

Instructional Plan
Representational Level

Name of Math Skill/Concept: Grouping by ones, tens and hundreds using drawings.

Prerequisite Skills Needed:

- ❖ One to one correspondence
- ❖ Counting by one's up to one hundred
- ❖ Understanding of one, ten, hundred
- ❖ Experience grouping ones, tens, and hundreds using concrete objects

Learning Objectives:

1. Given a number, draw and count groups of ten.

Important Ideas for Implementing This Teaching Plan:

1. Only teach students to draw and count groups of ten after students have demonstrated mastery of performing these skills using concrete objects (See the Concrete Level Instructional Plan).
2. Explicitly link concrete objects to drawings.
3. Teach students an easy way to draw representations (e.g. horizontal line for one, a long vertical line for ten, a square box for hundred).
4. Emphasize using appropriate place value language (e.g. two tens, four ones).
5. 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: Links are made to the concrete experiences and the contexts used at the concrete level.

Build Meaningful Student Connections

Purpose: To help students make meaningful connections between what they know about grouping and counting objects by tens and using drawings to count and group by ten.

* The following description is an example of how you might implement this instructional strategy for learning Objective 1.

Learning Objectives 1: Given a **number, draw and count groups of ten.**

Materials:

Teacher-

- ❖ Unifix Cubes
- ❖ Ten frame

Description:

1.) **L**ink to students' prior knowledge of counting and grouping by tens using objects.

For Example:

Boys and girls, we have been working on grouping by tens. Tell me, what we used to help us group and count these cubes? Right, a ten frame. We have been using these ten frames to help us group things like the unifix cubes into groups of ten.

2.) **I**dentify the skill students will learn: given a number, draw and count groups of ten.

Today we are going to learn how to make and count groups of tens by using drawings.

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

For Example:

When we group things by tens, it helps us count. When we use drawings, we can count all sorts of numbers and we don't have to use things like our cubes. Let's learn how to draw to make our groups of ten.

Provide Explicit Teacher Modeling

Purpose: to provide students a clear teacher model of how to use and drawings that represent objects to count groups of ten.

Learning Objective 1: Given a number, draw and count groups of ten.

Materials:

Teacher –

- Visual platform that all students can clearly see to display concrete objects and to draw representations of them (e.g. floor or table with poster paper; chalkboard/dry-erase board.)

- Twenty discrete counting objects (e.g. unifix cubes, counting chips, etc. *Magnetic strips can be attached to objects to display on a chalkboard or dry-erase board.
- Appropriate surface for both placing concrete objects and for drawing.
- Marker/pen/chalk for writing & drawing.

Description:

A. Break down the skill of grouping by tens by drawing.

- 1.) Identify number
- 2.) Draw the number by making tallies or dots.
- 3.) Count groups of ten tallies/dots and circle them.
- 4.) Count number of groups.
- 5.) Say number of "tens."

B. Explicitly describe and model how to draw and count groups of ten.

- 1.) Identify number
 - ❖ Point to the number.
 - ❖ Ask students to say the number.
 - ❖ Repeat the number.

For Example:

Boys and girls, I have a number written here. (Point to the number.) What is it? (Elicit the response, "twenty.") Yes, the number is "twenty."

- 2.) Draw the number by making tallies or dots in a row (e.g. for the number "20," make twenty tallies in a row.)
 - ❖ Present rationale for drawing.
 - ❖ Represent number with concrete objects lined in a row.
 - ❖ Draw tallies/lines/dots beneath each concrete object.
 - ❖ Remove concrete objects and count tallies.
 - ❖ Explicitly relate tallies to number they represent.

