

Instructional Plan

Concrete Level

Name of Math Skill/Concept: Comparing two groups (more than, less than, same) using concrete objects.

Prerequisite Skills Needed:

- Sorting items into groups.
- One to one correspondence.
- Concepts of bigger and smaller.

* Although counting is not a necessary skill to be able to compare groups of objects, this teaching plan does contain several counting activities. If a student cannot count items up to 10, it is recommended that the teacher provide additional scaffolding during the counting activities.

Learning Objectives:

1. I identify if a given group of objects has more than, less than or the same number of objects when compared to another group of objects.
2. I identify if a given group of objects has more than, less than, or the same number of objects when compared to other groups of objects.
3. I identify if a given group of objects has more than, less than, or the same number of objects when compared to another group objects using like objects.
4. Make a group with more than, less than, or the same number of objects than a given a group of objects.

Important Ideas for Implementing This Teaching Plan:

1. Use discrete materials that are movable.
2. Emphasize moving left to right when comparing groups.
3. Model estimating prior to actual comparing.
4. Initially cue students to differences in groups by using groups that are unlike in many attributes (size, shape, color), gradually fade these differences and have students compare groups with like attributes.

Instructional Phase 1: Initial Acquisition of Skill/Concept – Teacher Directed Instruction

Teach Skill/Concept within Authentic Context

Description: Cookies are used initially since students are familiar with and are interested in who has more than, less than, and the same amount of cookies, juice, crackers, etc.

Build Meaningful Student Connections

Purpose: to help students make meaningful connections between what they have experienced with sharing cookies and other food items and the concept of comparing group of concrete objects.

* The following description is an example of how you might implement this instructional strategy for Learning Objective 1. A similar process can be used for the other learning objectives in this plan.

Learning Objective 1: I identify if a given group of objects has more than, less than or the same number of objects when compared to another group of objects.

Materials:

Teacher-

- Plastic samples, or shellacked cookies,
- Two containers or plastic baggies with cookies
- A “mystery bag” to use when introducing the lesson,
- Three cookie sheets or other visual display for displaying groups of shellacked magnetic cookies. The groups should be lined up horizontally left to right on the cookie sheets and there should be a clear delineation between the two groups (colored strip of paper, yarn, etc.). Each group on the left side of the cookies sheet should be one type of cookie (e.g. chocolate chip) and each group on the right side of the sheets should be another type of cookie (e.g. sugar). Make sure that the discrimination between the unequal groups is obvious. One cookie sheet should display two groups that are the same (e.g. 4 chocolate chip cookies and 4 sugar cookies). The second sheet should display a group with more cookies on the right (e.g. 9 chocolate chip cookies and 2 sugar cookies). The third cookie sheet should display a group with fewer cookies on the right (e.g. 2 chocolate chip cookies and 9 sugar cookies).

Description:

1.) Link to students' prior knowledge of sharing cookies

For Example:

Let's see, what do you think I have in my mystery bag today? (Elicit student responses) Well look, I have some bags of cookies in this container. I have chocolate chip cookies in this bag, and I have sugar cookies in this bag. Who likes cookies? I like them too. I like to make cookies and share them with my friends. Do you ever eat cookies with your family? Do we ever eat cookies in here for snack?

2.) Identify the skill students will learn: Using concrete objects to identify that have the same as, more than, or less than a given number of objects.

- Provide models of each comparison (same, more than, less than) to cue students to differences.

For Example:

Today we are going to use cookies and other objects to practice comparing two groups. We are going to compare two groups and see if they the same number of cookies (Show students the display with the two equal groups of

cookies. Point to the two groups.). We are also going to look at two groups and see if one group is bigger, - if it has more than the other (Show students the display and point to each group as you talk). And we are going to look at two groups and see if one group is smaller – if it has less than the other. (Show students the last cookie sheet and point to each group as you talk.) So today, we are going to look at groups and see if they are the same (show appropriate display), if one group is bigger, has more than, the other (show appropriate display), or if one group is smaller, has less than, the other (show appropriate display). What are we going today? (Elicit student responses and show displays: we are looking at groups of cookies, we are looking to see if they are the same, or if one group is bigger (has more than) or if one group is smaller (has less than) another.)

3.) **P**rovide rationale/meaning for comparing groups.

For Example:

When we compare groups to see if they are the same, or if one group is bigger (has more objects) or smaller (has less objects) than the other, it will help us when we count. We need to know when we count if we have groups that are the same (show display), or if one group has more than (show display) or less than (show display) another group.

Provide Explicit Teacher Modeling

Purpose: to provide students a clear teacher model of how to identify and make groups of concrete objects that are the same as, more than or less than a given group of objects.

Learning Objective 1: Identify if a given group of objects has more than, less than, or the same number of objects when compared to another group of objects.

Materials:

Teacher-

- 2 types of cookies (shellacked and magnetized cookies, flannel board cookies, plastic samples etc.),
- Paper plates (real or drawn).
- Puppets, (could also use dolls, stuffed animals, flannel board figures)
- Flannel, magnetic or another type of display board,

Description:

A. Break down the skill of identifying if a given group of objects has more than, less than or the same number of objects when compared to another group of objects.

- 1.) Review story situation/context.
- 2.) Line up and count objects in first group.
- 3.) Match the second group of objects with the first group.
- 4.) Compare and label groups.

5.) Count objects in each group.

B. Explicitly describe and model how to identify if a given group of objects has more than, less than or the same number of objects when compared to another group of objects.

1.) Review story situation/context.

