

Test Tube Patterns

NOTE: Children should always be given ample time to experiment, notice, and wonder before they are provided an explanation.

Always engage children with our two favorite questions:

What do you notice? What do you wonder?

Resist the urge to answer any questions children have while exploring. Instead, respond back with questions to children and let them make sense of the world. Sample questions you might use: What do you think? Do you notice any patterns? What could we change? Can we test something else? What can we try next? If children ask a testable question, which they could answer by doing an experiment, talk through with them how they might design a test to help answer their question. As much as possible and within reason, let them actually test their questions by trying the experiments they propose.

Learning Objectives

Children will...

- recognize and name colors.
- construct patterns.
- utilize tweezers to pick up pom-poms for fine motor practice.

Vocabulary (See **What the heck? Explanation of Math** at the end for definitions.)

Pattern

Materials

Test tubes (baby soda bottles recommended)

Printout of test tube template

Craft pom-poms

Book ring (1" or bigger)

Blank 4x6 index cards

Jumbo tweezers (not pictured)

Hole punch

Colored markers (not pictured)

Color dot stickers

Scissors

Black Sharpie

Wooden dowel – 1/4" (not pictured)

Bowl (not pictured)



Key Question

What is the repeating pattern?

Advanced Teacher Preparation

1. Cut the 4x6 index cards in half long ways so you now have 2x6 index cards.
2. Cut out one of the test tube templates and trace around it on the 2x6 index cards. The template is the actual size of the real test tubes if you are using the baby soda bottle test tubes.
3. Make color patterns with your dot stickers inside the test tube you drew on the card.
4. Make several of the pattern cards with different patterns on them – ABABA, AAB, ABBA, ABCABC, etc. (Laminate them if possible.)
5. Punch a hole in the corner of the pattern cards and add them to the book ring.
6. Make some extra 2x6 index cards with the test tube template traced on them. Do not laminate these.



Notice and Wonder Developmentally Appropriate Practice

1. Place test tubes, pattern cards, dowel, tweezers, and craft pom-poms in a bowl on a table.
2. Have children duplicate the pattern by picking up craft pom-poms with tweezers, placing them inside the test tube, and pushing them down into the test tube gently with the wooden dowel in the correct order to match the pattern card.
3. Once student duplicates the pattern ask them:
 - What is the pattern? Have them say the pattern aloud.
 - What would come next if we were going to add another pom-pom?

NOTE: To remove pom-poms from the test tube, you can either get a small set of tweezers or use the wooden dowel to fish them out. You can also put double stick tape on the end of the dowel to recover the pom-poms.

Children should notice...

- the patterns - ABAB, AAB, ABBA, ABCABC, etc....

Differentiating Developmentally Appropriate Practice

For younger children, simply use ABAB... patterns.

For older children, use something smaller like beads, which will allow for the creation of more complex patterns. Engage them with creating and sharing patterns with their peers.

Extensions for Additional Learning

As always, ask the children throughout the lesson what they notice and what they wonder. If their wonder questions are testable, as much as possible and within reason, let them actually test their questions by trying new experiments.

See below for examples of what they might wonder and what they might do to test their wonderings.

- I wonder if I can continue the pattern?
- I wonder if I can make my own pattern?
- I wonder if I can make a pattern using something other than pom-poms?
- I wonder if you can guess my pattern?
 - Let them try it!

#STEMAZingPictureBook Recommendation:

Pitter Pattern by Joyce Hesselberth

Connections to the activity:

Use the test tube template to make an activity sheet for students to draw their own patterns then recreate them in the test tube.

Label the test tubes with numbers 1-5, and have children use one-to-one correspondence and put the correct amount of pom-poms in the test tube.

SAFETY CONCERNS

As with the use of all things small, there is always a choking danger.

AZ Early Learning Standards

Math Standard - Strand 2: Operations & Algebraic Thinking- Concept 2:

Patterning The child recognizes, fixes, duplicates, extends, describes, and creates patterns.

Math Standard - Strand 3: Measurement & Data - Concept 1: Sorts & Classifies

The child sorts and groups objects by a variety of attributes.

Test Tube Templates

Cut out template and trace onto 4x6 blank index cards.

