



PATTERNS HERE, THERE, AND EVERYWHERE!



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▲ ▲ ▲ FOUNDATIONAL OBJECTIVE

The student should demonstrate an understanding of numbers, patterns, counting, and operations.

▲ ▲ ▲ LEARNING OBJECTIVES

DAY 1 - Strand: Data Management and Analysis

The students should be able to acquire data through collecting and counting. The student should be able to design classifications and sort data using objects and display data using object graphs. The student should be able to discuss and interpret by examining the shape and questioning.

Strand: Numbers and Operations

The student should be able to identify one or more characteristics, to demonstrate and explain classification by different properties and different ways, and to explain their order by using attributes.

DAY 2 - Strand: Problem Solving

The student should be able to demonstrate an understanding of a problem by using manipulatives. The student should be able to design a plan and solve problems by using manipulatives, using counting strategies, and using patterns. The student should be able to reflect by explaining.

DAY 3 & 4 - Strand: Problem Solving

The student should be able to design a plan to solve problems using manipulatives, counting strategies, collecting, organizing and interpreting data, and using patterns. The student should be able to properly display the results.

DAY 5 - Strand: Numbers and Operations

The student should be able to recognize that adding one quantity to another increases the total and subtracting one quantity from another decreases the total. The student should be able to recognize, demonstrate, and explain the patterning of numbers, objects and events.

DAY 6 - Review

DAY 7 - Strand: Numbers and Operations

The student should be able to demonstrate and explain the ordering of events and compare sets using more, less, and equal.

DAY 8 - Strand: Problem Solving

The student should be able to create a problem giving specific information orally.

DAY 9 - Strand: Geometry

The student should be able to cover a surface using one or more shapes. The student should be able to discover the symmetry of their pattern.

DAY 10 - Review

DAY 1

Take the class on a nature walk. The students will collect objects (pebbles, leaves, pinecones, rocks, feathers, grass, seeds, etc.) found along the way and bring them back to the classroom.

Sort and classify them on a floor graph (object graph). Discuss the similarities and differences within each group.

Order the sorted groups according to attributes (size, shape, color, etc.).

Compare the number of objects in each group as a counting activity.

Re-classify the groups into living and non-living objects.

Groups of two to four students move the objects into a patterned form around the classroom.

e.g. rock, leaf, stick, rock, leaf, stick

*** Be sure to assign a specific area of the classroom for each group to make their pattern.*

DAY 2

Brainstorm about what the word “collection” means to the students.

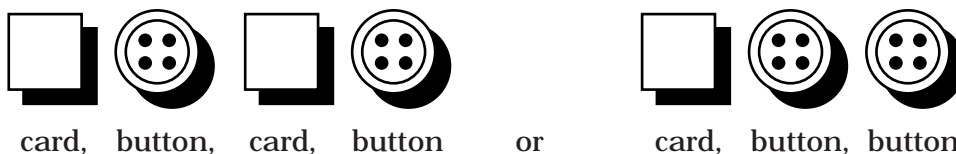
Encourage the students to bring any collections from home for “Show and Tell” that could remain at the school for several days. There will be collections and manipulatives available at school for the children who may be unable to bring a collection from their home.

The students will “Show and Tell” their collections. They will sort their own collections and then share their ideas with the rest of the class.

DAY 3

The students will make a patterned display by combining their collection with another student’s collection.

The teacher would give direct instructions by comparing and contrasting patterns that the students have discovered. The teacher would explain the linear patterns that have been discovered.



Relate these items to an ABAB pattern or ABB pattern.

Have the children change their pattern to discover a new pattern and read it to the class.

