Patterns and Relations
Grade 2
Manitoba Edition

hands-on mathematics

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Contents

Introduction

Patterns and relations exist in all areas of mathematics. The ability to recognize and explore patterns enables students to understand all mathematical concepts and apply them when problem solving.

In this module, students will identify, recognize, describe, extend, and create patterns using real objects, mathematical manipulatives, and numbers. Students also explore growing and repeating patterns using organizational tools such as diagrams and charts.

Patterning activities involve early stages of *algebraic reasoning*, as students investigate both spatial and numerical patterns. Looking at growth patterns is an important first step in developing skills in algebraic reasoning.

Mathematics Vocabulary

Throughout this module, teachers should use, and encourage students to use, vocabulary such as: *element, extend, identify, double, row, column, quadrant, vertical, horizontal, diagonal*, and *chart*.

A Mathematics Word Wall is a valuable reference for students for displaying new vocabulary. Dedicate a classroom bulletin board to your word wall, and display the letters of the alphabet along the top of the bulletin board. Use index cards to record math vocabulary introduced in each lesson, and place these on the board under the appropriate letter of the alphabet. Encourage students to refer to the Math Word Wall during activities and while doing written tasks.

1 What Is in a Name?

Materials

- *The Name Jar*, a book by Yangsook Choi
- chart paper
- blank name strips (included. Photocopy, and cut out one strip per student.) (1.1.1)
- crayons

Activity: Part One

Read the book *The Name Jar* with students. Ask:

- What was the story about?
- Why did Unhei want to find another name?
- How are names different? How are names the same?

Distribute one blank name strip (1.1.1) to each student. Have students print their first names onto their strips, one letter per square.

Now, ask students to examine the letters in their own names. Have students sort themselves into groups with other classmates whose names are similar to their own in some way (for example, have more than three letters, begin with *S*, have an *A*). Have students describe their sorting.

Activity: Part Two

Distribute Activity Sheet A (1.1.2), and have students print their first names repeatedly onto the chart (one letter per box) until the entire chart is filled. Be sure students leave no spaces, and that they begin one line where they left off in the previous line. Then, have students use one colour of crayon to colour all the boxes in which they printed the *last* letter of their name.

For example:

S	a	r	a	h	S
a	r	a	h	S	a
r	a	h	S	a	r
a	h	S	a	r	a
h	S	a	r	a	h
S	a	r	a	h	S

Once students have completed this task, have them describe the resulting visual patterns on their activity sheet charts. Challenge them to find similar patterns on classmates' activity sheets and to explain why they are similar.

Activity Sheet A

Directions to students:

Print your first name onto the squares of the chart, one letter per square. Do this over and over until the chart is full. Be sure to begin one line where you left off in the line before. Do not leave any spaces in the chart. Colour the last letter (box) of your name each time it appears on the chart. Then, describe the pattern you see (1.1.2).

Activity: Part Three

Have students use Activity Sheet B (1.1.3) to explore their name patterns on different-sized charts. Have them follow the same procedure as they did with Activity Sheet A (1.1.2). Also, ask students to describe the patterns they observe on these charts.

1

Activity Sheet B

Note: This is a two-page activity sheet.

Directions to students:

For each chart, print your first name onto the squares, one letter per square. Do this over and over until the chart is full. Be sure to begin one line where you left off in the line before. Do not leave any spaces in the chart. Colour the last letter of your name each time it appears on the chart. Then, choose two of your chart patterns, and circle them. Tell about those two patterns on your activity sheet (1.1.3).

