2023-2024 CYSF

Anastasia/ Alexis’s Logbook

How do fish survive when lightning strikes

| **Date** | **Description of Activity** | **Citations** |
| --- | --- | --- |
| Nov. 5 | Discussed with Anastasia what the hypothesis was going to be | - |
| Nov. 6 | Started slideshow, created slides 1-4 inclusive, made title page, question to research, and typed up hypothesis | - |
| Nov.16 | Edited slide 4-9, 11-12 inclusive | 11 - 19, 21 |
| Nov. 28  | Worked on slides 4-5, 7 with Anastasia | 1, 4 |
| Dec. 5 | Worked on slides 4-5, 8 inclusive | 2, 5, 6 |
| Dec.12 | Worked on slides 6-9 inclusive | 3, 8, 23, 24 |
| Dec.19 | Worked on slides 6-7 inclusive | 20, 21 |
| Dec. 28 | Changed slides 4-5 inclusive, made slide 13 | - |
| Jan. 9 | Worked on slides 10-11 inclusive | 9, 10, 17, 21 |
| Jan.16 | Worked on slide 10 | 9, 10 |
| Jan. 23 | Worked on slide 9 | 22, 24 |
| Jan.28 | Edited the whole presentation, Slide 1 - 15 | 11-19 |
| Jan. 29 | Made modifications to all slide and added lots of detail, made slide 16 | 9, 11-19, 21 |
| Jan. 30 | Worked on slides 2-3, added a slide and changed slide one (title page) background | - |
| Feb. 2 | Worked on slides 4, 6, 11, 15  | - |
| Feb. 6 | Worked on slides 4 and 5 inclusive | - |
| Feb. 9 | Worked on slides 6-10 inclusive | 9, 10, 20-24  |
| Feb. 13 | Worked on slides 6, 11-13 inclusive | 22, 25 |
| Feb. 16 | Worked on slides 7, 14-16 inclusive | - |
| Feb. 20 | Worked on slides 1 and 17 | - |
| Feb. 24 | Worked on slides 1, did no research just decorated slide |  |
| Mar. 2 | Worked on slides 1-5 inclusive | - |
| Mar. 3 | Checked on Slide 1 to 16 with Anatasia, planned out trifold | - |
| Mar. 10 | Anastasia came over to Alexis’s house and finished Trifold | - |

