

# 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 metres.**





**ANSWERS**

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

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



**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 characterised 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 colouring**
- **Blue food colouring**
- **Washing up liquid**
- **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 colouring 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 colouring into  $\frac{3}{4}$  cup of washing up liquid (also preferably blue in colour). Add to the jar using a funnel (this is the twilight zone!) This should be a darker blue layer.

Liquid 3: Put blue food colouring 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**

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**Washing up liquid - Twilight zone**

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**Water - Sunlight zone**

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

