

Layers of the Ocean

Pre-Visit Lesson Plan



SEA LIFE
EDUCATION

Objectives

- To understand the ocean is very deep and made up of different 'layers' or 'zones'
- To create sensory maps based on how much light each ocean zone receives
- To experiment with liquid density in order to create a layered 'Ocean in a Jar'

Outcomes

Sensory maps for three ocean zones (surface, twilight and deep ocean); a completed 'Ocean in a Jar' consisting of three different liquids to represent three ocean zones.

Have you ever been swimming in the ocean, how did it feel?

What do you know about life in the ocean?



**How deep do you think
the ocean is?**

**Partner up with
someone and make a
guess in feet.**



The average depth of the ocean is almost 13,120 feet (4,000 meters).

That's about the same as 40 football fields laid end to end!

ANSWERS



These layers can be found under the ocean. Put them in the order you think you'd go through them if you were diving from the surface down to the ocean floor.

Then for each layer, guess how it would differ to your five senses as you passed through it:

sight

touch

taste

smell

sound

Bear in mind that the depth of the ocean is characterized by the amount of light that each zone receives. These names should give you some clues:

**Sunlight
zone**

**Twilight
zone**

**Midnight
zone**

There are a few more layers than this, but this is a good starting point!



Time to recreate these three layers of the ocean (or ocean zones) by making a layered ocean jar! This activity is a combination of two science experiments: a lesson on liquid density while you'll also learn about ocean zones.

You will need:

- **An empty glass jar or water bottle**
- **½ a cup of fine sand – if possible!**
- **Water**
- **Funnel**
- **Black food coloring**
- **Blue food coloring**
- **Blue liquid soap**
- **Corn syrup**



Method:

Use the funnel to pour $\frac{3}{4}$ cup of each liquid into your glass jar for each ocean layer (or less for a smaller jar).

Liquid 1: Add some black food coloring to $\frac{3}{4}$ cup of corn (dark) syrup at the bottom of the jar (this is the abyss!) This should be a deep black layer.

Liquid 2: Mix blue food coloring into $\frac{3}{4}$ cup of liquid soap (also preferably blue in color). Add to the jar using a funnel (this is the twilight zone!) This should be a darker blue layer.

Liquid 3: Put blue food coloring into $\frac{3}{4}$ cup of water and use a funnel to slowly and carefully layer it on top of the washing up liquid (this is the sunlight zone!) This should be a lighter blue layer.



Write down the results of your experiment about the density of the different liquids you used!

Corn (dark) syrup - Abyss

Liquid soap - Twilight zone

Water - Sunlight zone

When you've finished, label each layer of your Ocean in a Jar with sticky labels!

