

Teacher Guide

A Tale of Two Pandas

1. Decide how to divide the work of evaluating the 7 lines of evidence in the Case Study document. For example, individuals or small groups of students can analyze one data set (numbered 1-7 in page headers), or they could focus on one type of data (anatomy, fossils, or DNA).
2. Give each student a Case Study document and a copy of the Evidence Organizer.
3. Have your students evaluate their assigned evidence from the Case Study, summarize the evidence on their Evidence Organizer handout, and decide whether it supports a closer relationship with the red panda or with bears. The lines of evidence and the relationships they support are summarized in the table below.
4. Structure a report-out for each line of evidence. (This may be whole-class or small group.)
5. Draw a continuum on the board along a large space in the classroom writing the following claims at opposite ends:
 - The giant panda is more closely related to the red panda.
 - The giant panda is more closely related to bears.
6. Invite students to weigh all of the evidence that was presented and align themselves along the continuum. Are they completely convinced one way or another? Not quite sure yet, but leaning toward one? It is OK if students aren't quite sure yet—in fact that is the point of the continuum!
7. Proceed to the Conclusion, where students will see a larger analysis of DNA evidence and how the scientific consensus fell out over time.

Data set	Type of evidence	Supports a closer relationship with...
1. Studies of Anatomy & Behavior	Anatomy, behavior	Red panda
2. A detailed study of anatomy	Anatomy	Bears
3. DNA hybridization data	DNA	Bears
4. Chromosome banding patterns	DNA	Bears
5. Hemoglobin sequences	Amino acid sequences	Red panda
6. The fossil record of the giant panda	Fossils	Bears
7. The red panda's fossil thumb	Fossils, anatomy	Bears



This material is based upon work supported by the National Science Foundation under Grant No. DRL-1418136. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.