

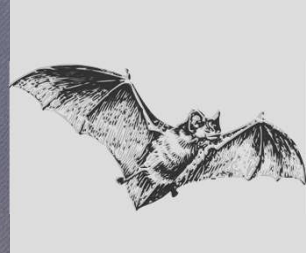


KOMUNIKÁCIA NETOPIEROV

Oliver Leferovič II.A

OBSAH:

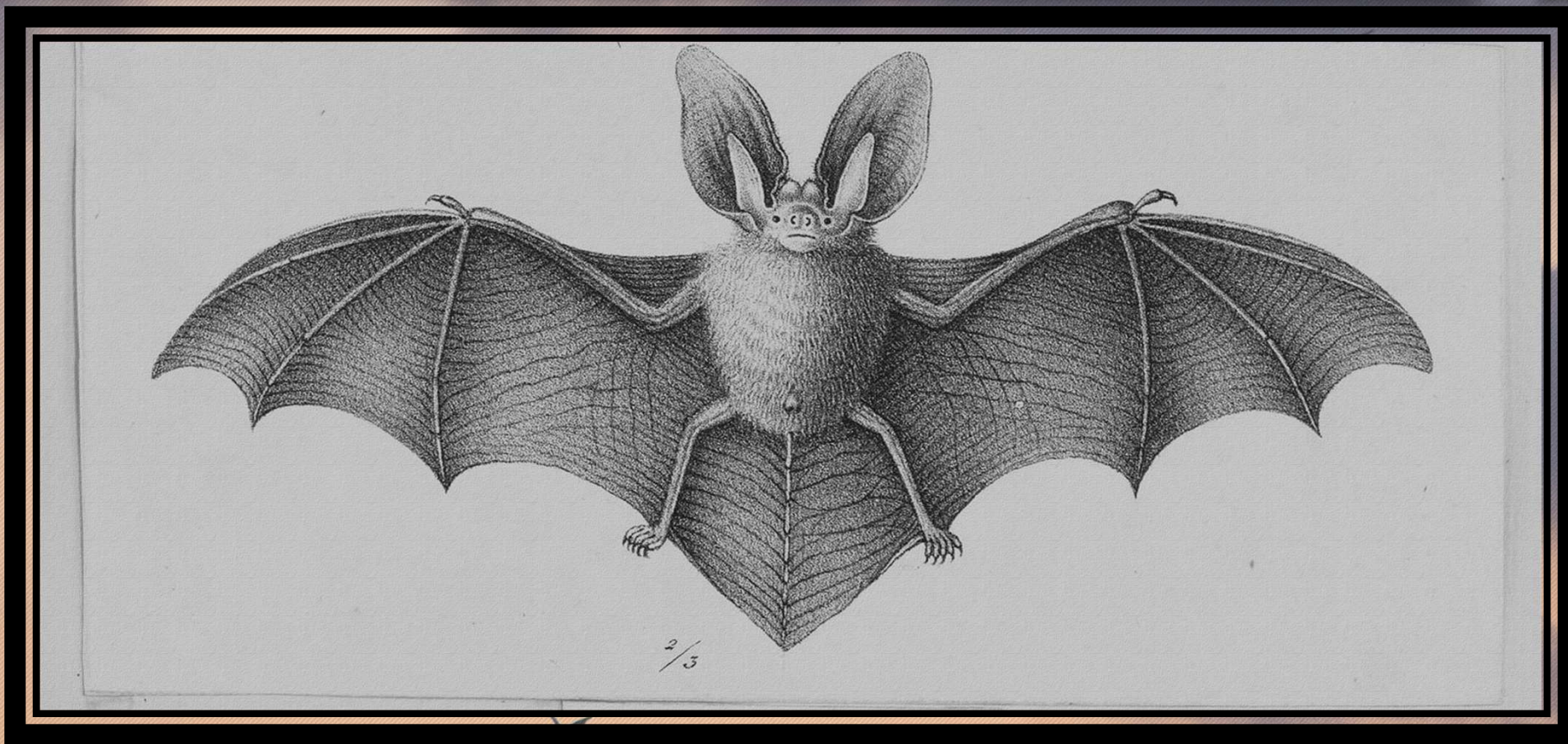
- 🦇 Znenie netopierov
- 🦇 Základná charakteristika
- 🦇 Echolokácia
- 🦇 Princíp echolokácie
- 🦇 Zaujímavosti
- 🦇 Video
- 🦇 Otázky



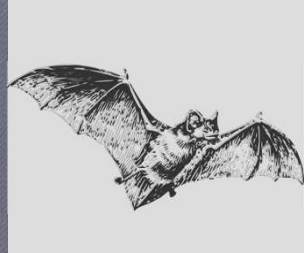
AKO ZNEJÚ NETOPIERE?



