

Instructional Plan

Concrete Level

Name of Math Skill/Concept: Grouping by ones, tens and hundreds using concrete objects

Prerequisite Skills Needed:

- ❖ One to one correspondence
- ❖ Counting by one's up to one hundred
- ❖ Understanding of one, ten, hundred

Learning Objectives:

1. Given a set of concrete objects, make groups of ten.
2. Count a set of objects by making groups of ten.

Important Ideas for Implementing This Teaching Plan:

1. Use proportional materials that can be grouped or bundled (e.g. straws, unifix cubes, popsicles sticks).
2. Use appropriate place value language (e.g. two tens, four ones).
3. Differentiate the proportional relationships between one, ten and hundred.
4. This teaching plan outlines the steps to use when teaching students how to group objects by tens., the same sequence of steps as outlined in this plan should be followed for teaching grouping by hundreds.

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

Teach Skill/Concept within Authentic Context

Description: Bags of M & M's and other food are used since children have experiences with counting out food to share.

Build Meaningful Student Connections

Purpose: To help students make meaningful connections between what they have experienced when sharing food and the concept of grouping objects into groups of ten.

* 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: Given a set of concrete objects, make groups of ten.

Materials:

Teacher-

- ❖ Bag of M & M's

Description:

1.) **L**ink to students' prior knowledge of counting out food to share

For Example:

Did you ever have a bag of candy and you wanted to share it with a friend? With two friends? Often we need to figure out how to share our things with others.

2.) **I**dentify the skill students will learn: grouping by tens

For Example:

Today we are going to learn how to make groups of tens.

3.) **P**rovide rationale/meaning for grouping by tens.

For Example:

When we group things by tens, it can help us when we share and count food like M & M's.

Provide Explicit Teacher Modeling

Purpose: to provide students a clear teacher model of how to group objects by tens.

Learning Objective 1: Group by tens using concrete objects.

Materials:

Teacher -

- ❖ Bag of 30 M & M's,
- ❖ Ten frame (manufactured, or made from paper, meat trays)

Description:

A. Break down the skill of grouping by tens with concrete objects

- 1.) Identify number
- 2.) Count number of objects by ones
- 3.) Bundle objects in groups of ten. Count groups.

4.) Say number using tens and ones.

B. Explicitly describe and model grouping by tens with concrete objects

1.) Identify number

- ❖ State problem
- ❖ Cue students to essential features of problem.
- ❖ Ask questions to elicit student response
- ❖ Emphasize estimation

For Example:

Boys and girls, what do I have today in my hand? Right! I have a bag of M & M's. How many of you like M & M's? I like them too. I bought these today so that we could each have some. I am going to give a bag of M & M's to each group. I want to make sure that each person in a group gets ten M & M's. How many children are in a group? Right three. Each bag has thirty M & M's and I want to count the M & M's in this bag to make sure there are enough so that each person gets ten. How many will each person get? Right - ten. How many M & M's do I have? Right thirty. So I want to see how many groups of ten I can make from this bag of thirty. Do you think we will have enough M & M's to make three groups? Hmm, I don't know; let's count our thirty M & M's.

2.) Count number of objects by ones to correspond to number

- ❖ Model how to count number of objects in a group.
- ❖ Prompt students by having them count with you.

For Example:

I am going to count each of these M & M's to make sure that I have thirty in the bag. Help me while I count them. one, two... thirty. (Model how to take each M & M from bag and count.) There I have thirty M & M's in this bag.

3.) Bundle objects in groups of ten. Count groups.

