"Human Body"
Grade 3 – Summative Assessment

Assessed Understandings

Students will understand:

1. Bones, muscles, and joints function as a system allowing vertebrates to move and survive.
2. Structures and functions of bones, muscles, and joints in all vertebrates from infancy to adulthood have similarities.
3. Senses of organisms send messages to the brain which in turn sends messages to the skeletal-muscular system to move.

Teacher Notes for the "Human Body" Assessment

Introduction

These items are designed to provide an assessment of what students know and understand at the completion of the FOSS *Human Body* module. This document includes teacher directions, response sheets for the individual students, and analytic scoring rubrics for each question. A separate document contains the anchor papers for each question. **A close look at the rubrics prior to the administration of the assessment will be helpful to the teacher.**

Time and Preparation for the Assessment

This assessment should take about **one hour** to administer. You are free to read aloud any or all portions of the assessment to your students. Without giving away a more appropriate response, please help students understand the intent of the question or task. This is not a test of reading, writing, or artistic ability. Students may be encouraged to use any and all resources available, including material from classroom charts and individual journals. Please use the terminology from the investigations within the kit.

Directions for Administration

There is no additional preparation for this assessment.

Question 1: In this question the students are asked to name the joint and to describe its function. The skeletal example in the kit can be left hanging in the room.

1. Name the kind of joint found in the shoulder.

   Describe how this joint lets your body move.

Question 2: In this question the students are asked to name the joint and to describe its function. The skeletal example in the kit can be left hanging in the room.

2. Name the kind of joint found in the knee.

   Describe how this joint lets your body move.

Question 3: In this question the students are asked to name the joint and to describe its function. The skeletal example in the kit can be left hanging in the room.

3. Name the kind of joint found in the ankle.

   Describe how this joint lets your body move.

Question 4: The student is asked to list three functions of a skeleton (structure).

4. List **three** functions of your skeleton.

Question 5: This is a transfer question where the student must connect the growth of their bones with change over time.

5. Describe **two** ways your bones change throughout your lifetime.

Question 6: The teacher directs the students to observe their thumbs. The thumbs (structure) allow the students to function in several ways.

6. Name **two** functions of your thumb.

Question 7: The teacher explains to the students that the picture is an important part of their response. Allow them a few minutes to look at the picture. Teachers are not to describe or name the picture.

7a. Sometimes people need joints replaced. Where would this artificial joint be located on the skeleton?

7b. What kind of movement does this artificial joint allow?

Question 8: The teacher refers to the students understanding of the function of the muscles. The function of the muscles is allowing the bones to move.

8. Bones do not move by themselves. Describe how your arm moves at the elbow.

Question 9: In this scenario, students are asked to draw conclusions about how the human body parts work together when the student needs to use their senses.

9. Imagine catching a ball tossed to you by a friend. The **brain, muscles,** and **bones** work together. Describe how these parts of the human body work together **with your senses** to help you catch the ball.

Scoring Rubrics
"Human Body"
Summative Assessment

Question 1: Name the kind of joint found in the shoulder. Describe how this joint lets your body move.

This item measures a student's knowledge of the structure (ball and socket) and its function in the shoulder.

Criteria for a complete response:

1. Correctly names the ball and socket in the diagram.
2. Describes the movement the joint provides (e.g., round and round, circular).

Code	Response
	Complete Response
20	Meets criteria.
29	Any other scientifically correct response.
	Partial Response
10	Correctly names the joint but incorrectly describes motion.
11	Correctly describes the movement but does not name the joint.
19	Any other partially correct response.
	Incomplete Response
70	Incorrectly names joint and movement.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 2: Name the kind of joint found in the knee. Describe how this joint lets your body move.

This item measures a student's knowledge of the structure (hinge) and its function in the knee.

Criteria for a complete response:

1. Correctly names the hinge joint in the diagram.
2. Describes the movement the joint provides (e.g., flex and extend or open and close).

Code	Response
	Complete Response
20	Meets criteria.
29	Any other scientifically correct response.
	Partial Response
10	Correctly names the joint but incorrectly describes motion.
11	Correctly describes the movement but does not name the joint.
19	Any other partially correct response.
	Incomplete Response
70	Incorrectly names joint and movement.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 3: Name the kind of joint found in the ankle. Describe how this joint lets your body move.

This item measures a student's knowledge of the structure (gliding) and its function in the ankle.

