


<p>Unit 6</p>  <p>Week 4</p>	<p>Large Group: Swirl by Swirl</p>	<p>Math LG</p>	<p>Standards: MELDS.M.MP.PS.7 MELDS.M.G.PS.2 MELDS.M.G.PS.5 MELDS.M.G.PS.8 MELDS.M.CA.VA.PS.3* MELDS.S.LS.PS.6*</p>
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Guiding Math Ideas:

- How do living things respond and adapt to their environments (Essential Questions)
- Empowering Mathematical Thinking- Habits of Mind for School Success
- Patterns- Extension and Creation

Math Concepts From Unit Learning Progressions:

- Applying the many languages of math in multiple contexts- Nature-based math
- Identifying, describing and duplicating mathematical patterns found in the environment
- Initiating activities that involve directionality and relative position in space (U4)

Adaptations for Using Large Group In Alternate Schedule Slots:

- Introduce to small groups of children during center time. Place book in science center alongside spiral examples. The SWPL poem/activity *The Spiral Song* supports this book.

*This is a STEAM activity AND a Maine Connection activity.

<p>Materials:</p> <ul style="list-style-type: none"> ● <i>Swirl by Swirl</i> by Joyce Sidman ● Photos of Fiddlehead Ferns (Download from Internet for Classroom Use) ● Collections/examples of spirals in nature: Photos or real Fiddle head Ferns; Pinecones; pineapples; Photos or real Flowers with Spiral Structure- Zinnia, Sunflower; Shells, etc.) ● Box or Paper Grocery Sack 	<p>Math Vocabulary:</p> <ul style="list-style-type: none"> ● Spiral- a growing, circular shape that is coiled like a snake or snail. ● Swirl- a curling or twisting pattern or motion ● Coil- something that is wound up in a circle shape.
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Preparation:

Place examples of spiral nature shapes in box. If possible, purchase a real sunflower or zinnia, and collect shells and other nature examples. Copy photos as needed.

Make sure that you have plenty of room for children to experiment with creating a class spiral.

<p>Our book is <i>Swirl by Swirl</i> written by Joyce Sidman and illustrated by Beth Krommes. It has facts and drawings about real plants and animals in our world.</p>	<p><i>Show cover and point to the spiral shapes of some of the pictures.</i></p>
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We are learning a lot about *Things that Grow*. There are so many beautiful plants and animals in our world in different shapes and sizes. Did you know that some shapes can grow? This book is about a very special and beautiful shape. It is called a **spiral**.

A **spiral** is a growing, circular shape that is coiled like a snake or snail. A spiral is a growing pattern, a math pattern that we find in nature. It starts off small and grows and grows from the inside out.

When I trace around this snake, or this flower, my fingers are going round and round. They **swirl** around.

Can you show me how your hands or fingers might **swirl**?

In the spring in Maine, we have a lot of ferns that start to grow. When the leaves start to grow, they look like a **spiral**- Some people like to pick them and eat them. Here are some pictures. Have any of you ever eaten some delicious fiddlehead ferns?

There are lots of things that grow in spirals. Let's read this book and then we can make some spiraling, swirling motions. Look for the things on the pages that are coiled around in a spiral.

Could we make some spiral shapes with our bodies? Let's try. That looks great! You all look like a bunch of fiddlehead ferns, or some little grass snakes! Let's curl and uncurl a few times. Now let's all join hands and see if our whole class can **coil** up like a great big snake!

Trace around the spiral shapes of some of the pictures as you leaf through the book.

Find a picture in the book and demonstrate a swirling motion and invite children to swirl their fingers or hands with you.

Turn to a few different examples in the book of fiddlehead ferns- cover, inside covers, and 2 page spread mid-book.

Children can share any stories of seeing or eating fiddlehead ferns.

Show items in box of examples.

Read book. On each page, choose one or two pictures and trace the swirling, spiral shape with your fingers.

Children curl up as tightly as they can. Then they can uncurl. Repeat

Children hold hands. Take one child's hand and

Follow me!

Wow! That was fun!

If you see some more things inside or outside this week that remind you of a spiral, tell us and we will investigate.

You might be surprised where you see spirals. They are everywhere.

I'm going to put these things over on our science shelves. You can explore them this week.

move to the center of the circle and try to curl up into a coil. It will be fun, and hard, with lots of laughter and trials before you can do it!

Children can look for spirals during the week.

Close activity by place spiral collection in Science area for exploration.

Strategies to Provoke Math Thinking:

- The Fibonacci Sequence: Spirals are a growing pattern that follow a simple mathematical sequence, the Fibonacci sequence: Each number is the sum of the previous two numbers. Try out the mathematical sequence yourself. This pattern is easily seen in the growth patterns of flowers or pinecones in spiral-shaped rows. Having real objects for children to explore hands-on is the best way to make math/science/art connections.
- Re-visit *Zinnia's Flower Garden*: There are many examples of spiral growth patterns in the flower pictures of this U6 book from several weeks ago. (Sunflowers, zinnias, etc.)
- Spiral Hunt: Add interest to a common pre-K shape hunt activity. SWPL has a suggested Spiral Shape Hunt for architectural and natural examples of spirals indoors and out.

Provocation:

- Art and cooking are two additional curriculum areas where spirals are explored. Try Swirl Art, or coiling long "snakes" of modeling clay or dough. Make coiled rolls of dough (such as cinnamon rolls or other healthier alternative), bake and enjoy.