- ❖ Restate problem.
- ❖ Cue students to features and use of ten frame trays
- ❖ Emphasize estimation by asking questions
- ❖ Model how to count groups of ten

For Example:

Remember I want to give each person in a group ten M & M's. I have thirty M & M's and three people in a group. Let's find out how many groups of ten I have in bag of thirty. To help us count, I am going to use some special trays that I have made. I want you to look at these trays. Each of them has something very special

about them. What is it? Right, they each have some boxes on them. They have two rows of boxes. I wonder how many boxes they have? Let's count. One, two, three, four, five, six, seven, eight, nine, ten. They each have ten boxes on them. Another name for these trays is a ten frame. Each of these trays will hold ten items. We will put one item in each box. When the boxes are filled up, I know that I have made a group to ten. Let's count and see how many trays we can fill up. Each tray will be one group of ten. We are going to count and see how many groups of ten I can make. How many M & M's am I going to put in each tray? (Elicit student response) Right! I am going to put ten M & M's in each tray. I want to see how many groups of M & M 's I can make. Show me with your fingers how many groups of ten you think we will make? Well, let's find out. Help me count and fill up the first ten frame. What are we going to count to? Right! Ten. How many M & M's am I going to put in each box of the ten frame? That's correct, I will put one M & M in each box. Ready to count? One, two, ... ten. (Fill up one tray.). There is one group of ten. I am going to see if I can get another group of ten. Do you think I can? Help me count again. (One, two, three...ten.) I have made another group of ten. How many groups of ten have I made so far? Right! One, two groups of ten. Do you think I can make any more groups of ten? Well, let's see. one, two...ten. I made another group of ten. How many groups of ten do I have now? Right! Right- three - one, two, three. I have three groups of ten. I have filled up three ten frames. I wanted to find out if one bag of thirty M & M's had enough to make three groups of ten. I want to give each child in a group ten M & M's. Well, I have made three groups of ten.

4.) Say number using tens (and ones, if there are "left overs.")

- ❖ Model how to count by ten's.
- ❖ Cue students by pointing to each group or object.
- ❖ Restate problem
- ❖ Emphasize estimation

For Example:

Let's see. I have three groups of ten. I wonder how much is three groups of ten? Well, I am going to count by ten's and see- ten, twenty, thirty. Three groups of ten is thirty. I had thirty M & M's and made three groups of ten. Each person will be able to have ten M & M's.

5.) Repeat the activity several times using multiples of ten as well as numbers that will have groups of ones and groups of tens (e.g. forty-four, thirty-seven, etc.).

Learning Objective 2: Count a set of objects by making groups of ten.

Materials:

Teacher -

- ❖ Bag of M & M's
- ❖ Snack bag of pretzels

- ❖ Six ten frame trays
- ❖ Bag of beans

A. Break down the skill of count a group of concrete objects by making groups of tens using concrete objects.

- 1.) Bundle objects into groups of ten. Count groups of ten.
- 2.) Count individual objects not bundled.
- 3.) Say number using tens and ones

B. Explicitly describe and model counting by making groups of tens using concrete objects

- 1.) Bundle/sort objects into groups of ten.
 - ❖ State problem
 - ❖ Cue students to essential features of problem.
 - ❖ Ask questions to elicit student response
 - ❖ Emphasize estimation
 - ❖ Cue students to grouping by using string, rubber bands, ten frames, etc.
 - ❖ Model how to count individual items to make groups of ten by filling up ten frames, bundling.

For Example:

Boys and girls, we have been figuring out how many tens we have in different things. We have figured out how many tens we have in a bag of thirty M & M's and how many tens we have in a bag of forty-four pretzels (show bag of M & M's, snack bag of pretzels). Today we are going to work on counting by making groups of tens. How many of you have gardens at your house? Well, I have a garden at my house too, and I want to plant some beans. I want to make sure that I have plenty of beans. I have a bag of beans here and I need to count and see how many beans I have. One way I could count my beans is to spread them all out and count each one. WHEW! I think that would take a long time, that bag is pretty big. But we have learned another way to count. I could make groups of ten and count how many groups of ten I have. I think that would be quicker. What could we use to help us count groups of ten? Right! We could use our ten frames. Let's see, what do I do first? That's right, I'll put a bean on each square on the ten frame. When I get this frame filled up, I will know that I made a group of ten. Help me count and make groups of ten. One, two...ten. I have made one group of ten. Do you think we can make any more? You do? Show me with your fingers how many more groups of ten you think I can make? Let's keep counting and see. One, two...ten. Here is another group of ten. One, two ...ten; one, two...ten. How many groups of ten have we made so far? Well, we have filled up one, two, three, four ten frames, so we have made four groups of ten. Do you think we can make any more? You do? Well, let's keep counting and see. One, two... ten. There is another ten frame filled up. How many ten frames have I filled up? One, two, three, four, five. How many groups of ten have I made? One, two, three, four, five. Do you think I can make any more groups? Well, let's check and make sure. One, two, three. You were right. I can't make any more groups of ten. I have made one, two, three, four, five, (point to each group) groups of ten.