- Use a story situation
- Illustrate each key concept by using the cookies on a the flannel board or other visual display
- Cue students to key features of the problem.

For Example:

Today I want to tell you a story about sharing cookies. Lucy (puppet) will help me tell the story, This story is about comparing two groups of cookies. Lucy's grandpa Larry (puppet) is going to help her find out how to compare two groups. Let's see how Lucy learns to compare.

2.) Line up and count the number of objects in a given group.

- Model how to line up objects in a row.
- Emphasize two groups verbally and visually
- Prompt student responding to counting by touching each cookie as it is counted
- Use a story format to engage students

For Example:

One day Lucy and her younger brother Marcus (puppet or stuffed animal, doll) were outside playing. Lucy and Marcus played very hard and got very hungry. When they came in the house, they saw that Grandpa Larry had made some cookies. He had made CHOCOLATE CHIP cookies for Lucy (point to pile of chocolate chip cookies) and he had made Marcus' favorite cookies, SUGAR, cookies (point to pile of sugar cookies). Lucy asked grandpa if they could have some cookies. He said, "Of course you can Lucy, just make sure that you share so that you and Marcus both get the same number of cookies." " Grandpa, how do we do that? " Lucy asked. "Well Lucy, the first thing you do is get a plate and put some cookies on it for yourself. Line them up in a row, and count the number of cookies on the plate. "(Have puppet put up a plate with 5 chocolate chip cookies lined up vertically. This plate should be placed at the top of the flannel board.)

Boys and girls, let's help Lucy and Grandpa Larry count these cookies. These cookies are lined up in a row. There are (1,2,3,4,5,) 5 cookies on Lucy's plate.

3.) Match the second group of objects with the first group one to one.

- Model how to match the second group of objects with the first group.
- Prompt student responses by asking questions
- Cue students to matches

For Example:

How many cookies were on Lucy's plate? That's right there were (1,2,3,4,5,) 5 cookies. Let's see what Lucy's grandpa tells her to do next:

"Okay Grandpa," said Lucy, "I've lined up my cookies and counted them, now what do I do? Marcus doesn't have any cookies at all." "You are right," said Grandpa, "now you need to get a group of sugar cookies for Marcus." "Oh, I can do that!" said Lucy excitedly. She put some sugar cookies on Marcus' plate. (Puppet clusters 3 cookies on a plate.) "Okay," said Lucy, "here you go Marcus." "Whoa," said her grandpa. "You don't know if Marcus has the same number of cookies as you do, he might have more than you, he might have less than you, you need to match your groups of cookies." "Oh Grandpa!" said Lucy, "I can do that, I learned how to do that in school." "Okay said her Grandpa, "show me how you can do that." "Well," said Lucy, "I'll take the cookies on Marcus's plate (points to plate with sugar cookies) and line them up. (Puppet takes cookies on second plate and lines them up vertically.) "Now I'm going to match each cookie on my plate to a cookie on Marcus's plate. See I have one cookie on my plate matched with a cookie on Marcus's plate, and another cookie is matched, and I'll match this one with this one, and... (Puppet points to each cookie on the first plate and the second plate as she matches). Grandpa! I think I'm in trouble! I don't have any more cookies to put on Marcus' plate. I don't think I have shared the cookies so that we each have the same."

Hmm. Sounds like Lucy might need to try again. Let's make sure she matched all the cookies on Marcus's plate with the cookies on her plate. (Review matching each cookie). Lucy has all the cookies on Marcus's plate matched with the cookies on her plate. But Marcus has run out of cookies to match. I wonder what her grandpa is going to tell her to do?

4.) Compare and label groups.

- Model how to compare and label groups
- Emphasize differences in groups
- Prompt students to identify differences in groups by matching objects one to one
- Verbally and visually cue students to compare groups

For Example:

Lucy has two plates of cookies, but I'm not sure she has shared the cookies so that she and Marcus have the same. Let's see what her grandpa thinks:

"Lucy," Grandpa Larry said, "you were really using your head when you matched up the two plates of cookies, but let's look at them very carefully and see if they are the same." Lucy looked at her grandpa and said, "I don't think they are grandpa, because Marcus doesn't have enough cookies to make matches with all of my cookies.. See, I have a cookie here, but Marcus doesn't, and I have one here and Marcus doesn't. (Puppet points to matches). "That is right Lucy," said her grandpa. "Marcus has less cookies than you do. He has cookies that are not matched because he has less cookies, and you have more than him. "Oh Grandpa," said Lucy, " I didn't mean to take more, I'll fix it" So Lucy went and got two more plates, one for her and one for Marcus. (Puppet brings out two more plates –

one with 2 chocolate chip cookies and one with 5 sugar cookies. These plates should be placed in the middle of the flannel board. Puppet lines up the 2 chocolate chip cookies and then the 5 sugar cookies on the other plate. The plates are placed beside each other).

Boys and girls, let's see what Lucy has done now. She lined up the cookies on her plate. Let's count the cookies on Lucy's plate (1,2) 2. She has two cookies on her plate. Now let's look at the second group of cookies- Marcus' sugar cookies. Well, it looks like she has lined up the cookies on Marcus's plate. Let's see if she has matched up all of Marcus' cookies one to one. Here is one cookie on Marcus' plate and it can match with one cookie on Lucy's plate. And here is a match. But I can't make any more matches, I have more sugar cookies but I don't have any chocolate chip cookies to match them with. I don't think that Lucy and Marcus have the same number of cookies yet. Let's see what Grandpa Larry thinks.

