow “pull together”, “take away” and “sort” to all have the same set of Legos.



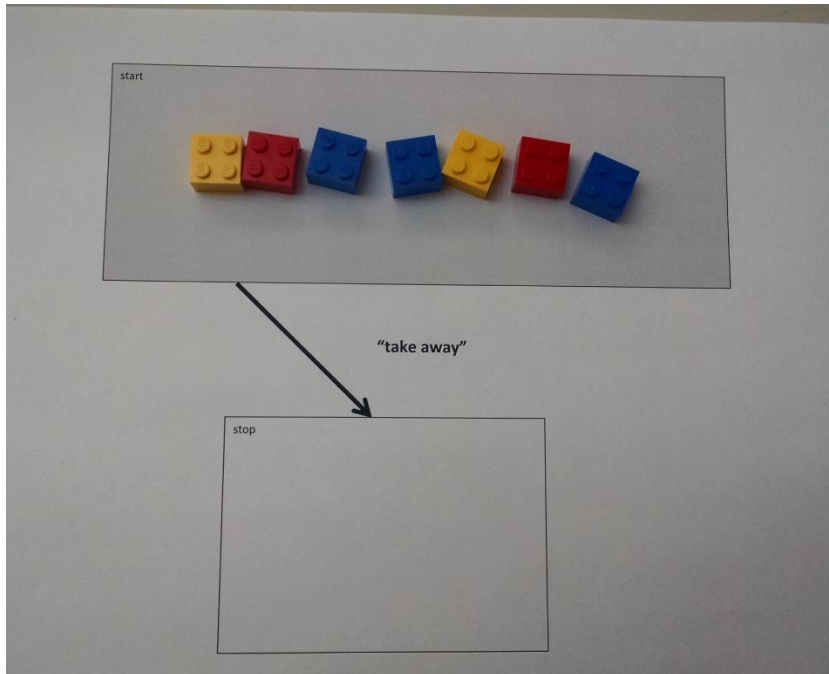
STEP 2

1. Teach student to demonstrate “pull into one pile” using the generalized mat – see 1<sup>st</sup> photo below.
2. The end result should look something like what is shown in the 2<sup>nd</sup> photo below.

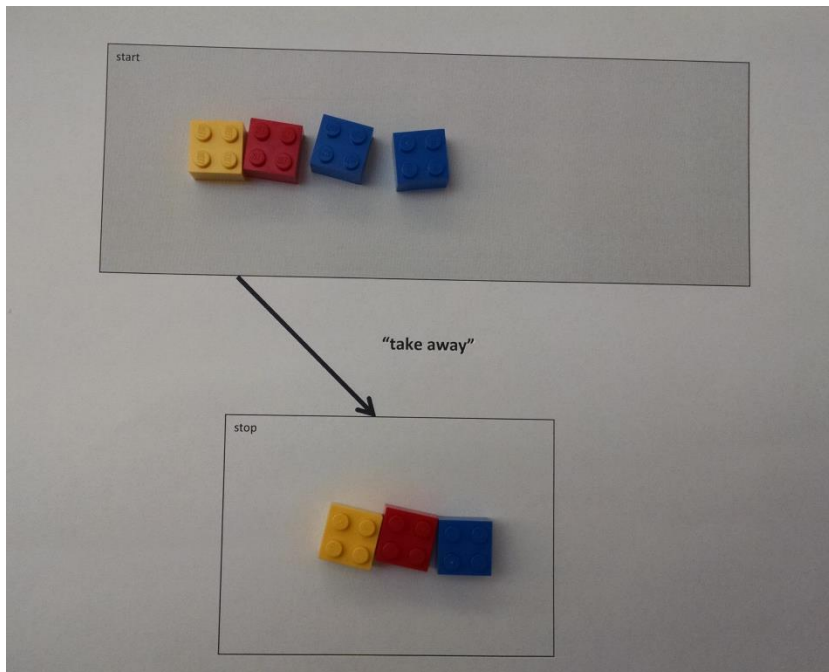


STEP 3

1. Use the "take away" mat
2. Put items in both boxes.
3. Give oral prompt to "take away"

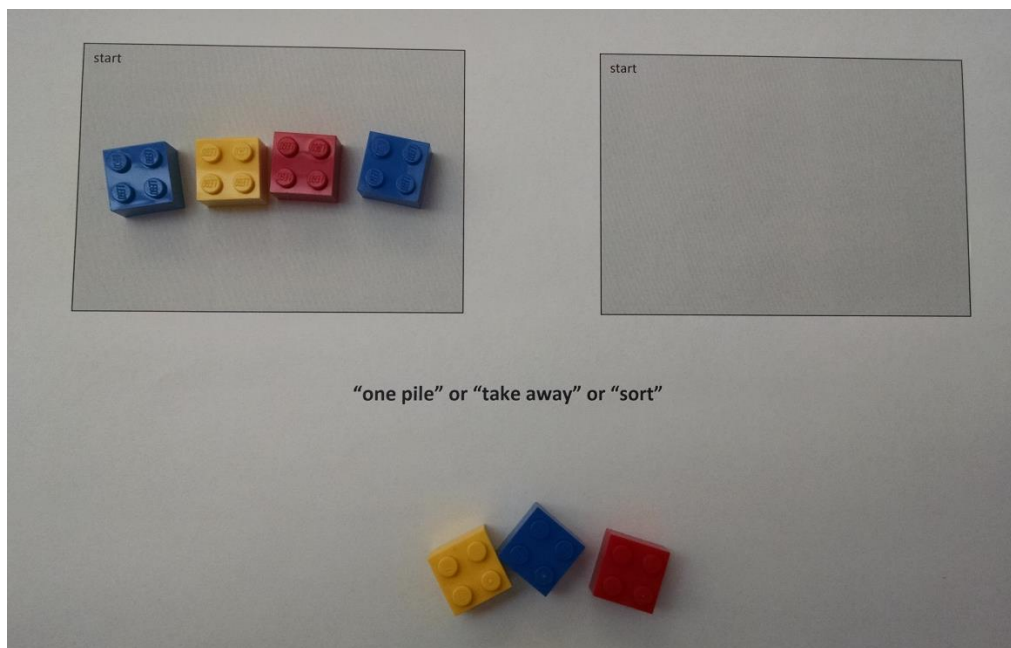
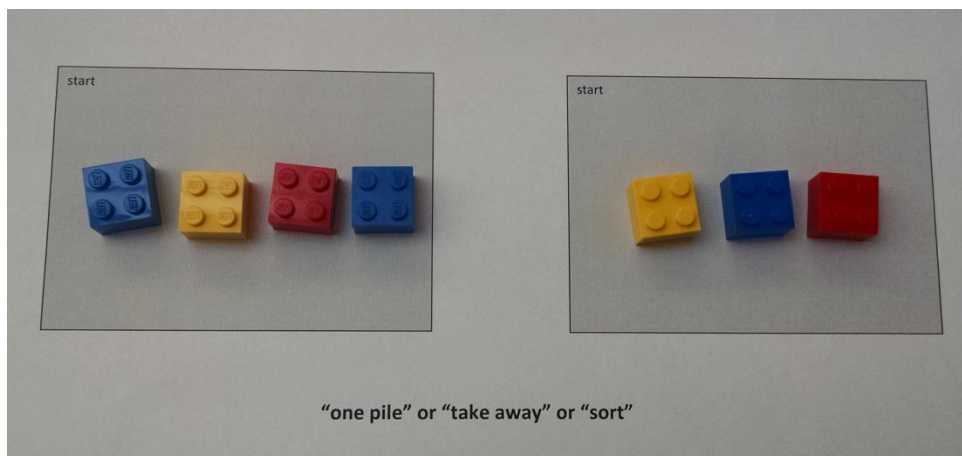


