

<b>Title:</b> Math with Little Auks (the penguins of the arctic)	
<b>Developed by:</b> Cara Brunello and Laurie Nakauchi-Hawn	
<b>Discipline/Subject:</b> Math	<b>Grade Level:</b> K-3
<b>Topic:</b> , Measuring with a ruler, shapes	
<b>Resources/References/Materials Needed:</b> <ul style="list-style-type: none"> <li>▪ Planet Earth DVD (Polar Regions section) video clips or photos of little auks</li> <li>▪ Colored paper (two different colored 11 1/2" by 17" sheets per child)</li> <li>▪ Rulers or 1 inch cubes</li> <li>▪ Scissors</li> <li>▪ Glue</li> </ul>	
<b>Lesson Summary:</b> After learning about little auk birds, students measure and cut wings to create a paper auk.	
<b>Standards Addressed:</b> <b>National Math Standard 4</b> – Understands and applies properties and concepts of measurement.  <b>Alaska Math Standard A4-</b> A student can construct, draw, and measure geometric figures.	
<b>Learning Objectives:</b> Students will make a little auk cutout with an accurate wingspan.	<b>Method of Assessment:</b> The teacher will check the finished little auks to assess if the student measured the wingspan correctly
<b>Procedural Activities:</b> <ol style="list-style-type: none"> <li>1. Survey the students to see how many know what little auks are. If students know about little auks, write down what they know. If students are unfamiliar with the birds, introduce the little auks by showing the Planet Earth video, video clips or pictures</li> <li>2. Discuss little auks. (If your students are familiar with penguins, this can be done as a compare/contrast. See extensions). Some questions to ask. <ol style="list-style-type: none"> <li>a. What does the little auk look like? (black and white, round body, long thin wings. . . )</li> <li>b. What other bird is the little auk like? (Penguin)</li> <li>c. How is the little auk different from the penguin? (It can fly. It lives in the arctic.)</li> </ol> </li> <li>3. Tell students some additional facts about little auks <ol style="list-style-type: none"> <li>a. They are known as the “penguins of the arctic”.</li> <li>b. The average wingspan (the distance from wing tip to wing tip) is 14 inches.</li> <li>c. Little auks have not lost their ability to fly because unlike in Antarctica where penguins live, there are land predators.</li> <li>d. Little auks are compact so they can survive in the cold weather of the arctic.</li> </ol> </li> <li>4. Tell the students that they will be making a life-sized picture of a little auk.</li> <li>5. If students have not used rulers, demonstrate how to measure a 6 by 3 inch rectangle.</li> <li>6. Tell students they will make two of these rectangles, one for each wing. Each of these rectangles will</li> </ol>	

be used as a wing.

7. Demonstrate how to cut the rectangle into a wing shape by cutting only the bottom section of the rectangle.
8. Show students how to use the extra paper to create an oval-shaped body. The oval should measure about 2 inches across.
9. Show students how to glue their pieces together to make the little auk.
10. Hand out the materials and let students measure and make their little auks.
11. Collect the finished birds to check students' accuracy measuring the wingspan.

**Technology used to enhance learning:**

Information and video clips about the little auk.

<http://www.rspb.org.uk/wildlife/birdguide/name/l/littleauk/>

DVD of Planet Earth – section “Ice Worlds” available from

<http://shopping.discovery.com/product-65140.html>

**Other Information: Information about Little Auks**

Little auks are also known as dovebies. They are about 6.5 to 7.5 inches tall. Their wingspan is 16 to 19 inches.

The little auks are known for their compact bodies with a stubby bill. They have white bodies with black heads and wings and resemble flying penguins but are not directly related to penguins. In the winter the auks' chests and sides of their heads turn white. They have webbed feet.

Little auks breed in the arctic in large colonies. Outside the breeding season they range south on the coast of the British Isles, New England states and as far as the Mediterranean and Cuba.

Little Auks eat krill, small worms, very small fish, mollusks and crustaceans contained in plankton.

**Modifications for Special Learners/Enrichment Opportunities:**

- For younger students, provide one inch cubes to use for measuring the wing span. Have students line up cubes, draw a line and then cut the rectangle.
- For students with difficulty cutting the wings, provide a wing outline to trace onto the rectangle.
- For more advanced students who have learned about penguins, have them make a life-size cutout of an emperor penguin and an adelic penguin. The emperor is about 36 inches tall. The adelic is about 28 inches tall. Because penguins don't fly, scientists don't measure wingspan.
- Have students do research on the Little Auk and the penguin and make chart the similarities and differences on a compare/contrast chart.

**Notes:**