

Center Ideas for Growing Patterns

Summary

Through center activities students learn to create patterns.

Group Size

Large Groups

Materials

Invitation to Learn

CD player

Best of Wee Sing CD

- *Dr. Jean & Friends CD*

Center #1--Rooster's Off to See the World

- *Rooster's Off to See The World*

- [Rooster's Animals](#)

Scissors

Colored paper

Glue

Center #2--This Is the House That Jack Built

- *This Is The House That Jack Built*

- [Jack's Character Puppets](#)

Scissors

Tongue depressors

Puppet stage

Center #3--Jack the Builder

- *Jack The Builder*

- [Building Box](#)

Building blocks

Crayon

Center #4--The Napping House

- [House Booklet](#)

Crayons

Center #5--The Deep Blue Sea

- *The Deep Blue Sea*

- *Investigations: Pattern Trains and Hopscotch Paths*

Pattern blocks

Cut-outs of patterns blocks

Glue or glue sticks

Student journals

Center #6--Mr. Noisy's Book of Patterns

- *Mr. Noisy's Book of Patterns*

- [Patterns and Shapes](#)

- [Fill in Patterns and Shapes](#)

Crayons

Student journals

Additional Resources

Books

Jack the Builder, by Stuart Murphy; ISBN: 0060557745

Mr. Noisy's Book of Patterns, by Rozanne Williams; ISBN: 0916119963

The Deep Blue Sea: A Book of Colors, by Audrey Wood; ISBN: 0439753821

This Is the House That Jack Built, by Simms Taback; ISBN: 0399234888

The Napping House, by Audrey Wood and Don Wood; ISBN: 0590975463

Investigations: Pattern Trains and Hopscotch Paths by Rebeka Eston; ISBN: 1572329270

Navigating through Algebra in Pre-Kindergarten-Grade 2, by Carole Greenes, Mary Cavanagh, Linda Dacey, Carol Findell and Marian Small; ISBN: 8973534999

About Teaching Mathematics: A K-8 Resource by Marilyn Burns; ISBN: 0941355055

Media

Best of Wee Sing, by Pamela Conn Beall and Susan Hagen N., from Scholastic.

Dr. Jean & Friends, by Jean R. Feldmen; Tampa, FL: Progressive Music 1998; ASIN B000F8VD3K

Organizations

National Counsel of Teachers of Mathematics, 1906 Association Drive, Reston, VA 20191- 1502, (703) 620-9840, www.nctm.org

Background for Teachers

This activity includes five center ideas that incorporate growing patterns. Each center is based around a book, so it would be best to read the book with the class at least one time before having them participate in the center.

Each center will have the students re-creating the pattern from the book in different ways, including arranging pre-drawn manipulatives, creating their own growing pattern, making the pages in a book to match the story, building a structure step-by-step and recording it in a journal, and acting out the story using puppets.

Intended Learning Outcomes

1. Demonstrate a positive learning attitude.
2. Understand and use basic concepts and skills.
3. Communicate clearly in oral, artistic, written and nonverbal forms.

Instructional Procedures

Invitation to Learn

Have the students stand with you to sing and dance to some of the songs that are based on a growing pattern. Ask for three volunteers for each song.

Sing *My Aunt Came Back* from *Best of Wee Sing* by Pamela Conn Beall and Susan Hagen Nipp, and *Mother Goose and the Turkey*, by Dr. Jean on *Dr. Jean & Friends*. After you sing, I will need three additional volunteers for each song to come up and do the whole sequence in order to review each element of the repeating pattern.

Instructional Procedures

Center #1--Rooster's Off to See the World

Using the *Rooster's Animals*, make a center set (either copy on white, color, and mount on different colors of paper or copy on different colors of paper). Cutout and laminate all the animals that correspond to the story.

Students will use the cards to re-create the story by putting them in the correct order and with the correct number of each animal.

In addition, you can make an outline of the final product that the students just have to fill in with the manipulative pictures.

Center #2--This Is the House That Jack Built

Using *Jack's Character Puppets*, make a puppet of each of the characters, mounted on tongue depressors.

One student will be the narrator to tell the story while the other students act it out.

The "actors" will choose one or two character puppets depending on how many students are in each group, to use to act out the story.

The narrator will then "read" the story by looking at the pictures and telling the story in his/her own words as the other students use the puppets to act it out.

Center #3--Jack the Builder

This story is not necessarily a repeating pattern, but as the students re-create it in their own way, it becomes one. It would also be most beneficial to have an adult supervise the center (you, an aide, or a parent volunteer).

Put a container of building blocks, the *Building Box*, and crayons, at the center.

The students will pick three blocks and make something. Then they will color the first box to match what they have created with their blocks.