4. The end result should look like what is shown in the photo below.
5. Ask the student to find the "what's left?"



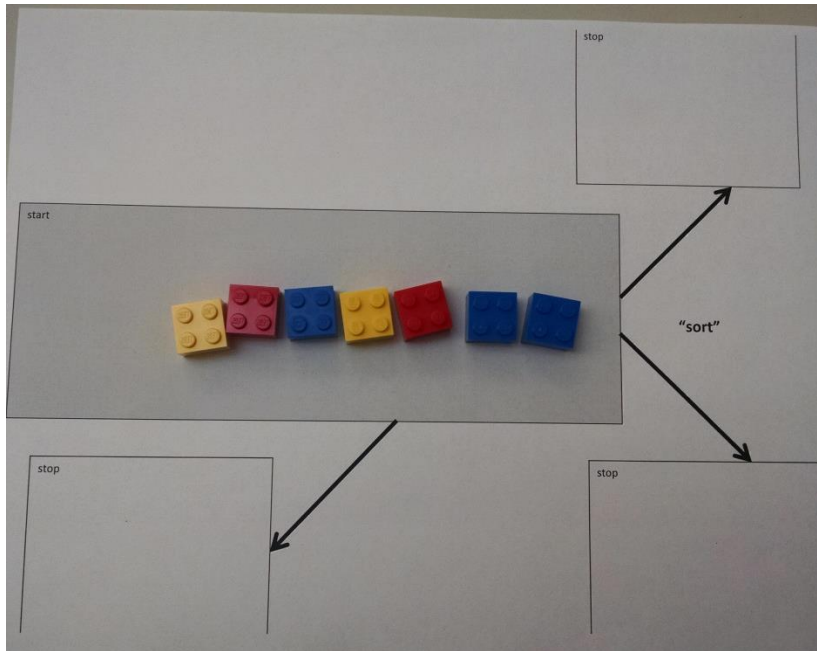
STEP 4

1. Teach student to demonstrate “take away” using the generalized mat – see 1<sup>st</sup> photo below.
2. The end result should look something like what is shown in the 2<sup>nd</sup> photo below.

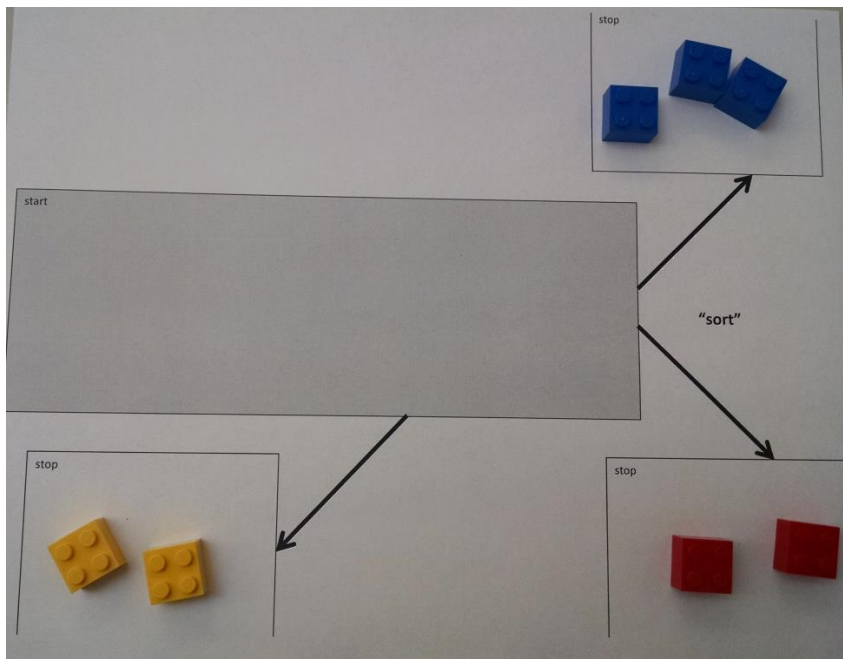


STEP 5

1. Use the "sort" mat
2. Put items in both boxes.
3. Give oral prompt to "sort"

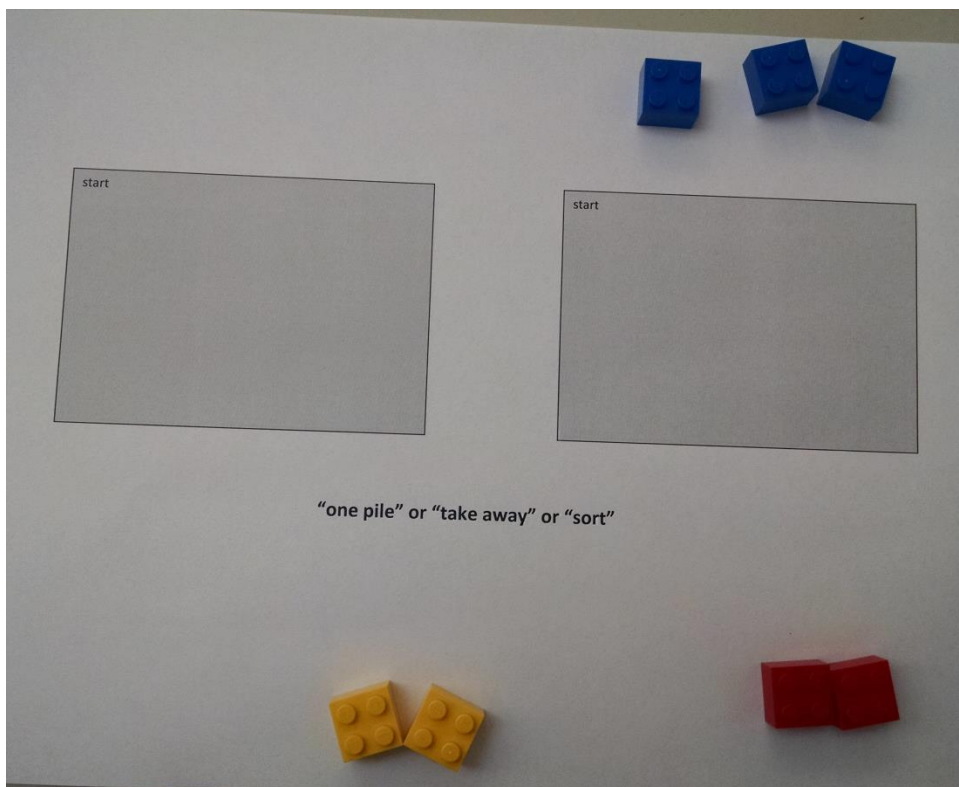
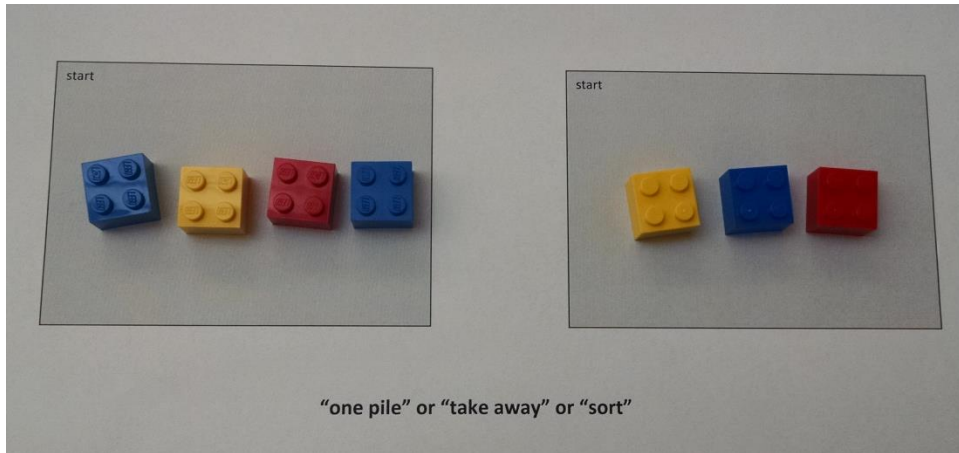


4. The end result should look like what is shown in the photo below.
5. Ask the student to explain what the groups are, e.g. "blues."



STEP 6

1. Teach student to demonstrate "sort" using the generalized mat – see 1<sup>st</sup> photo below.
2. The end result should look something like what is shown in the 2<sup>nd</sup> photo below.