2.) Count individual objects not bundled.

- ❖ Cue students by restating problem.
- ❖ Emphasize estimation
- ❖ Model how to count by ones

For Example:

How many groups of ten did I make? Right- five. One, two, three, four, five. I wanted to find out how many beans I had in the bag. Well, I have made five groups of ten; do I have any beans left? Yes, I do. How many do you think I have left? Show me (Cue students to hold up fingers). Well, let's count to see how many we have left. One, two, three. I have three beans left over after I made my groups of ten.

3.) Say number using tens and ones.

- ❖ Model how to count by ten's.
- ❖ Cue students by pointing to each group or object.
- ❖ Restate problem
- ❖ Emphasize estimation

For Example:

Let's see. I have five groups of ten. I wonder how much five groups of ten is? Well, I am going to count by ten's and see- ten, 20, 30, forty, fifty. Five groups of ten is fifty. But I need to add these beans that are left over. Ten, twenty, thirty, forty, fifty plus three ones. Hmm, I'll start with fifty and count on. Fifty, fifty-one, fifty-two, fifty- three, I have fifty-three beans. We counted the beans by making five groups of ten and then adding ones left over. I have fifty-three beans. I think I can plant a good garden with all of these beans.

4.) Repeat the activity several times using a variety of numbers.

Scaffold Instruction

Purpose: to provide students an opportunity to build their initial understanding of how to make groups of tens using concrete objects and to provide you the opportunity to evaluate your students' level 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 other the learning objective in this plan. You should scaffold your instruction with each skill/concept you model.

Learning Objective 1: Given a set of concrete objects, make groups of ten.

Materials:

Teacher –

- Unifix cubes
- Counting bears
- Ten frames

Students-

- Bag of thirty beans/student
- Ten frames

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 response. Have these choices in mind before you begin scaffolding instruction (Examples of choices are shown in red.)

- ❖ Identify number
 - Boys and girls, let's review what we have learned. I have a bag of Unifix cubes. I am going to give a bag of Unifix cubes to each pair of students. I want to make sure that each person in a pair gets ten Unifix cubes to use. How many children are in a pair? Right two. Each bag has twenty-two Unifix cubes and I want to count the Unifix cubes in this bag to make sure there are enough so that each person gets ten. **How many will each person get? Right - ten.** How many Unifix cubes do I have? Right twenty-two. So I want to see how many groups of ten I can make from this bag of twenty-two. **Do you think we will have enough Unifix cubes to make two groups of ten?** Hmm, I don't know; let's count our Unifix cubes.
- ❖ Count number of objects by ones to correspond to number
 - The first thing we are going to do is to count each of these cubes. One, two...twenty-two. There, I have twenty-two unifix cubes.
- ❖ Bundle objects in groups of ten. Count groups.
 - How many cubes do I want to give each person? Right, ten. **What can we use to help us find out how many groups of ten I have in this bag? Right, a ten frame.** How many cubes do I put in each

box on this tray? Right, one. Each of these trays will hold ten cubes. I am going to put one cube in each box. When the boxes are filled up, I know that I have made a group to ten. Show me with your fingers how many groups of ten you think we will make? Let's count and see how many trays we can fill up. Help me count and fill up the first ten frame. What are we going to count to? Right, ten. One, two, ... ten (Fill up one tray.). There is one group of ten. I am going to see if I can get another group of ten. Do you think I can? Help me count again. (One, two, three...ten.) I have made another group of ten... How many groups of ten have I made so far? Right! One, two groups of ten. Do you think I can make any more groups of ten? Well, let's see. One, two. Nope I can't make any more groups of ten.

