

## Testimonials ...

"What a neat unit! It's easy to set up, easy to run and make work the first time. It does a number of nifty hands-on demonstrations and experiments, illustrating a variety of natural phenomena. The instructions are straightforward, and the observations/experiments are well thought-out. I highly recommend it."

— Dr. William S. Cordua  
Professor of Geology/Meteorology  
University of Wisconsin River Falls

"The Density Flow Model is the best source of demos I've seen—it's probably the only one I'll remember from my high school career. It uses simple principles to explain the most complicated concepts in the Earth Sciences. It's a great hybrid of scientific application and entertainment."

—Byram Karanjia  
Former Marshfield High School student,  
Graduate, Harvard University

"My kids have had no difficulties at all with the demos that I've done. Although we'd already covered density and done some work with air masses and fronts, many of them made incorrect predictions as to what they were going to see in the demonstrations. Since we did these on our 'block' days, they had plenty of time to try to figure out what went wrong and why. Excellent! It isn't only me that loves this tank – the other teachers at my school covet it. Even the science teachers at the high school borrow it regularly."

—Ruben Giral  
Earth Science Teacher  
McDougle Middle School  
Chapel Hill, North Carolina

"Students are challenged by the hypothesizing done before the experiment, and their understanding can be gauged by their hypothesis for the next experiment. The study manual is simple and concise. I wholeheartedly recommend this teaching tool to any science teacher."

—Josh Rudlong  
Naturalist  
Good Earth Village  
Spring Valley, Minnesota

## Meet the Inventor...

**Paul Herder**, inventor of the Density Flow Models, is a 20-year veteran earth science educator. National Board Certified in earth and space sciences, he teaches geology and meteorology at Marshfield High School in Marshfield, Wis. He launched his business, "What If...?" Scientific in 1998, the same year he released the first version of the Density Flow Model.



Paul Herder

Through the years, Paul has received numerous accolades for his creative teaching methods, including: *Outstanding Science Teacher award* (2001) from the Wisconsin Society of Science Teachers; *2002 Teacher of the Year* at Marshfield High School; *Crystal Apple Award for Educational Excellence* from the Marshfield Area Chamber of Commerce and Industry in 2003; and a *2005 Kohl Fellowship*. He has also coached the high school's academic science teams to four consecutive state titles in the National Ocean Sciences Bowl, two of which were national finalists.

**Paul's motto:** "Reward the inquiring mind."

If you have any questions, feel free to contact Paul directly at [pherder@whatifsci.com](mailto:pherder@whatifsci.com)

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# DENSITY FLOW MODELS

Earth Systems  
Simulators

GO with the Flow!

"What If...?"  
SCIENTIFIC  
Manufacturer of the Density Flow Model

# DENSITY FLOW MODELS

## Earth Systems Simulators

Bring the Earth Sciences to life AND satisfy National Science Standards with one of these versatile **Density Flow Models**. Developed by a teacher nationally board certified in earth and space science, these teacher demonstration models are the most complete, most useful tools for simulating the realistic flow of fluids in nature (i.e. weather systems, ocean circulation and plate tectonics).

**Density Flow Models** complement Earth Science, Physical Science, General Science and Integrated Science curricula in grades 6 – 12 and college. Simulations encourage students to become actively engaged in their learning by employing inquiry techniques with each activity. Students formulate hypotheses, discuss, observe and conclude, then relate each demonstration to real-world phenomena.

Each of the five core activities is designed for a 45-minute class period. They include setup instructions, reproducible student activity masters and answer keys, and are riddled with formative assessment opportunities.