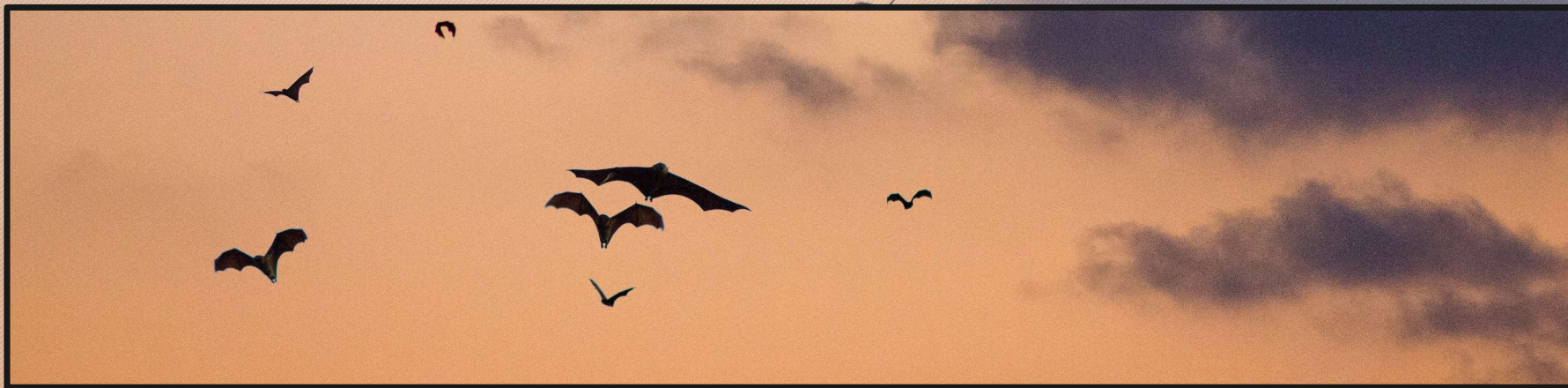
ZÁKLADNÁ CHARAKTERISTIKA:



ECHOLOKÁCIA:



- 🦇 Echolokácia zvierat
- 🦇 Ľudská echolokácia
- 🦇 Sonar - (Sound Navigation And Ranging)
- 🦇 Echo
- 🦇 Lekárska ultrasonografia



ECHOLOKÁCIA:



🦇 Čo je echolokácia?

🦇 Donald R. Griffin - 1944

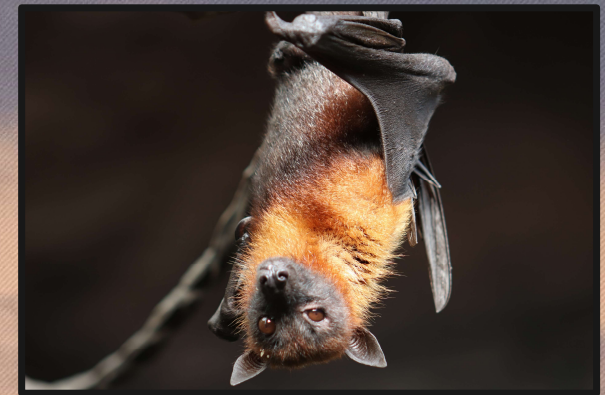
🦇 Ako funguje u netopierov?

🦇 Dĺžka zvukovej vlny je 0,6-5 mm.

