

How Do Hippos Move?

Simmons Hippo Outpost

Hippos move gracefully through the water, but did you know they don't swim? Instead, hippos seem to trot, jog, run, even fly through the water.

Watch this video if you are not able to watch the hippo's movements in water. <https://www.youtube.com/watch?v=x1xbGw-MG7I>

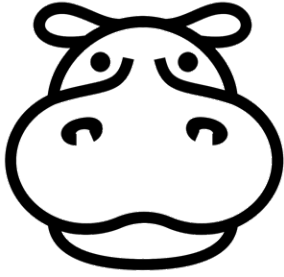


1. What adaptations do you think help hippos navigate this aquatic environment?
2. Researchers have found that hippos bones are denser than ours and this helps them move the way you see underwater. Now, imagine your body underwater in a swimming pool once again. If human bones were as dense as a hippo's, how would your movement on land be different than it is now? How would your movement underwater be different than it is now?

3. If you are here during feeding time, estimate how wide the hippo can open its mouth, in degrees. Or, watch this short video made by the Dallas Zoo: <https://www.youtube.com/watch?v=w3rWI8GdUQU>



4. Observe the Simmons Hippo Outpost closely. You'll notice several man-made structures for this habitat. Notice the cement shoreline. Just beyond that, there is a large bank of sand. Why do you think the exhibit designers placed sand on the beach instead of using all cement?



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5. What adaptations do you think help hippos navigate this aquatic environment?

Answers will vary. Hippos have webbed feet, very little fat, and very dense bones to help them navigate the aquatic environment.

6. Researchers have found that hippos bones are denser than ours and this helps them move the way you see underwater. Now, imagine your body underwater in a swimming pool once again. If human bones were as dense as a hippo's, how would your movement on land be different than it is now? How would your movement underwater be different than it is now?

Answers will vary. Denser bones would mean greater mass and weight, so humans would either move more slowly on land or develop greater muscle mass to move as quickly. Denser bones would mean greater mass and weight, so humans would probably not float when in water and would bounce off the bottom to move, much like hippos.

7. If you are here during feeding time, estimate how wide the hippo can open its mouth, in degrees. Or, watch this short video made by the Dallas Zoo: <https://www.youtube.com/watch?v=w3rWI8GdUQU>



The hippo opens its mouth almost 150 degrees.

8. Observe the Simmons Hippo Outpost closely. You'll notice several man-made structures for this habitat. Notice the cement shoreline. Just beyond that, there is a large bank of sand. Why do you think the exhibit designers placed sand on the beach instead of using all cement?

Hippos are heavy creatures and their weight puts strain on their joints. The soft sand helps to absorb some of the weight on their joints.

Going Further



- Use river rocks to represent hippos, and lava rocks to represent porous bone and compare densities. Educators/parents with high school age children may wish to complete this bone density activity from the University of Texas Health - San Antonio. <https://teachhealthk-12.uthscsa.edu/activity/activity-4b-determination-b-one-density-bone-specimens>
- People who suffer from joint disease are often encouraged to exercise in the water. The water's buoyancy supports the body's weight, which reduces stress on the joints and minimizes pain.
- People sometimes move like hippos in water: you might've reached the deep end of the pool and bounce-walked on your tiptoes.
- Other animals that use this bottom walking strategy in water? Aquatic locomotion in mammals by bottom walking is not confined to the hippopotamus. The nine-banded armadillo (*Dasyurus novemcinctus*) walks on the bottom of shallow bodies of water for short distances (Taber 1945). The hydrophilic African mousedeer or water chevrotain (*Hyemoschus aquaticus*) takes to water when threatened and hides on the bottom under floating objects (e.g., logs or mats of vegetation). The water chevrotain is considered to be a good swimmer and can walk along the bottom (Dubost, 1978; Prothero and Foss, 2007; Prothero and Schoch, 2002). Thewissen et al. (2007) suggested that bottom walking may have been employed by the ancestors of cetaceans.

