

OCEAN LAYERS

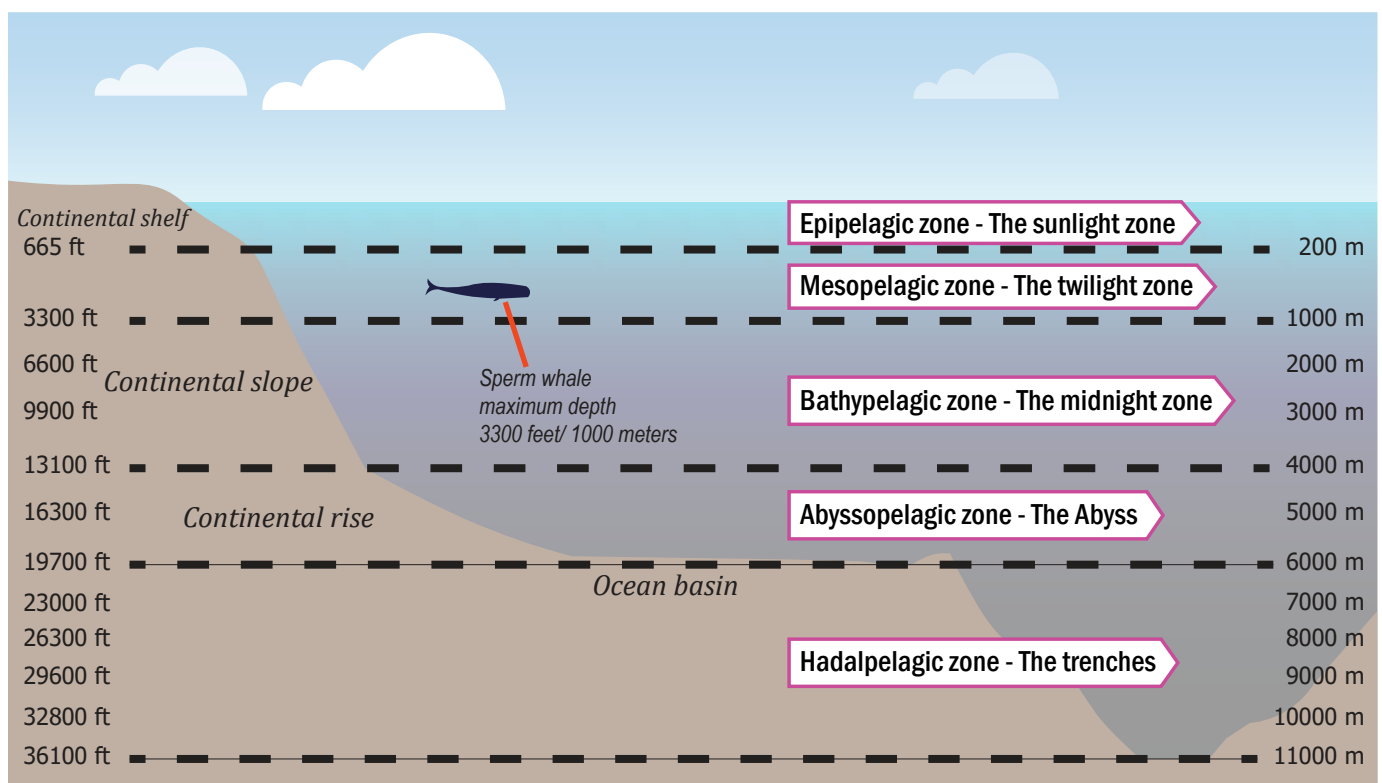


ALL ABOUT... OCEAN LAYERS

Welcome to an enchanting voyage beneath the surface of the world's most mysterious realm—the ocean. Derived from the ancient Greek word 'Okeanos' (oh-kee-ah-nos), the word 'ocean' was initially personified as the Titan god of the river that encircles the Earth. In time, it came to signify the interconnected body of saltwater that makes up about 71% of our planet's surface. Oceans, teeming with a multitude of organisms, play a crucial role in influencing climate, weather patterns, and the oxygen we breathe. The health of our planet depends significantly on these vast bodies of water.

Oceanographers have classified the ocean into five primary layers or zones: the epipelagic, mesopelagic, bathypelagic, abyssopelagic, and hadalpelagic zones. In fact, every layer of the ocean, from the sun-dappled surface of the epipelagic to the inky depths of the hadalpelagic, forms an integral part of a complex, interconnected system—ripple effects from changes in one layer can reverberate through the others.

