



**G.A.T.E.WAYS invites**

**gifted Year 5 and 6 children with**

**a love of science and art to**

## **'Deadly Denizens of the Deep'**

G.A.T.E.WAYS is an independent organization offering challenging and enriching activities and experiences to develop and extend highly able children. This Journey for both girls and boys will run over four sessions.

The aim of the Journey is to develop an understanding of one of the most hostile places on earth, and the extraordinary life that survives there – the ocean deeps. If there is a rule down there, it seems to be: *deeper equals weirder!* As we descend into darkness, we will discover a world more alien than anything else on this planet. What bizarre and, until recently, unknown life forms exist there? What peculiar environments do they thrive in? How do they survive, and what challenges do they face in the bitter cold and total darkness?

In this Journey, we investigate a different level of the ocean each week, getting deeper into the various zones. We will draw annotated figures of some of the creatures we meet, so the creation of accurate artwork will be one feature of the Journey. This involves an understanding of the anatomy of the fish and invertebrates, and how their environment and the other predators in it have shaped their bodies through evolution. Blue A3 paper will be provided as a backdrop to their drawings, with a new sheet taped on each week to produce an unfolding scroll that eventually takes us to the abyss.

### **Day 1 - Session 1 Dive, dive, dive! The Epipelagic Zone.**

We begin our Journey by learning about the different depth zones in the ocean, and what happens as it gets deeper, and how the oceans represent the largest environment on the planet. We then dive in with those animals that live in the sunlit upper waters. They all rely on the sun for their food, either by eating phytoplankton – microscopic plants that need the sun to photosynthesize – or by eating those that eat the plants, and so on up the food chain to sharks and orcas. We finish by then heading deeper to the Twilight Zone, to meet the first deadly denizens of the deep.

### **Day 1 -Session 2 Twilight to Midnight. The Mesopelagic Zone.**

In this session we look at the life in the zone where the last of the light penetrates – not enough for plants, but just enough for the strange bug-eyed monsters that wait for prey from above. Every day, the greatest migration in the animal kingdom takes place as billions of fish rise as the sun sets, to hunt, and to feed. And some creatures come down to do the same thing, as the mighty sperm whale dives in search of giant squid!

### **Day 2 -Session 1 Into the Abyss. The Bathypelagic Zone.**

Having reached the zone of eternal night, we find animals that have adapted to life in a vast, almost empty environment. This is the world of mini-monsters, slow and utterly bizarre creatures that are almost beyond belief. Creatures with teeth so long that they can't close their mouths, with glowing lures and bizarre mating habits, their names hint at the strange things we will meet – seadevil, gulper, whipnose, spookfish!

### **Day 2 - Session 2 Down to Hades**

We have now reached the bottom, and discover that even here, some animals not only survive, but flourish. Whether a dead whale settling into the ooze, or a boiling jet of heated water from below the earth's crust, where there is an opportunity for life, it will appear. Here are possibly the most primitive organisms on earth, as well as animals living in the most extreme environments on earth, eternally black, freezing – an alien world!

### **Homework requirements**

Students will be required to complete a homework assignment given out at the end of each session. The homework **MUST** be hand drawn and hand written (no printouts!) and presented on A4 size paper for assessment, and will be returned the following week. It is most important that students are encouraged and assisted, if need be, to complete this part of the program.

### **Session Requirements**

Students will be required to bring lead and coloured pencils, erasers, and sketch pads and/or note books. They also require a **GLUE STICK**, and **SAFETY SCISSORS** if they have them. Other materials will be provided. Note: **NO** textas, and no clip-together pens, please – they are very distracting!

### **About the presenter**

Andrew Plant is a professional artist and trained zoologist. He has written or illustrated over 100 science books for Australian and international publishers, and has a passion for the animal life of this planet, having studied and illustrated wildlife while travelling in East Africa and the Asia - Pacific, scuba-diving on the Great Barrier Reef, and trekking through the Andes Mountains and the Himalayas – always with a camera or sketch book in hand.