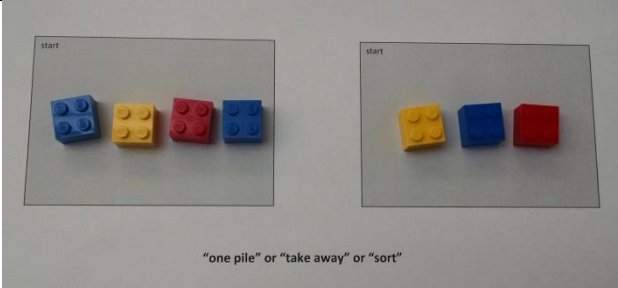
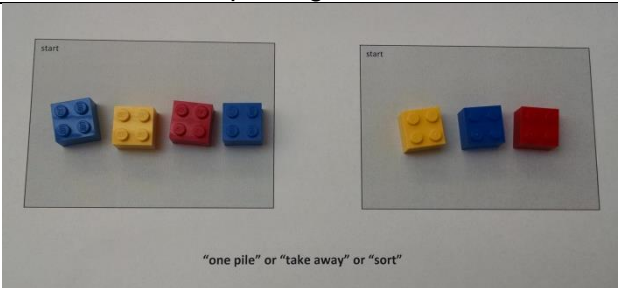
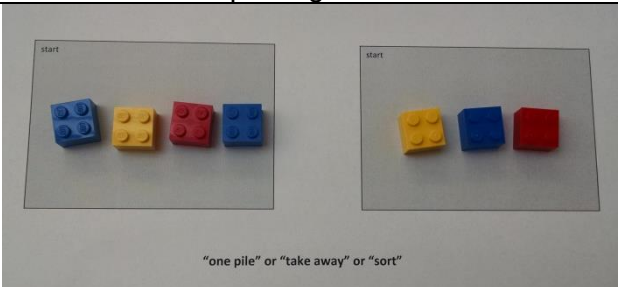
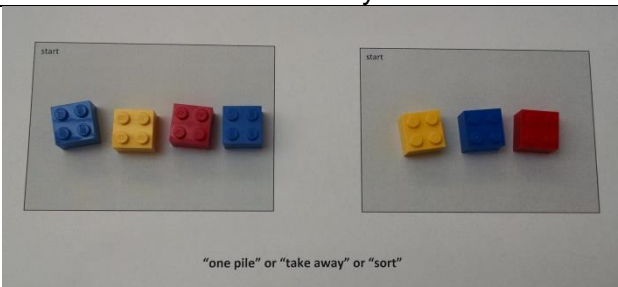




**PHASE 2**

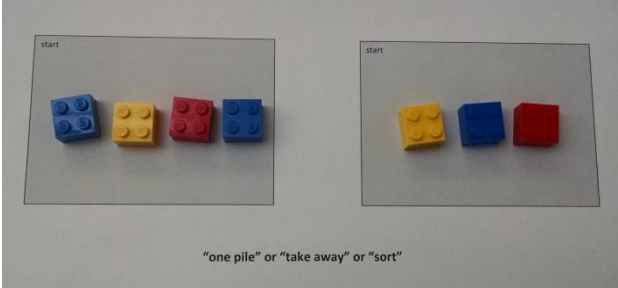
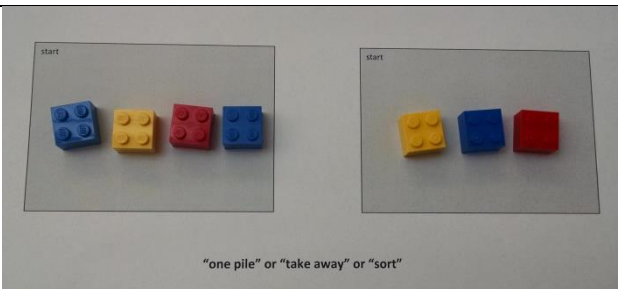
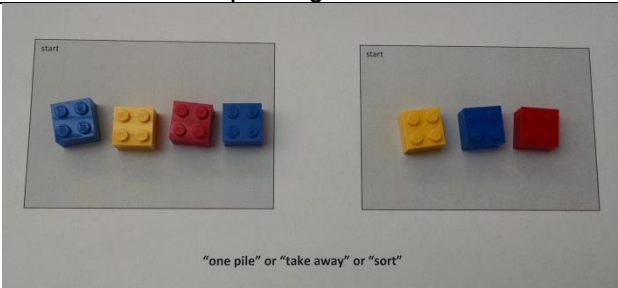
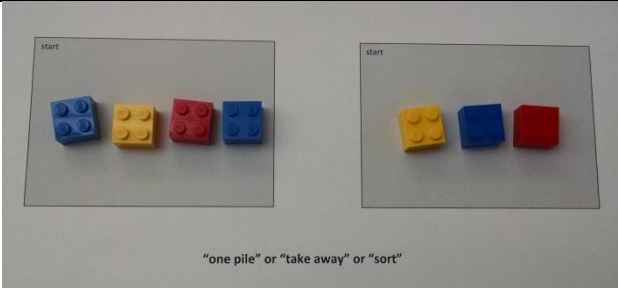
**STEP 7**

1. “pull together” and “take away” using the general mat are presented to the student randomly as trials. Below is an example.
2. The idea is that the setup is the same. The “take away” prompt is a distractor used to ensure the student doesn’t automatically pull all the items together whenever he or she sees the mat.
3. Data is collected for the trials and 100% out of 10 trials is the threshold before moving on (you certainly have flexibility in choosing the level for mastery).

<p>Trial 1</p>	 <p>“pull together”</p>
<p>Trial 2</p>	 <p>“pull together”</p>
<p>Trial 3</p>	 <p>“take away”</p>
<p>Trial 4</p>	 <p>“pull together”</p>

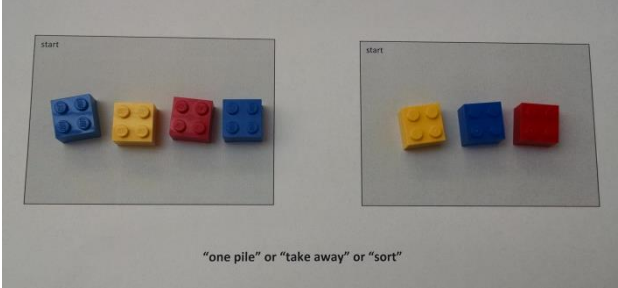
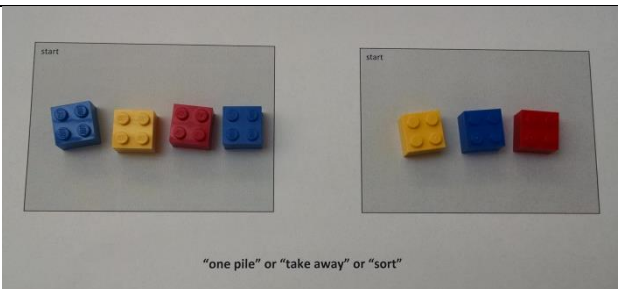
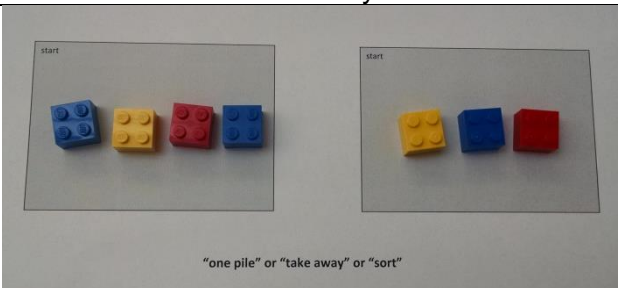
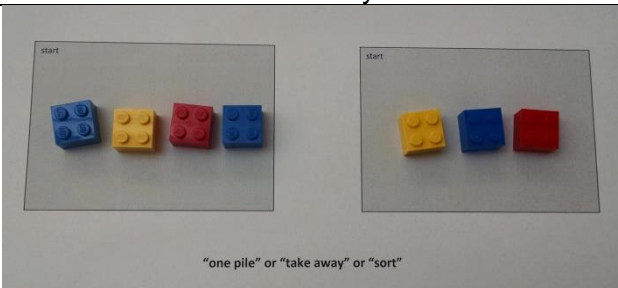
STEP 8

1. "pull together" and "sort" using the general mat are presented to the student randomly as trials. Below is an example.
2. The idea is that the setup is the same. The "sort" prompt is the distractor for this step will eventually be included in a field of 3 situation.