A breathtaking universe awaits beneath, rich in biodiversity and geological wonders—and the deeper we go, the more alien the environment, with extreme cold, total darkness, and tremendous pressure. Yet, life finds a way. Armed with advanced technology like remotely operated vehicles (ROVs), autonomous underwater vehicles (AUVs), and deep-sea submersibles, humanity is gradually unveiling the mysteries these layers hold.



THE FIVE LAYERS

EPIPELAGIC (SUNLIGHT) ZONE

As the most accessible layer of the ocean, the epipelagic zone is also the epicenter of human activity—from commercial and recreational fishing to boating, snorkeling, and scuba diving. This vibrant realm basks in abundant sunlight, fueling the growth of phytoplankton, microscopic organisms that are fundamental to the marine food chain. This uppermost layer is a bustling marine metropolis, home to an astounding 90% of the ocean's biodiversity! From playful dolphins to majestic sea turtles, and countless species of fish—including the majority of the world's sharks—the epipelagic zone is a tapestry of the biodiversity of marine life. Nestled within this zone are the 'rainforests of the sea'—coral reefs. Despite occupying less than 0.1% of the ocean surface, these intricate and colorful structures provide shelter and sustenance for around 25% of all marine species.

MESOPELAGIC (TWILIGHT) ZONE

This is the second major layer of the ocean, a realm where sunlight begins to fade, and temperatures drop noticeably. In this twilight realm, many organisms have evolved fascinating survival strategies. The lanternfish, for instance, utilize their bioluminescence not only for communication and attracting prey but also for counter-illumination camouflage. This means they can match their brightness to the faint light filtering from above, making themselves less visible to predators looking upwards. Although this layer is less affected directly by human activities, the creatures of the mesopelagic are not immune to our actions. Microplastics and pollutants, have been found even at these depths.

BATHYPELAGIC (MIDNIGHT) ZONE

Despite its extreme conditions, this zone is teeming with an array of life forms that have adapted to survive the cold, dark, and immense pressure. It is a world lit only by the ethereal glow of bioluminescent organisms, casting an eerie light in the endless night. In this inky void, you'll find some of the ocean's most iconic deep-sea inhabitants, like the anglerfish.

ABYSSOPELAGIC (ABYSS) ZONE

This layer remains an enigma, its secrets guarded by immense pressure up to 1,000 times that at sea level, near-freezing temperatures, and a severe scarcity of food. Only a handful of organisms, such as some species of sea cucumbers and deep-sea octopuses, have evolved to survive in this zone's extreme conditions—many using a combination of bioluminescence, slow metabolic rates, and the ability to withstand tremendous pressure. Interestingly, approximately 75% of the ocean floor lies within this zone, featuring vast plains, towering mountain ranges, deep-sea trenches, and even underwater volcanoes known as hydrothermal vents.

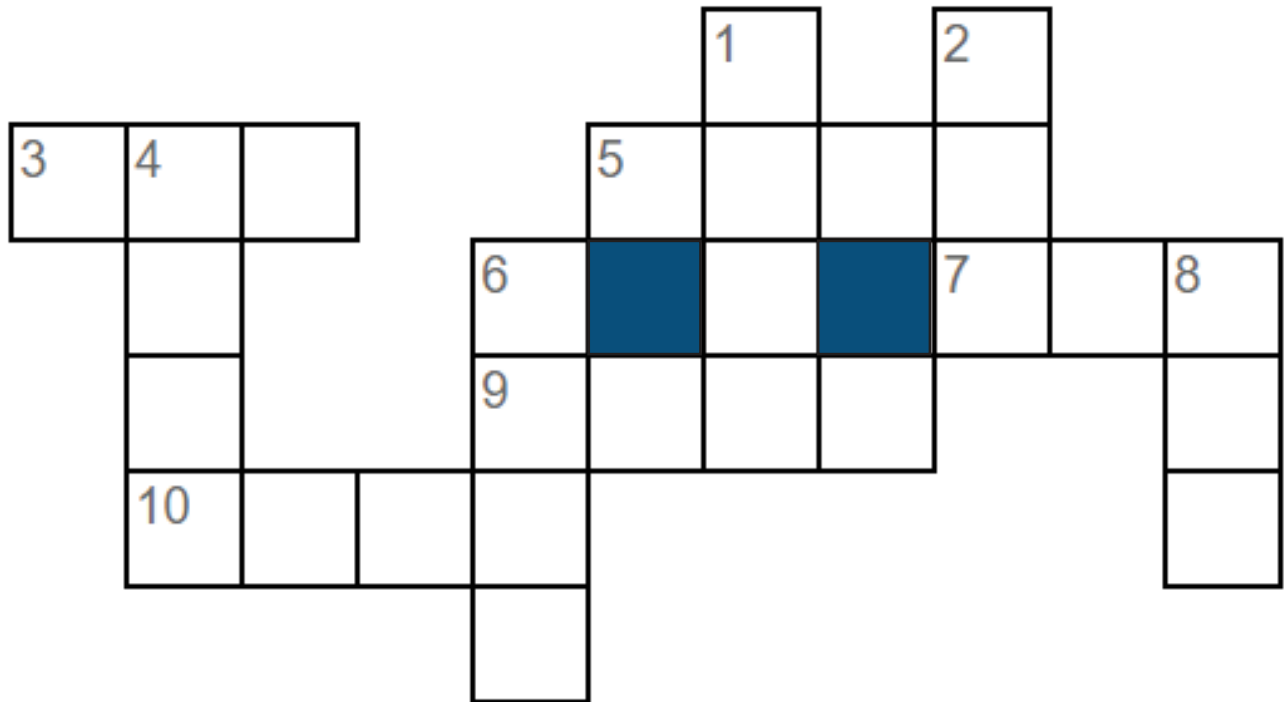
HADALPELAGIC ZONE (THE TRENCHES)