" Look Grandpa,! Do we have the same now?" (Puppet points to two plates). "Lucy, Lucy," laughed her grandpa, " I think that now that Marcus has more cookies." "Oh oh, grandpa," said Lucy, "you are right!" "If I match up the cookies on Marcus' plate with the ones on my plate, he has cookies that I can't match.(Puppet points to plates of cookies). "That's right Lucy," said her grandpa, "now Marcus has more cookies than you do and you have less than him. Your plates are still not the same."

"Grandpa!" wailed Lucy, "I am getting very hungry, we need to figure out how to share these cookies so that Marcus and I have the same." "Okay Lucy, " said her grandpa, "I'll get you some cookies and make sure each of you has the same." When Lucy's grandpa came back, he handed Lucy two plates.

(Puppet brings out two plates of 4 cookies each – chocolate chip for Lucy, and sugar cookies for Marcus. These plates should be placed at the bottom of the flannel board.)

Let's help Lucy and match up these cookies one to one. I'll match this chocolate chip cookie with this sugar cookie (point to matches), and this one to this one, and this one to this one and here are my last two. I think we've matched up all the chocolate chip and all the sugar cookies. I think these groups are the same. They are not like this group (point to plates at the top of flannel board). Marcus has less cookies than Lucy. These groups are not the same because there are less sugar cookies than chocolate chip cookies. And these groups are not the same (point to the plates in the middle of the board). Marcus has more cookies than Lucy. They are not the same because Marcus has more cookies than Lucy. I know Lucy and Marcus are getting hungry and I think they can have these plates because each plate has the same number of cookies. Do you think that Grandpa Larry will let them eat their cookies now?

5.) Check by counting the objects in each group.

- Model how to check comparisons by counting objects in each group.
- Review each comparison
- Prompt students to look at each comparison by asking questions and eliciting student responses
- Emphasize reverse comparisons (one group has less, the other has more)
- Cue students to matches

For Example:

"Oh thank you grandpa!" said Lucy. "Now Marcus and I have the same number of cookies." "Well, Lucy," said Grandpa Larry, "why don't you count and check to make sure that I've given you and Marcus the same?" " Now Grandpa," said Lucy, "before Marcus and I start eating our cookies, are you sure that we both have the same number of cookies?" "Yes, I am Lucy," said Grandpa, "we matched them all one to one, there was not a group that had more cookies or a group that had less cookies. But let's just count the cookies on each plate to make sure." "Okay," said Lucy, "I will help you count." First they counted the cookies on Lucy's plate. They counted (1, 2, 3, 4) 4 cookies (point to illustration and count). Then they took Marcus' plate and counted (1,2,3,4) 4 cookies. "See Lucy," said Grandpa, " you have 4 cookies and Marcus has 4 cookies. You each have the same." "But we didn't here, did we Grandpa?" (Lucy points to top group of plates.) "I don't think you did Lucy, but let's count and check." Lucy counted the cookies on her plate. She counted (1,2,3,4,5) 5 cookies on her plate. Then she counted (1,2,3) 3 cookies on Marcus' plate. "There are 5 cookies here but only 3 cookies here," said Lucy. "Marcus has less cookies." "That's right Lucy," said Grandpa.. "What about these plates." (Puppet points to middle group of plates). Lucy counted the cookies on her plate. She counted (1,2) 2 cookies on her plate. Then she counted (1,2,3,4,5,) 5 cookies on Marcus' plate. "There are 2 cookies here and 5 cookies here," said Lucy. "There are more cookies on Marcus' plate." "You're right again Lucy," said Grandpa.. "But here Marcus and I both have 4 cookies, see - (1,2,3,4) 4 chocolate chip cookies for me and (1,2,3,4) 4 sugar cookies for Marcus. We have the same." "You are one very smart and, I bet, very, very hungry girl Lucy," said her grandpa. "I am," said Lucy. She took the plate that had 4 chocolate chip cookies and the plate that had 4 sugar cookies. And you know what? Those cookies didn't stay on those plates VERY LONG...

Well, boys and girls. What do you think Lucy and Marcus are going to do with their cookies? I do too. I think they are going to enjoy eating their cookies knowing that they each have the same number of cookies. Grandpa Larry did a good job showing Lucy how to make groups that are the same. He had Lucy line up the cookies on her plate. (Point to each plate of chocolate chip cookies on the display). Then he had her match Marcus' cookies one to one with her cookies (Cue students to matches by pointing to each chocolate chip and sugar cookie that is matched). Then he had her compare the two groups of cookies. (Cue students by pointing and moving each group of cookies as you review the concepts). Here Marcus had less cookies than Lucy. He ran out of cookies to match with Lucy's cookies because he had less than Lucy. Lucy had (1,2,3,5,) 5 cookies and Marcus had (1,2,3) 3 cookies. Marcus had less cookies than Lucy. Here Marcus had more cookies than Lucy. He had some cookies that were not matched with Lucy's because he had more cookies than Lucy. Lucy had (1,2) 2 cookies and Marcus had (1,2,3,4,5) 5 cookies. Marcus had more cookies than Lucy. But here Lucy and Marcus have the same number of cookies. Each of the chocolate chip cookies is matched with a sugar cookie. Lucy had (1,2,3,4) 4 cookies and Marcus had (1,2,3,4) 4 cookies. They had the same number of cookies. Which group shows that Marcus had more cookies than Lucy? (Elicit student responses.) Which group shows that Marcus had the same number of cookies as Lucy? (Elicit student responses.) Which group shows that Marcus had less cookies than Lucy? (Elicit student responses).

