Kindergarten Discovering Patterns Lesson Plan

Kindergarten: Mathematics

Patterns, Patterns Everywhere!

Discovering different Patterns around us

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Summer II
### Kindergarten:
### Math – Patterning Lesson Plan

<table>
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<th>Parts</th>
<th>Attributes</th>
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| **TEKS** | §111.12. Mathematics, Kindergarten TEKS K.5: Patterns, relationships, and algebraic thinking. The student identifies, extends, and creates patterns.  
*The student is expected to identify, extend, and create patterns of sounds, physical movement, and concrete objects.* |
| **TEKS K.6 (A) Patterns, relationships, and algebraic thinking.** The student uses patterns to make predictions.  
*The student is expected to use patterns to predict what comes next, including cause-and-effect relationships.* |
| **TEKS K.13 (A) Underlying processes and mathematical tools.** The student applies Kindergarten mathematics to solve problems connected to everyday experiences and activities in and outside of school.  
*The student is expected to identify mathematics in everyday situations.* |

#### Objectives (Bloom’s Taxonomy)

- Given demonstrations of various patterns, the learner will understand the concept of a pattern.
- Given manipulatives, the learner will identify a repeating pattern with a score of 10 out of 10 to show mastery.
- Given manipulatives, the learner will use predictions to create and extend a repeating pattern with a score of 10 out of 10 to show mastery.
- Given pictorial materials, the learner will create a repeating pattern with a score of 10 out of 10 to show mastery.
- The learner will distinguish patterns around the classroom, and in the world around them proving at least one correct pattern idea to show mastery.

#### Materials

- A picture or story book that teaches patterns, such as, *Pattern Bugs* by Trudy Harris and/or *The M&M Brand Color Pattern Book* by Barbara Barbieri McGrath. (To introduce pattern concept)
- Provide students with some form of manipulative, such as, buttons, skittles, M&Ms or pattern blocks to create their own pattern using A-B or A-B-B patterns. (Skittles Activity)
- Include pictorial worksheets for students to work independently on to master skills. (Patterns Handout)
- Scissors and glue (Pattern Handout)
- Pre-cut 12-inch string for each student to create button necklaces. (Button Necklaces Activity)
- A large amount of Buttons (Button Necklaces Activity)
- Markers, crayons, or paints (Pattern bug book activity)
- Copy patterns to create *Pattern Bug* books for each student. (Pattern bug book activity)
- Stapler and staples to put books together. (Pattern bug book activity)

### Anticipatory Set

1. **Hello class! Today we are going to be learning about patterns!**
2. **Draw a few pattern examples on the board using several different A-B and A-B-B patterns. Have the students name the objects as a whole group. For example: apple, banana, apple, banana... ask the class, “What would come next?” Tapping into what they have already experienced students should be able to predict what comes next to help solve the extended pattern.**
3. **Read *Pattern Bugs* by Trudy Harris. Allow time to stop on each page for discussion and to let children locate various patterns. Talk about each pattern found.**
4. **Read *The M&M Brand Color Pattern Book* by Barbara Barbieri McGrath. Discuss the various patterns created with colorful M&Ms.**
5. **Allow children to explain the meaning of a pattern. Encourage students in a grand discussion.**
6. **“What is a pattern?” “What would come next?” “Look around do you see any patterns in our classroom?”**

### Instructional Input/ Teacher Explanation & Modeling

1. **Describe two different repeated patterns: A-B Patterns and A-B-B Patterns. Example: red, orange, red, orange... Ask the students “what color comes next”? The answer is: “orange” Tell the students' that is an example of an A-B pattern. Give them another example. “Yellow, Blue, Blue, Yellow...” ask them “what color comes next?”**
2. **If time allows, you could look through the book again to find these types of patterns.**
3. **Either with a large group, or after breaking into smaller**
groups, teacher should encourage students to work on repeated pattern exercises (for recreating a pattern) or repeated pattern exercises (for extending a pattern). Work with all the students to guide the activity. Be a model and talk about the steps taken to recreate and extend the patterns. You may modify this group activity for your class, based on their level of mastery and understanding.

**To carry out the Pattern Activity:**

A. Select a guide (pattern sequence) from the Skittles Handout to work on.

B. Using the matching color pieces, find the appropriate color to match the pictures on the pattern guide. The color pieces should be placed on top of its matching color picture, to “re-create” or copy the pattern on the guide. This will help students visualize the concept of making a pattern, and start to recognize the components of the pattern in a concrete way. Discuss whether the pattern used is an A-B or an A-B-B pattern.

