

Moving Tortoise (Open)

An Elementary Science Lesson Plan Designed For Group Inquiry Based on the 5E Inquiry Model

GRADE LEVEL: 7th Grade

SCIENCE CONCEPT (the Main Idea or Enduring Understanding): This lesson is aimed at students making the connection that muscles and bones are needed as a framework in order for movement to occur.

RELATIONSHIP TO CALIFORNIA SCIENCE CONTENT STANDARDS:

Structure and Function in Living Systems

5. c. Students know how bones and muscles work together to provide a structural framework for movement.

LEARNING OBJECTIVE:

Students will write at least 2 sentences stating what they think they learned from the lesson.

EVALUATION IDEAS:

Formative:

1. If students get too off track, guide them back towards muscles and bones. Ask questions such as “What do you think this picture has to do with the tortoise?”
2. Make sure students pay attention to the picture of the muscles and bones along with the tortoise.

Summative:

1. Students will write at least 2 sentences stating what they think they learned from the lesson.
2. Students will form groups of 4 and state what they think they learned from the lesson orally.

CONCEPTUAL BACKGROUND:

The only real background knowledge needed is actually that standard being taught, which is “Students know how bones and muscles work together to provide a structural framework for movement.” Since this lesson is open inquiry, not much needs to be said and only the connection needs to be made.

LESSON PLAN IMPLEMENTATION: This lesson is designed for group inquiry with up to four students.

ENGAGE – The teacher will rent a Texas Tortoise from SERC. They will also provide a picture showing a human’s bones and muscles. There will also be several sheets of blank paper available as well. The students may initially want to say it’s a turtle so a

suggested would be *Turtle*, which has a comparison chart on p. 13 that tells the differences between a tortoise and turtle (Wilke, 2009).

EXPLORE – Allow students to explore these items for 20 minutes.

EXPLAIN – The teacher will ask the students what they thought they were supposed to learn from this lesson. The teacher will facilitate a discussion.

ELABORATE – The teacher should lead the students towards the concept of how bones and muscles provide a framework for movement.

EVALUATE –

Summative – Students will write at least 2 sentences stating what they think they learned from the lesson.

Formative – If students get too off track, guide them back towards muscles and bones. Ask questions such as “What do you think this picture has to do with the tortoise?”

DIFFERENTIATION PLANS:

Behavioral for Student A – Have the student make sure no one puts their hands in front of the tortoise’s mouth.

Cognitive for Student B – Ask the student if they think tortoises have muscles and bones.

Cognitive for Student C – Make sure the student uses the paper provided to jot down their ideas.

Affective for Student D – Let the student help distribute hand sanitizer after students have touched the Texas tortoise.

Language Demands for Students

E – Have the name of the tortoise listed on the board.

F – Put the labels “Muscles and Bones” next to the human anatomy picture.

G – Have students stand point to the item they are talking about. For example, if they are talking about the tortoise specifically they must point at it while talking.

LIST OF MATERIALS (PER GROUP):

1. Texas Tortoise from SERC
2. Blank Paper
3. Picture of muscle and bones (Murse, 2005)

DIRECTIONS OR SPECIAL INSTRUCTIONS; SAFETY CONCERNS, ETC.

- Make sure students don’t put their fingers in front of the tortoise’s mouth.
- Have students wash their hands with soap or use hand sanitizer after touching the tortoise

REFERENCES:

Murse. (Photographer). (2005, November 16). Paper anatomical model [Web Photo]. Retrieved

from <http://www.flickr.com/photos/11627115@N00/64108097/in/photolist-6Ez72-8y9JX-azZRY-azZTa-d1MHe-d1MJc-dAfwT-feDfN-feDfR-feDfW-feDfY-feDfZ-feDg2-mYooD-uVJpa-vQtWk-x9UQM-JvhQy-PtPrm-36eAR8-3VBaWr-4cdWjZ-4fySdF-4geAb2-4j2phD-4oowzD-4wArkX-4wEprG-4yTi3a-4BW46J-4GTv7F-4NscXX-4NscZz-4NwpPQ-4RbVNk-4UZfTK-4UZfVX-4UZfXR-4V4usj-4V4uuw-4YQXes-54QYR9-5sNhHm-5zvJPY-5J3gSa-5Q57yY-5WPRMj-6cqYwx-6cv7BG-6mWkPP-6wNPSu>

Wilke, H (2009). *Turtles*. Hauppauge, NY: Barron's Education Series, Inc.

SUGGESTED READINGS:

Ernst, C., & Barbour, R. (1972). *Turtles of the united states*. Kentucky: The University Press of Kentucky.

Walker, R. (2001). *Body, bones, muscles, blood, and other body bits*. New York: DK Publishing.