Learning Objective 2: Identify if a given group of objects has more than, less than, or the same number of objects when compared to other groups of objects using a variety of unlike objects.

Materials:

Teacher-

- Variety of concrete items (e.g counting bears, counting blocks)
- Pipe cleaners, yarn, coffee stirrers
- Display area

Description:

A. Break down the skill of identifying if a given group of objects has more than, less than or the same number of objects when compared to other groups of objects.

- 1.) Review story situation/context.
- 2.) Line up and count objects in first group.
- 3.) Match the second group of objects with the first group.
- 4.) Compare and label groups.
- 5.) Count objects in each group.

B. Explicitly describe and model how to identify if a given group of objects has more than, less than or the same number of objects when compared to another group of objects.

1.) Review problem situation/context.

- o Review the words more than, less than and same by relating back to groups of cookies used in the story.
- o Have several groups of items ready to show. Provide additional cueing to the differences between groups by having the second groups (the groups that are being compared) be different colors (e.g. blue bears are a group that shows more than, red shows less than, green shows same.)

For Example:

Well boys and girls, Lucy helped us learn about comparing groups. Lucy found out if Marcus' group of cookies was more than (point to appropriate display of cookies), less than (point to display) or the same as Lucy's group (point to display). Which cookies show us that Marcus had less cookies than Lucy? (Elicit student response). Which cookies show us that Marcus had more than Lucy? (Elicit student response). Which cookies show us that Marcus had the same number of cookies as Lucy? (Elicit student response). Let's see if we can practice by looking at some other groups and seeing if they show more than, less than, or the same as another group. I have three groups of blocks right here (point to groups of blocks) , and I have three groups of bears right here (point to groups of bears). I am going to compare this group of blue bears with this group of blocks. Then

I am going to compare this group of red bears with this group of blocks. And finally I am going to compare this group of green bears with this group of green blocks. Whew- that's a lot of comparing. I am going to need your help, okay? What do I want to see? (Elicit student responses). That's right, I want to see if I have more bears, less bears, or the same number of bears as I do blocks in these groups.

2.) Line up and count total number of objects in the given group.

- Prompt students to sequence of steps
- Model how to line up objects
- Elicit student responses to count objects

For Example

Here is my group of blue blocks. Do you remember what I should do first? Right! I should line them up and count them. Let's do that together. (1,2,3,4,5). I have 5 blocks and I have lined them up. It will be easier to compare my bears with my blocks now that I have lined the blocks up.

3.) Match the second group of objects with the first group one to one.

- Model how to match objects
- (Cue students to matches by pointing or using manipulatives like coffee stirrers between each match.).

For Example:

Here is one group of bears. What color are these bears? Right they are blue. I need to match these blue bears up one to one with my blue blocks. Let's do that now. (Put coffee stirrers, pipe cleaners, or yarn between each match). I have matched up these blue bears with the blocks.

4.) Compare and label groups.

- Ask students to guess if they think a group has more than, less than or the same number as the first group before comparing and labeling.
- Model how to check matches to compare groups
- Cue students to differences in groups

For Example:

Now we need to see if we have more bears, less bears or the same number of bears as we have blocks. What is your guess? How many of you think I have more bears than blocks? How many of you think I have less bears than blocks? How many of think I have the same number of bears that I do blocks? Well, I wonder how I can find out? I know, I'll check my one to one matches and see if I have any blocks left over. Let's see. I have a block and bear matched here, and one here, and one here. But, I've run out of bears to match with my blocks. I have less bears than I do blocks. Which group shows less the bears or the blocks? (Elicit student response). You are right - I have less bears than I do blocks because I have don't have enough bears to match one to one with all my blocks. Which group shows more? Right again, I have more blocks than bears.

5.) Model how to check by counting objects.

- Prompt student responses
- Cue students to differences in groups
- Demonstrate how each group shows a reverse comparison (one group has less, the other has more)

For Example:

We said that we had less bears than blocks because we ran out of bears to match with blocks. I remember that Grandpa Larry told Lucy she could check by counting. We've already counted our blocks. Does anyone remember how many blocks we have? (Elicit student response). You are right; we have (1,2,3,4,5) 5 blocks. Now let's count the bears. We have (1,2,3) 3 bears. I have 5 blocks and 3 bears. I have more blocks and I have less bears.

6.) Repeat this sequence comparing a group of blocks with a group that has more bears, and a group of blocks with an equal group of bears.

7.) After you have completed all of the comparisons review all three comparisons.

- 1.) Use think alouds

For Example:

Now let's see, which group shows more bears than blocks? (Elicit student response) I think it's this one because I have bears that are not matched with any blocks. I have (1,2,3,4,5,6,8) 8 bears and (1,2) 2 blocks. I have more bears than blocks. I know that this group shows the same number of blocks and bears. All the blocks are matched one to one with bears. There are (1,2.. 7) 7 blocks and (1,2..7) 7 bears. There is the same number of bears as there are blocks. This group shows less bears than blocks. I know that I have less bears because I have run out of bears to match with blocks. I have (1,2,3) 3 bears and I have (1,2,3,4,5) 5 blocks. I have less bears than I have blocks.

8.) Repeat this sequence of comparisons 2 or 3 times using different numbers of blocks each time. Have "mystery" bags of additional items (cookies, dinosaurs, beads) that the students can choose for you to compare with the given groups of blocks.

Learning Objective 3: I identify if a given group of objects has more than, less than, or the same number of objects when compared to another group objects using like objects.

