

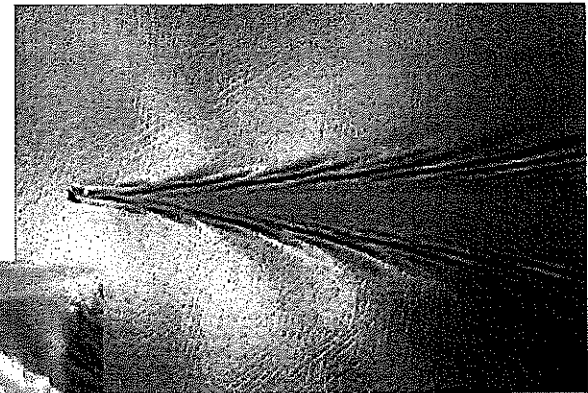
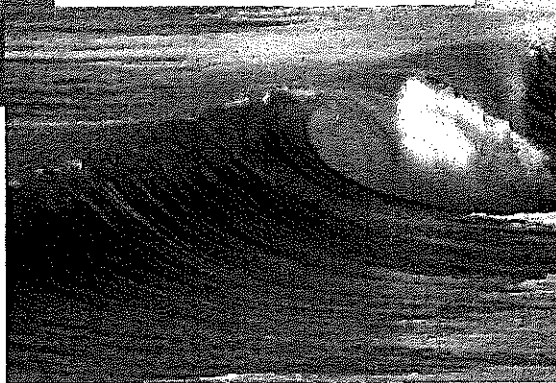
A high-contrast, black and white photograph of a large wave crashing. The wave is on the right side of the frame, with white foam and spray. The background is a bright, overexposed sky. A semi-transparent rectangular box is overlaid in the center of the image, containing the title and subtitle.

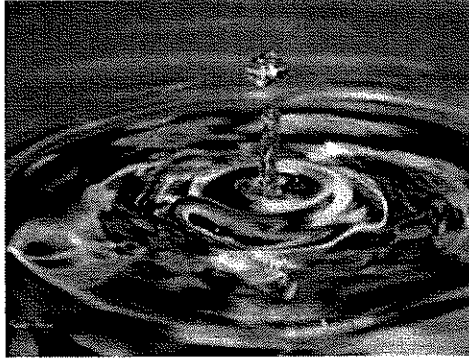
# Waves and Tides

How do they form?

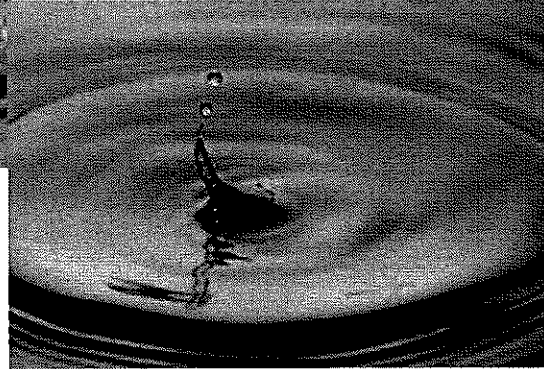
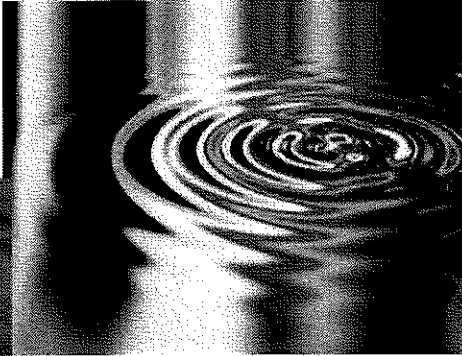
# What is a wave?

- A wave is energy that passes through water.
- Wind and boats make waves. Can you think of anything that can form waves?

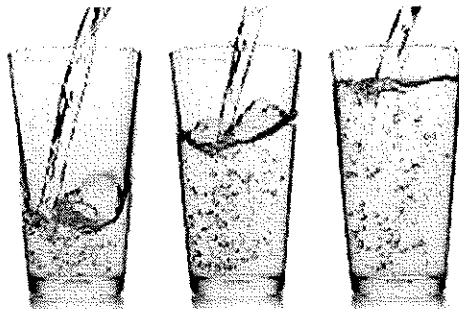
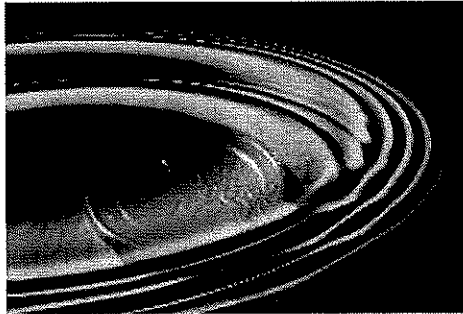




What do you think caused the waves in the water?



Do you think different items make different wave patterns?



# Wave in a bottle

## Materials:

- Plastic bottles with labels removed
- Water
- Vegetable Oil
- Mineral Oil
- Beads /small object to ride the wave
- Hot glue gun/glue sticks

## Procedure:

- Fill  $\frac{1}{2}$  the bottle with water. Add a few drops of food coloring.
- Fill about  $\frac{2}{3}$  of the remaining space in the bottle with vegetable oil. Then added Mineral Spirits to fill the rest of the bottle
- Add a few beads to play on the wave and screw on the cap tightly. Get some hot glue to secure the cap.
- Turn the bottle on its side for a few minutes. The water should sink to the bottom and you should be able to see a clear line between the colored water, the oil, and mineral spirits. Now begin to tip the bottle back and forth. Experiment to see what kind of waves you can make. If the oil gets bubbly, let the bottle rest for a few minutes.