C. To work a pattern extension problem, select a guide from Skittles Handout. Follow the same steps as in step B, however, a blank is provided to allow the student to finish or “extend” the pattern. Discuss whether the pattern used in as A-B or an A-B-B pattern.

D. Both of these activities can be placed in a Math Center or distributed to individual students to work at their tables or in groups.

| Checking for Understanding | Students will perform the pattern guide activities in small groups and centers to show understanding. Students will perform the pattern guide activities in small groups and centers to show understanding. The instructor will walk around checking on each student’s progress and assisting students who are in need. Students in need can be identified by not following the patterns correctly. Instructors can help students by redirecting them. Instructors can ask students about their created patterns by asking them questions like, “How did you predict what would come next?” |
| Guided Practice | Guided practice would include: Pattern guide activities in small groups, whole groups and centers In a math centers or in small groups, students should |
spend 30 minutes experimenting with buttons to form patterns. Provide one 12-inch string and a large handful of buttons for each child. Instruct children to make a patterned “necklace” with the buttons. After children have constructed their necklace, discuss the pattern with them, and assist them in any changes that need to be made.

**Closure**

The teacher will ask the student:

1. “How do you decide what would come next in a pattern?”
2. “What are some patterns in our classroom?”
3. “What are some ways that we can create patterns in our daily lives?”
4. The teacher will clap a pattern and ask the students what would come next in the pattern.

**Independent Practice**

1. Perfect activity for math centers or in small groups. Students should have 30 minutes to create pattern booklets. a) Hand out the pictorial worksheets to students. Instruct children to color the pictures of bugs, all inspired from the book *Pattern Bugs*, to create a pattern. These pages can then be turned into their own “Pattern Bug Book,” made complete by a title page/cover “Pattern Bug Book.” b) The children may use any colors, and choose to create either an A-B or an A-B-B pattern for their bug creations. c) Discuss with the teacher what type of pattern they have created. (This activity can be modified for children who have mastered this skill level, by allowing them to create a higher-level pattern, as long as they can describe their pattern to the teacher.)

2. Pattern Activity- Assign Homework. a) Students cut out and glue the shapes from the bottom of the page to complete the pattern. b) Students turn in this assignment at the end of the week to be assessed.

**Assessment**

The teacher will collect independent work (Skittle pattern activity, button necklaces, and Pattern Bug Books) to assess the learner’s mastery of the skill. Students should score a 100% to show mastery of skill.

The teacher will ask each student to identify a pattern in the classroom, or to think of a pattern in the world around them (something they might see everyday). The learner has mastered the concept if they can correctly identify a pattern.

**Extensions**

1. The teacher may initiate students to make a pattern with their line, as they go to recess. An example of this
would be lining up “girl, boy, girl, boy, girl, etc.”

2. The teacher use patterns during calendar time. For example, the dates on the calendar could create a pattern in color or with a object, and as the students count the number of days, they could recite the pattern (yellow, pink, yellow, pink, yellow, etc.) or (sun, flower, sun, flower, etc.)

3. The teacher may model, and have students’ repeat auditory patterns, such as “clap, clap, stomp.” These patterns could vary immensely, in difficulty and in sound. They could be practiced during transitions.

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Button “necklace” Activity

Using a large handful of buttons allow students to form patterns using A-B or A-B-B pattern.

12 inch pre-cut Strings to thread buttons

After children have constructed their necklace, discuss the pattern with them, and assist them in any changes that need to be made.
Skittle Handout Activity

Given a large handful of skittles, use the matching color pieces to find the appropriate color to match to the pictures on the pattern guide. The color pieces should be placed on top of its matching color picture, to “re-create” or copy the pattern on the guide.

What comes next? Can you finish the Pattern?
A blank is provided to allow the student to finish or “extend” the pattern.

Discuss whether the pattern used in as A-B or an A-B-B pattern.

Can you create your own pattern? Tell me what kind of pattern you made with your skittles.
Patterns Handout

Cut out and glue the shapes at the bottom of the page to complete each pattern.
Pattern Bug Book
Instruct children to color the pictures (of bugs), all inspired from the book *Pattern Bugs*, to create a pattern. These pages can then be turned into their own “Pattern Bug Book,” made complete by a title page/cover bearing “Pattern Bug Book.” The children may use any colors (Markers or crayons), and choose to create either an A-B or an A-B-B pattern. But they must discuss with the instructor what type of pattern they have created. (This activity can be modified for children who have mastered this skill level, by allowing them to create a higher-level pattern, as long as they can describe their pattern to the instructor.)

I drew out a few pictures of bugs inspired from the book, *Pattern Bugs* by Trudy Harris.
Students are to create their own colorful patterns.