<p>Trial 1</p>	 <p style="text-align: center;">"one pile" or "take away" or "sort"</p> <p style="text-align: center;">"sort"</p>
<p>Trial 2</p>	 <p style="text-align: center;">"one pile" or "take away" or "sort"</p> <p style="text-align: center;">"pull together"</p>
<p>Trial 3</p>	 <p style="text-align: center;">"one pile" or "take away" or "sort"</p> <p style="text-align: center;">"pull together"</p>
<p>Trial 4</p>	 <p style="text-align: center;">"one pile" or "take away" or "sort"</p> <p style="text-align: center;">"sort"</p>

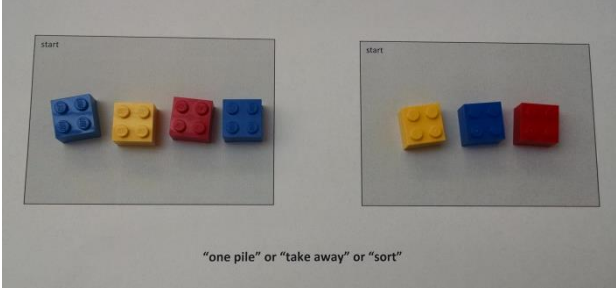
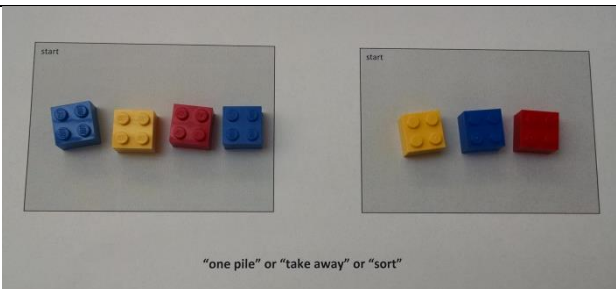
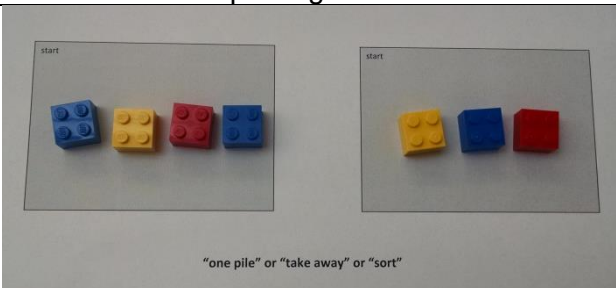
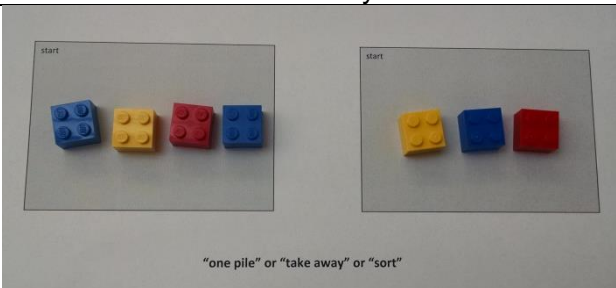
STEP 9

1. "takeaway" and "sort" using the general mat are presented to the student randomly as trials. Below is an example.
2. Even though "pull together" is not included, practice with these two as a pair prepares the student for the field of 3 when all 3 prompts are randomly used.

<p>Trial 1</p>	 <p style="text-align: center;">"sort"</p>
<p>Trial 2</p>	 <p style="text-align: center;">"take away"</p>
<p>Trial 3</p>	 <p style="text-align: center;">"take away"</p>
<p>Trial 4</p>	 <p style="text-align: center;">"sort"</p>

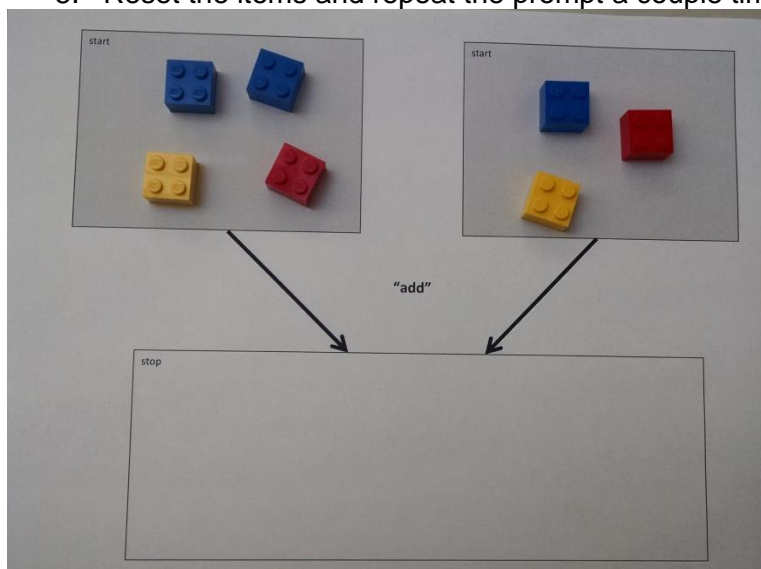
STEP 10

1. "pull together", "take away" and "sort" using the general mat are presented to the student randomly as trials. Below is an example.
2. This is the field of 3 situation used to double check that the student understands the concept of pulling together which is the concept of addition.

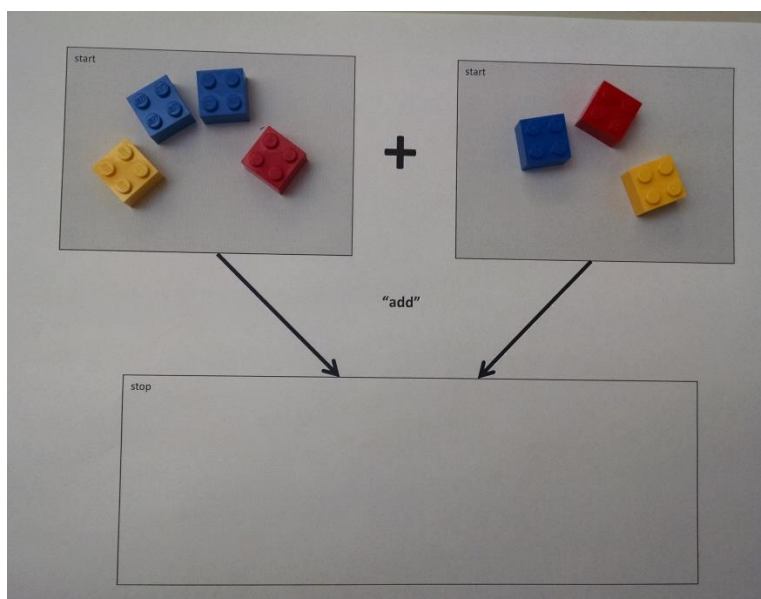
<p>Trial 1</p>	 <p style="text-align: center;">"one pile" or "take away" or "sort"</p> <p style="text-align: center;"><b>"sort"</b></p>
<p>Trial 2</p>	 <p style="text-align: center;">"one pile" or "take away" or "sort"</p> <p style="text-align: center;"><b>"pull together"</b></p>
<p>Trial 3</p>	 <p style="text-align: center;">"one pile" or "take away" or "sort"</p> <p style="text-align: center;"><b>"take away"</b></p>
<p>Trial 4</p>	 <p style="text-align: center;">"one pile" or "take away" or "sort"</p> <p style="text-align: center;"><b>"sort"</b></p>

**PHASE 3****STEP 11**

1. Use the “add” mat
2. Put items in both boxes.
3. Give oral prompt to “pull into one pile”
4. Explain this means to “add”
5. Reset the items and repeat the prompt a couple times.