- ❖ Say number using tens (and ones, if there are "left overs.")
 - Let's see. I have two groups of ten. I wonder how much is two groups of ten? Well, I am going to count by ten's and see- ten, twenty. Two groups of ten is twenty, plus one, two, more is twenty-two. So, ten, twenty plus twenty -one, and twenty-two. I had twenty-two cubes and made two groups of ten. Each person will be able to have ten cubes.

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. (Examples of choices are shown in red.)

- ❖ I identify number
 - You are doing so well, that this time I want you to give me even more help. Let's see, this time I have a bag of forty-five counting bears. I want to see how many groups of ten I can make from these forty-five bears. Tell me again, how many bears do I have? Right, forty-five. How many groups of ten do you think we can make? Well, let's see.
- ❖ Count number of objects by ones to correspond to number
 - The first thing we are going to do is to count the bears by ones. Help me while I count them. One, two...forty-five. Well, we know we have forty-five bears.
- ❖ Bundle objects in groups of ten. Count groups.
 - I wonder what I can use to make groups of ten? Right, a ten frame. Show me how many cubes do I put in each box on this tray? Right, one. Show me how many bears in all will go in each ten tray? Right ten. ____ and _____, help me count and fill up the first ten frame. What are we

going to count to? Right, ten. One, two, ... ten (Fill up one tray.). There is one group of ten. I am going to see if we can get another group of ten. **Do you think I can? _____ and _____, help me fill up this tray. (One, two, three...ten.)** We have made another group of ten... How many groups of ten have we made so far? Right! One, two groups of ten. **Do you think we can make any more groups of ten? Well, let's see, _____ and _____ will you help me fill up another frame?** Now how many ten frames do I have filled up? Right, three. Can I fill up anymore? I think so too. Yes, look, I filled up one more. We have filled up four ten frames.

- ❖ Say number using tens (and ones, if there are "left overs.")
 - **Let's see. How many groups of ten do we have? Right four. How much is four groups of ten? _____, count by ten's and see- ten, twenty, thirty, forty. Four groups of ten is forty. Plus one, two, three, four, five more is forty-five . So, ten, twenty, thirty, forty, plus one, two, three, four five is forty five.**

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 at their desks as you work together.

- ❖ Identify number
 - Now I am going to have each of you work some problems. Each of you has a bag of thirty beans. I want you to tell me how many groups of ten you will have in this bag of beans. **Boys and girls, how many beans do you have? How many groups of ten do you think you can make? Well, let's see.**
- ❖ Count number of objects by ones to correspond to number
 - **What is the first thing you are going to do? Right, everyone needs to count the beans.**
- ❖ Bundle objects in groups of ten. Count groups.
 - **Now what do you need to do? Right, use your ten frames to make groups of ten. How many trays did you fill up? Good, everyone filled up three trays.**
- ❖ Say number using tens (and ones, if there are "left overs.")

- o Let's see. How many groups of ten do you have? Right, three. How much is three groups of ten? You all are sharp today! Three groups of ten is thirty. You made three groups of ten from your thirty beans.

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 with multiple practice opportunities to make groups of ten.

Learning Objective 1: Given a set of concrete objects, make groups of ten.

Structured Language Experience

Materials:

Teacher –

- Bell or timer to signal when to switch bins

Students –

- 3 containers (e.g. box tops) with groups of concrete objects placed on place value mats. Containers should be differentiated with a color or symbol, letter or number. Some groups in the containers should show groups of ten, some groups should only show groups of ones.