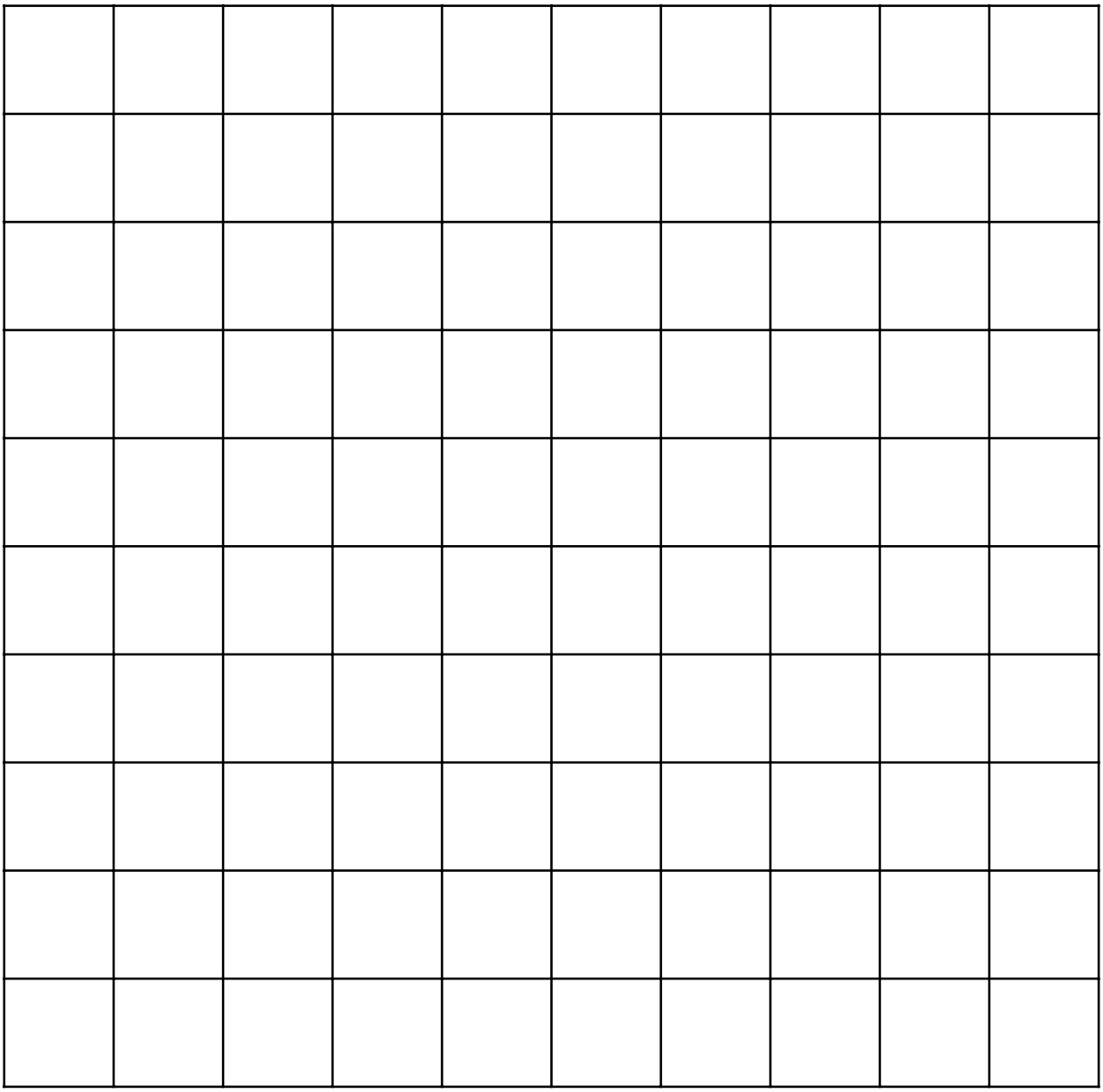
Extensions

- Have students measure the lengths of their name trains and then find objects in the classroom that are the same length as, longer than, and shorter than their name trains.
- Have all students attach their name trains together and then break them apart into groups of ten. Then, have students count by 10s to find out the total number of letters.
- Find a book that explains the meanings of names (many baby name books have this information). Students can then write about what their names mean.
- Invite a guest to the classroom to translate students' names into another language, such as Korean, like in *The Name Jar* story.

Blank Name Strips

Date: _____ **Name:** _____

Name Patterns



Describe your name pattern.