For Example:

We are going to group twenty by tens, just like we did when we had M & M's, unifix cubes, and beans. We don't always have M & M's, unifix cubes, or other objects, so I'm going to show how you can draw pictures to group by tens. Now, I wonder how I can draw the number "twenty." Well, I know I can represent twenty with unifix cubes by lining them up in a row. I'll do that now. (Line up a row of twenty unifix cubes and count them aloud.) Do I have twenty unifix cubes? (Elicit the response, "yes.") Good. To draw the number "twenty," I can draw a tally/line for each of the unifix cubes. I'll

do that now. (Draw a tally directly beneath each unifix cube.) Everybody count the tallies with me. (Count aloud the tallies with your students.) How many tallies did I draw? (Elicit the response, "twenty.") How many unifix cubes are there? (Elicit the response, "twenty.") Good. Do I need my unifix cubes anymore? (Elicit the response, "no.") That's right, I can remove my unifix cubes because the pictures I drew represent the number "twenty." I have twenty unifix cubes and drew twenty tallies. I'll remove the unifix cubes. So, I can represent a number by drawing tallies/lines/dots instead of using objects like unifix cubes. The number is twenty (point to the number), and I have drawn twenty tallies to represent the number "twenty." (Point to the tallies.) How can I draw a number? (Elicit the response, "by drawing tallies/lines/dots.") Good. For the number "twenty," how many tallies do I need to draw? (Elicit the response, "twenty.") Excellent thinking!

3.) Count groups of ten tallies/dots and circle them.

- ❖ Remind students of containers used to group concrete objects.
- ❖ Count ten tallies and draw a circle around them until there are no longer ten tallies left.
- ❖ Prompt student thinking why a circle would not be drawn around any remaining tallies less than ten.

For Example:

Remember when we grouped our M&M's and unifix cubes, we put them in containers that held ten objects each. Those containers helped us group our objects by tens. Well, we can do something similar by drawing circles. Since I want to group my twenty tallies into groups of ten, I can count ten tallies and then draw a circle around them. Let me show you what I mean. When I do this, I always start with the first tally. (Count aloud the first ten tallies and circle them.) How many tallies did I circle? (Elicit the response, "ten.") Good. Now, I can do the same thing again because I have more tallies left. (Count aloud the next ten tallies and circle them.) How many tallies did I circle this time? (Elicit the response, "ten.") Good. Do I have any tallies left? (Elicit the response, "no.") No, I do not. If I had four tallies left, would I circle them? (Elicit the response, "no.") Why? (Elicit the response, "because you are grouping by tens and you would only have four.") That's exactly right! Since I am grouping by tens, I wouldn't have enough to make another group.

4.) Count number of groups.

- ❖ Prompt students about concrete experiences with counting groups.
- ❖ Count number of groups.
- ❖ Say number of "groups of ten" in the total number of tallies.

For Example:

When we grouped our concrete objects by tens, what did we do next? (Elicit the response, "we counted the number of groups. That's right, we counted the number of groups of ten we made. We can do the same thing when we draw groups of ten. How many groups of ten do I have? (Elicit the response, "two.") Yes, I have two groups of ten. (Count the groups aloud while pointing to each group as you

count.) How do you know there are two groups of ten? (Elicit the response, "there are two circles and each circle has ten tallies.) Great thinking boys and girls! I have two circles and each circle has ten tallies in it. So how many groups of ten are there in "twenty?" (Point to the "20" and elicit the response, "two.") Yes, there are two groups of ten in twenty.

5.) Say number of tens.

- ❖ Prompt students to use "tens" language.
- ❖ Say "_____ tens."
- ❖ Relate number of "tens" to the number.

For Example:

What's another way to say "two groups of ten?" (Elicit the response, "two tens.") Yes, another way to say "two groups of ten" is to say "two tens." I'll write "two tens" on the board. (Write "two tens" above the number "twenty.") How many tens are in "twenty?" (Elicit the response, "two tens.") Yes, there are two tens in the twenty. (Point to the circled tallies and then to the written phrase, "two tens" as you say this.

6.) 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.).

Scaffold Instruction

Purpose: to provide students an opportunity to build their initial understanding of how to draw and count groups of ten and to provide you the opportunity to evaluate your students' level of understanding after you have initially modeled this skill.