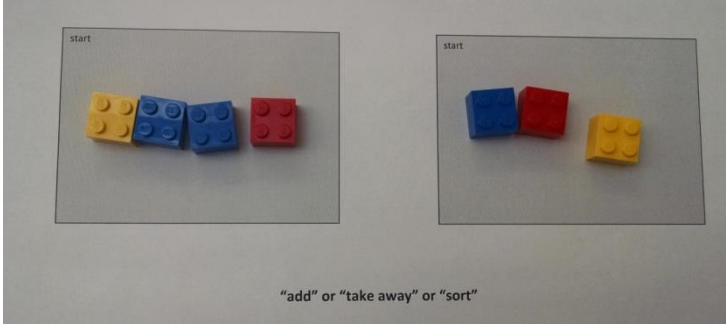
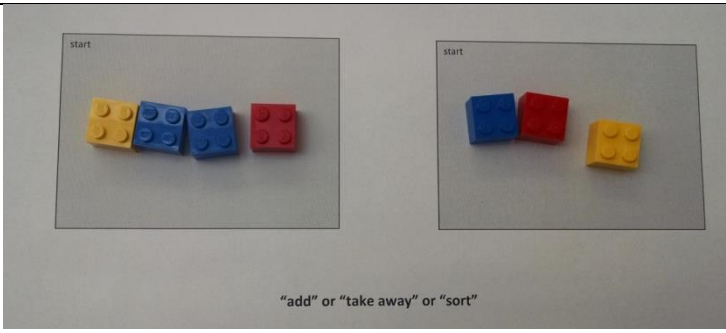
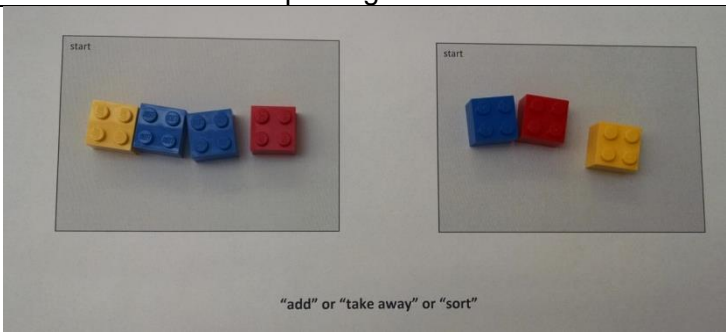
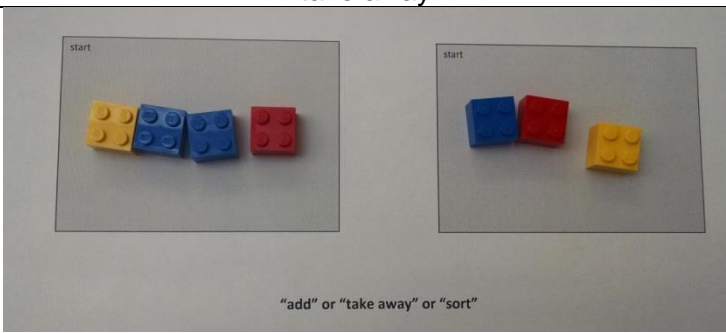


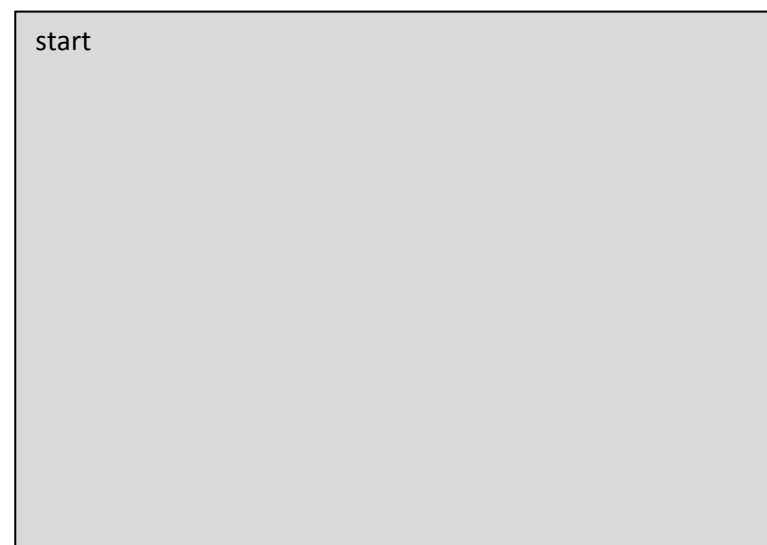
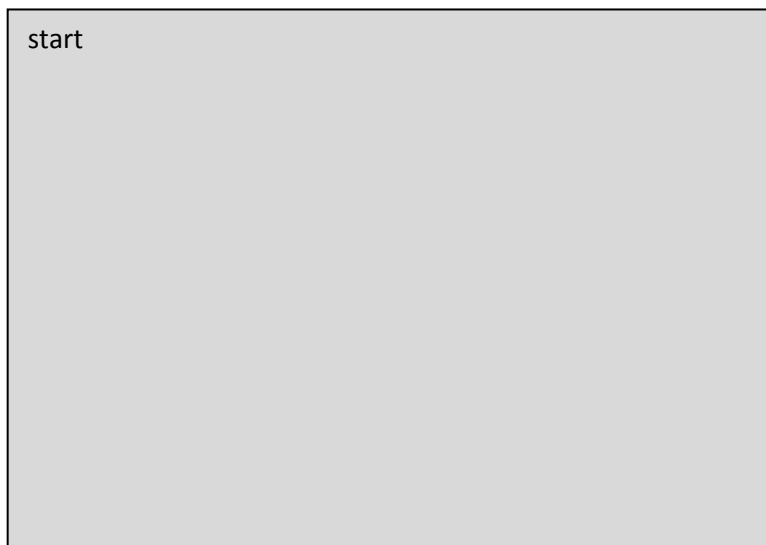
6. Repeat steps with the “+” mat



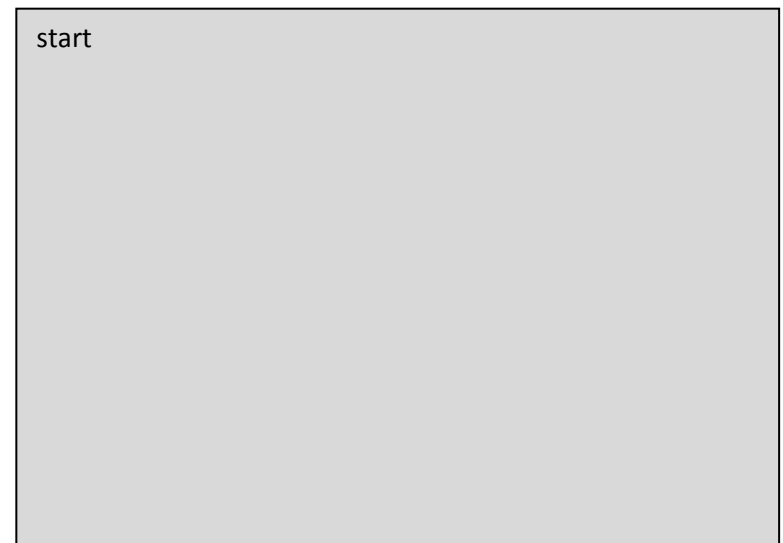
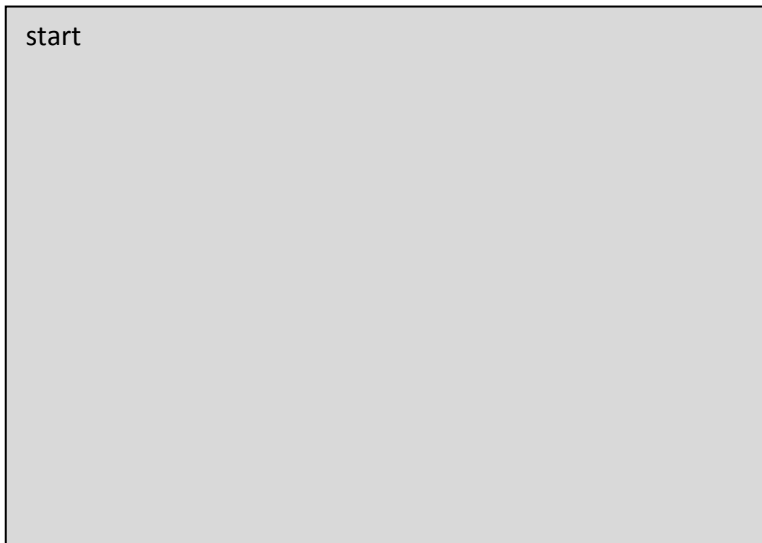
STEP 12

1. Redo the field of 3 prompts using the generalized “add” mat.
2. After completing this to mastery replace the verbal “add” prompt by showing a card with “+” on it. You can say “add” and show the card then eventually just show the card.

