Patterns in Regrouping

Grade 1

Lesson 113

Relevant Chapters in the *Digi-Block Comprehensive Teacher's Guides:*
    Book I: Unit 3-3, Exploring Addition with the Larger Blocks, pp.72-76
    Book II: Unit 3-3, Exploring Addition with the Larger Blocks, pp.64-70

Lesson Overview

Students build two 2-digit numbers with blocks. They predict the sum and decide whether they think regrouping will occur. They combine their blocks and model addition using place value.

Objectives

Thinking Skills:	Students discover and describe patterns in regrouping. They begin to predict when regrouping will occur with 2-digit addends.
Mastery Skills:	Students learn to combine packed blocks to model addition.

Materials

- 1 overhead transparency of the activity sheet (optional)

Each pair of students needs:
- 1 block-of-100
- 1 Counter
- 1 Counter mat

- 1 "Pack as Much as Possible" activity sheet

Class Introduction   (10 - 15 minutes)

Have students sit with a partner. Pass out the materials. (Note: In order to have enough materials, you may want to introduce this activity with small groups of students.)

Have students set up the Counter with a Counter mat directly in front.

Ask one student in each pair to:
- Build the first number (27) with blocks on the Counter.
- Write a "2" directly below the tens place and a "7" directly below the ones place on the white board.

Ask the other student in the pair to:
- Build the second number (35) with blocks on the Counter mat.
- Write a "3" underneath the two in the tens place and a "5" underneath the 7 in the ones place on the white board.

Ask students to think silently what will happen when they combine all the blocks (i.e., when they take the 35 blocks from the mat and put them on the Counter with the 27 blocks). After students have had some thinking time, ask students to volunteer their predictions. Ask:
- **How many blocks-of-10 do you think you will have altogether?**
- **How many single blocks do you think you will have altogether?**

Have students use the dials on the Counter to show their predictions. Then ask them to shut the windows on the dials in order to cover their predictions.

Have students combine their blocks by putting them all on the Counter. Note the following:
- The holder in the ones place will eject when ten blocks are combined.
- Students will need to put a top on this holder to make a block-of-10 (regrouping has "occurred").
- They should place this block-of-10 in the tens place.

- Students will need to hang a new holder on the hook in the ones place to hold the rest of the single blocks.
- Students will have 6 blocks-of-10 and 2 single blocks altogether.

Ask students to reflect on and record what happened:
- **How many blocks-of-10 do you have altogether?** (6)
- **How many single blocks do you have altogether?** (2)
- **What happened when you had ten blocks in the ones place? You had enough ones to make a new block-of-10. This is called regrouping.**
- **Write the total number of blocks on your activity sheet. Circle "Yes" because we had to regroup.**

Have students look at their predictions. Explain to students that it is okay to have a prediction different from the answer. Tell students that their prediction is a way to show what they are thinking. Ask:
- **Are you surprised by how many tens there are? Why?**
- **Are you surprised by how many ones there are? Why?**

Have students try the next problem where no regrouping occurs. Ask students to compare the two examples.

Have students try more examples until all students are confident using packed blocks to model addition. (Note: Once students understand how to do the activity, they can go to a math center with a partner and use the materials to solve the addition problems using blocks.)

Activity   (20 – 25 minutes)

Students work with a partner to solve the addition problems on the Counter using packed blocks. Make sure students know how to record their work on the activity sheet.

Here are some examples of how children should set up the problems using blocks on the Counter and on the Counter mat:

(Erik – Please put the illustration from Book I, p. 74 on the left and the illustration from Book II, p.65 on the right.)

Closure   (10 minutes)

Put several 2-digit addition problems on the board. Ask students to predict which problems will require regrouping and to explain how they know. Discuss patterns in regrouping.

Assessment

As students use blocks to model addition problems, observe and note the following. Do they -

- Readily build 2-digit numbers with blocks or do they need help counting or matching blocks with digits?
- Have a strategy for predicting?
- Predict accurately? Do they miss the block-of-10 created when the problem requires regrouping?
- Know how to use the Counter and Counter mat to model 2-digit addition?
- Record their work neatly and accurately?

Extensions

- ❑ Make a new activity sheet with three or more addends. Have students use packed blocks to add three or more 2-digit numbers. Discuss regrouping patterns when there are multiple addends.
- ❑ Have students write or tell a story to match the problems they modeled with blocks.

Patterns in Regrouping

Use blocks to model the problems.
Circle "Yes" if you regroup. Circle "No" if you do not regroup.

Regroup?   Regroup?

27   Yes   No   53   Yes   No
+ 35   + 24

62   Yes   No   18   Yes   No
+ 34   + 74

38   Yes   No   23   Yes   No
+ 38   + 23

46   Yes   No   59   Yes   No
+ 33   + 31