

What's in a Wave?

Surfing is more than just a great time. It's science at work in the real world! Read the newspaper article below about how waves are formed in the ocean. Then answer the questions on the back of this page.

Pen Gu Island Times

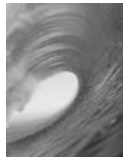
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The Wind in the Ocean

by A. Reporter

All surfers know the excitement of catching the perfect wave. But how are those waves formed?

The answer can be found thousands of miles away from a surfing spot: deep within the ocean. Powerful storms create strong winds on the surface of the ocean. Those winds make hundreds of big choppy waves



that are much too dangerous to surf. As the choppy waves move away from the storm, though, they crash into one another and combine. Over a journey of thousands of miles, they become smoother. The combined smooth waves are what surfers call a swell. Once a swell enters shallow water, the bottom of the swell drags on the ocean floor and slows

down, but the top continues moving forward and makes a crest. That's the hook shape at the top of a wave. Eventually the crest becomes too heavy and the wave breaks, or falls apart. Surfers look up the surf forecast to find and catch the good waves before they break for an excellent ride!

Questions:

1. What force creates ocean waves?
2. What is a swell?
3. How do surfers find the best waves?
4. In your own words, explain how ocean waves are formed.

The Big Z's Gnarly Surf Science Facts

- Surfers use a kind of science called **physics** to balance on their surfboards on a moving ocean wave.
- The first surfboards were carved out of heavy pieces of wood. Today, boards are made from high-tech materials (science has improved!), so they are lighter, sleeker, and more durable.
- Smart surfers always check lifeguard postings and follow safety rules so they can have fun and be surf safe.