Description:

Activity:

Students will work at tables in groups of 3 children. Each child is assigned a container. Each child should look at his container and decide whether it shows groups of tens or not. When the teacher rings the bell the children at each table are to take turns telling the others at their table if their container shows groups of ten, and if so how many groups of ten. 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 containers 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 skill(s) within the context of the activity *before* students begin the activity:

- a. Look at the container
 - b. Decide if the objects are in groups of ten.
 - c. Wait for the teacher signal and then tell tablemates if the container shows groups of ten.
 - 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.
- 4.) Signal students to begin.
- 5.) Monitor students as they work.
- a. Circulate around the table and check on children's responses throughout the activity. Provide positive reinforcement for both "trying hard," responding appropriately, and for students using appropriate behavior.
 - b. Make sure that each child receives feedback on his/her decision. Provide corrective feedback and modeling as needed.
 - c. Provide closed choice questions (are these objects in groups of ten or not?) 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 count objects by making groups of ten.

Learning Objective 2: Count objects by making groups of ten.

Structured Cooperative Learning

Materials:

Teacher –

- Bell or timer
- Sample container and ten frames

Students –

- Several containers or envelopes. Each container will have counting objects (e.g. beans)
- Ten frames (can be made from index cards and then laminated).

Description:

Activity:

Students will work in teams of 4 students. Each team will count the items in each of their containers by grouping by tens. Because this activity requires space for the ten frames, it might be best to do this as a table or floor activity. The teacher will ring a bell to signal an end to the activity and at that time, ask individual students from each team to come to the front to show their solutions. Teams can get points for each correct answer.

Cooperative Learning Groups Steps:

- 1.) Provide explicit directions for the cooperative group activity including what you will do, what students will do, and reinforce any behavioral expectations for the game.
- 2.) Arrange students in cooperative groups. Groups should include students of varying skill levels.
- 3.) Assign roles to individual group members and explain them:
 - a. Materials manager (gets the materials)
 - b. Turn -taker (makes sure that each student at the table gets a turn)
 - c. Reporter (raises his/her hand to let the teacher know when the group has completed the task.)
 - d. Encourager(s) (encourages each person as they are deciding)
- 4.) Distribute materials.
- 5.) Model one example of skill(s).
 - a. Select a container.
 - b. Count objects using ten frames.
 - c. Say number using tens and ones (if needed).
 - d. Make sure that the team agrees with the decision before the next student has a turn.
- 6.) Review/model appropriate cooperative group behaviors and expectations.
 - a. Agree or disagree with a teammate's decision.
 - b. Listen while children are sharing their responses with the whole class.
- 7.) Provide opportunity for students to ask questions.
- 8.) Teacher monitors and provides specific corrective feedback & positive.
 - a. Circulate around the table and check on children's responses.
 - b. Make sure that each child receives feedback on his/her decision.
 - c. Ask each child in the class to share his/her decisions at least once either with the entire class or individually with the teacher.
 - d. Provide corrective feedback to students as needed.

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

Continuously Monitor & Chart 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 matched and unmatched groups; bins 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 so students can respond.

Suggestions:

Receptive/recognition level:

Student can correctly recognize groups show grouping by tens.

Expressive level:

Student can count given objects by grouping by tens.

- 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 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. (e.g. "Did you fill up all your ten frames? How many groups of ten do you have?")
- 10.) Evaluate whether students are ready to move to the next level of understanding or have mastered the skill using the following guide:

Concrete Level: 100% accuracy (given 3-5 trials) over three consecutive days.

- 11.) Based on students' performance, determine whether you need to alter or modify your instruction.

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
- Ten frames

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 count a group of objects by grouping by tens. The teacher should note errors or misconceptions while the student is “teaching,” but 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 confers with students regarding specific errors or misconceptions afterwards.

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. Calendar Time

Materials:

- Straws or other objects that can be bundled
- Boxes or cans for 1's, 10's and 100's

Description:

Count the number of days in school by grouping straws into bundles of 10 as appropriate, and counting by tens.

2. Center Time

Materials:

- Laminated folder or paper with ten frames drawn on it and velcro on each square
- Small, flat counting objects with velcro or counting buttons made from flannel
- Tape player or language master (optional)

Description:

Student will choose a folder, take counting objects from envelope, and count them using ten frames. Student can tell the teacher or record his/her answer (e.g. "Folder number one: four tens and three ones. I have 43 buttons") and the folder can be left for teacher to check.