Materials:

Teacher-

- Variety of like, concrete items (e.g green and red counting bears, blue and red counting blocks)
- Pipe cleaners, yarn, coffee stirrers
- Display area

Description:

A. Break down the skill of identifying if a given group of objects has more than, less than or the same number of objects when compared to other group of objects using like objects:

1. Review story situation/context.
2. Line up and count objects in first group.
3. Match the second group of objects with the first group.
4. Compare and label groups.
5. Count objects in each group.

B. Explicitly describe and model how to identify if a given group of objects has more than, less than or the same number of objects when compared to another group of objects using like objects.

* Follow the same process (steps 1-5) as described for Learning Objective 1 "I identify if a given group of objects has more than, less than, or the same number of objects when compared to another group of objects", using groups of like objects (compare bears to bears). Use think alouds and elicit student responses as you model the steps.

Key Ideas:

1. Have several groups of items ready to show. Initially provide additional cueing by having the two groups be two different colors (e. g. red bears and green bears). As you continue in the sequence, start using groups from the same group (e.g. red bears compared to red bears, chocolate chip cookies to chocolate chip cookies).
2. Review the words more than, less than, and same by relating back to the groups used previously as well as the groups of cookies used in the story.

For Example:

We've compared a lot already. We've compared blocks and bears and found out that sometimes we had more bears than blocks (point to display), just like Marcus had more cookies than Lucy (point to display.) Did we also have less bears than blocks? (Elicit student response.) You are right – here is a group of bears that is less than this group of blocks. Just like Marcus had less cookies than Lucy (point to display). And did we ever have the same number of bears and blocks? (Elicit student response). You're sharp today! Here is a group that shows the same number of bears as blocks. Just like this shows that Marcus had the same number of cookies as Lucy (point to display). I wonder if we can do something that is a little bit tougher. I wonder if we can use only bears to compare. Do you think we can do that?

3. Continue to emphasize and model reverse comparisons (e.g. this group has more, while this group has less).

Learning Objective 4: Make a group with more than, less than, or the same number of objects than a given a group of objects.

Materials:

- 2 types of cookies (flannel board cookies, plastic samples, etc.)
- Paper plates (real or drawn)
- Flannel, magnetic, or another type of visual display board

Description

A. Break down the skill of making a group with more than, less than, or the same number of objects than a given a group of objects.

- 1.) Review story situation/context
- 2.) Line up and count the objects in the first group.
- 3.) Make a second group.
- 4.) Count objects in both groups.

B. Explicitly describe and model how to make a group with more than, less than, or the same number of objects than a given group.

- 1.) Review story situation/context.
 - Emphasize key features of problem

For Example:

Remember when Lucy wanted to make sure that she and Marcus had the same number of cookies? Well, what if Marcus wanted to have less cookies than Lucy? I wonder how Lucy could have made sure that Marcus had less cookies? Let's see if we can figure it out..

2.) Line up and count the objects in the first group.

- Model how to line up and count objects in the first group.
- Elicit student responses to counting

For Example:

The first thing we would do is to take line up and count Lucy's chocolate chip cookies? Let's do that now. Here is a group of chocolate chip cookies. First we will line up these cookies, then we will count them. There are (1,2,3...6) 6 chocolate chip cookies.

3.) Make a second group with less objects than are in the first group.

- Model how to make a second group
- Initially use different objects or colors of objects (e.g. two types of cookies)

- Cue students to matches by using pipe cleaners, string, etc.
- Prompt students to reverse comparisons (one group has less, the other has more)

For Example:

Now we need to make a group of sugar cookies for Marcus. But remember, Marcus wants less cookies than Lucy. How are we going to make a group that is less than this one? Well, first we are going to line up the sugar cookies with the chocolate chip cookies. But remember, we want to have less sugar cookies, so we will not have enough sugar cookies to line up with all of the chocolate chip cookies. See, we will match this cookie with this one, and this one with this one, and make a match here and here- But we are not going to make anymore matches because we don't want to have the same number or more sugar cookies, we want to have less sugar cookies. (Visually cue students to matches and left over chocolate chip cookies). We have less sugar cookies than we do chocolate chip cookies because we ran out of sugar cookies to match with the chocolate chip cookies. That means that there are some chocolate chip cookies that are not matched. We have made a group of sugar cookies that is less than this group of chocolate chip cookies. We have more chocolate chip cookies and less sugar cookies.

4.) Count objects in both groups.

- Model how to count objects
- Prompt student responses when counting

For Example:

Remember how Lucy's Grandpa Larry had her count both of her groups? Well, we can do the same thing with our groups. We've already counted the chocolate chip cookies. We have (1,2,6) 6 chocolate chip cookies. And we wanted to make a group of sugar cookies that was less than this group of 6 chocolate chip cookies. So we did not match a sugar cookie with each chocolate chip cookie. We only have (1,2,3,4) 4 sugar cookies that are matched with the chocolate chip cookies. We have 6 chocolate chip cookies and 4 sugar cookies. We have made a group of sugar cookies that is less than this group of chocolate chip cookies. We have less sugar cookies and more chocolate chip cookies.

5.) Repeat activity, making groups that show more than and same.

6.) Review all three comparisons after all groups are made.

7.) Repeat this activity several more times using both unlike objects (bears and blocks) and like objects.

Scaffold Instruction

Purpose: to provide students an opportunity to build their initial understanding of how to identify and make groups that show the same as, more than, or less than a given group of objects and to evaluate your students' levels of understanding after you have initially modeled the skill.

* The steps for scaffolding your instruction are the same for each concept that you have explicitly modeled. This teaching plan provides you a detailed example of scaffolding instruction for Learning Objective 1. A similar process can be used for the learning objectives in this plan. You should scaffold your instruction with each skill/concept you model.