Then they will add one or two more blocks to what they made before.

They will then draw the new creation in the next box, including what they had before and the new blocks they added.

They will continue in like manner until all boxes are full.

Center #4--The Napping House

This one may take more than one day to finish! You will also want an adult to supervise this center, as writing and complex repetition required.

Using the *House Booklet*, make a 6-8 page booklet that the students can use to make-up their own story of what they would find in a napping/waking/party/sad/etc. house.

Then have them create their own version of the story, drawing/ coloring the pictures to match in the outline of the house, making sure that they include each element of their pattern each time.

Center #5--The Deep Blue Sea

Give the students a bucket of pattern blocks, paper cutouts of the pattern blocks (available in the back of *Investigations: Pattern Trains* and *Hopscotch Paths* book or die-cuts), and their journals.

Have them create a "blue sea" with the diamonds.

Then they need to create an "island" on the sea with the tan rhombuses.

Next, they need to use one shape/color at a time to create a scene on that island.

Finally, they will use the cutouts to copy/glue their final scene into their journal.

Center #6--Mr. Noisy's Book of Patterns

Use *Patterns and Shapes* for 1-2 days/weeks

Have the students color the patterns correctly following the growing pattern sequence.

The students will then copy one of the growing patterns from the paper into their journal.

Use *Fill in Patterns and Shapes* for 1-2 days/weeks.

Check for students' comprehension as they are now extending their thinking!

Extensions

Curriculum Extensions/Adaptations/ Integration

Make a class book of the pages that the students made in the *Jack the Builder* center. You can also have the students 1) take a picture of what they build with a digital camera, 2) print out the picture, 3) glue it on the top of a page and 4) have them draw it again on the bottom. You could also make a book of the pictures of their creations and put it in a center that students can then try to re-create.

Have the students act-out *This is the House That Jack Built* in a performance for another class or parents, including full- dress costumes or masks that the children have drawn for each character. Do a whole-class shared writing activity to come up with a new version of *The Napping House*

and then make a class book with the students illustrating each page.

Laminate the blackline from *Mr. Noisy's Book of Patterns*, and put in a center and have the students copy the patterns using pattern blocks, beads, buttons, etc.

Family Connections

Encourage your students to go through their books at home and see if they have any stories that contain growing patterns. Have them bring in the books and explain the growing pattern. If possible, have a parent come in and read the book to the class.

Include making a growing pattern at a Parent Math Night as an activity/skill for the students to teach the parents.

Send home blank sheets from *Mr. Noisy's Book of Patterns* and see if the students can "teach" their parents about growing patterns. Have the students correct the parents' "homework" and return to school to give their parents a "grade."

Assessment Plan

Have the students do a self-check on *Rooster's Off to See the World* to see if they have the correct number of each animal and in the correct order. It is self-checking, especially as you explain the "stair-casing" of the final product. If you have the book, you can photocopy the page with all the animals on it as a way for the students to check their own work.

Students must turn in their paper from *Mr. Noisy's Book of Patterns* for you to check. Return to the students with marks next to the ones that are incorrect, but do not tell them what is wrong--see if they can figure out their mistakes on their own.

Ask developmental/scaffolding questions as students are creating their patterns.

Bibliography

Research Basis

Burns, M. (1992). *About teaching mathematics: a K-8 resource*. Math Solutions Publications, Sausalito, CA, 28.

"The more experience that a child has with physical objects in the environment, the more likely that related understanding will be developed. A child can obtain physical knowledge...directly from perceiving the objects themselves. The child derives logical knowledge not from the objects themselves but from manipulating them and internally processing these experiences.... First-hand experimentation is needed. Children need experience with objects before abstractions in mathematics are introduced.

The more opportunities children have to interact with peers, parents, teachers, the more viewpoints they will hear. Social interaction stimulates children to think through their viewpoints and to approach objectivity. They achieve perspective on their own ideas when confronted with others' thoughts."

Sutton, J., and Krueger, A. (2002). What instructional strategies make mathematics teaching more learner-centered? *EdThoughts: What we know about mathematics teaching and learning*. 21.

Centers are essential to learning in kindergarten. As stated here, it is imperative that mathematical knowledge be based on prior-learning and what better way than to teach/introduce a concept and then re- enforce it through having the students participate in learning, based on books they have already been exposed to and explored as a whole group.

"Students learn by connecting new ideas to prior knowledge. Effective, student-centered instruction combines guided questioning with a set of experiences and lessons chosen to build upon the experiences and level of understanding that students already have.... Students will use a variety of tools, including manipulatives, calculators, and computers, to explore mathematics concepts and make sense of them individually and as a group of learners."

Authors