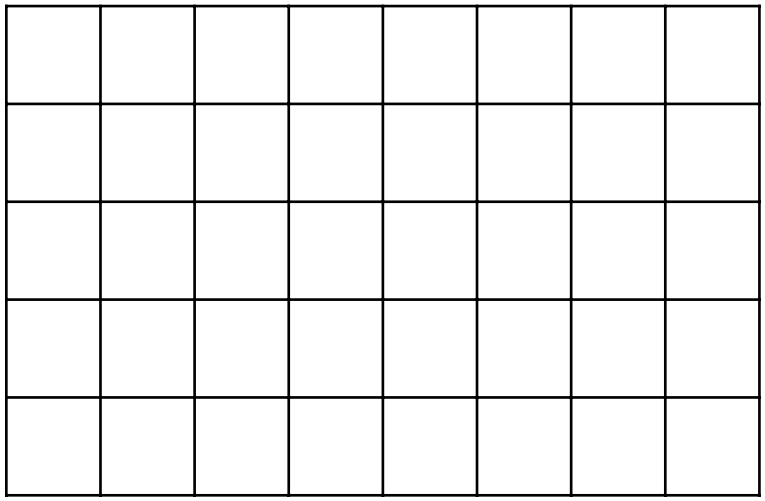
_____

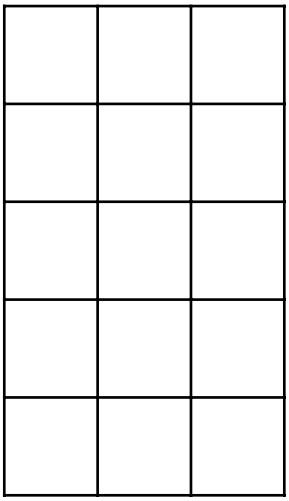
_____

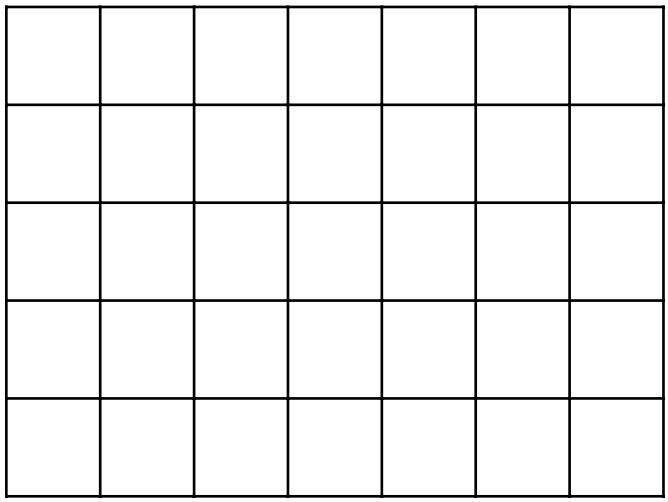
_____

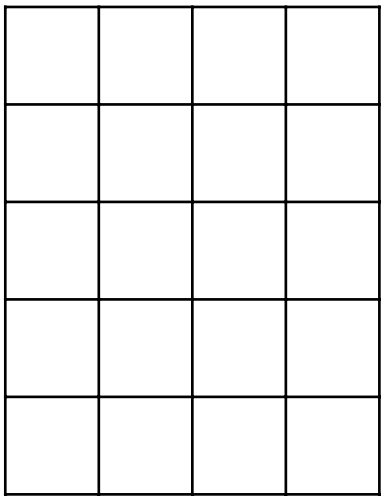
Date: _____ **Name:** _____

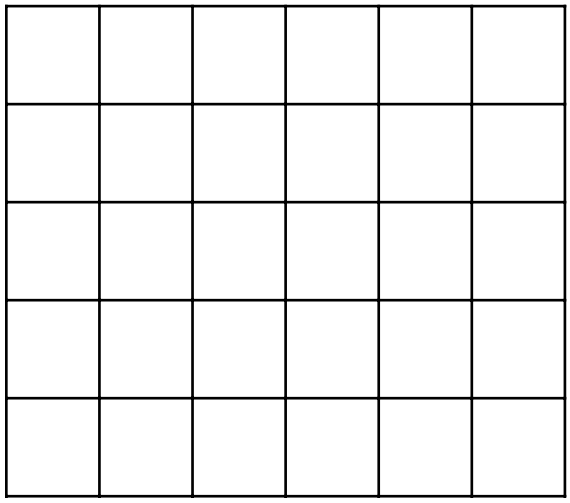
More Name Patterns

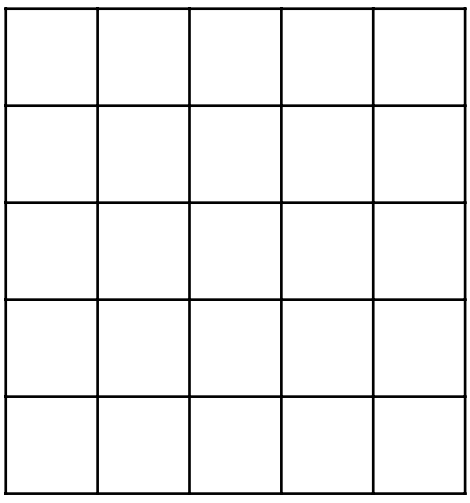












Date: _____ **Name:** _____

Describe your name pattern.

Describe your name pattern.