# Density Flow ORIGINAL Model

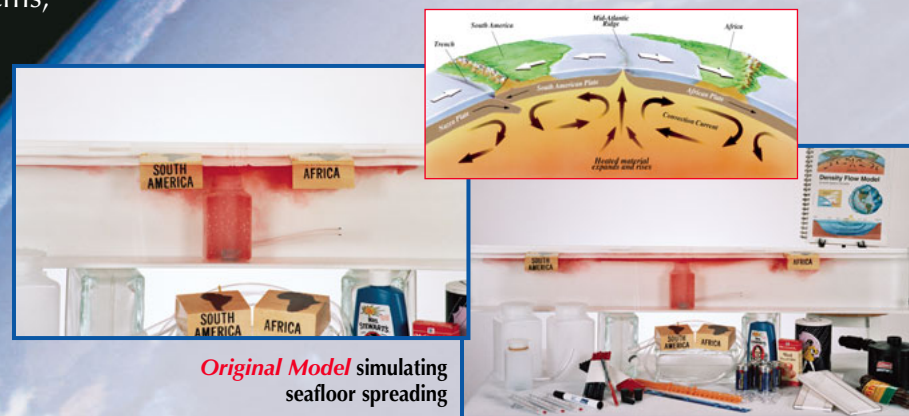
With the full-size kit, demonstrate important density concepts to an entire classroom. Challenge students to use scientific inquiry techniques to explore geology, meteorology, freshwater and saltwater systems. Using the illuminated flow of colored fluids, students can visualize abstract concepts related to plate tectonics, sea-floor spreading, air masses, fronts, air pressure, winds, ocean currents, thermoclines, haloclines, upwelling, El Niño and more.

### ORIGINAL Model – Kit Contents:

- Cast acrylic tank with 3 partitions
- 3 wooden tank/light supports
- Drain hose assemblage
- 1 fluorescent light
- 3 thermometers
- Bottle of bluing
- Red food coloring
- Container of salt
- Colored pencils (24 red/blue)
- 3 rubber stoppers
- Suction cups
- Dry erase marker
- Stir stick
- Petroleum jelly
- Coleman® Quick Pump\*
- Weighted bottle (250 ml)\*
- 2 plastic bottles (1000 ml)\*
- Ruler\*
- Heat lamp\*
- Extension cord\*
- 4 “D” batteries\*
- Set of blocks (Africa & So. America)\*
- 75-page instructors’ manual

\*Original model only

Dimensions: 44" L x 6" H x 3.75" W (112 cm x 15 cm x 9.5 cm)  
Shipping weight: 30 lbs. (14 kg)



Original Model simulating seafloor spreading



Original Model simulating an occluded front

# Density Flow JUNIOR Model

Engage students with dramatic simulations of the earth's dynamic natural processes. Accompanying activities encourage students to ask: “What if...?” and watch as a teacher tests their hypotheses. At half the size and less than half the cost of the standard unit, the junior model is also illuminated and includes nearly all of the same demonstrations (except sea floor spreading and upwelling).

### JUNIOR Model – Kit Contents

- Cast acrylic tank with 3 partitions
- 2 wooden tank/light supports
- Drain hose assemblage
- 1 fluorescent light
- 3 thermometers
- Bottle of bluing
- Red food coloring
- Container of salt
- Colored pencils (24 red/blue)
- 3 rubber stoppers
- Suction cups
- Dry erase marker
- Stir stick
- Petroleum jelly
- Plastic beaker (50 ml)
- 64-page instructors’ manual

Dimensions: 22" L x 6" H x 3.75" W (56 cm x 15 cm x 9.5 cm)  
Shipping weight: 15 lbs. (7 kg)



Junior Model simulating water mass migration in the ocean

# ORDER FORM

ONLINE ORDERS can be placed at [www.whatifsci.com](http://www.whatifsci.com)

We accept all major credit cards and PayPal purchases.

QTY.	ITEM NO.	DESCRIPTION	UNIT PRICE	TOTAL
_____	11-008	<b>Density Flow ORIGINAL Model</b>	<b>\$359.00</b>	\$ _____
_____	11-009	<b>Density Flow JUNIOR Model</b>	<b>\$179.00</b>	\$ _____
<b>TOTAL</b>			<b>\$</b>	_____

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### Satisfaction Guarantee

“What If...?” Scientific offers 100% Customer Satisfaction Guarantee. Any individual may return a Flow Model within the first six months after purchase for a full refund, no questions asked.

Questions? Call 715-659-5427 between 8 A.M. and 6 P.M. (Central Time), Monday - Friday.

*Thank you for your order!*

For additional information, including a sample activity, please go online to [www.whatifsci.com](http://www.whatifsci.com), or contact us at TEL: 715-659-5427 or FAX: 715-659-5235