<p>Trial 1</p>	 <p>“sort”</p>
<p>Trial 2</p>	 <p>“pull together”</p>
<p>Trial 3</p>	 <p>“take away”</p>
<p>Trial 4</p>	 <p>“sort”</p>

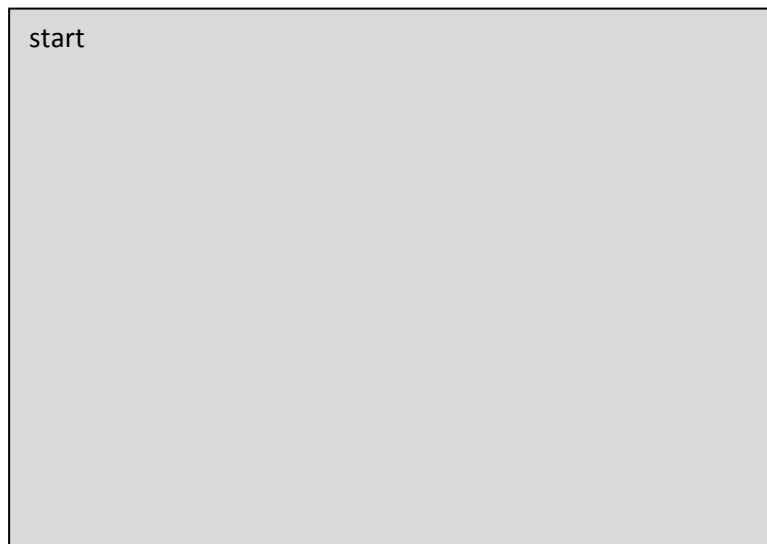


**“add” or “take away” or “sort”**

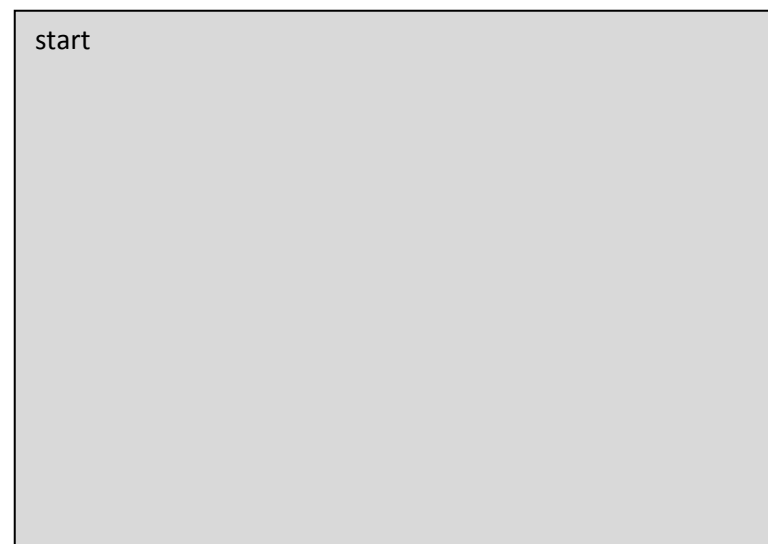


**“one pile” or “take away” or “sort”**

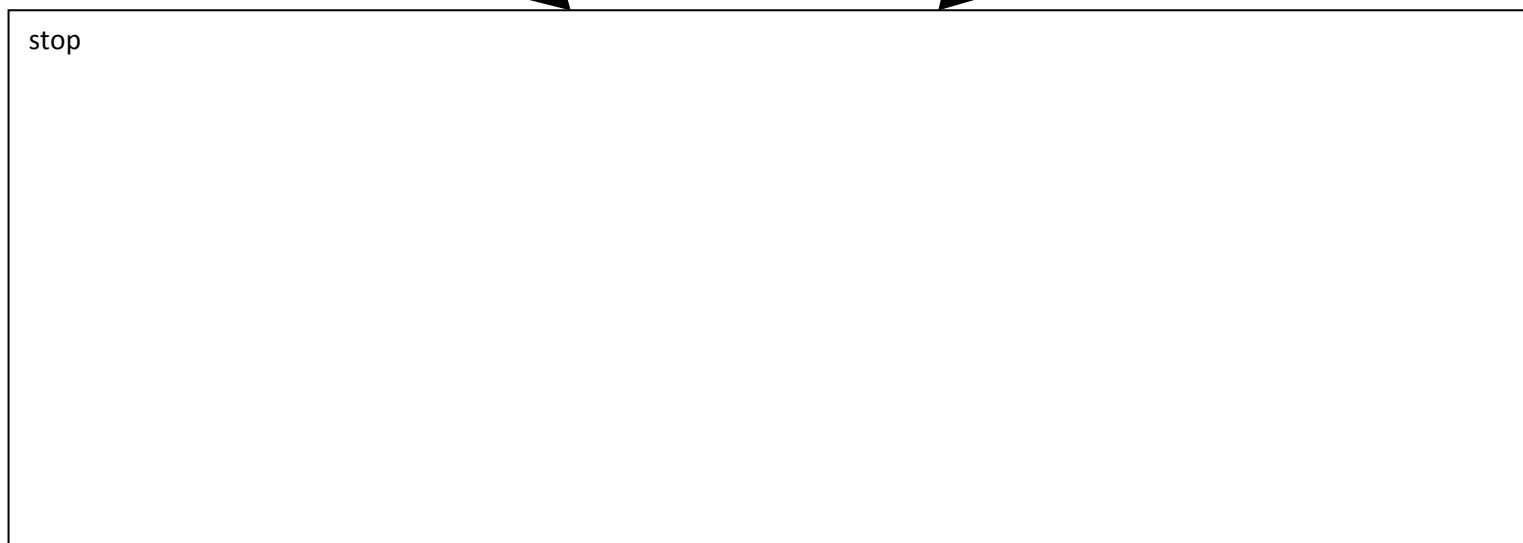
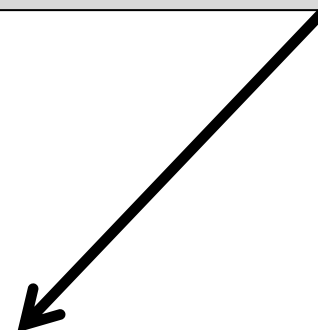
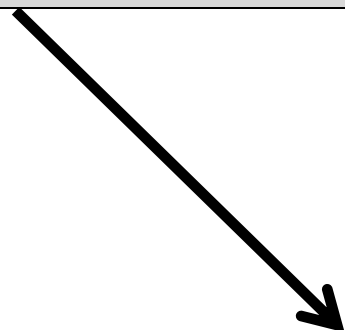