What lies beneath the dark abyss? The deepest, most mysterious part of our ocean—the hadalpelagic (hay-dal-puh-laj-ik) zone. This zone, often referred to as “the trenches”, is named after Hades, the ancient Greek god of the underworld. Hardy creatures like sea cucumbers, starfish, and tube worms have evolved astonishing adaptations to survive and even thrive in this zone.

JUMBLE

EVERY ANSWER USES ONLY THE LETTERS IN THE WORD:

MESOPELAGIC



Across

- 3. Self-esteem
- 5. Song
- 7. Boar
- 9. Tranquil
- 10. Huge

Down

- 1. Curl
- 2. Goblin
- 4. Alluring
- 6. Con
- 8. Vapor

WORD SEARCH

F K Z O N E S E H T Y P
T W I L I G H T M S F R
M I D N I G H T E V D E
T E M P E R A T U R E S
T X I Y C T W U K U P S
I L J V X V D C D B T U
V U T C W O D E M T H R
S H A R K S Z A E J S E
O G V Z O P X A H P J R
G J G W G R A J C J C E
S U N L I G H T B A T E
A B Y S S Q O C E A N F

Temperature

Pressure

Ocean

Zones

Midnight

Deep

Reef

Sharks

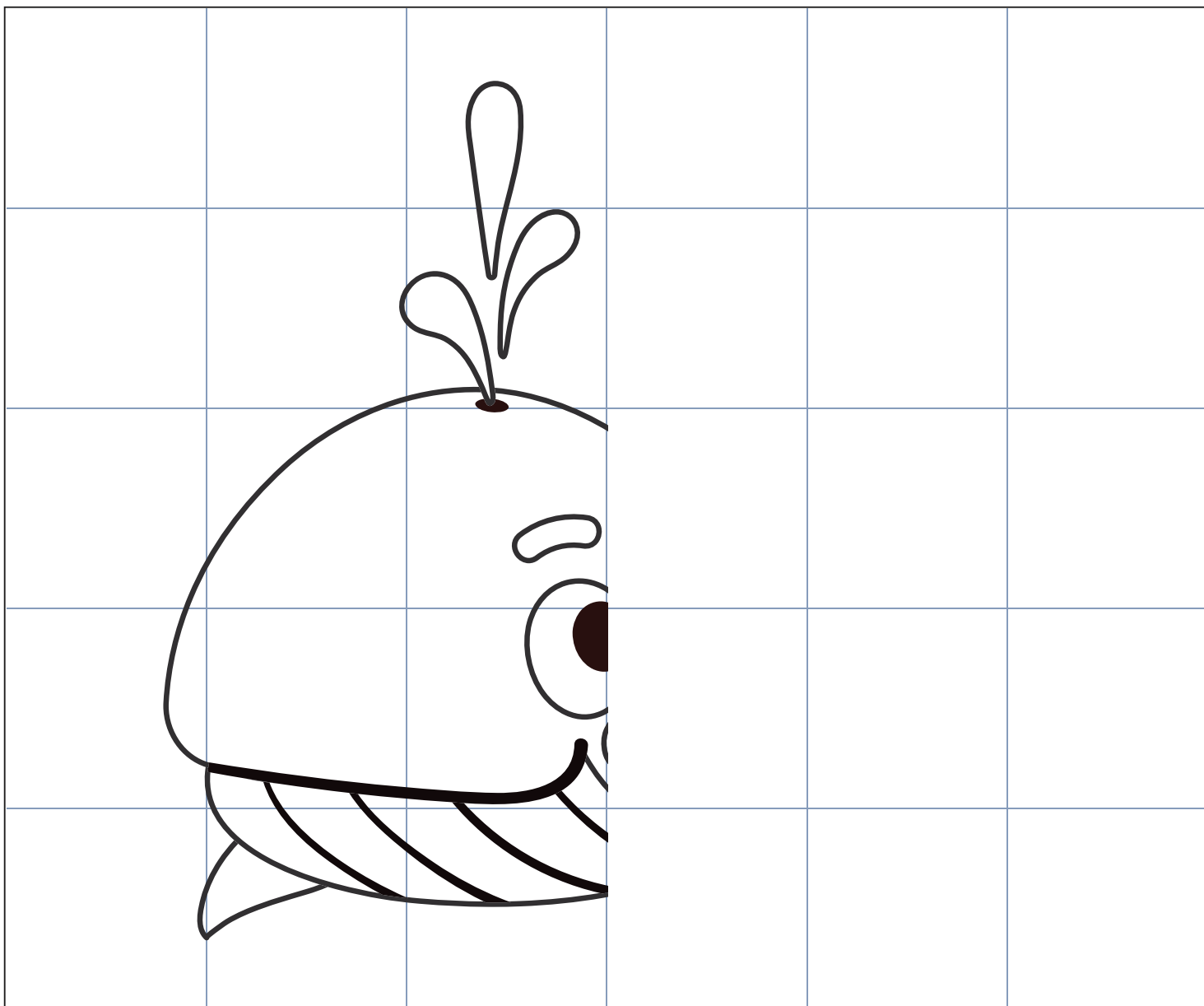
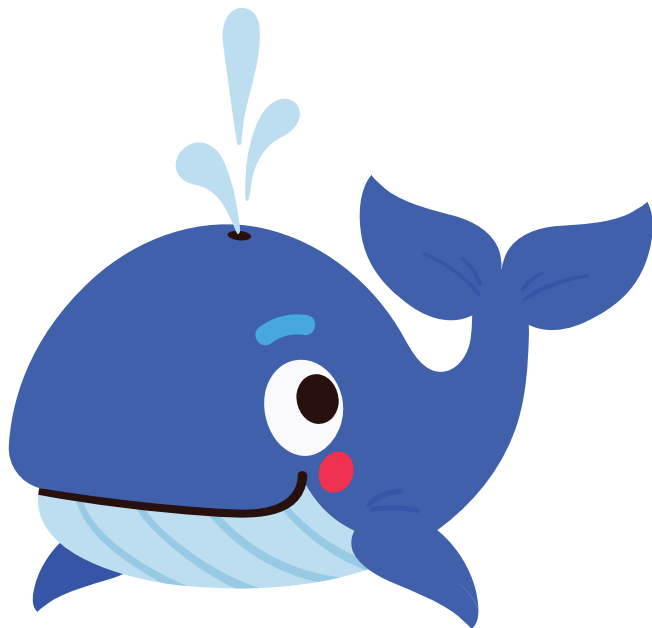
Depths