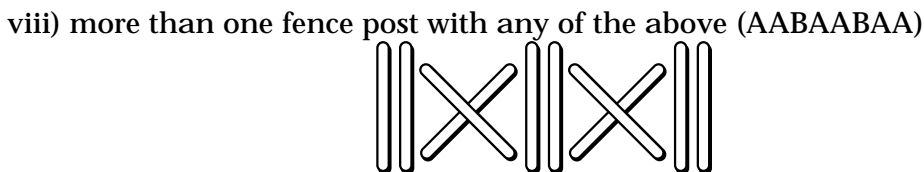
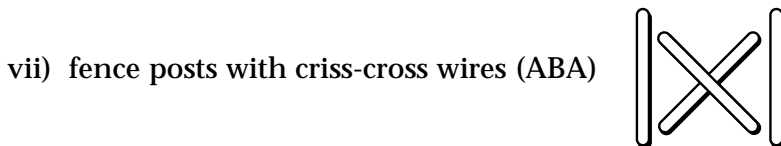
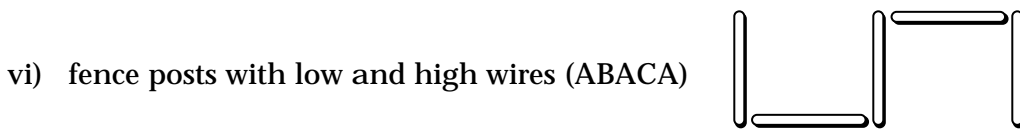
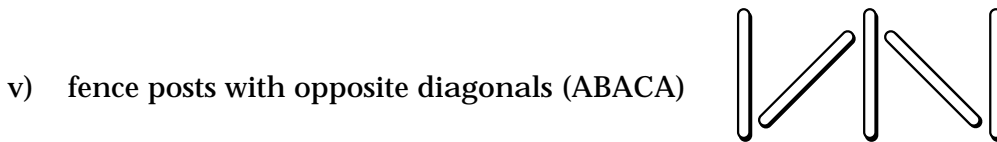
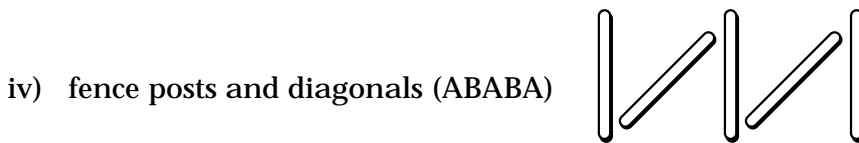
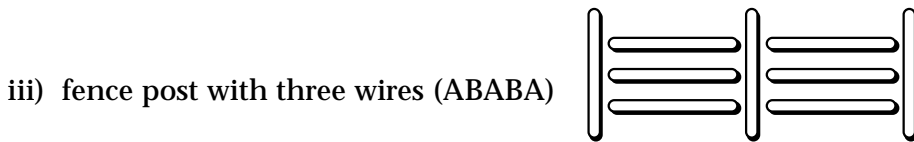
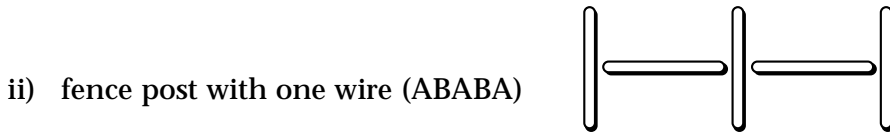
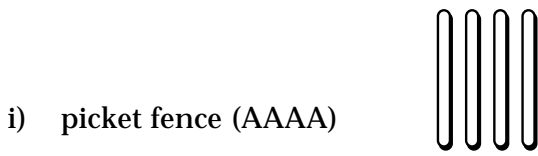
button, button, card, card or button, card, button

Relate these items to a BBAA or BAB pattern.

Give the students a long strip of paper to record their pattern with pictures and letters. Display on the bulletin board or the blackboard.

DAY 4

The entire class will be using the same manipulatives (e.g. popsicle sticks, twist ties, or any other item that is straight). The students will build a fence pattern under the direction of the teacher.



All of the above examples should be translated to the AB pattern.

FOLLOW-UP:

Distribute strips of paper with letter patterns. Invite the students to make the illustrations that would go with the letter patterns.

a b a b



a a b

a b a

a b b

a b c

a a b c

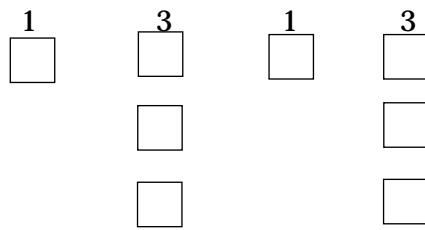
a b b c

a b b a c

DAY 5 — STATION WORK

Station 1

Build with manipulatives using the number patterns.



(On laminated cards, the teacher will have the number patterns printed on the template.) A variety of number patterns and manipulatives will be available.

Station 2

A review station will be set up with the popsicle activities from Day 4.

Station 3

A review station of the students' collections will be set up for the students to investigate.

Station 4

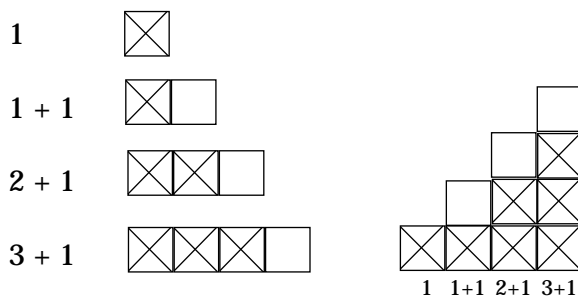
This will be a computer station with the patterns program being in use.