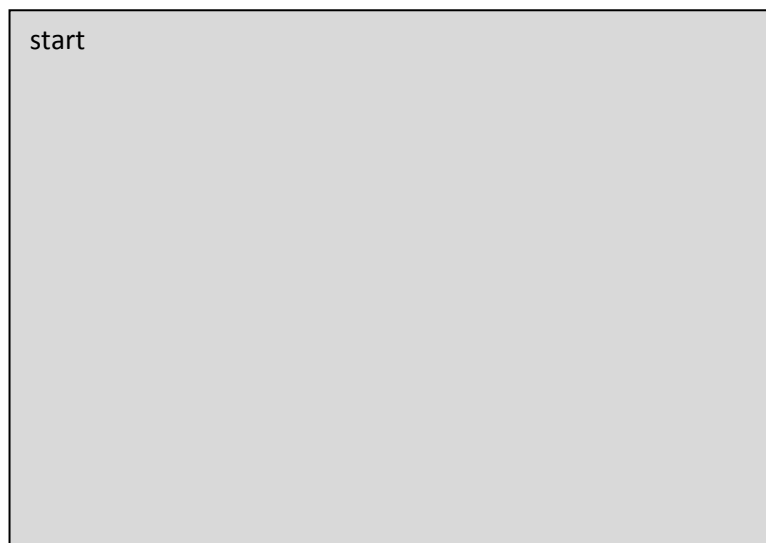
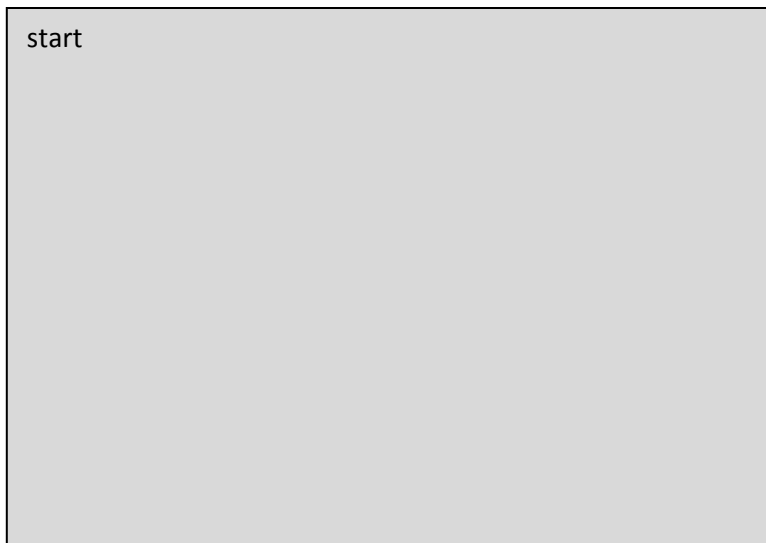


**+**

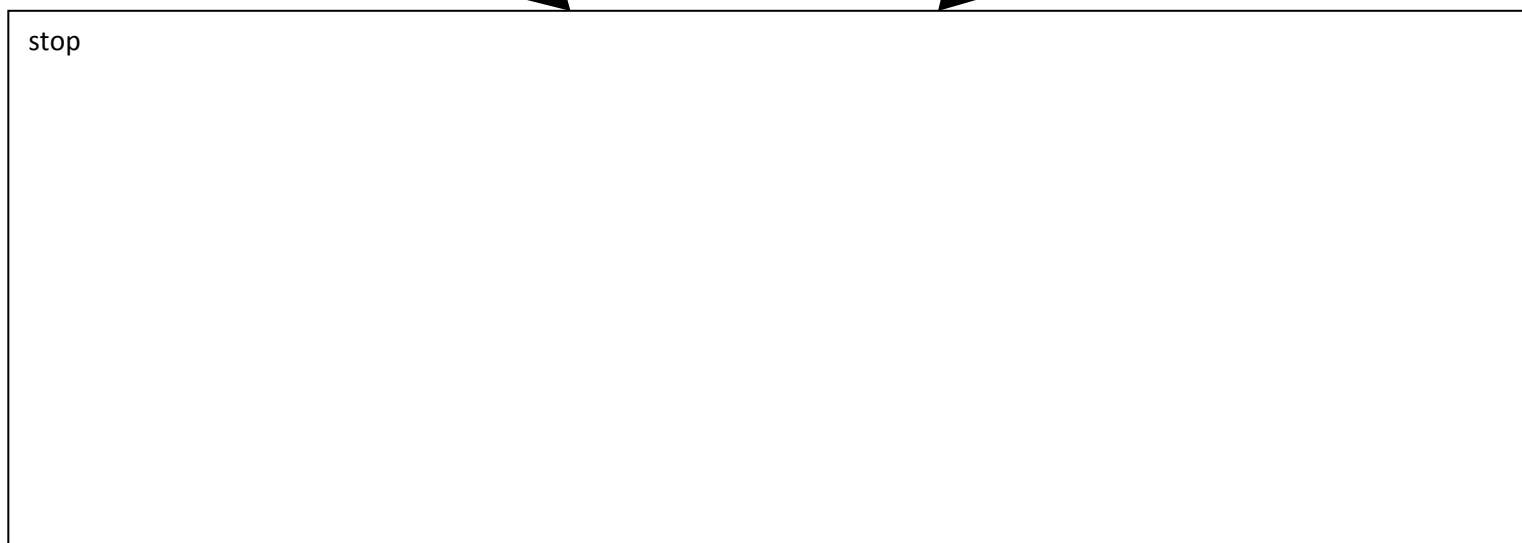


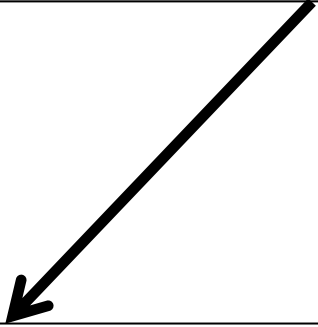
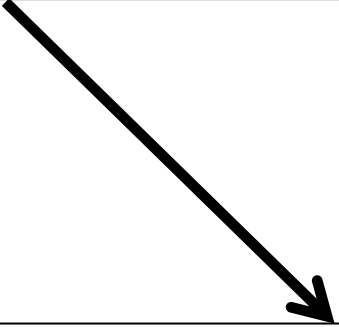
**"add"**