**Citations**

1. 123RF. “Greek Gods Ancient Religion Greece History Zeus Athena Poseidon Character Isolated Cartoon Mythology Goddess Vector Illustration. Greek Goddess Ancient Mythology and Religion in Greece.” 123RF, [www.123rf.com/clipart-vector/cartoon\_zeus.html](http://www.123rf.com/clipart-vector/cartoon_zeus.html).
2. Alabama Cooperative Extension System. “Caring for Lightning-Struck Trees - Alabama Cooperative Extension System.” Alabama Cooperative Extension System, 22 June 2023, [www.aces.edu/blog/topics/forestry/caring-for-lightning-struck-trees](http://www.aces.edu/blog/topics/forestry/caring-for-lightning-struck-trees)
3. Balthazar, Deborah. “Lightning at Sea?” Science World, 16 Jan. 2023, <https://scienceworld.scholastic.com/issues/2022-23/011623/lightning-at-sea.html?language=english>
4. Britannica Kids. “Lightning”. Encyclopedia Britannica. <https://kids.britannica.com/kids/article/lightning/390250>
5. Buckley, Ollie. “Tree Explodes ‘into a Million Pieces’ as It’s Struck by Huge Lightning Bolt.” The Mirror, 14 Mar. 2021, [www.mirror.co.uk/news/world-news/moment-huge-lightning-bolt-strikes-23714591](http://www.mirror.co.uk/news/world-news/moment-huge-lightning-bolt-strikes-23714591)
6. Environment and Climate Change Canada (ECCC). “How lightning works”. Government of Canada. <https://www.canada.ca/en/environment-climate-change/services/lightning/science/how-lightning-works.html>
7. Enmax. *Real-Time System Demand*.. [www.enmax.com/generation-wires/real-time-system-demand.](http://www.enmax.com/generation-wires/real-time-system-demand.)
8. Gabriel, Angeli. “What Happens When Someone Is Struck by Lightning.” FOX Weather, 7 Mar. 2022, [www.foxweather.com/learn/what-happens-when-someone-is-struck-by-lightning](http://www.foxweather.com/learn/what-happens-when-someone-is-struck-by-lightning)
9. Kid Encyclopedia Facts. “Faraday cage facts for kids”. Kiddle encyclopedia. <https://kids.kiddle.co/Faraday_cage>
10. O’Callaghan, Jonathan. “What Is a Faraday Cage?” livescience.com, 3 Dec. 2021, [www.livescience.com/what-is-a-faraday-cage](http://www.livescience.com/what-is-a-faraday-cage).
11. National Aeronautics and Space Administration “A lightning Primer”. Lightning & Atmospheric Electricity Research. <https://lightning.nsstc.nasa.gov/primer/>
12. National Geographic. “Lightning”. Partners. <https://www.nationalgeographic.com/environment/article/lightning>
13. National Severe Storms Laboratory. “Severe Weather 101 – Lightning”. U.S. Department of Commerce – National Oceanic & Atmospheric Administration. <https://www.nssl.noaa.gov/education/svrwx101/lightning/>
14. National Severe Storms Laboratory. “Severe Weather 101 – Lightning FAQ”. U.S. Department of Commerce – National Oceanic & Atmospheric Administration. <https://www.nssl.noaa.gov/education/svrwx101/lightning/faq/>
15. National Severe Storms Laboratory. “Severe Weather 101 – Lightning Types”. U.S. Department of Commerce – National Oceanic & Atmospheric Administration. <https://www.nssl.noaa.gov/education/svrwx101/lightning/types/>
16. National Weather Service “Lightning and Cars”. U.S. Department of Commerce – National Oceanic & Atmospheric Administration. <https://www.weather.gov/safety/lightning-cars>
17. National Weather Service “Lightning and Fish”. U.S. Department of Commerce – National Oceanic & Atmospheric Administration. <https://www.weather.gov/safety/lightning-fish>
18. National Weather Service “Lightning Myths”. U.S. Department of Commerce – National Oceanic & Atmospheric Administration. <https://www.weather.gov/safety/lightning-myths>
19. Science Learning Hub. “Lightning explained”. New Zealand Government. <https://www.sciencelearn.org.nz/resources/239-lightning-explained>
20. Sottile, Zoe. “How to survive a lightning strike – or, better yet, avoid one”. CNN Travel. <https://www.cnn.com/travel/article/lightning-strike-how-to-survive/index.html>
21. The Economic Times. “Do fish die when lightning strikes the ocean?” India Times. <https://economictimes.indiatimes.com/do-fish-die-when-lightning-strikes-the-ocean/articleshow/15700931.cms>
22. Water Science School. Conductivity (Electrical Conductance) and Water | U.S. Geological Survey. 22 Oct. 2019, [www.usgs.gov/special-topics/water-science-school/science/conductivity-electrical-conductance-and-water](http://www.usgs.gov/special-topics/water-science-school/science/conductivity-electrical-conductance-and-water).
23. “What happens to the Human Body When it's Struck by Lightning?” Atrium Health. 26 June 2019, <https://atriumhealth.org/dailydose/2019/06/26/what-happens-to-the-body-when-its-struck-by-lightning>
24. “When Lightning Strikes”. Ocean Today. <https://oceantoday.noaa.gov/lightning/>
25. “When Thunder Roars, Go Indoors:” Lightning Safety Advice from NOAA. U.S. Department of Commerce. <https://www.commerce.gov/news/blog/2022/08/when-thunder-roars-go-indoors-lightning-safety-advice-noaa>