Twilight

Abyss

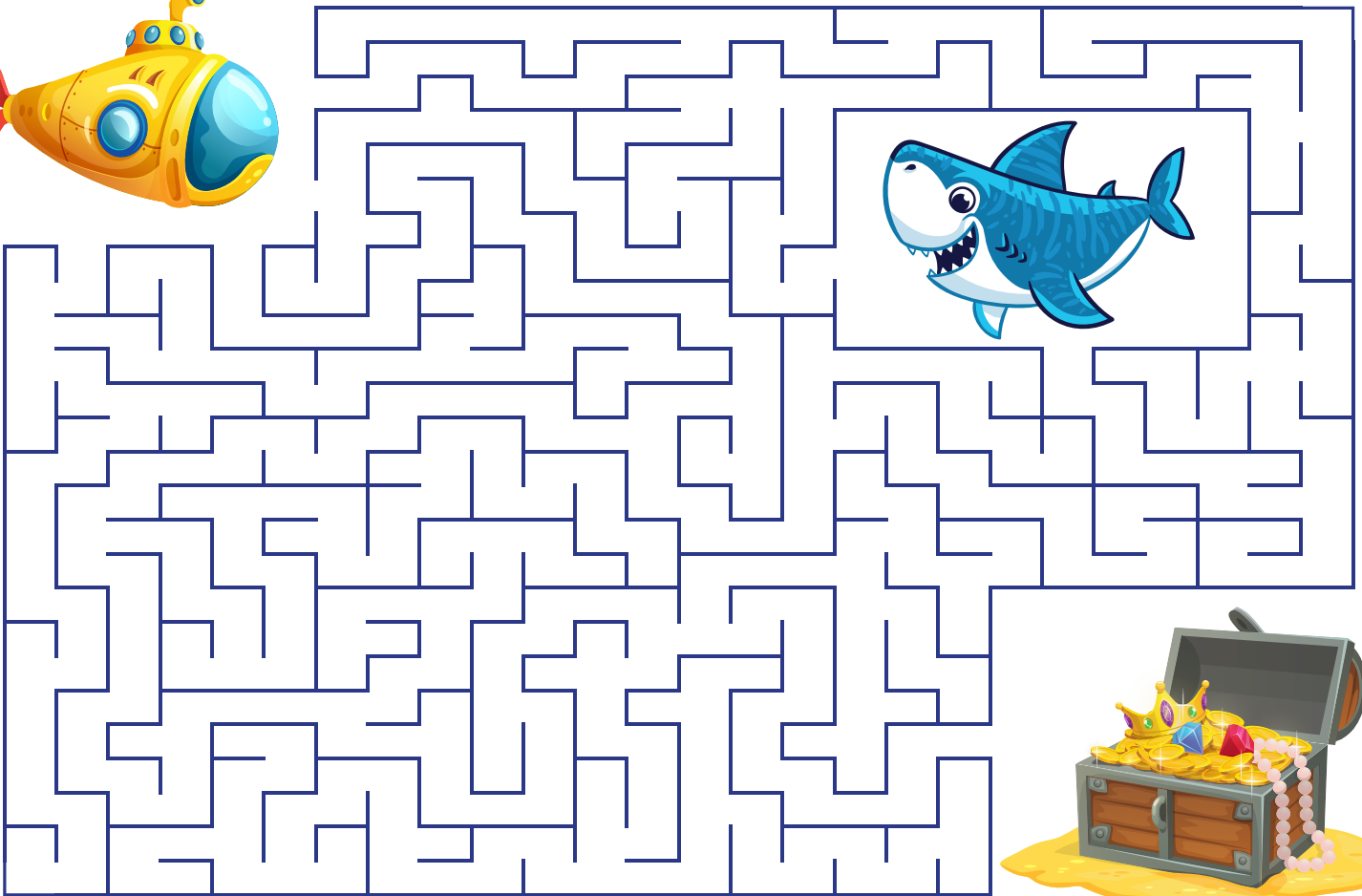
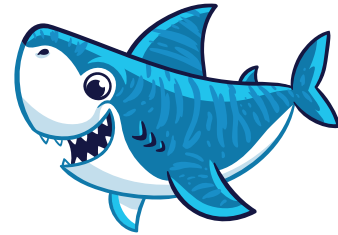
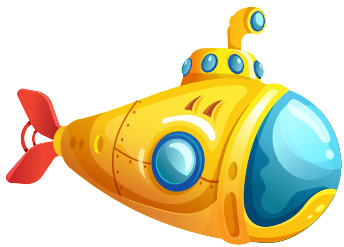
Sunlight

FINISH THE PICTURE

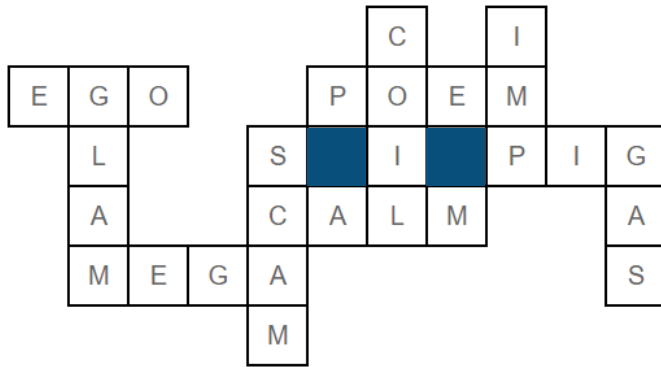


MAZE

HELP THE SUBMARINE REACH THE TREASURE CHEST
WITHOUT COMING IN CONTACT WITH THE SHARK!



SOLUTIONS



F K ZONE S E H T Y P
TWILIGHT M S F R
MIDNIGHT E V D E
TEMPERATURE E S
 T X I Y C T W U K U P S
 I L J V X V D C D B T U
 V U T C W O D E M T H R
SHARKS Z A E J S E
 O G V Z O P X A H P J R
 G J G W G R A J C J C E
SUNLIGHT B A T E
ABYSS Q OCEAN F