Materials:

Teacher –

- A paper plate with chocolate chip cookies (shellacked and magnetized cookies, flannel board cookies, plastic samples etc.),
- Bag of sugar cookies.
- Flannel, magnetic or another type of display board,

Students –

- Paper plates with chocolate chip (plastic, shellacked, laminated paper) cookies
- Bags with sugar cookies in them for each student.

Description:

HIGH

MEDIUM

LOW

1.) Scaffold Using a High Level of Teacher Direction/Support

a. Choose one or two places in the problem-solving sequence to invite student responses. Have these choices in mind before you begin scaffolding instruction. (Examples of choices are shown in red.)

- Present the problem and review the steps to solving it.
 - Let's review what we have learned. I have two groups of cookies. I have a group of chocolate chip cookies on this plate and a group of sugar cookies in this bag. I want to see if I have more sugar cookies than chocolate chip cookies, less sugar cookies than chocolate chip cookies or the same number of sugar cookies as chocolate chip cookies. There are four steps that I am going to do and I want you to help me when I need help. Let me review what I am going to need to do. First I am going to line up and count my chocolate chip cookies. Next I am going to match my group of sugar cookies with my group of chocolate chip cookies. Then I am going to compare my groups and see if I have more sugar cookies, less sugar cookies or the same number of sugar cookies as I do chocolate chip cookies. The last thing I am going to do is to count both my groups.
- Line up and count objects in first group.

- o The first thing I need to do is to line up and count my chocolate chip cookies. **Who can help me?** Fantastic! You lined up all the chocolate chip cookies in a row. That will help up later when we compare our groups. **Let's count these chocolate chip cookies again. (1,2,...7). We have how many chocolate chip cookies?** Right, 7 chocolate chip cookies.
- Match second group with first group.
 - o Now that we've lined up all of our chocolate cookies, I need to match this group of sugar cookies with them. I'll match one sugar cookie with this chocolate chip cookie, and one sugar cookie with this chocolate chip cookie, and one here, and one here, and one here, and this is a match, and this is a match. But look I've run out of chocolate cookies to match. **Do I have any more chocolate chip cookies?** No, I don't. I have some sugar cookies that are not going to be matched with chocolate chip cookies.
- Compare groups and label.
 - o Well, I need to see if I have more sugar cookies, less sugar cookies or the same number of sugar cookies as I do chocolate chip cookies. I'm going to guess first. From looking at both groups, I guess I have more sugar cookies than I do chocolate chip cookies. **What do you think?** Well, let's find out. **Have I matched up all of my sugar cookies with chocolate chip cookies? Yes, you are right, I have. Do I still have some sugar cookies that are not matched? Yes I do.** Since I have sugar cookies that are not matched, I must have MORE sugar cookies than I do chocolate chip cookies.
- Count both groups
 - o I think that I have more sugar cookies than I do chocolate chip cookies. This group of cookies has more than this group. I am going to count each group. We already counted the chocolate chip cookies. **How many chocolate chip cookies do I have? (1,2,...,7) 7 Right! I have 7 chocolate chip cookies. Now I am going to count the sugar cookies. (1,2,...,9) 9. I have 9 sugar cookies.** I have more sugar cookies than I do chocolate chip cookies. **Which group has more?** Right the sugar cookie group has more. I have more sugar cookies and less chocolate chip cookies.

* Repeat this sequence demonstrating how to identify a group with less sugar cookies and a group with an equal number of sugar cookies.

b. Maintain a high level of teacher direction/support for another example if students demonstrate misunderstanding/non-understanding; move to a medium level of teacher direction/support if students respond appropriately to the selected questions/prompts.

2.) Scaffold Using a Medium Level of Teacher Direction/Support

a. Choose several more places in the problem-solving sequence to invite student responses. Have these choices in mind before you begin scaffolding instruction.

- Present the problem and review the steps to solving it.

- You are doing such a great job that now we're going to match some more groups and I'm going to ask for even more of your help. Let's review what we have to do. I have two groups of cookies – a group of chocolate chip cookies and a group of sugar cookies. I want to see if there are more sugar cookies, less sugar cookies or the same number of sugar cookies as chocolate chip cookies. The first thing to do is to line up our chocolate chip cookies. Then we're going to match the group of sugar cookies with the chocolate chip cookies. After we make all the matches that we can, we're going to decide if we have more sugar cookies, less sugar cookies or the same number of sugar cookies as chocolate chip cookies. The last thing to do is to count both groups.
- Line up and count objects in first group.
 - What do we start with first – our chocolate chip cookies or our sugar cookies? Right our chocolate chip cookies. And what do I need to do with my chocolate chip cookies? Right! _____ and _____ come and do this first step for me. Good, _____ and _____ have lined up our chocolate chip cookies and have counted them for us. We have 5 chocolate chip cookies.
- Match second group with first group.
 - Now that we've lined up our cookies, what do we need to do next? Right! We need to match this group of sugar cookies with our chocolate chip cookies. I need some helpers to show us how to match the sugar cookies with the chocolate chip cookies.
 - Great, _____, _____, and _____ have each matched up our sugar cookies to our chocolate chip cookies.
- Compare groups and label.