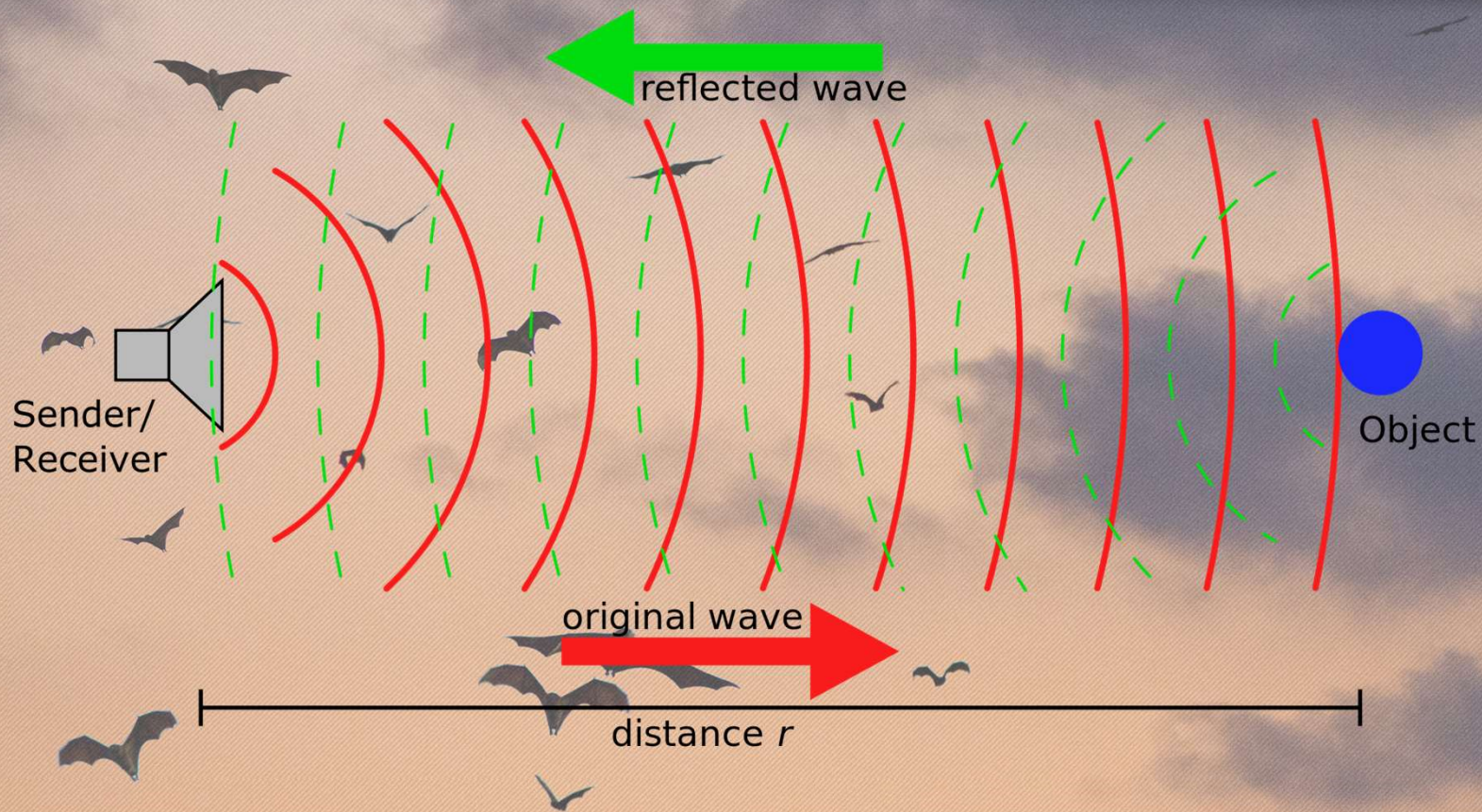
🦇 8-10 volacích impulzov za sekundu s frekvenciou 30-50 kHz.

