

ANIMAL SKELETONS

An Elementary Science Lesson Plan Designed For Group Inquiry Based On The 5E Inquiry Model

GRADE: Kindergarten

INQUIRY LEVEL: Open

SCIENCE CONCEPT: This lesson is aimed at helping students understand how to verbalize animals' physical differences.

RELATIONSHIP TO CALIFORNIA SCIENCE CONTENT STANDARDS:

Kindergarten Life Sciences:

2. Different types of plants and animals inhabit the earth. As a basis for understanding this concept:
 - a. Students know how to observe and describe similarities and differences in the appearance and behavior of animals

LEARNING OBJECTIVE:

Students will verbally describe the differences between 1 or 2 bones of a lizard and another animal.

EVALUATION IDEAS:

Formative—Teacher listens to student pairs talking about the skeleton drawings during their pair share time.

Summative—Teacher does not say that it is a test, but has pairs draw red circles around one skeletal difference (comparing 2 different skeletons) they found. Then, they both explain the difference to the teacher.

CONCEPTUAL BACKGROUND:

It's easy for Kindergarten students to say "It looks different" or "It looks the same" without being able to describe why a shape, character, or color is different. This lesson is to help students express differences they can see.

If students don't know what a skeleton is, begin the lesson explaining skeletons, aided by the labeled drawing. Bones are made of nerves, blood, marrow, cartilage, calcium, and phosphate. Point out the skull and vertebra (1 bone of the vertebrae), since they are

similar to many other animals' skeletons and are easy to feel and see on humans (who are still alive!)

If you would like to study and teach more in depth about human skeletons, you can visit <http://kidshealth.org/kid/htbw/bones.html>.

LESSON IMPLEMENTATION PLAN:

ENGAGE – Talk with students about human skeletons, and state that they are different than many animal skeletons. “We will be studying different animals’ skeletons. Get with your buddy and try to think of a question you have about animals’ skeletons and how they look, or specifically, lizard skeletons and how they look. Some questions might have to do with lengths of certain bones.” Once they think of questions, you can give them 2 copies of 2 animal skeletons.

EXPLORE – Before the students start drawing, encourage students to circle some parts of the skeletons (with black color only) that answered their questions. After they hold up their circles, then they can draw and explore more—and look at the alligator lizard and Schneider’s skink, two pairs at a time. (Teacher can roam to formatively assess during this time.)

EXPLAIN – After students are finished drawing and circling on the skeleton papers, have some explain what answers they found if their question was answered. Let **SOME** students talk about what they saw; they will **ALL** be able to talk again in a minute.

Give the pairs a minute to use a red pen/marker/crayon to circle a bone on one paper that is different than another bone on the other paper (it doesn’t have to be the same type of bone.) Have each pair explain why they circled what they circled.

ELABORATE – Encourage them to think differently if needed (if their ideas are wrong) and encourage them to think of more questions. Give examples like, “Are giraffes’ leg bones longer or shorter than horses’ leg bones? Are alligator lizards’ skulls bigger or smaller than Schneider skinks’ skulls?” The concepts learned today can be applied to other situations. Use their questions to lead to other questions of the same kind: Is this building taller or shorter than that building? Is a garage big enough to fit a bus? Could a bus fit in my apartment? Can birds run as fast as lizards? etc.

EVALUATE

Formative—Teacher listens to student pairs talking about the skeleton drawings during their pair share time.

Summative— Teacher does not say that it is a test, but has pairs draw red circles around one skeletal difference (comparing 2 different skeletons) they found. Then, they both explain the difference to the teacher.

DIFFERENTIATION PLANS:

Behavioral for Student A – HYPER: When a rambunctious student (or students) are getting restless, have all students get up and start moving like an animal (bird, horse, or lizard) for 10 seconds, and then sit on their hands and listen really hard “like a dog” for however long you need to explain.

Cognitive for Student B – VISUAL LEARNERS: If some students have a difficult time listening, feel free to draw directions (like circle equals exclamation mark) on the skeleton pictures. Or have an example of what to do on the projector.

Cognitive for Student C – NEGATIVE: If a student (or students) are negative towards themself(ves), saying, “I can’t do it,” just have them draw and think about animals “for the next 2 minutes” and then have them continue thinking about skeleton questions and answers.

