



Children's Museum of Houston

Pre/Post Classroom Activities

Bead Patterns

Rationale

It is the classic good vs. evil adventure as the dastardly Hacker attempts to overtake CyberSpace, but is continuously outsmarted by three curious kids and one cyberbird pal determined to stop him. Join forces with the CyberSquad, Matt, Inez, Jackie and Digit, in their quest to save CyberSpace as they zoom into *Cyberchase – The Chase Is On!*, an out-of-this-world, educational mathematics exhibit.

In this exhibit, children will enter CyberSpace through a special portal to explore favorite cybersites, including the *Control Central*, the *Grim Wrecker* and *Poddleville*. They will help the CyberSquad protect the virtual universe from the villainous Hacker while exploring math concepts such as place value, algebra, geometry, fractions and probability.

This patterning activity will serve to prepare students to participate in two patterning activities in the Cyberchase exhibit, *Poddle Family Patterns* and *Playing with Patterns* (music patterns). Students identify, duplicate, and extend simple patterns (e.g., patterns made with shapes) as preparation for creating rules that describe numerical relationships. Back in the classroom, children can demonstrate their knowledge by creating various patterns using beads.

TEKS Objectives

V.E.3 (PreK), K.5: The student identifies, extends and creates patterns.

K.6, 1.4: The student uses patterns to make predictions.

Background

Patterns are all around us in tiles, wallpaper, wrapping paper and leaves. One way children can talk about these patterns is to sort, group and copy other patterns as well as build their own. Building patterns is one way of building algebraic understanding. For instance, a pattern that repeats red, blue, red, blue is algebraically the same as green, red, green, red. Recognizing, describing, and extending patterns are the foundation for children's understanding of number relationships and patterns and will lead to stronger skip counting and number sense skills.

Vocabulary

Pattern – repeated design or recurring sequence.

Materials

- Beads (at least two different colors)
- Pipe cleaners

Procedure

Set Up: This activity will take place during one class period. Set out multi-colored beads and pipe cleaners. If you are working with younger children, please use larger beads to prevent choking. You can also bend or cover the sharp ends of pipe cleaners with masking tape for safety if necessary.

1. Choose a pipe cleaner and four beads of at least 2 colors. (ex. 2 red and 2 blue)
2. String the beads onto the pipe cleaner to make a pattern (ex. red, red, blue, blue)
3. Describe the pattern to someone
4. Take 4 more beads just like the ones on the pipe cleaner.
5. String these new beads following the first pattern. Notice how this extension is still the same pattern.
6. Turn the beaded pipe cleaner into a bracelet, bookmark, keychain or other decoration.

Questions to ask

- What is your pattern?
- How many different patterns can you make?
- How could you change this into a different pattern?
- How could you explain your pattern without using color names?

Extensions

- Find all the different ways that 2 colors can be arranged into a four bead long pattern.
- Try using three different colors to find all the patterns that can be created.
- Create sound, shape, or picture patterns.

Resources

- *Pattern For Real*: A short real life clip featuring the Stomp group and musical patterns: http://pbskids.org/cyberchase/forreal/107_for_real_hi.html
- Create musical patterns with this online interactive Cyber Pattern Player: <http://pbskids.org/cyberchase/games/patterns/index.html>
- Free lesson plan: Patterns to the Rescue CYBERCHASE Activity <http://pbskids.org/cyberchase/parentsteachers/lessons/lessonplans/lesson4.html>
- *Pattern Fish*: Book by Trudy Harris. Children explore patterns like AB or AAB in an appealing underwater environment. Patterns echo throughout not only on the fish but also in the plants and even the page borders.
- *Lots and Lots of Zebra Stripes: Patterns in Nature*: Book by Stephen R. Swinburne. Children explore patterns found everywhere: the striped watermelons of summer and ridged pumpkins of autumn; in spider webs and on scaly snakes.