



Prize Winner

Science Writing Year R-2

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(firefly)

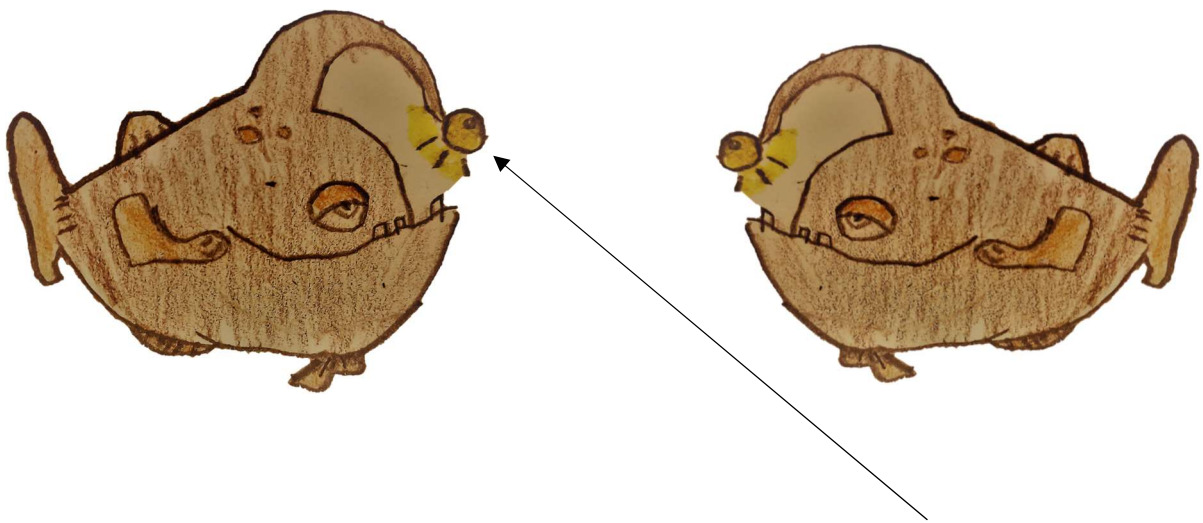
"Bioluminescence"

by: Aavyaan Anand

Bio = "living"

Luminescence = "light"

Bioluminescence is light produced by a living organism through a chemical reaction. Most bioluminescent organisms such as the angler fish, jelly fish, squid and algae are found in the ocean. Others, such as fireflies and fungi, are found on land. Bioluminescence is cold light, meaning that less than 20% of the light generates heat. It is different from fluorescence where there is no chemical reaction.



(Drawing shows female Angler Fish that have bioluminescent bacteria in their "lure")

So how do organisms become bioluminescent?



(Photo of bioluminescent jelly fish from M.O.D.)

Bioluminescence is produced by a chemical reaction that produces light inside an organism. For this reaction to occur, an organism must contain molecules (small things) called luciferin and an enzyme (something that affects the rate/speed of a chemical reaction). When luciferin combines with oxygen and an enzyme (called luciferase or photoprotein) light is produced. Sometimes organisms have other bioluminescent organisms inside them that make them appear bioluminescent.



Luciferin + enzyme

=

Bioluminescence

(Drawing represents bioluminescent ghost mushrooms found near Mount Gambier in South Australia)

Why is bioluminescence important?



(Some octopus are bioluminescent)

Bioluminescence is used by organisms to avoid predators, attract prey, find mates and communicate. Humans use bioluminescence to make lamps, monitor water pollution and detect bad cancer cells. In the future, bioluminescence may be used for street lighting (as it is ecofriendly), medical treatments and even self-lit Christmas trees.



(Drawing represents possible future uses of bioluminescence)

(196 words not counting headings and drawing captions)

References

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Acknowledgements

I would like to thank my dad for helping me research my project, my mum for taking me to M.O.D. (museum of discovery) because it's scientific, and my teachers for encouraging me to learn science. Thank you.