Affective for Student D – EMOTIONAL: Encourage emotional students and their partners to take their time to think of questions. Give more ideas to them if they need some. “Have fun looking at the lizard.”

Language Demands for ELL Students E, F, G – Point to objects and pictures as often as possible to help link words and sounds to the real thing. Use other languages’ words if possible.

Vocabulary:

Skeleton—all bones of one person put together

Bones—our structure underneath our skin (use picture)

Longer—more in length

Shorter—less in length

Bigger—has more mass, weight, or size

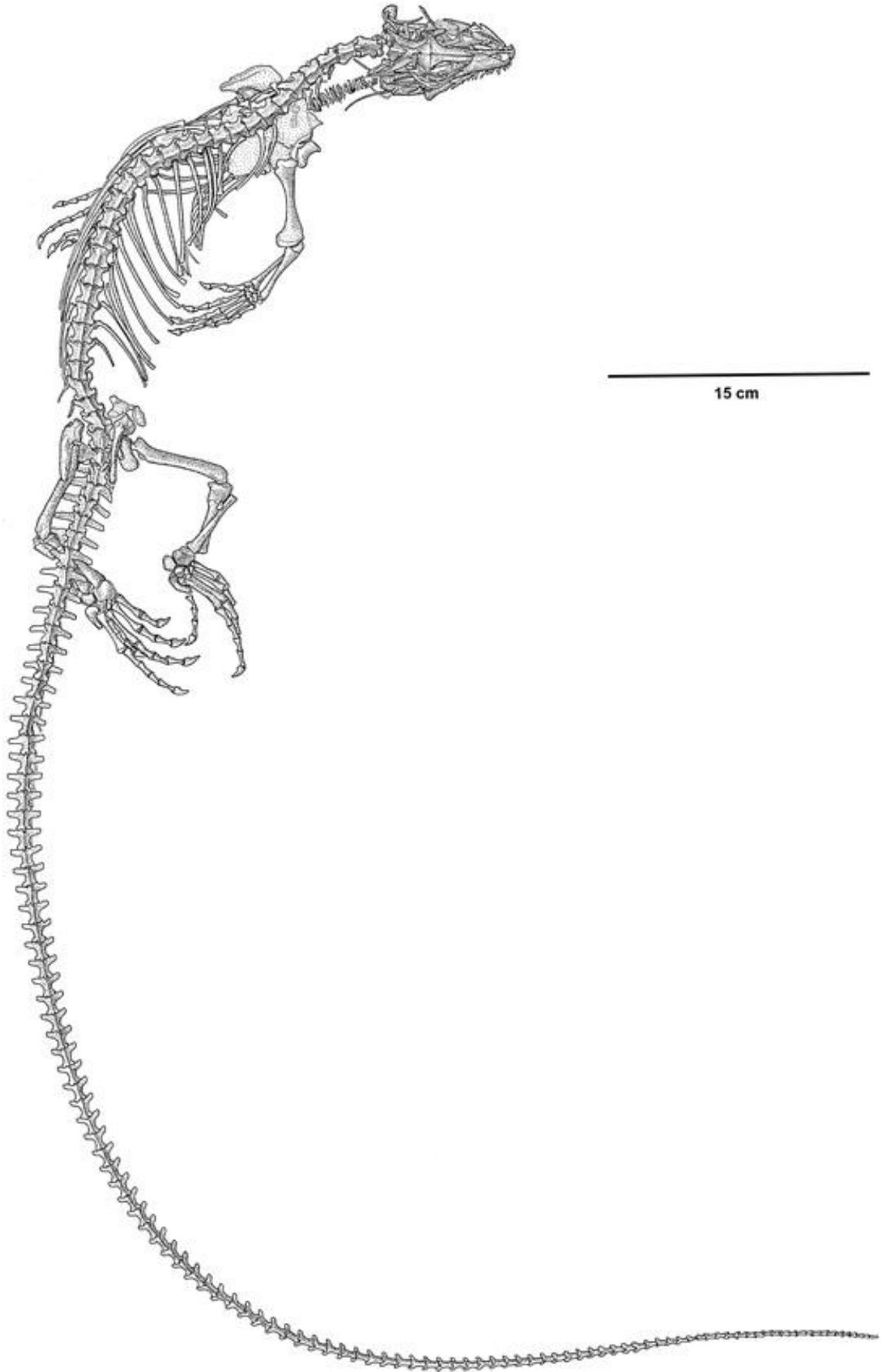
Smaller—has less mass, weight, or size

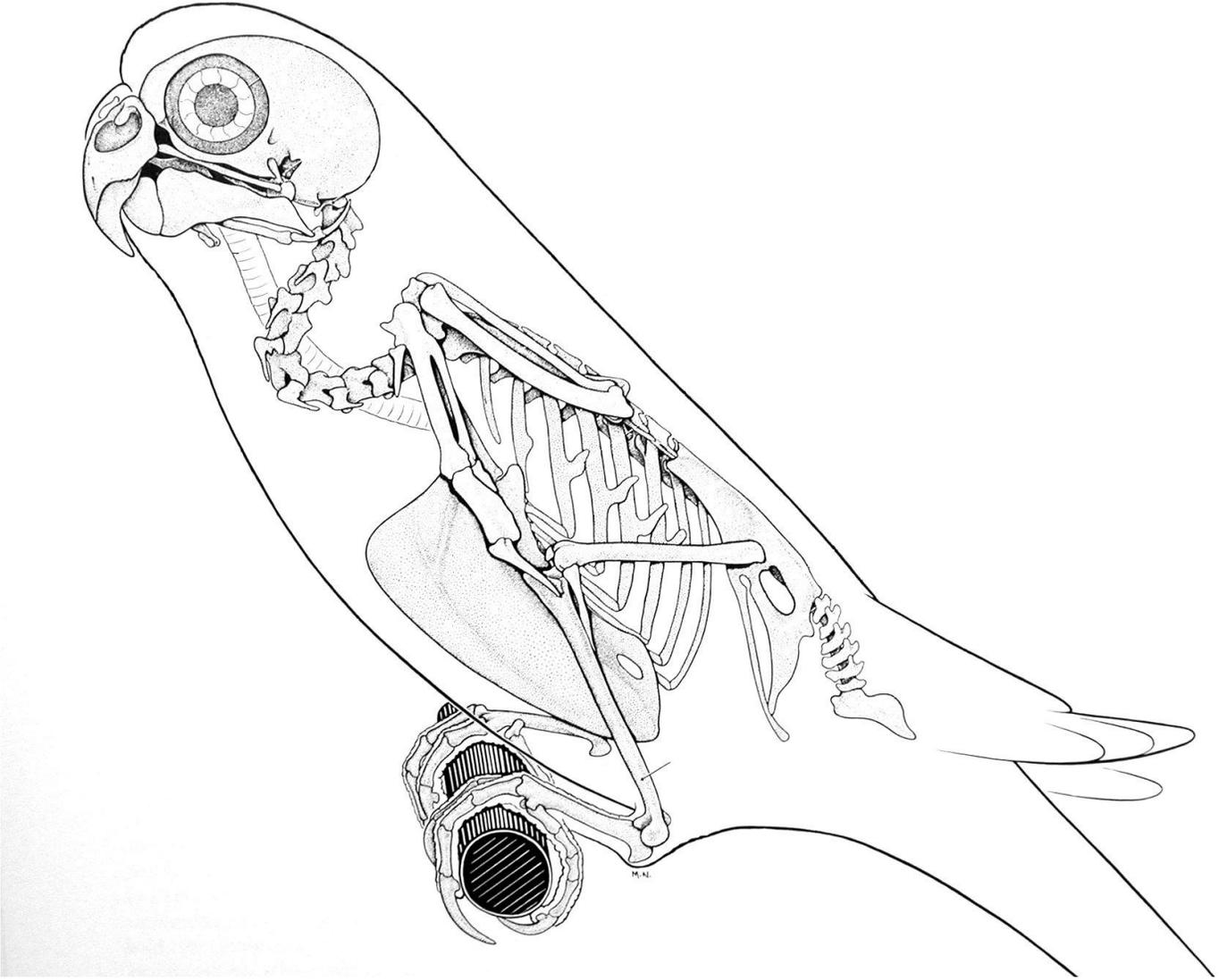
LIST OF MATERIALS (PER PAIR):