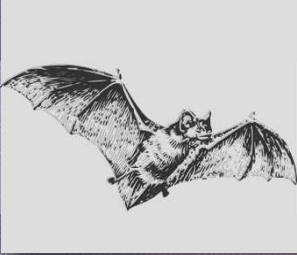
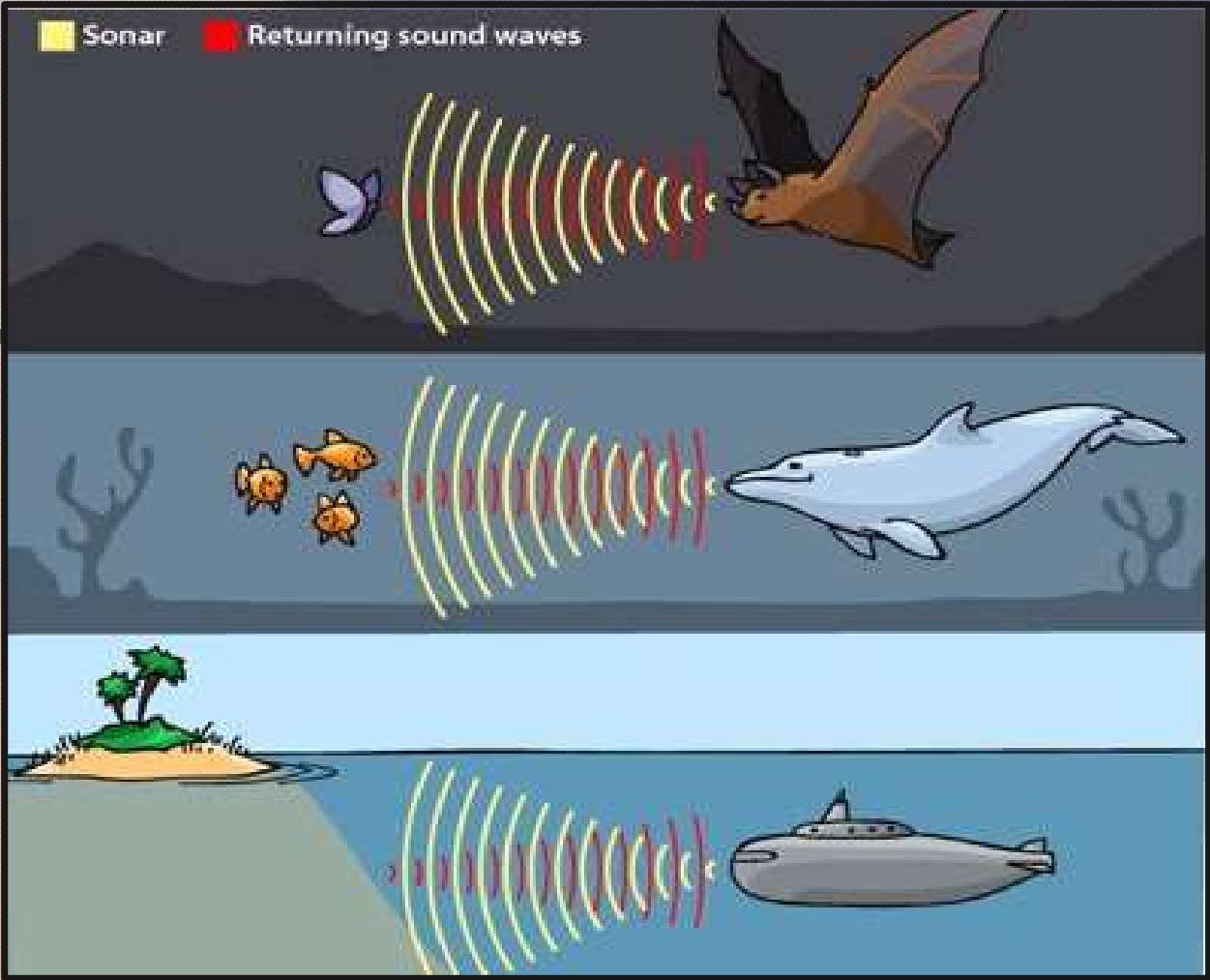
🦇 200 volacích impulzov za sekundu.

🦇 Pohybuje sa medzi 15 - 115 kHz.



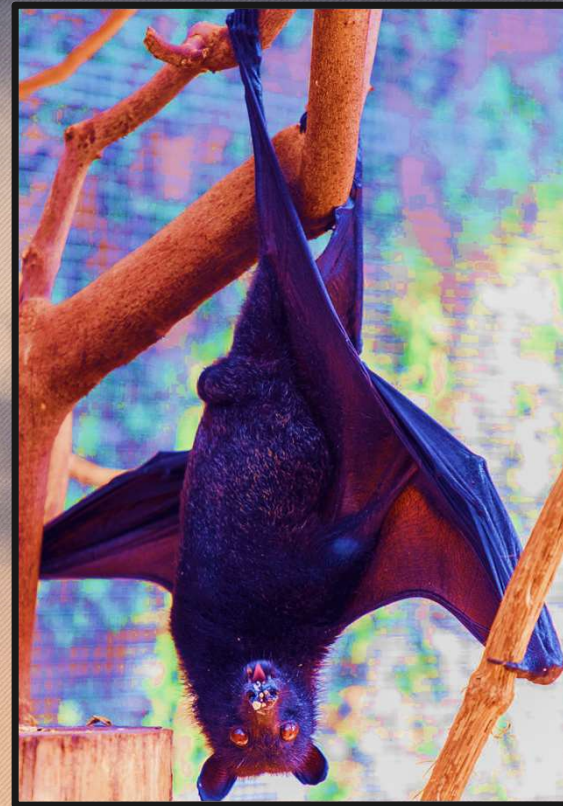
PRINCÍP ECHOLOKÁCIE:





ZAÚJÍMAVOSTI:

- 🦇 Majú dlhovekosť
- 🦇 Nočný lov
- 🦇 Šesťsto chrobákov za hodinu
- 🦇 symbol šťastia
- 🦇 Teritórium
- 🦇 Ezopova bájka
- 🦇 Echolokáciu využívajú aj veľryby
- 🦇 Spánok hore nohami



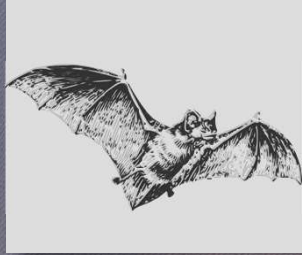


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OTÁZKY:

- 🦇 Čo je echolokácia jednou vetou?
- 🦇 Aké zvieratá využívajú echolokáciu?
- 🦇 Ako vieme využiť echolokáciu?
- 🦇 Čo sa dá echolokáciou zistiť?



ZDROJE:



FOTOGRAFIE:

- ↔ <https://pixabay.com/sk/vectors/bat-lietanie-kr%C3%ADdla-halloween-47821/>
- ↔ <https://pixabay.com/sk/photos/bat-zviera-lietanie-batman-sweet-4887509/>
- ↔ <https://unsplash.com/photos/NBEAMs2N47k>
- ↔ <https://unsplash.com/photos/IY1sRDxNWN4>
- ↔ <https://unsplash.com/photos/NljTy5Y15JM>
- ↔ <https://unsplash.com/photos/ZmpimgZpEm4>
- ↔ <https://unsplash.com/photos/VV13d2ozcy4>
- ↔ <https://unsplash.com/photos/pxrnXTZUeQw>
- ↔ https://unsplash.com/photos/6_So6P116eQ
- ↔ <https://unsplash.com/photos/fC2bnCRAvvY>
- ↔ <https://unsplash.com/photos/edzVv0hEd7E>
- ↔ https://pngtree.com/freepng/black-flying-bats_4281519.html
- ↔ <https://i.pinimg.com/originals/96/cd/b5/96cdb5278bec77611d84bcb94d257040.jpg>
- ↔ <https://www.pngegg.com/en/png-yekwz/download>
- ↔ <https://telanganatoday.com/wp-content/uploads/2020/11/Echolocation.jpg>
- ↔ https://useruploads.socratic.org/QDN4rZISLWiXvtjoitzm_2000px-Sonar_Principle_EN.svg.0.png

INFORMÁCIE + ZVUK:

- ↔ <https://www.freesoundeffects.com/free-sounds/bats-10016/>
- ↔ <https://www.doi.gov/blog/13-facts-about-bats>
- ↔ [https://sk.wikipedia.org/wiki/Netopiere_\(rad\)](https://sk.wikipedia.org/wiki/Netopiere_(rad))
- ↔ [https://sk.wikipedia.org/wiki/Echolok%C3%A1cia_\(biol%C3%B3gia\)](https://sk.wikipedia.org/wiki/Echolok%C3%A1cia_(biol%C3%B3gia))
- ↔ https://www.slideshare.net/calvin_k/physics-and-echolocation-45001233
- ↔ <https://www.physicscentral.com/explore/action/navigatingworld.cfm>
- ↔ <https://www.discoverwildlife.com/animal-facts/what-is-echolocation/>
- ↔ <https://en.wikipedia.org/wiki/Echolocation>
- ↔ <https://www.labet.sk/zaujímavosti-o-netopieroch-px1087175/>
- ↔ <https://www.topdesat.sk/2020/08/11/top10-netopiere/>
- ↔ <https://www.latrobe.edu.au/news/articles/2018/opinion/why-do-bats-sleep-upside-down>
- ↔ https://www.youtube.com/watch?v=0vCiT6rAjgc&ab_channel=bolie858
- ↔ <https://hmyzozravceanetopiere.webnode.sk/netopier-velky/echolokacia/>
- ↔ <https://sk.history-hub.com/co-je-echolokacia>
- ↔ <https://www.zones.sk/studentske-prace/fyzika/7981-echolokacia-ultrazvuk/>

ĎAKUJEM ZA VÁŠ ČAS!

