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# Models Made from Squares 



This fishy model is easy and good for beginners. Have a whale of a time!
FUN FACTS: The whistle of the blue whale is the loudest sound produced by any animal at 188 decibels.

## Strand: Geometry • Spatial Sense • Patterns • Connections • Science

Materials: A 6-inch or larger square ( 15 cm ), start white side up
Concepts \& Vocabulary:

| square | quadrilateral | triangle | scalene triangle <br> congruent |
| :--- | :--- | :--- | :--- |
| vertical <br> right | center | isosceles right triangle <br> left | point |

## Additional Activities:

1. How many ways can a square be divided into 4 equal parts?

2. Make a whale as a Father's Day card for a "Whale of a Dad." Use as name tags for the first day of school "a school of fish" or "Back to School" Night.
3. Did you know whales sing? Nobody knows for sure, but perhaps they are singing the blues. Listen to Paul Winter's, "Lullaby from the Great Mother Whale for the Baby Seal Pups," Concert for the Earth, Live at the United Nations. Younger children will enjoy singing "Baby Beluga" with Raffi in Concert.
4. Read A Thousand Pails of Water by R. Roy (K-2), Whale of a Tale by Barbara Pearl (PreK-2) includes a study guide available at: www.mathinmotion.com/studyguides, Humphrey, The Wayward Whale by E. Callenbach (K-6) and other stories about fish-like mammals (dolphins, manatees, porpoises, seals, and walruses). The Whale's Stomach lesson plan (Grades 4+) by the Institute for Humane Education raises awareness about ocean pollution and its effect on sea animals. See lesson plan at: www.info@mathinmotion.com/whalesstomach. To adopt a whale, contact:

Greenpeace<br>1436 U Street, N.W.<br>Washington, D.C. 20009<br>1-800-456-4029<br>www.greenpeace.org

## Save the Whales

1192 Waring Street
Seaside, CA 93955
1-800-942-5365
www.savethewhales.org


1 Place a 6-inch square sheet of paper on the table so it looks like a diamond.

Whale


2 Fold the left point over to meet the right point (fold in half). Unfold.


3 Fold the lower left and right sides to meet at the vertical line of symmetry.


It looks like a kite. Now fold the apex (top point) down to the base line to form a small triangle.

5 Fold the right side over to meet the left side (fold in half).


6 Put your finger on the bottom point as you turn the whale sideways.


7 Fold the end point up to make a tail.


Draw a happy face. Have a whale of a day!
8 For a surprise, rotate the whale-open to stand and create a penguin instead.

## How to Fold a Whale

1. Place a square sheet of paper on the table so it looks like a diamond shape.

What shape is the paper?
How many sides does a square have?
What else can you say about the sides?

## Square.

## 4 sides.

The sides are the same or congruent.
Another name for a four sided figure is quadrilateral (see Quadrilaterals, p. 60).
Can you think of other quadrilaterals?

Name other quadrilaterals in the room.
Rectangle, parallelogram, rhombus, trapezoid.
Book, chalkboard, desk, table, window.
2. Fold the right point over to the left point. Unfold.

What is the vertical line?
What is a line of symmetry?
What shape did it create?
What kind of triangles?
What is an isosceles right triangle?

## Line of Symmetry.

A line of folding so that the two halves of a figure match.

## Triangles.

## Isosceles right triangles.

It has two sides that are congruent and a square corner.
3. Fold the lower left and right sides to the vertical line of symmetry. Unfold the paper and discover more triangles.

What kind of triangles?
What are scalene triangles?
How many triangles are there?
What does it look like?

Scalene triangles.
They have no congruent sides.
Six. Refold the model.
It looks like a kite or an ice cream cone.
4. Fold the apex (top point) down to the base (widest part of the kite) to form a small triangle $\mathbf{\Delta}$. Unfold.

How many triangles are there?

What other shapes do you see on the kite?
11. See triangles ABD, ABC, ADC, AEG, AEF, AGF, AEH, AGH, EFH, GFH, EHG. Trapezoid. Quadrilateral.
5. Refold the model. Fold the right side over to meet the left side.
6. Put your finger on the bottom point as you turn the whale sideways.
7. Fold the point up to make a tail. Draw a happy face. Have a whale of a day!




[^0]:    *Teacher Scripts