Well, I need to see if I have more sugar cookies, less sugar cookies or the same number of sugar cookies as I do chocolate chip cookies. *What is your guess? How many of you think I have more sugar cookies? How many of you think I have less sugar cookies? How many of think I have the same number of sugar cookies as chocolate chip cookies? Well, I wonder how I can find out?* Boys and girls, you are so smart, I'll check my matches. Have I matched up all of my sugar cookies with chocolate chip cookies? Yes, you are right, I have. Do I have enough sugar cookies to match with all the chocolate chip cookies? No, I don't. I have less sugar cookies because there are not enough sugar cookies to match up with all the chocolate chip cookies. *Show me which group has less. Show me which group has more.*
- Count both groups
 - What is the last thing I need to do? Right! I need to count both groups. _____ and _____, come help me count. I have 5 chocolate chip cookies and 3 sugar cookies. This groups of sugar cookies has less than this group of chocolate chip cookies. Which group has less? Which group has more?

* Repeat this sequence demonstrating how to identify a group with more sugar cookies and a group with an equal number of sugar cookies.

b. Maintain a medium level of teacher direction/support for another example if students demonstrate misunderstanding/non-understanding; move to a low level of teacher direction/support if students respond appropriately to the selected questions/prompts.

3.) Scaffold Using a Low Level of Teacher Direction/Support

a. When students demonstrate increased competence, do not model the process. Ask students questions and encourage them to provide all responses. Direct students to replicate the process as you work together.

- Present the problem and review the steps to solving it.
 - Boys and girls, you are doing such a great job that I want you to show ME how to find out if a group of sugar cookies has more than, less than, or the same number as a group of chocolate chip cookies. I'm going to give you each a plate of chocolate chip cookies and a baggie with some sugar cookies in it. I want you to show me what to do to see if we have more sugar cookies, less sugar cookies or the same number of sugar cookies as chocolate chip cookies. You show me and then I'll copy what you do up here with my cookies. Does everybody have their plate of chocolate chip cookies? Now I want everyone to hold up your baggie of sugar cookies. Good! Let's get started!
- Line up and count objects in first group.
 - What do we start with first – our chocolate chip cookies or our sugar cookies? Right! Show me what to do with the chocolate chip cookies. Great, everybody lined up their chocolate chip cookies. I heard many people counting their cookies. How many chocolate chip cookies do we have? Right! We have 5 chocolate chip cookies.
- Match second group with first group.
 - What do we do next? Great! We are going to match our sugar cookies with our chocolate chip cookies.
- Compare groups and label.

Now we are going to see if we have more sugar cookies, less sugar cookies or the same number of sugar cookies as chocolate chip cookies. What is your guess? I see you checking your matches. What did you find out? You are right. We have the more sugar cookies than chocolate chip cookies. Point to the group that has more.
- Count both groups
 - What is the last thing we need to do? Right! We need to count both groups. We have 5 chocolate chip cookies. How many sugar cookies do we have? 8 sugar cookies. Which group has more?

* Repeat this sequence demonstrating identifying a group with less sugar cookies and a group with an equal number of sugar cookies.

b. When you are confident students understand, ask individual students to direct the problem solving process or have the class direct you: Students ask questions and you and the students respond/perform the skill.

Instructional Phase 2: Facilitate Acquisition to Mastery – Student Practice

Receptive/Recognition Level

Purpose: to provide students multiple practice opportunities to identify if a group of objects has more than, less than, or same number as another group of objects.

Learning Objective 1: identifying if a given group of objects has more than, less than or the same number of objects when compared to another group of objects.

Structured Language Experience:

Materials:

Teacher –

- Bell or timer to signal when to rotate containers at tables.

Students –

- 4-5 pre-made groups of two types of cookies (chocolate chip and sugar) in box lids or other container. The number of chocolate chip cookies would remain constant (e.g. 6), but each container would display a different amount of sugar cookies. Containers should be differentiated with a color or symbol, letter or number.

Description:

Activity:

Students will work at tables in groups of 4 or 5 children. Each child at a table would have a lid that showed a group of chocolate chip cookies and a group of sugar cookies. Each child would need to decide if there were more, less, or the same number of sugar cookies as chocolate chip cookies. After deciding, each child will tell the other children at his/her table if they have more, less, or the same number of sugar cookies as chocolate chip cookies. When the teacher rings the bell the children at each table are to take turns telling the others at their table about their decision. After each child at the table has shared his/her decision with his/her tablemates, the teacher will ask one child at each table to share his/her decisions with the entire class before signaling children to pass the lids around the table. Continue until every child has practiced with each container at the table.

Structured Language Experience Steps:

1. Review directions for completing structured language experiences and relevant classroom rules.
2. Model how to perform the skills(s) within the context of the activity before the students *begin* the activity. Prior to starting this activity, the teacher will introduce the activity and model how to :
 - a. Look at the container
 - b. Decide if there are more, less, or the same number of sugar cookies as chocolate chip cookies.
 - c. Wait for the teacher signal and then tell table mates
 - d. Take turns telling tablemates and provide feedback to tablemates
 - e. Signal teacher if there is a question about a tablemate's decision
 - f. Rotate the containers around the table when the teacher signals.
 - g. Listen while children are sharing their responses with the whole class.
- 3.) Provide time for student questions.
- 3.) Signal students to begin.
- 4.) Monitor students as they work:
 - a. Circulate around the table and check on children's responses throughout the activity.
 - b. Make sure that each child receives feedback on his/her decision.
 - c. Provide closed choice questions (point to the group that shows more, is this more or less cookies) to help students who have difficulty with verbal expression label their containers.
 - d. Ask each child in the class to share his/her decision at least once with the entire class.

Expressive Level

Purpose: to provide students with multiple practice opportunities to make a group of objects that is less than, more than, or the same as a given group of objects.

Learning Objective 4: Making groups showing more than, less than, or the same number of objects as a given group.