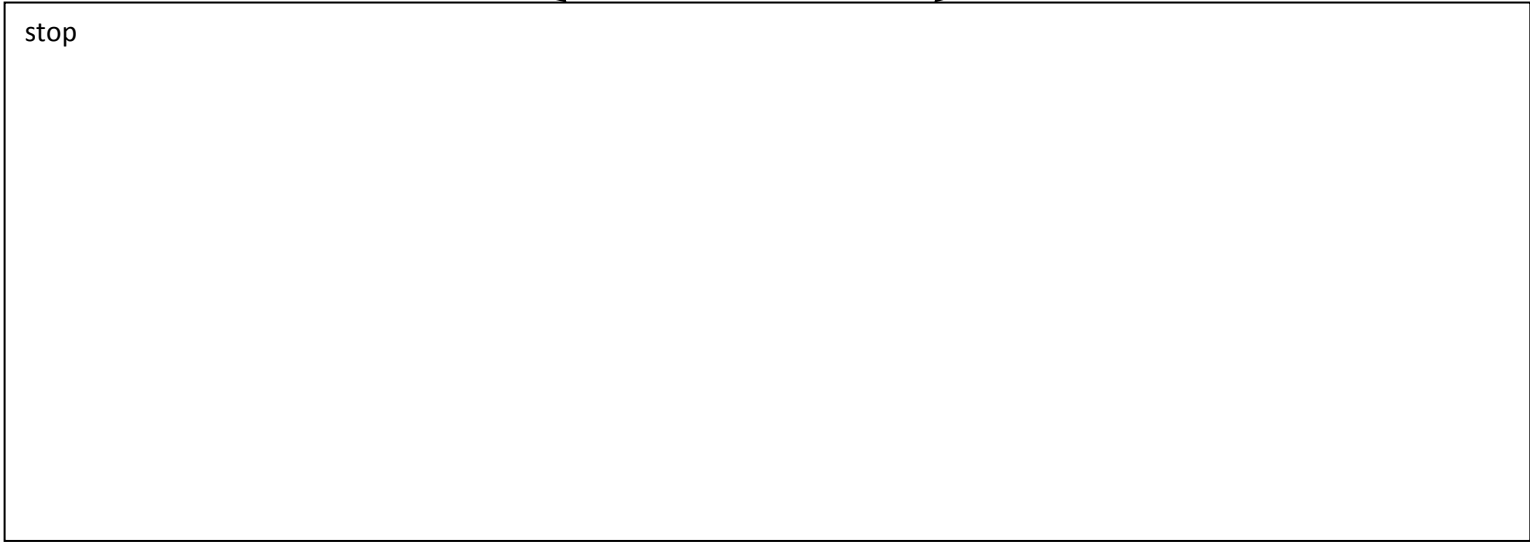


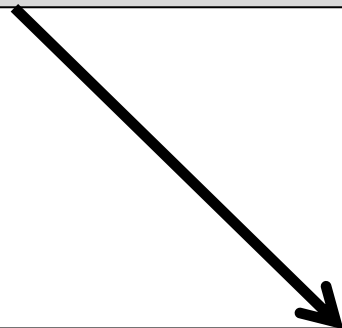
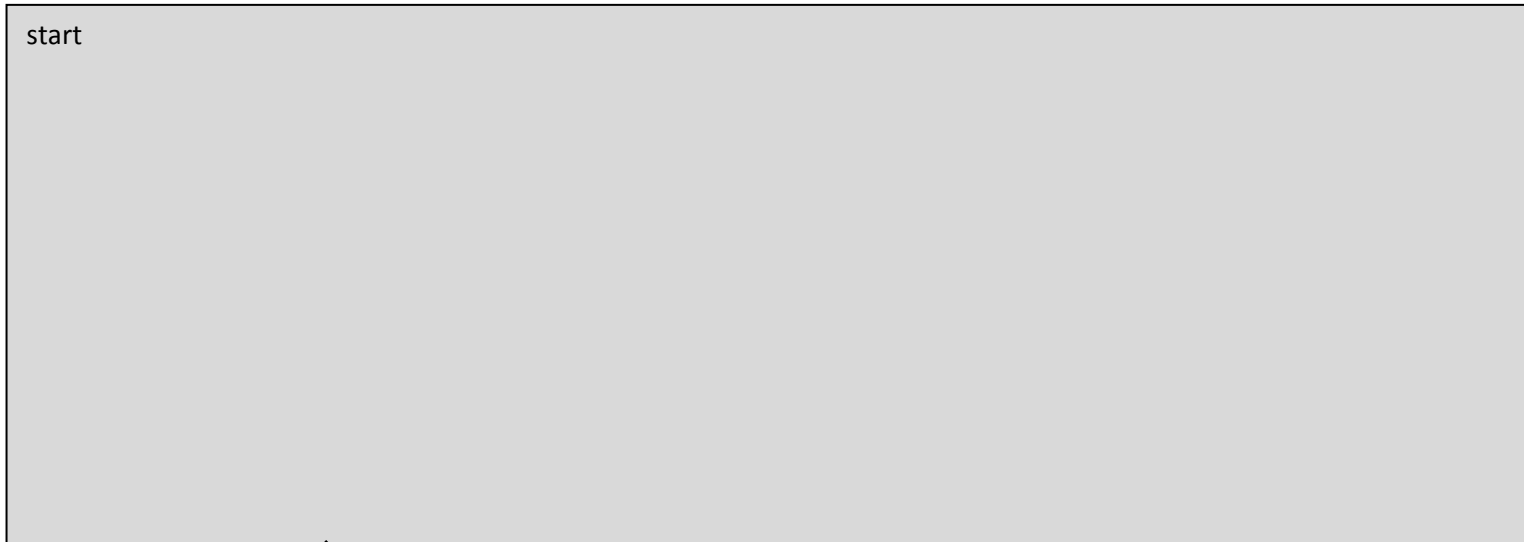
**“one pile”**



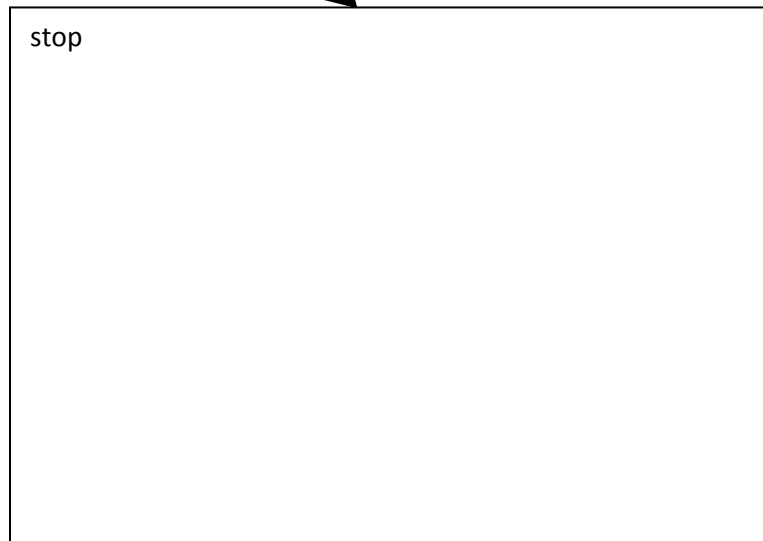


“add”

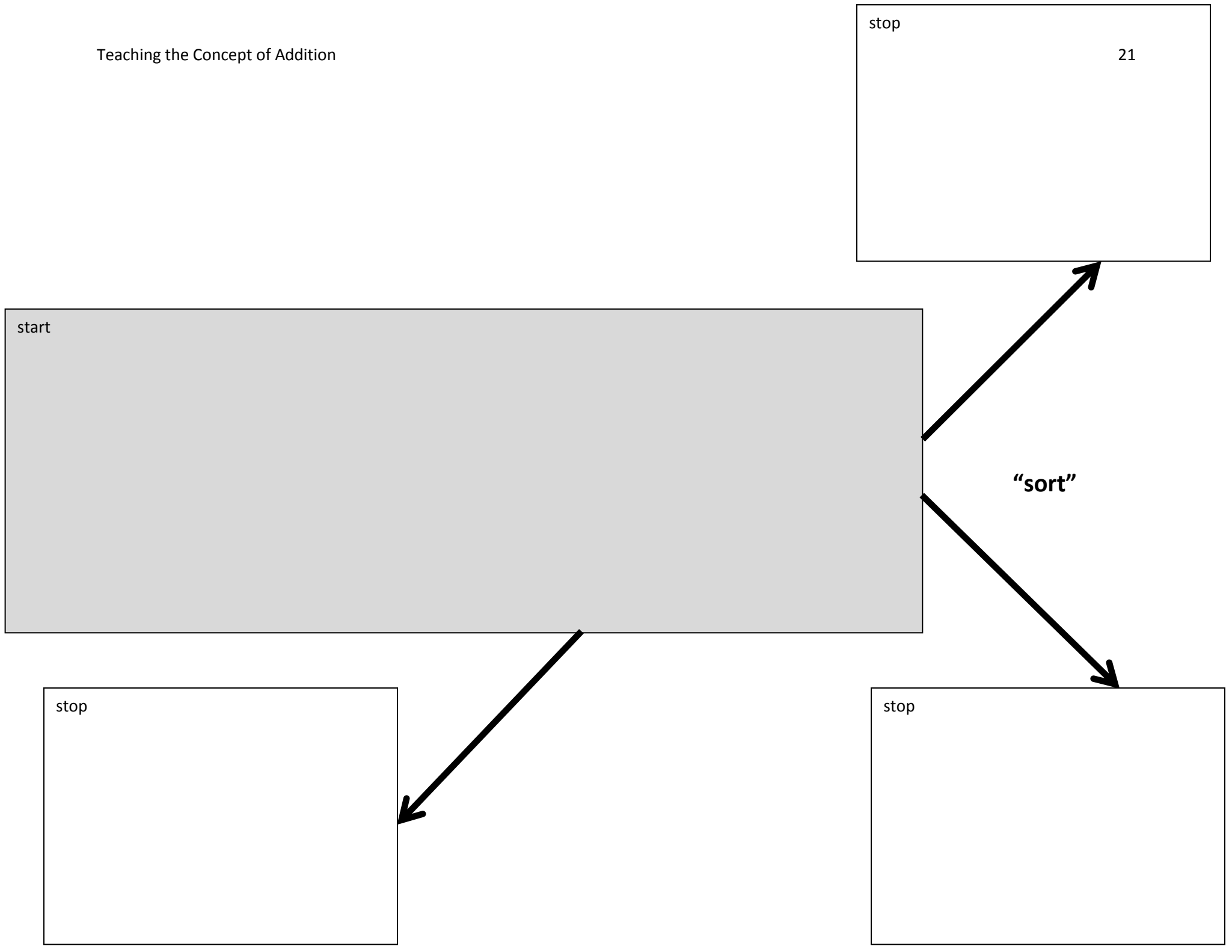




**“take away”**



Teaching the Concept of Addition



stop 21

start

stop

stop

“sort”