PATTERN BLOCKS TIMES TABLES

In this lesson, students make designs with Pattern Blocks and *multiply* by making many copies of the design. The students use the language of multiplication to record the number of blocks. Use this lesson to develop the concept of multiplication and to practice the multiplication tables.

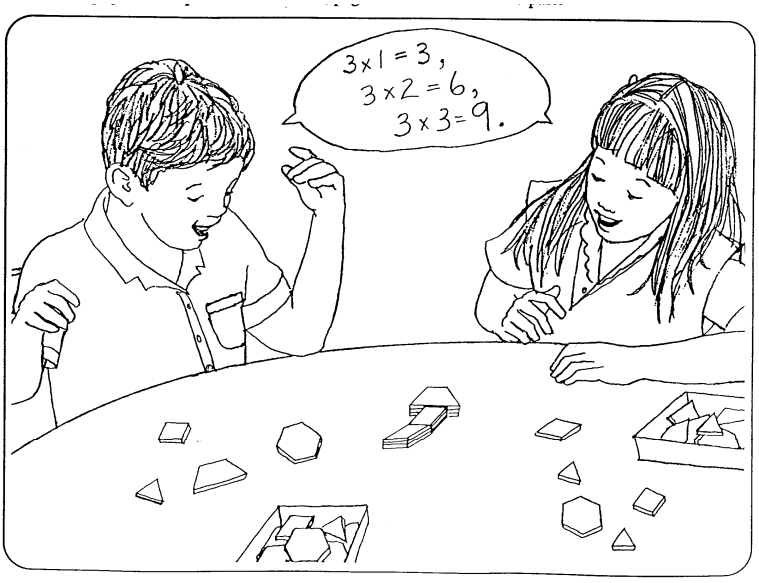
Classroom Organization

Eight groups of four sharing materials
Working in pairs

Materials

Each group of four students will need these materials:

- Pattern Blocks (Put in eight containers. Each container should have 6 yellow, 6 orange, 12 red, 12 blue, 12 white, 12 green.)
- 8 copies of Pattern Blocks Times Tables Recording Sheet, page A.11



[Adapted from: Connections: Linking Manipulatives to Mathematics-Grade 3, Creative Publications]

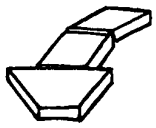
Introducing the Problem

You all know about making designs or pictures with Pattern Blocks. Today you are going to make a design or picture and multiply it over and over, making a stack of blocks.

What do you think will happen when you multiply with Pattern Blocks?

Exploring with Pattern Blocks

1. Show the students this tugboat made with Pattern Blocks. Tell each group of four to make a tugboat to match.



2. Ask how many blocks there are. (3) Say, **One boat with three blocks is three blocks altogether. We say, One times three equals three.**

3. Tell the students to make another tugboat by stacking blocks on top of the first tugboat. Ask how many blocks there are. (6) Say, **Two boats with three blocks is six blocks altogether. We say, Two times three equals six.**

4. Continue until you have ten tugboats stacked up. Then start at the bottom and count the tugboats out loud together by saying the three times table. **One times three equals three, two times three equals six** and so on to **ten times three equals thirty.**

Recording the Connection

1. Tell the students to work in pairs and make a picture or design of their own using Pattern Blocks. They should trace their design onto the recording sheet.

2. The students should multiply their design by stacking more blocks on top of the first design.

3. They should complete the recording sheet as they multiply the design.

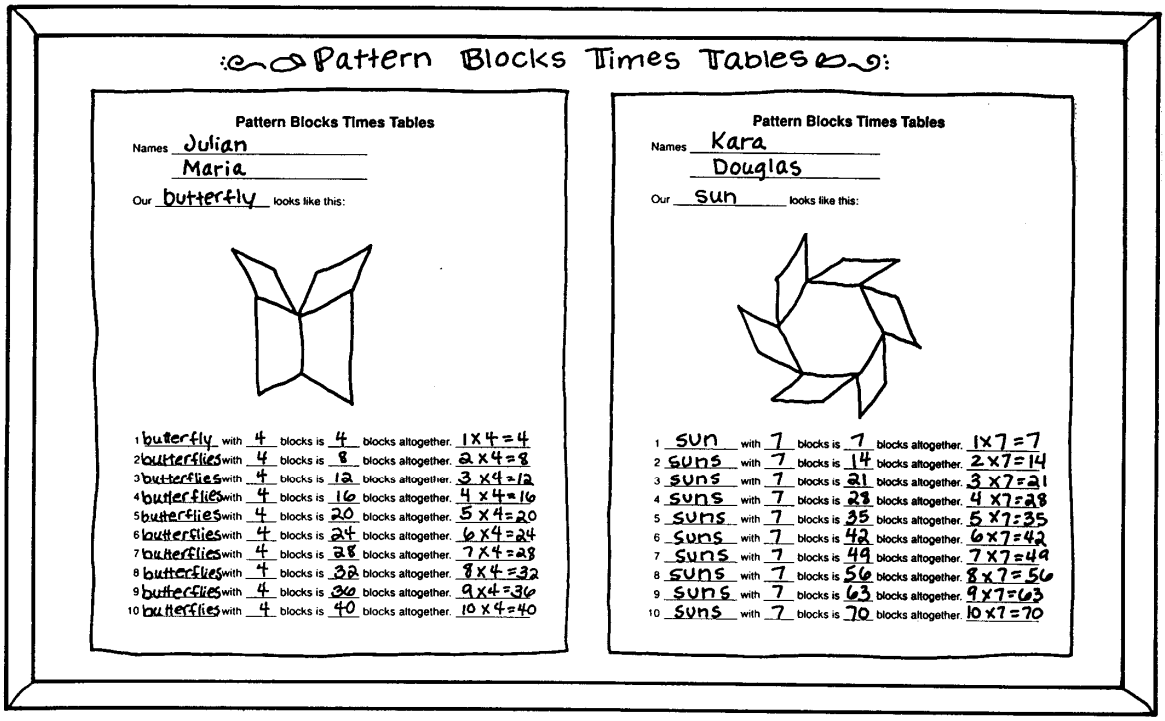
4. Sometimes the students will not have enough blocks to build ten copies of their design. Tell them that if this happens they should imagine the blocks and write the numbers. Tell them they will be able to use blocks from other groups to check their work when the designs are displayed. Completing the number tables without enough blocks to count promotes mental arithmetic and builds a mental image of the multiplication tables.