*Scaffolding at the representational/drawing level of instruction should occur using the same process as scaffolding instruction at the concrete level of instruction (See the description of Scaffolding Instruction for "Learning Objective 1: Given a set of concrete objects, make groups of ten." in the Concrete Level Instructional Plan). The steps used during Explicit Teacher Modeling should be used as structure for scaffolding your instruction.

Materials:

* Dependent on the skill (See materials listed for the specific skill under Explicit Teacher Modeling).

Description:

HIGH

MEDIUM

LOW

1. Scaffold instruction using a high level of teacher direction/support (*Dependent on the needs of your students, you may want to continue to associate concrete materials with drawings at this level as described under Explicit Teacher Modeling.) *Move to the next phase of scaffolding only when students demonstrate understanding and ability to respond accurately to your prompts.
2. Scaffold instruction using a medium level of teacher direction/support (*If you associated concrete materials with drawings while scaffolding using a high level of teacher direction/support, then do not include concrete materials during this phase of scaffolding). *Move to the next phase of scaffolding only when students demonstrate understanding and ability to respond accurately to your prompts.
3. Scaffold instruction using a low level of teacher direction/support (*Students should actually draw as you prompt during this phase of Scaffolding Instruction.). *Move students to independent practice of the skill only after they demonstrate the ability to perform the skill with limited prompting from you.

Instructional Phase 2: Facilitate Acquisition to Mastery - Student Practice

Receptive/Recognition Level

Purpose: To provide students with multiple practice opportunities to identify drawings that show groups of ten.

Learning Objective 1: Given a number, draw and count groups of ten.

Structured Peer Tutoring

Materials:

Teacher -

- Sample of index cards, learning sheet and response sheet to use when introducing and modeling activity.

Students -

- Sets of index cards, learning sheets, response sheets, crayons

Description:

Activity:

Students will work in pairs. Each student will have a turn being a coach and being a player. The coach will have a stack of 20 index cards. Ten of the index cards will have a number written on them, and ten will have drawings that represent the groups of tens and ones in the number. The learning sheet will illustrate the steps to grouping by tens by drawing (e.g. draw number by making tallies, count groups of ten and circle, count number of groups, say number of tens and ones) and will have the answers on the back. The response sheet will be numbered 1-10 and each number will have two blank lines. The player will match a drawing with one of the index card numbers. The coach will check the match according to the drawn answer on the back of the learning sheet. If the player makes a correct match the first time, the coach will put a 2 on the response sheet. If the player does not get the correct answer, the coach reminds the player of the steps on the prompt sheet and the player is given a second try. After the player tries another match, the coach again checks the answer, and if it is correct, puts a one on the response sheet. If it is still not correct, the coach solves the problem with the player. After the player has completed one set of index cards, the coach and player switch roles using a different set of index cards.

Structured Peer Tutoring Steps:

- 1.) Select pair groups and assign each pair a place to practice (try to match students of varying achievement levels if possible).
- 2.) Review directions for completing structured peer tutoring activity and relevant classroom rules. Practice specific peer tutoring procedures as needed (see step #4).
- 3.) Model how to perform the skill(s) within the context of the activity *before* students begin the activity. Model both what the coach does (e.g. reads prompts on the learning sheet; check answers; provides corrective feedback; record points) and how the player responds. Prior to starting this activity, the teacher will introduce the activity and model how:
 - a. A player selects a card, determines the answer, and matches the number with the drawing.
 - b. A coach listens to the player, checks the answer, and provides feedback and positive reinforcement.
 - c. A coach uses the learning sheet to assist the player to rethink his/her answer.
 - d. A player accepts feedback and reinforcement from the coach.
 - e. A player rethinks an answer that is not correct.
 - f. A coach re-checks the answer and provides feedback and positive reinforcement.
 - g. One or both partners can signal the teacher if a question arises.
 - h. Partners will switch roles once the player has completed one set of 10 problems.
- 4.) Divide the practice period into two equal segments of time. One student in each pair will be the player and will pick the top card from the set of cards. The other student will be the coach. The coach record the response in the appropriate space on the player's response sheet, check the answer key, and provide feedback regarding the player's response. For inaccurate responses, the coach provides feedback and the player attempts the question a second time
- 5.) Provide time for student questions.
- 6.) Signal students to begin.

