

## Chickenosaurus TEACHER GUIDE

Thanks for your interest in our Chickenosaurus lesson! We have enjoyed using it and modifying it over the past couple years, and we have found it to be an effective way to use students' intrinsic interest in *Tyrannosaurus rex* and the idea of modern-day dinosaurs to review protein synthesis and applications of gene technology.

The lesson was designed for a high school introductory biology course, but could easily be adapted for middle school classes or more advanced, AP/IB biology courses. The BLAST aspect in particular (more details to follow) might make it an appealing activity for AP or IB classes where usage of databases is now required.

Students need to have at least a basic understanding of transcription and translation to grasp the lesson. There is only a very quick review of DNA and protein synthesis during the lesson, and students that are unfamiliar with the nitrogen bases (A, G, C, T, and U) and the concept of amino acid sequences will find themselves confused.

This is a wonderful lesson to use to give your students experience accessing a database. In the middle of the lesson, students are directed to the NIH's BLAST website, where they enter the amino acid sequence for a fragment of collagen that was found in a *T rex* fossil and then compare this sequence to those in the same proteins of living animals. If your students have access to computers with internet connections in the classroom, they can use our tutorial to complete the BLAST on their own (or in small groups) at their own pace. If not, you can still expose them to database experience by watching the segment of the video where we demonstrate every single step of the BLAST (we would encourage you to skip this segment if your students are doing the BLAST themselves).

The lesson was inspired by a 2010 article by Joseph Hayden in WIRED magazine. The article can be accessed for free online, and we include a reading guide in our handout attachment. We encourage you to follow the lesson up by reading the article, but it could also be used to introduce the lesson or skipped entirely.

Don't hesitate to contact us if you have any questions whatsoever about the lesson (justin.lessek@dc.gov and diana.aljets@dc.gov), and please feel free to modify the lesson and our handouts to best suit the needs of your students!