Station 5

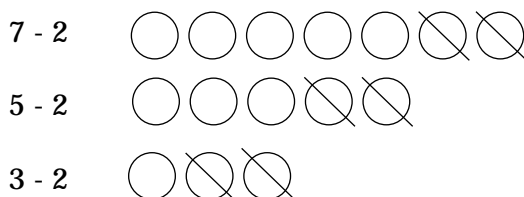
This station will be attended by the teacher. There would be increasing and decreasing patterns at this station. This would lead into addition and subtraction.

The students would be given the opportunity to use the manipulatives to make ascending and descending patterns.

Ascending



Descending



DAY 6

Art work follow-up:

The students would use gummed stickers, toothpicks or macaroni (or any other available material) to make their favorite pattern. The students should label their pattern. AB

DAY 7

A language arts activity would be suggested.

Read Five Little Monkeys Jumping on the Bed by Eileen Christelow or *There were Ten in the Bed* by Pam Adams.

Highlight to review the ascending and descending patterns that were studied previously.

Role play the story in the classroom. This could be extended by counting the number of ears that would be decreased every time a student is eliminated.

Follow-up:

The students will use linking cubes or blocks (or other manipulatives) to create an object graph which illustrates the descending pattern of the story.

DAY 8

Game: What's My Pattern?

The students will be working in pairs using attribute blocks, pattern blocks or other manipulatives.

Create a visual barrier between the students' work areas. Student "A" will build a pattern. Student "A" will verbally give the directions to Student "B" about how Student "B" can build the same pattern with the verbal directions only. Then the students will remove the barrier and compare their patterns.

Give ample class time for both students to play both roles in this game.

Bring all of the students together to clarify the required vocabulary to make this activity easier.

Allow time for the students to try the game again to improve their accuracy in listening and speaking.

Extension: The students could incorporate other manipulatives into the game.

The game could be timed.

They could switch partners.

DAY 9

The materials required for the lesson will be pattern blocks and mirrors.

The children will make a linear pattern using the pattern blocks. They will use a mirror to reflect the symmetry of their pattern. The mirror will be taken away and the students will try to match their pattern with what they saw in the mirror.

An extension of this activity would be to have the students make a wallpaper pattern (or a floor tile pattern) with the pattern blocks.

A follow-up art activity would be for the students to use triangular grid paper to illustrate their pattern or to use gummed paper pattern block stickers to produce a pattern.

DAY 10

For the culmination of this unit, one suggestion would be at Thanksgiving time to plan and design table decorations for their Thanksgiving dinner table. (placemats, place cards, napkin holders)

▲ ▲ ▲ ASSESSMENT TECHNIQUES

- Anecdotal records
- Observation checklists
- Assessment stations
- Self and Peer Assessments

▲ ▲ ▲ INTEGRATION OF PATTERNS ACROSS THE CURRICULUM

Activity Suggestions

Science

- nature walk
- collect sea shells, seeds, leaves, etc.
- investigate and make patterns
- investigate patterns and symmetry in the environment, both natural and man-made
- do pattern or texture rubbings

Health

- body parts (2 eyes, 2 legs, 2 arms, 1 mouth)
- listen for the rhythm of breathing, heartbeat while walking or running or resting
- investigate patterns in vegetables, fruits, and seeds

Physical Education

- play “Follow the Leader” in a pattern (could say “ABAB”)
- pattern a series of ball handling skills
- gymnastic movement activity (stretch, curl, balance)
- stations in a pattern
- obstacle course in a pattern

Social Studies

- look for patterns in:
 - clothing from other cultures
 - communities
 - families
 - your home

Language Arts

- patterning stories and poems
- look for ABAB rhyming patterns
- look for ascending, descending patterns in *The Enormous Turnip*, *Chicken Little*, *The Three Bears*, *The Little Red Hen*, *The House that Jack Built*, *Over in the Meadow*

Arts Education

- dancing
- rhythm patterns with rhythm sticks
- clapping patterns
- rhythm instruments
- marching
- movement to music in a pattern
- using patterns in art
- viewing patterns in art
- paper folding (Origami)
- print making
- sponge painting
- vegetable prints
- floor tile patterns, quilt patterns or tile patterns
- rubbings (leaf or texture)

▲ ▲ ▲ SUGGESTED MATERIALS

Large floor graph (may be purchased or teacher made)

- i.e. shower curtain or drop cloth with a grid

Collectibles:

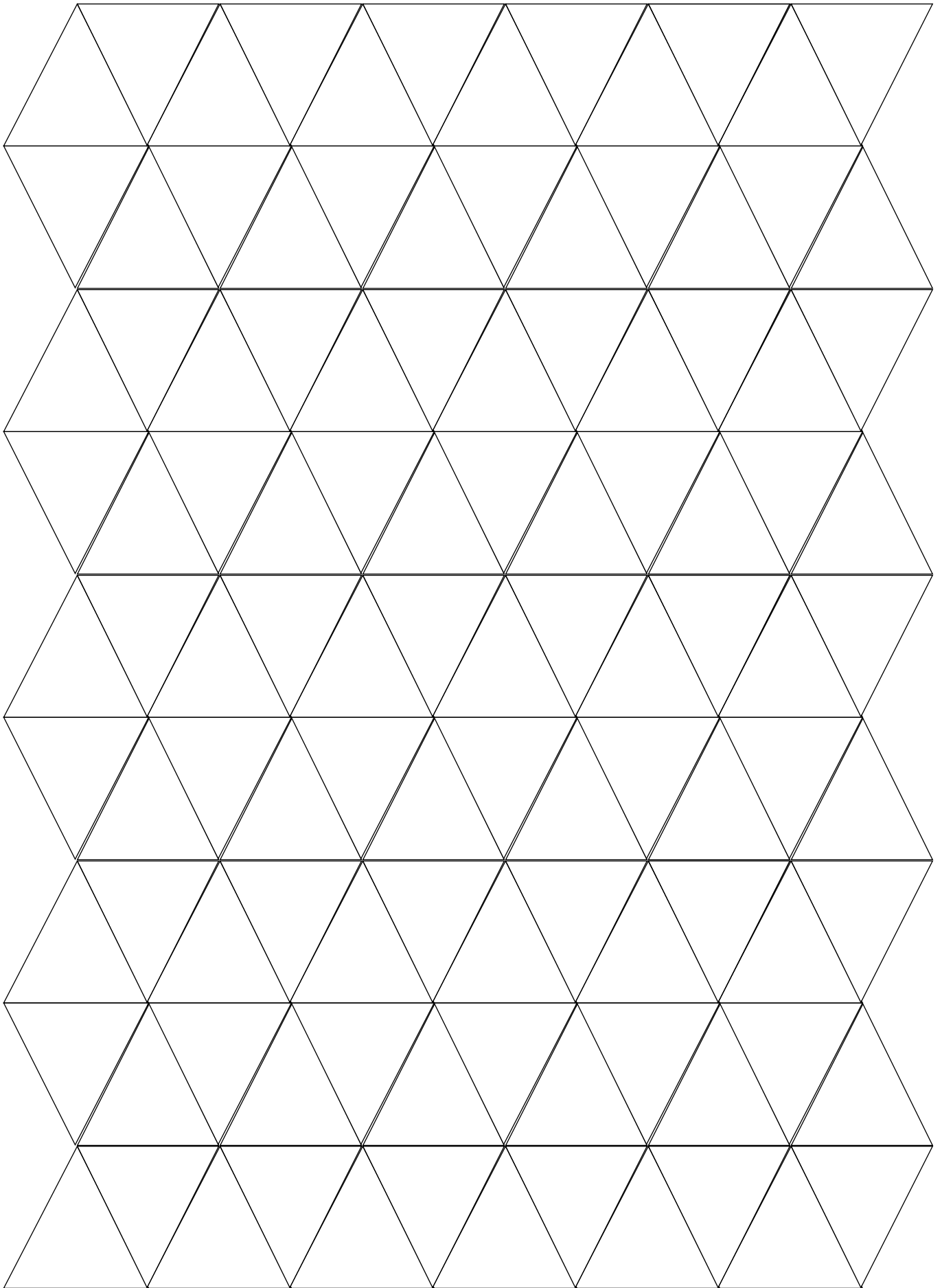
- Items from a nature walk
- Children's collections (stickers, cards, etc.)
- Buttons
- Bread ties (plastic)
- Toys
- Colored toothpicks
- Twist ties
- Seeds
- Seashells

Purchased items:

- Pattern blocks
- Linking cubes
- Popsicle sticks
- Attribute blocks
- Colored beads
- Shoe laces
- Blocks, tiles
- Cuisenaire rods

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OBSERVATION CHECKLIST

Ability to Solve Problems

Date	Group				
Context					

Grade: One

PROBLEM SOLVING

KEY
 F - Fair
 G - Good
 V - Very Good
 E - Excellent

NAME

Understanding

Plan & Execute

Reflecting

Processes

Use Manipulatives

Act Out

Interpret Pictures

Ask Questions

Use manipulatives

Act Out

Counting Strategies

Data

Types

Explain - Orally

Create Problem

Similar Problems

Suitable Solution

Demonstrates Confidence

Systematic Approches

Mathematical Language