Criteria for a complete response:

1. Correctly names the gliding joint in the diagram.
2. Describes the movement the joint provides (e.g., two directions but not rotation).

Code	Response
	Complete Response
20	Meets criteria.
29	Any other scientifically correct response.
	Partial Response
10	Correctly names the joint but incorrectly describes motion.
11	Correctly describes the movement but does not name the joint.
19	Any other partially correct response.
	Incomplete Response
70	Incorrectly names joint and movement.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 4: List three functions of your skeleton.

This item measures a student's knowledge of the functions of the skeleton.

Criterion for a complete response:

1. Names the three functions: protection, support, and movement.

Code	Response
	Complete Response
20	Meets criterion.
29	Any other scientifically correct response.
	Partial Response
10	Names two functions.
19	Any other partially correct response.
	Incomplete Response
70	Names one function.
71	Lists three things to be healthy.
72	Lists three body parts.
73	Lists three things you can do (e.g., helps me eat).
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 5: Describe two ways your bones change throughout your lifetime.

This item measures a student's understanding of the function of the skeletal-muscular system as it changes over time.

Criterion for a complete response:

1. Explains that the bones, muscles, and joints grow bigger and get stronger over time.

Code	Response
	Complete Response
20	Meets criterion.
29	Any other scientifically correct response.
	Partial Response
10	Meets criterion and states that the bones grow bigger over time. Omits the second function (stronger).
11	Meets criterion and states that the bones get stronger over time. Omits the first function (grows bigger).
19	Any other partially correct response.
	Incomplete Response
70	States that the bones change.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 6: Name two functions of your thumb.

This item measures a student's knowledge of the function of the opposable thumb to grip and hold objects.

Criterion for a complete response:

1. Names two functions of the thumb such as grip, hold, pick-up, touch the other digits, pinch, catch, etc.

Code	Response
	Complete Response
10	Meets criterion.
11	Student meets criterion and uses the term "opposable thumb."
19	Any other scientifically correct response.
	Incomplete Response
70	Lists only one function.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

This rubric covers both 7a and 7b.

Question 7: Here is a picture of an artificial joint. Sometimes people need joints replaced. Where would this artificial joint be located on the skeleton? What kind of movement does this artificial joint allow?

This item measures a student's ability to transfer knowledge of structure and function of joints to the new situation of artificial joint replacement.

Criteria for a complete response:

1. Names the hip or shoulder as the location.
2. Describes motion as rotational (round and round).

Code	Response
	Complete Response
20	Meets criteria.
29	Any other scientifically correct response.
	Partial Response
10	Meets criterion #1 but not criterion #2.
11	Meets criterion #2 but not criterion #1.
19	Any other partially correct response.
	Incomplete Response
76	Repeats the stem of the question.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 8: Bones do not move by themselves. Describe how your arm moves at the elbow.

This item measures a student's understanding of the function of the muscles in allowing the bones to move.

Criteria for a complete response:

1. Names muscles.
2. States that the muscles contract and relax (e.g., gets longer and shorter) to allow bone movement.

Code	Response
	Complete Response
20	Meets criteria.
21	Meets criterion #1 and names tendons and/or ligaments.
29	Any other scientifically correct response.
	Partial Response
10	Meets criterion #1.
11	Meets criterion #1 fails to mention "relax" or "contract."
19	Any other partially correct response.
	Incomplete Response
70	Shows no knowledge of muscles.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 9: Imagine catching a ball tossed to you by a friend. The brain, muscles, and bones work together. Describe how these parts of the human body work together with your senses to help you catch the ball.

This item measures a student's understanding of the inter-relationship that exists between the senses, the brain, the muscles, and the bones.

Criteria for a complete response:

1. States that the senses see the ball being tossed.
2. States that the brain receives a message from the senses (eyes).
3. States that the brain sends a message to the muscles.
4. States that the muscles make the bones move.

Code	Response
	Complete Response
20	Meets criteria.
21	Scientifically correct response but out of sequence.
29	Any other scientifically correct response.
	Partial Response
10	Meets criteria except does not mention senses (e.g., see).
11	Meets criteria except does not mention role of brain.
12	Meets criteria except does not mention role of muscles.
13	Meets criteria except does not mention role of bones.
19	Any other partially correct response.
	Incomplete Response
70	Shows body parts do not work together.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.