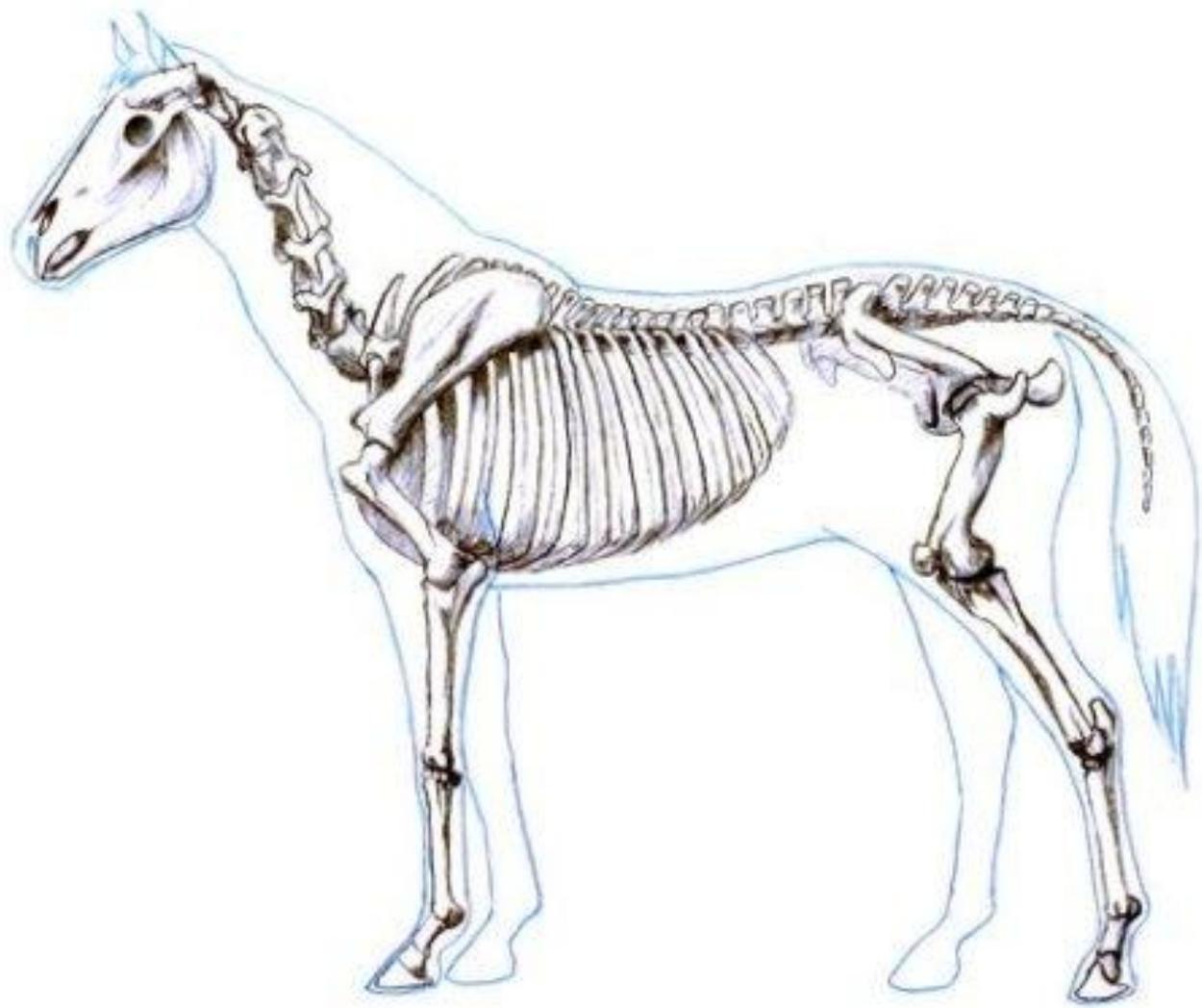
- 2 copies of 2 animal skeleton drawings
- crayons
- 1 black and 1 red pen/marker/pencil

