

Human Body

The Human Body Unit examines the form and function of the skeletal and muscular systems and how the two interact to allow for a variety of human body movement. Students will complete inquiry investigations in order to gain an understanding of how and why the body moves.

Unit Length: 8-10 weeks

Resources: FOSS Human Body Module
FOSS Human Body Science Stories

Essential Questions: How does the human body move?
How do the shape and position of bones and muscles enhance movement?
How do the skeletal and muscular systems work together to create coordinated movement?
How do the bones and muscles of humans compare to those of other mammals?

NJCCCS:

Science Content (Declarative Conceptual Knowledge)	NJCCCS	
Students Will Know and Understand:		
	Science	Health
A skeleton is a system of bones	5.3A	2.1 A
Bones have several functions: support, protection and locomotion	5.3A &E	2.1 A
The skeletons of humans and other mammals have many similarities	5.3A	2.1 A
Bones have different shapes depending on where they are and what their purpose is	5.3A & E	2.1 A
The number and kinds of bones in an organism are inherited characteristics	5.3A & E	2.1 A
The place where two bones come together is a joint	5.3A	2.1 A
The human skeleton has three types of joints: hinge, ball and socket, and gliding joints	5.3A	2.1 A
Muscles contract when they work	5.3A	2.1 A
Coordination is when parts work together to complete a task	5.3A	2.1 A
Organisms have different shaped body structures designed for different purposes	5.3 E	

Thinking Processes (Procedural Knowledge) NJCCCS 5.1 A-D	NJCCCS	
Students Will Be Able To:	Science	Health
Observe and describe the movement of the body while completing a physical task	5.3A	2.1 A
Compare one's own body to skeleton photos and diagrams	5.3A & E	2.1 A
Organize and communicate findings	5.1 A-D	2.1 A
Observe joints found in the hand	5.3A	2.1 A
Investigate different joints in the human skeleton	5.3A	2.1 A
Compare human skeletal joints to analogous mechanical structures	5.3A & E	2.1 A
Observe the workings of muscles to move bones	5.3A	2.1 A
Observe the bones, joints, and muscles that move when the hand and foot respond	5.3A	2.1 A
Compare response time of right hand to left hand and right foot to left foot	5.3A	2.1 A
Investigate the effect of practice on response time	5.3A	2.1 A
Compare and contrast body structures of different organisms	5.3 E	
Analyze body structure and predict why the structure is shaped the way it is (examples; different shaped beaks or feet)	5.3 E	

Assessment: Teacher observation, running records of skill attainment, hands-on activities, unit assessment

Solids and Liquids

In the solids and liquids unit students find that materials can exist in different states of matter. They investigate and describe the properties of solids and liquids and observe and record changes that occur when solids and liquids interact, including mixing, dissolving, layering, and evaporating.

Unit Length: 8-10 weeks

Resources: FOSS Solids and Liquids Module
FOSS Solids and Liquids Science Stories

Essential Questions: What are the identifying properties of solids and liquids?
How do solids and liquids behave when they interact with one another?
How can solid and liquid materials be separated?

NJCCCS:

Science Content (Declarative Conceptual Knowledge)	NJCCCS
Students Will Know and Understand:	
Solids and Liquids are two states of matter	5.2 A & B
Solids materials have properties that separate them from other states of matter	5.2 A & B
Solids can be sorted by their properties	5.2 A & B
Solid materials have distinct uses based on their properties	5.2 A & B
Liquids have many properties	5.2 A & B
Liquids pour, flow, and take the shape of their container	5.2 A & B
The surface of liquid is level with respect to the ground	5.2 A & B
Solid materials come in all sizes and shapes	5.2 A & B
Particles of solid materials can pour like liquids, but maintain their shape	5.2 A & B
Solid materials can support denser materials on their surface	5.2 A & B
Mixtures of solid particles can be separated with a screen	5.2 A & B
Some solids change when mixed with water, others do not	5.2 A & B
Some solids dissolve in water, evaporation leaves the solid behind	5.2 A & B
Some liquids mix with water, other liquids form a layer above or below water	5.2 A & B
Water can be a liquid or solid and can change from one form to the other	5.2 A & B

Thinking Processes (Procedural Knowledge)	NJCCCS
NJCCCS 5.1 A-D	
Students Will Be Able To:	
Observe several kinds of solid materials	5.2 A & B
Compare the properties of solid materials	5.2 A & B
Sort solids in different ways	5.2 A & B
Observe and describe properties of different liquids	5.2 A & B
Compare the appearance and behavior of different liquids	5.2 A & B
Observe properties of solid particles	5.2 A & B
Separate a mixture of solids by using screens	5.2 A & B

Observe and describe what happens when solids and water are mixed	5.2 A & B
Observe and describe what happens when liquids and water are mixed	5.2 A & B

Assessment: Teacher observation, running records of skill attainment, hands-on activities, unit assessment

Air and Weather

Students study the properties of air and find that it is matter and take up space. They use basic weather tools to gather information about temperature, rainfall, wind, clouds, and seasons. Students observe movement of objects in the air and sky, including objects affected by moving air, clouds and the Moon.

