

Invertebrate "Wanted: Alive (of course!) Poster

Poster Creation and Presentation

KNOWLEDGE

- Identify how abiotic factors affect organisms within an ecosystem
- Understand how organisms are adapted to live in different environments □
Understand that different ecosystem have different abiotic stressors

ACTIVE

- Students will have to create and colour their own posters
- Students may have to present these posters at the end of class

TIME	GROUP SIZE	LOCATION	GRADE LEVEL	EQUIPMENT
As long or short as you'd like.	3-4	Classroom	4-7	Paper Glue sticks Pencil Crayons Tools to research their invertebrate Other arts and crafts supplies
DEBRIEF/REFLECTIVE COMPONENT			HELPFUL TIPS	
<ul style="list-style-type: none"> • Where is your organism found? What is its range and distribution? • Is your invertebrate active, sessile, or motile? How has it adapted to live this way? • What does it eat? Who wants to eat it? • What are the requirements it meets to be included in its phylum? <ul style="list-style-type: none"> • What are some issues facing your invertebrate? How will climate change affect it? 			<ul style="list-style-type: none"> □ Example of a short background story could be: "Steven the Scallop is wanted for using his multiple eyespots and peering around and peeping at other unsuspecting invertebrates. He is also wanted for rapidly swimming away from the scenes of his crimes." 	

OCEAN LITERACY PRINCIPLES

1 – The Earth has one big ocean with many features.

- a. The ocean is the defining physical feature on our planet Earth – covering approximately 70% of the planet's surface. There is one ocean with many ocean basins, such as the North Pacific, South Pacific, North Atlantic, South Atlantic, Indian, Southern, and Arctic.
- d. Sea level is the average height of the ocean relative to the land, taking into account the differences caused by tides. Sea level changes as plate tectonics cause the volume of ocean basins and the height of the land to change. It changes as ice caps on land melt or grow. It also changes as sea water expands and contracts when ocean water warms and cools.
- e. Most of Earth's water (97%) is in the ocean. Seawater has unique properties. It is salty, its freezing point is slightly lower than fresh water, its density is slightly higher, its electrical conductivity is much higher, and it is slightly basic. Balance of pH is vital for the health of marine ecosystems, and important in controlling the rate at which the ocean will absorb and buffer changes in atmospheric carbon dioxide.
- h. Although the ocean is large, it is finite, and resources are limited.

3– The ocean is a major influence on weather and climate.

- e. The ocean dominates Earth's carbon cycle. Half of the primary productivity on Earth takes place in the sunlit layers of the ocean. The ocean absorbs roughly half of all carbon dioxide and methane that are added to the atmosphere.

5 – The ocean supports a great diversity of life and ecosystems.

- a. Ocean life ranges in size from the smallest living things, microbes, to the largest animal on Earth, blue whales.
- d. Ocean biology provides many unique examples of life cycles, adaptations, and important relationships among organisms (symbiosis, predator – prey dynamics, and energy transfer) that do not occur on land.
- e. The ocean provides a vast living space with diverse and unique ecosystems from the surface through the water column and down to, and below, the seafloor. Most of the living space on Earth is in the ocean.
- f. Ocean ecosystems are defined by environmental factors and the community of organisms living there. Ocean life is not evenly distributed through time or space due to differences in abiotic factors such as oxygen, salinity, temperature, pH, light, nutrients, pressure, substrate, and circulation. A few regions of the ocean support the most abundant life on Earth, while most of the ocean does not support much life.

h. Tides, waves, predation, substrate, and/or other factors cause vertical zonation patterns along the coast; density, pressure, and light levels cause vertical zonation patterns in the open ocean. Zonation patterns influence organisms' distributions and diversity.

Setup

1. Have students work in pairs to select an invertebrate shown in the presentation (or another one) and create a "Wanted: Alive (of course!)" poster.
2. Have each pair provide a short, fictitious background story along with the poster to explain why the invertebrate is "wanted".
3. Have each pair display their poster in a class gallery display and then present their poster to the class showing what they learned about the invertebrate.
4. Guidelines for students to follow:
 - a. Include a drawing of your invertebrate
 - b. Label any key structures
 - c. Include smaller diagrams of other structures if it helps you clearly explain your chosen invertebrate
5. Classroom activities:
 - a. Habitat: Where is your organism found? Include its range and distribution
 - b. What type of lifestyle does the invertebrate have? Is it active, sessile, motile... etc? How is the invertebrate adapted for this particular lifestyle
 - c. What does it eat? What wants to eat it?
 - d. What are the requirements it meets to be included in its phylum?
 - e. What are some of the issues facing your invertebrate? How will climate change affect it?
 - f. Include any other interesting pieces of information that you might find
6. Gallery day: Display the collected posters around the room. Have all the students take ten minutes to walk around the class to read and take a look at what their peers have created
7. Have each pair present their poster to the class in short five-minute presentations. Students should highlight what they have learned, and what surprised them most about their chosen invertebrate. If the students have a lot of questions, follow-up with a class discussion.