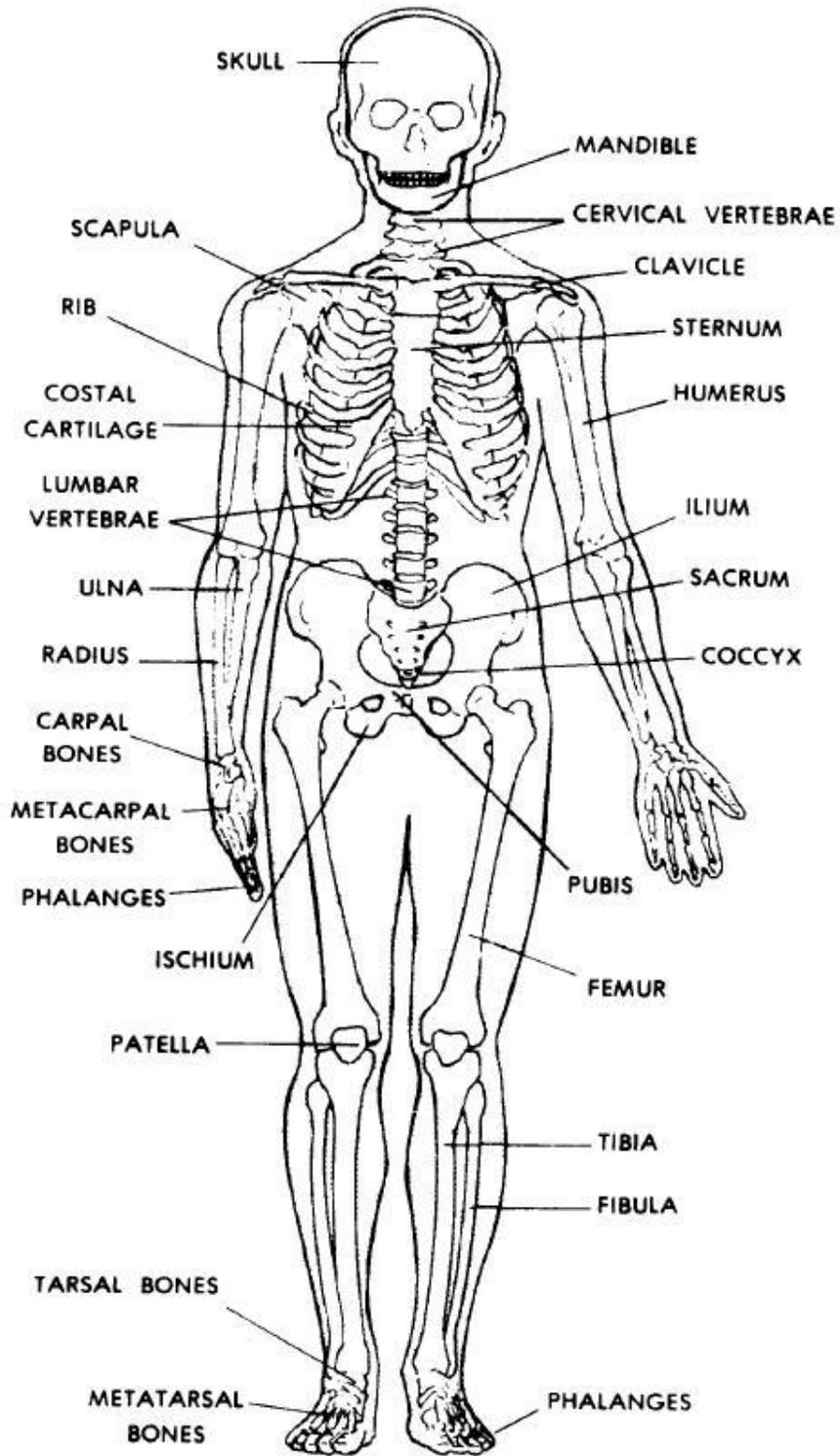
DIRECTIONS OR SPECIAL INSTRUCTIONS, SAFETY CONCERNS, ETC.

- Try to limit the lizard-viewing to 4 people at a time.
- Do not let the students touch the lizards.









Drawings

Bird

Evans, H.E. (1969) *Anatomy of the budgerigar*. Philadelphia: Lea & Febiger.

Horse

Goldfinger, E. (2004) *Animal Anatomy for Artists*. New York: Oxford University Press.

Human

<http://armymedical.tpub.com/MD0007/MD00070073.htm>, Port Richey, FL, 2003-2011

Lizard

Rieppel, O., Grande, L. (2007) *The anatomy of the fossil varanid lizard Saniwa ensidens leidy, 1870, based on a newly discovered complete skeleton*. Chicago, Illinois: Journal of Paleontology.