Unit Length: 8-10 weeks

Resources: FOSS Air and Weather Module
FOSS Air and Weather Science Stories

Essential Questions: What are the properties of air?
How does air affect weather?
What are the components of weather?
How can weather patterns be predicted?
How do weather patterns vary seasonally?
How does the bright appearance of the moon change over time?
How do the sun and moon appear to move in the sky?
How does weather impact human activity?

NJCCCS:

Science Content (Declarative Conceptual Knowledge) Students Will Know and Understand:	NJCCCS
Air is matter	5.4 A & C 5.2 A
Air takes up space	5.4 A & C 5.2A
Air interacts with objects	5.4 A & C
Air resistance affects how things move	5.4 A & C 5.2 E
Air is all around objects	5.4 A & C, 5.2 E
Air can be compressed	5.4 A & C, 5.2 A
The pressure from compressed air can move things	5.4 A & C, 5.2 A
Air is a gas	5.4 A & C
Weather is the condition of the atmosphere and changes over time	5.4 A, C, G
Temperature, precipitation, and cloud types are components of the weather that can be described	5.4 A, C, G
Meteorologists are scientists who study weather	5.4 A & C
There are different kinds of clouds	5.4 A & C
Rain is water that comes from clouds	5.4 A & C
Wind is moving air	5.4 A & C
Wind speed and wind direction are components of weather that can be described using anemometers and wind vanes	5.4 A & C

Wind Scales are tools used to describe the speed of the wind	5.4 A & C
Weather conditions change over time	5.4 A & C
Weather observations can be organized, compared, and predicted	5.4 A & C
The Sun heats the Earth during the day	5.4 A & C, 5.2 C
Each season has a typical weather pattern that can be observed, compared, and predicted	5.4 A & C
The bright appearance of the Moon changes shape in a pattern that can be observed, compared, and predicted	5.4 A & C
The Sun and Moon appear to move slowly across the sky	5.4 A & C
Weather affects human activity	5.4 G

Thinking Processes (Procedural Knowledge) NJCCCS 5.1 A-D	NJCCCS
Students Will Be Able To:	
Observe the properties of air as it interacts with other materials	5.4 A & C, 5.2 A
Observe the properties of air when it is put under pressure	5.4 A & C, 5.2 E
Observe and record daily weather on a class calendar and in individual journals	5.4 A & C
Observe and compare cloud types	5.4 A & C
Measure temperature and rainfall	5.4 A & C
Observe and compare the action of moving air and its effects on pinwheels, bubbles, and kites	5.4 A & C
Observe and describe the direction of the wind using wind vanes	5.4 A & C
Observe and describe the speed of the wind using an anemometer	5.4 A & C
Organize and graph class weather data recorded for a month	5.4 A & C
Record weather data throughout the year and compare seasonal weather conditions	5.4 A & C
Observe the changing location of the Sun during a day	5.4 A
Observe and record nightly weather and the changing appearance of the Moon	5.4 A

Assessment: Teacher observation, running records of skill attainment, hands-on activities, unit assessment

Fossils: *Evidence of Extinct Organisms*

In the fossil unit students examine evidence that some kinds of organisms, such as dinosaurs, that once lived on earth have completely disappeared. Students will use fossils as evidence to determine information about past organisms and recreate fossils to further investigate how fossil evidence is left.

Unit Length: 2-3 weeks

Resources: *Discovery Works* 2nd Grade Text and Activities

Essential Questions: How do we know organisms that no longer live on Earth once existed?
What information can we learn from fossils?

NJCCCS: .

Science Content (Declarative Conceptual Knowledge)	NJCCCS
Students Will Know and Understand:	
Fossils are imprint evidence left by past organisms.	5.4 B
Dinosaur fossils provide evidence that a variety of species once existed, but longer live on Earth.	5.4 B
There are different types of dinosaurs.	5.4 B
The shape of dinosaur teeth can explain what type of food the organism ate.	5.4 B
The size and shape of footprint fossils provides information about an organism's size and the environment in which it lived.	5.4 B
Archaeologists study fossils.	5.4 B

Thinking Processes (Procedural Knowledge) NJCCCS 5.1 A-D	NJCCCS
Students Will Be Able To:	
Observe fossils and communicate findings.	5.4 B
Hypothesize what organisms might have created specific fossils.	5.4 B
Compare and contrast dinosaur species.	5.4 B
Simulate imprinting process.	5.4 B
Simulate usage of different types of dinosaur teeth and communicate observations.	5.4 B

Assessment: Teacher observation, running records of skill attainment, hands-on activities, unit assessment