- 7.) Signal students when it is time to switch roles.
- 8.) Monitor students as they work in pairs. Provide positive reinforcement for both "trying hard," responding appropriately, and for students using appropriate tutoring behaviors. Also, provide corrective feedback and modeling as needed.
 - a. Circulate around the room to ensure that all pairs are actively engaged.
 - b. Set individual goals for students and monitor progress towards those goals.
 - c. Provide corrective feedback and positive reinforcement to coaches and players.
 - d. Collect response sheets to track student progress.
 - e. Provide whole-group review with one or more problems after all pairs have finished.

Expressive Level

Purpose: to provide students practice opportunities to express their understanding of how to group and count tens by drawing.

Learning Objective 1: Given a number, draw and count groups of ten.

Instructional Game

Materials:

- Small game boards (similar to candy land) with colored cards and tokens
- Spinners with 9 spaces (1 tens -9 tens) written on it.
- Small chalkboard or white board and chalk or markers
- Answer sheet in envelope

Description:

Activity:

Students can play this game in pairs or small groups. Each group will have a game board with tokens and a group of cards., small chalkboard, chalk, and two spinners. The first child will draw a colored game board card. Before he can move, he will spin the spinner and draw the group of tens on the chalkboard. If the group of tens is drawn correctly, then the child may move to his/her token to the next space on the game board that corresponds to the card that he/she drew. If the group of tens is not drawn correctly, the child can not move forward.. The children are to take turns until they have completed the game board path.

Instructional Game Steps:

- 1.) Introduce game.
- 2.) Distribute materials.

- 3.) Provide directions for game, what you will do, what students will do, and reinforce any behavioral expectations for the game.
- 4.) Provide time for students to ask questions.
- 5.) Model how to play the game:
 - a. Draw a card.
 - b. Spin the spinner. Take the chalkboard and draw a corresponding group of tens on the chalkboard.
 - c. Have a partner(s) check the answer.
 - d. Move to the appropriate spot on the game board.
 - e. Give corrective feedback to your partner
 - f. Take turns.
 - g. Make sure not to peek at the answers before drawing.
 - h. Signal the teacher if there are questions.
 - i. Signal the teacher that the game is completed.
- 6.) Play one practice round so students can apply what you have modeled. Provide specific feedback/answer any additional questions as needed.
- 7.) Monitor students as they practice by circulating the room, providing ample amounts of positive reinforcement as students play, providing specific corrective feedback/ re-modeling skill as needed.
- 8.) Play game.

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

Student –

- appropriate response sheet

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 of ten.

Expressive level:

Given number, student can draw groups of ten.

4) Provide students with materials to complete each task

5) Provide directions on how to complete each task. (Tasks can be done at different times).

6.) Conduct evaluation. Provide 8-10 trials on each task.

7.) Count corrects and incorrects (# or trials) for each task.

8.) You and the student plot their responses on a suitable chart. A goal line that represents proficiency should be visible on each student's chart. For representational level of understanding, this should be 100% accuracy on 8-10 trials for two to three consecutive days.

9.) Talk with children about their progress as it relates to the goal line and their previous performance. Prompt them to self evaluate

10.) Determine whether you will 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 students understanding and plan and/or modify instruction accordingly.

Materials:

- Numbers, drawing paper, crayons or markers.

Description:

Show student a number. Ask him/her to think aloud as he/she shows how to draw groups of ten. 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 students periodic opportunities to maintain mastery of skill previously learned.

1. Math Center

Materials:

- Number cards
- Drawing paper

Description:

Students will pick a number and draw the number by grouping by tens and ones.

2. Problem of the Day

Materials:

- Whiteboard
- Markers

Description:

Teacher will show a drawing of a number using grouping by tens and ones. Students will write the number.