Structured Language Experience

Materials:

Teacher –

- Recording form to record student responses

Students –

- 10 plates with chocolate chip cookies/pair of students; 10 baggies with sugar cookies
- One egg carton that has been cut into thirds or another container with five small cups and five small objects (token, counting bear, beans, pebbles etc.)/pair

Description:

Activity:

The teacher will put the students in pairs and assign initial roles (maker; recorder/listener). Each pair will get a container/envelope with the plates of chocolate chip cookies and the baggies of sugar cookies. Students will be asked to create groups of sugar cookies that show less, more or the same number of sugar cookies as the plate of chocolate chip cookies that their partner will pick. They will also need to tell their partner how they know that they have made a group that is less, more, or the same as the group of chocolate chip cookies. Each child will have five opportunities to make and tell their partner about their groups. Each time a child makes a group his/her partner will put a token (bean, pebble, etc.) in a section of the egg carton. When the egg carton is filled (i.e. after five turns), the partners will switch roles.

Structured Language Experience Steps:

1. Review directions for completing structured language experiences and relevant classroom rules.
2. Model how to perform the skills within the context of the activity *before* students begin the activity. Prior to starting this activity, the teacher will introduce the activity and model how to :
 - a. Line up and count the chocolate chip cookies.
 - b. Match the sugar cookies with the chocolate chip cookies
 - c. Compare and label sugar cookies as less, more, or the same as the chocolate chip cookies.
 - d. Count the number of objects in each group.
 - e. Tell your partner about the matching groups.
 - f. Listen to your partner.
 - g. Put a token in the cup each time after your partner has finished making and telling you about a group.
 - h. Signal the teacher if there is a question about your partner's groups.
 - i. Signal the teacher when you are ready to switch roles.
- 3.) Provide time for student questions.
- 4.) Signal students to begin.
- 5.) Monitor students as they work:
 - a. Circulate and check on children's responses throughout the activity.
 - b. Make sure that each child receives feedback during the activity.
 - c. For those students who have difficulty with verbal expression, the teacher may need to have them make models for their partners but not require them to describe their groups without teacher prompting.

Instructional Phase 3: Evaluation of Student Learning/Performance (Initial Acquisition through Mastery/Maintenance)

Continuous Monitoring & Charting of Student Performance

Purpose: to provide you with continuous data for evaluating student learning and whether your instruction is effective. It also provides students a way to visualize their learning/progress.

Materials:

Teacher-

- Goal sheet/Chart
- Planned verbal prompts for task completion

Students:

- Concrete materials (premade groups of objects).

Description:

Steps for Conducting Continuous Monitoring and Charting of Student Performance:

- 1.) Choose whether students should be evaluated at the receptive/recognition level, the expressive level, or both.
- 2.) Choose appropriate criteria to indicate mastery.
- 3.) Provide appropriate number of prompts in an appropriate format (receptive/recognition or expressive) so students can respond.

Suggestions:

Receptive/recognition level: Student can correctly identify if a given group of objects has more than, less than or the same number of objects when compared to another group of objects.

Expressive level: Create a group with more than, less than, or the same number of objects than a given a group of objects.

- 4.) Provide students with the materials to complete each task.
- 5.) Provide directions on how to complete each task.
- 6.) Conduct evaluation. Provide 3-5 trials on each task.
- 7.) Count corrects and incorrects (# of trials) for each task.
- 8.) You and the students will plot their responses on a suitable chart. A goal line that represents proficiency should be visible on each student's chart. For concrete level of understanding this should be 100%, (3/3 or 5/5 trials) on each task.
- 9.) Talk with children about their progress as it relates to the goal line and their previous performance. Prompt them to self evaluate (Did you line up your sugar cookies with your chocolate chip cookies; Did you check to see if you had sugar cookies left over?)
- 10.) Evaluate whether students are ready to move to the next level of understanding and have mastered the skill using the following guide:
100% accuracy (given 3-5 trials) over three consecutive days.
- 11.) Determine whether you need to alter or modify your instruction based on student performance.

Additional Assessment Activity Appropriate For This Math Skill/Concept

Flexible Math Interview

Purpose: to provide you with additional diagnostic information in order to check student understanding and plan and/or modify instruction accordingly.

Materials:

- Groups of concrete objects

Description:

With individual students or in small groups, the teacher will take the role of a student. The teacher will have the student “teach” him/her how to:

- a. Show more by building a group of objects greater than a give group and verbalize that the group shows more.
- b. Take objects away to create a group that is the same as a given group of objects.
- c. Show less by building a group of objects with fewer objects than the given group.

Although the teacher should note errors or misconceptions while the student is “teaching”, the teacher should not stop the student for correction purposes. By having the student complete the entire explanation, the teacher will gain a better understanding of the student’s thinking. The teacher will confer with the student afterward.

Instructional Phase 4: Maintenance - Periodic Practice to Maintain Student Mastery of Skills

Purpose: to provide periodic student practice activities & teacher directed review of this skill after students have mastered it.

1. Balance Scale

Materials:

- Balance Scale- One side will have a cup velcroed on it. This cup will contain a group of concrete objects.
- Three cups to measure out objects for other side of the scale
- Container of objects

Description:

Students will fill one of the empty cups in order to make a group that has more than, less than, or the same number of objects as in the cup that is velcroed to the other side of the scale

2. Problem of the Day:

Materials:

- Tag board with groups of concrete items of varying sizes.

Description:

As children line up on given days, touch a group of items and ask a student to touch another group with more, less or the same number of items.