[Adapted from: Connections: Linking Manipulatives to Mathematics-Grade 3, Creative Publications]

Reporting and Displaying

When each pair of students has had a chance to complete four recording sheets, display them where the class can see them. Ask the students to tell about some of their designs. If they had to complete some without enough blocks, let them use additional blocks to check their number tables.

Display the designs grouped together by multiplication table. That is, all the *times three* pictures together, etc. Encourage the students to talk about what they notice. How are the designs alike? How are they different?



Pattern Blocks Times Tables

Pattern Blocks Times Tables

Names Julian
Maria

Our butterfly looks like this:

1 butterfly with 4 blocks is 4 blocks altogether. 1 x 4 = 4
2 butterflies with 4 blocks is 8 blocks altogether. 2 x 4 = 8
3 butterflies with 4 blocks is 12 blocks altogether. 3 x 4 = 12
4 butterflies with 4 blocks is 16 blocks altogether. 4 x 4 = 16
5 butterflies with 4 blocks is 20 blocks altogether. 5 x 4 = 20
6 butterflies with 4 blocks is 24 blocks altogether. 6 x 4 = 24
7 butterflies with 4 blocks is 28 blocks altogether. 7 x 4 = 28
8 butterflies with 4 blocks is 32 blocks altogether. 8 x 4 = 32
9 butterflies with 4 blocks is 36 blocks altogether. 9 x 4 = 36
10 butterflies with 4 blocks is 40 blocks altogether. 10 x 4 = 40

Pattern Blocks Times Tables

Names Kara
Douglas

Our sun looks like this:

1 sun with 7 blocks is 7 blocks altogether. 1 x 7 = 7
2 suns with 7 blocks is 14 blocks altogether. 2 x 7 = 14
3 suns with 7 blocks is 21 blocks altogether. 3 x 7 = 21
4 suns with 7 blocks is 28 blocks altogether. 4 x 7 = 28
5 suns with 7 blocks is 35 blocks altogether. 5 x 7 = 35
6 suns with 7 blocks is 42 blocks altogether. 6 x 7 = 42
7 suns with 7 blocks is 49 blocks altogether. 7 x 7 = 49
8 suns with 7 blocks is 56 blocks altogether. 8 x 7 = 56
9 suns with 7 blocks is 63 blocks altogether. 9 x 7 = 63
10 suns with 7 blocks is 70 blocks altogether. 10 x 7 = 70

Suggestions

For additional activity ideas, see *Pattern Factory*, Creative Publications, Catalog Number 10434.

[Source: Connections: Linking Manipulatives to Mathematics-Grade 3, Creative Publications]

Pattern Blocks Times Tables

Names _____

_____

Our _____ looks like this:

1 _____ with _____ blocks is _____ blocks altogether. _____

2 _____ with _____ blocks is _____ blocks altogether. _____

3 _____ with _____ blocks is _____ blocks altogether. _____

4 _____ with _____ blocks is _____ blocks altogether. _____

5 _____ with _____ blocks is _____ blocks altogether. _____

6 _____ with _____ blocks is _____ blocks altogether. _____

7 _____ with _____ blocks is _____ blocks altogether. _____

8 _____ with _____ blocks is _____ blocks altogether. _____

9 _____ with _____ blocks is _____ blocks altogether. _____

10 _____ with _____ blocks is _____ blocks altogether. _____

[Source: Connections: Linking Manipulatives to Mathematics-Grade 3, Creative Publications]