Toddler Preschool Math: Learning About Fractals

Learning Value:

This activity promotes development and learning by encouraging children to demonstrate an understanding of shapes, spatial sense, and patterns.

Materials Needed:

- Head of broccoli

Participants:

This activity is intended for adult/child interaction.

Directions:

Step 1: Look with your child at a head of broccoli. Notice how the head is formed with branches that culminate in a cluster. Now cut the broccoli into smaller sections. Notice how each section is formed from smaller and smaller branches and clusters.

Step 2: Explain to your older preschooler that this is a fractal (younger children will enjoy the experience, but might not be ready for the terminology). A fractal is a recurring pattern in nature (and in mathematics).

Step 3: Look for other fractals in the environment, such as snowflakes, clouds, mountain ranges, flowers, and trees. Our blood vessels form a fractal pattern. Spirals in mollusk shells and even the stars are all fractals.

Learn More:

For younger children, try pointing out simple patterns in nature. Flowers often have five petals, for example. Leaves often form in a pinnate (having leaflets on either side of the stem) or alternating pattern. Look for patterns in clothing, fabric, dishes, etc.

Bring home a few leaves or flowers. Press them in ink or paint and onto paper to make leaf prints.
Grow broccoli from seed.

Let your child weigh and wash broccoli before you cut it and eat it raw or in a variety of dishes. Explore other members of the *brassica* vegetable family, such as cauliflower, cabbage, and Brussels sprouts.

Read books about patterns and fractals, such as:
Growing Patterns: Fibonacci Numbers in Nature by Sarah C. Campbell and Richard P. Campbell
Mysterious Patterns: Finding Fractals in Nature by Sarah C. Campbell and Richard P. Campbell
Snowflake Bentley by Jacqueline Briggs Martin and Mary Azarian

Bright Horizons World at Home