Enough Stuff

Grade 4

Activity 420

Relevant Chapters in the *Digi-Block Comprehensive Teacher's Guide:*
   Book III, 3-5: Multiplying by One-Digit Numbers

Overview

Students model multiplication story problems with blocks. They predict if there are enough blocks for the given situation. They check their predictions by packing the blocks and/or using paper-and-pencil techniques.

Objectives

Thinking Skills: Students use their understanding of multiples of ten to predict products.

Mastery Skills: Students learn to represent and solve multiplication story problems with blocks.

Materials

Each group of 2-4 students needs:
- Approximately 40 blocks-of-10 and 40 single blocks
- Small and medium holders
- 1 activity sheet
- 1 place value mat with digit cards

**Class Introduction**   **(10-15 minutes)**

Pass out materials to each group. Read the following aloud:
- **The school's community room is set up with 9 rows of chairs.**
- **Each row has 34 chairs in it.**

Have each group use blocks to model the story. Students may:
- Create an array using all single blocks on their desks. If so, encourage them to try using packed blocks.
- Make 9 groups (rows) using blocks-of-10 and single blocks (9 x 34):
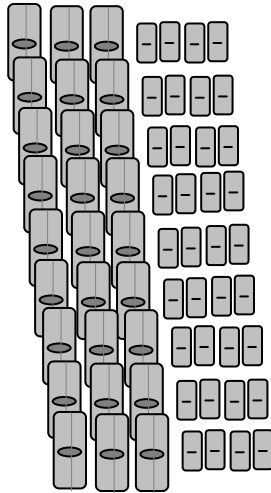
Ask:
- **Are there enough chairs for all 300 parents to have a seat?**

Before counting or packing to find the total number of blocks (chairs), have students consider the question by <u>predicting</u> if there are enough blocks (chairs). Use these questions to facilitate a discussion:
- **What information do you have about this story problem?**
- **How does knowing that you will have at least 9 groups of 3 blocks-of-10 help you?**
- **Will you have more than 27 blocks-of-10? Why or why not?**
- **Do you think that your total blocks, when packed as much as possible, will be more or less than 30 blocks-of-10?**

Give students the option to find the total number of chairs by packing the blocks as much as possible and/or by using paper-and-pencil techniques. Discuss different strategies and solutions:
- **How did you find the total number of chairs (blocks)?**

- **How does your prediction compare with what you found out with the blocks or your paper-and-pencil answer?**

End by having every group pack the blocks as much as possible to show the total number of blocks (chairs):

Hundreds	Tens	Ones
3	0	6
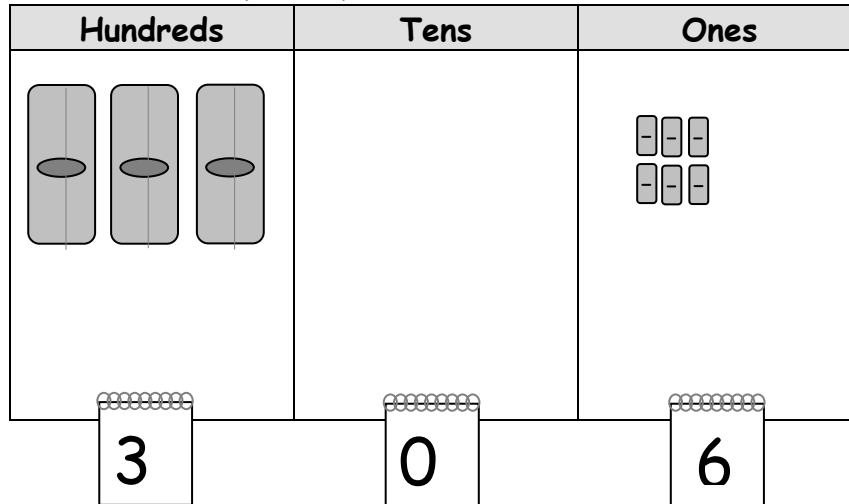
Small Group Activity   **(20-25 minutes)**

Pass out the activity sheets. Have students work in groups of 2-4. They will:
- Model stories with blocks.
- Predict if there are enough blocks for the given situations.
- Find the totals (products).
- Compare the products to their predictions.

Closure   **(10-15 minutes)**

Discuss each story as a class. Have student groups describe their prediction strategies as well as their solutions.

Pose a new story problem to model and discuss:

157 parents will attend the school talent show. In order to know that every parent has a seat, how many rows would you set up and how many chairs would you put each row?

Discuss different possible arrangements. One possible arrangement is 16 rows of 10.

Assessment

- Do students provide an accurate model of the story problem with the blocks?
- Do students get an accurate YES or NO answer when predicting?
- Do students explain their technique for predicting the answer?
- Do students find the actual product and connect the product to the answer to the question?
- Do the students use the blocks to solve the problems or do they use the paper-pencil techniques?

Extension

- Have students write their own story problems and a question to accompany the problem.
- Give students a number such as 423 and ask them to give a story problem that would result in an answer less than 423 (or more than 423).

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Story #1
**The Girl Scouts have 4 boxes of Thin Mints.
There are 36 Thin Mint cookies in each box.**

1. Show how you model this story with blocks:

2. Do the Girl Scouts have enough cookies to serve 130 people each one cookie? Predict YES or NO.

   _____

3. How many Thin Mint cookies do the Girl Scouts actually have? _____
   Explain how you found this answer:

4. How does the answer to #3 compare to how you predicted in #2?

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<u>Story #2</u>
The school cafeteria has 24 tables.
Each table has seats for 8 students.

1. Show how you model this story with blocks:

2. Are there enough seats for 170 students to eat lunch at one time?
   Predict YES or NO.

   _____

3. How many seats are in the cafeteria? _____
   Explain how you found this answer:

4. How does the answer to #3 compare to how you predicted in #2?

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Story #3
One package of tacks comes with 37 tacks in it.
The teacher has 6 packages of tacks.

1. Show how you model this story with blocks:

2. If it takes 4 tacks to put up each poster, does the teacher have enough tacks to put up 60 posters? Predict YES or NO.

   _____

3. How many tacks does the teacher have? _____
   Explain how you found this answer:

4. How does the answer to #3 compare to how you predicted in #2?