

## PATTERN QUESTIONS

### STARTING OUT TOGETHER

**Let's start a stand, stand, sit, stand, stand, sit pattern.** Have two students stand and the third sit on the floor.

**If three more of you come to be part of this pattern, what should the next person do? And the next? And the next?** Have three more students join the pattern.

**Let's think of some questions we could ask about our pattern. How about this one: What will the tenth person be doing, standing or sitting?** Write this question on the chalkboard.

Encourage the students to ask other questions and record those as well. If the students need help, model a few more questions, such as:

- ◆ **When 20 students are in the pattern, how many will be standing and how many sitting?**
- ◆ **When all of the students in our class are part of the pattern, what will the last person be doing?**

Start with the first question on the chalkboard and ask, **Who can think of a way to find out the answer?** When someone suggests a way, say, **That sounds like a good idea. What would be another way to find out?** After the class has used one or two suggested solution strategies to answer each question on the chalkboard, have the students draw a picture of the class standing and sitting in the pattern.

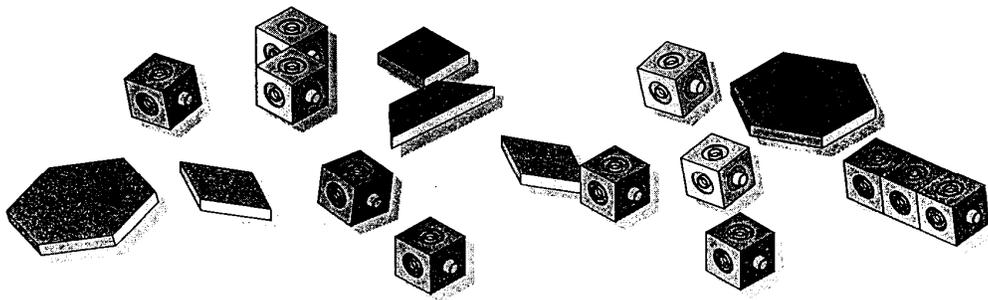
Read through the student instructions, page A.101, with the class, and have the students work in pairs to create their own patterns.

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Asking students to draw a picture of the pattern gives them a chance to reflect on the activity and do some personal thinking. In later activities, the students will be asked to write about something they found out. Here, drawing a picture starts students off on this analyzing process.

[Source: Constructing Ideas About Patterns Grades 1-3, Creative Publications]

## PATTERN QUESTIONS

1. Make a pattern that is about 20 blocks or cubes long.
2. Use the long paper to color a picture of your pattern.
3. Choose a question to answer. Write the question on your paper next to your pattern.
4. Write the answer to your question on the back of your paper.



[Source: Constructing Ideas About Patterns Grades 1-3, Creative Publications]

**A.101**

## WHILE THE STUDENTS ARE WORKING

To help the students get started have them suggest questions they could ask about the cube and block patterns they will be making. Write the questions the students suggest on the chalkboard or chart paper and add some of your own, such as:

- ◆ **How many cubes of each color did you use so far?**
- ◆ **What color will cube number 25 be?**
- ◆ **For 30 cubes, how many cubes will there be of each color?**
- ◆ **How many of each shape have you used so far?**
- ◆ **What shape will the twentieth Pattern Block be?**

Writing the class's own questions on the chalkboard or chart paper will make them easier for the students to read, but some pairs will need your help when they are ready to select a question.

As the pairs are working, approach individuals and ask:

- ◆ **What question have you chosen to answer?**
- ◆ **How will you find the answer?**
- ◆ **Can you think of a different way to go about finding the answer?**

[Source: Constructing Ideas About Fractions Grades 1-3, Creative Publications]

## REFLECTING TOGETHER

Gather the class together to discuss the patterns and questions they have generated. Let each pair share one of their recordings with the class. They should show the pattern and read the question to the class. **Ask the class, Who can think of a way to find out the answer?** When someone suggests a way, say, **That sounds like a good idea. What would be another way to find out?**

Then have the students who created the pattern tell the class how they went about finding the answer to the question.

To extend the discussion, you might want to ask other questions about the patterns students have recorded, such as: **What if we wanted to know what the 100<sup>th</sup> block would be? How could we find the answer?**

These questions can get the students started thinking about how they might answer questions that go beyond the number of blocks or cubes they have to work with.

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Some of the questions students may suggest will require more cubes or blocks than the pairs have to work with: What color is the hundredth cube? What color is the millionth cube? Don't comment on this. If pairs choose these questions, let them try to invent their own solution strategies. Even deciding that a question is too tricky is important learning.